cino eC

type: xx

espresso

INSTALLATION AND MAINTENANCE MANUAL
Original instructions

MAN1010105 rel. 00 dated 04.11.2011

rheavendors group

www.rheavendors.com

notes

REL.	DATED	DESCRIPTION
00	04.11.2011	First issue;

general guarantee conditions	these conditions regulate Rheavendors Industries S.p.A.'s obligations with reference to guarantee and repair; any other term or condition, either verbal or written, is not applicable, including those in the purchaser's purchase orders, if not explicitly accepted and signed by Rheavendors Industries S.p.A.; if the guarantee terms here below should be held not to be valid and/or lawful in the Country where the product is sold, they will not be effective whereas all the other clauses will remain valid and applicable;
1st	the mechanical and electronic components of the machine are guaranteed for twelve months, starting from the sales date certified by the fiscal receipt;
2nd	the guarantee shall be understood as the free replacement or repair of any part of the machine that – at the manufacturer's unquestionable discretion – should prove to be originally defective due to manufacturing defects; the cost of sending the manufacturer machines, defective pieces and spare parts will be totally charged to the user's account; the manufacturer reserves the right to use new or reconditioned components for repair; if replaced, original components will be guaranteed for 12 months; the parts replaced under guarantee will become the property of RhevVendors Services S.p.A. (request for "Form PO 19.01/2b" Materials under guarantee – Authorisation to return);
3rd	in case of irreparable failure or if a failure of the same origin is repeated, the manufacturer may – at its unquestionable discretion – replace the machine with another one, the model of which is either the same or an equivalent one; the guarantee of the new machine will be extended up to the original term of guarantee of the replaced machine;
4th	all the parts that should prove to be defective due to negligence or carelessness (non-observance of the instructions for the operation of the machine), incorrect installation or maintenance by unauthorised personnel, transport damage or any circumstance – anyway – not due to the manufacturing defects of the machine are not covered by guarantee; the installation and connection with supply plants as well as the maintenance operations mentioned by the installation manual are also excluded from any performance under guarantee; the guarantee will not cover payment systems either; whether installed on the machine or supplied as an accessory, they are subject to their manufacturer's guarantee whereas Rheavendors Industries S.p.A. will just act as a broker; all changes made to the machine and not agreed with the manufacturer in writing will involve the immediate termination of the guarantee period and anyway fall under the Customer's total responsibility;
5th	the guarantee is excluded in all cases of improper use of the machine;
6th	Rheavendors Industries S.p.A. will disclaim all responsibility for any damage that may be directly or indirectly caused to people, animals or things as a result of: improper use of the vending machine; incorrect installation; improper energy or water supply; serious maintenance deficiency; actions or changes not explicitly authorised; use of non original spare parts; in case of failure, Rheavendors Industries S.p.A. is obliged neither to compensate any economic damage due a forced stop of the machine nor to extend the guarantee period;
7th	if the machine should be transferred to a centre designated by the manufacturer for overhaul or repair, the relative transportation risks and costs will be charged to the user's account. The freight charges of machines, defective pieces and spare parts are always understood as charged to the user's account;

declaration of conformity

Rheavendors Industries S.p.A. declares that this drink vending machine has been designed and manufactured in compliance with the following directives and safety standards:

Directives :
2004/108/EC; 2006/95/EC; 2006/42EC;
2002/95/EC (RoHS); 2002/96/EC (RAEE); 1907/2006/EC (REACH); 1935/2004/EC;

Standards:
SAFETY part. 2-75: (particular requirements for commercial dispensing appliances and vending machines) +
CEI EN 60335-2-75/A12;
EN 60335-1: 2002 + A1: 2004 + A2: 2006 + A11: 2004 + A12:2006 + A13: 2008 + A14: 2010 + 60335-1/EC: 2010;
EN 60335-2-75: 2004 + A1: 2005 + A11: 2006 + A2: 2008 + A12: 2010;

EMC:
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;

EMF:
EN 62233: 2008;

manufacturer of the machine

Rheavendors Industries S.p.A.
Via Garavaglia, 58
21042 Caronno Pertusella
Varese
Italy

The Legal Representative

(A. D. Majer)

ISO 9001 certification

DNV

DET NORSKE VERITAS

QUALITY MANAGEMENT SYSTEM CERTIFICATE

Certificato No. / Certificate No. CERT-08862-2001-AQ-MIL-SINCERT

Si attesta che / This certifies that

Il sistema di gestione per la qualità di / the quality management system of

RHEAVENDORS INDUSTRIES S.p.A.

Via Garavaglia, 58 - 21042 Caronno Pertusella (VA) - Italy
Via Trieste 49 - 21042 Caronno Pertusella (VA) - Italy

È conforme ai requisiti della norma per i sistemi di gestione per la qualità
Conforms to the quality management systems standard

UNI EN ISO 9001:2008 (ISO 9001:2008)

Questa certificazione è valida per il seguente campo applicativo:
This certificate is valid for the following products or services:

(Ulteriori chiarimenti riguardanti lo scopo e l'applicabilità dei requisiti della normativa si possono ottenere consultando l'organizzazione certificata)
(Further clarifications regarding the scope and the applicability of the requirements of the standard(s) may be obtained by consulting the certified organization)

Progettazione e produzione di distributori automatici di bevande calde e fredde

Design and manufacture of hot and cold drinks vending machines

Data Prima Emissione
First Issue Date
2001-07-18

Data di scadenza
Expiry Date
2012-12-12

ACCREDIA

Luogo e data
Place and date
Agrate Brianza, (MB) 2011-05-24

per l'Organismo di Certificazione
for the Accredited Unit
DET NORSKE VERITAS ITALIA S.R.L.

Settore EA : 18

Edmea De Paoli
Lead Auditor

Zeno Beltrami
Management Representative

La validità del presente certificato è subordinata a sorveglianza periodica (ogni 6, 9 o 12 mesi) e al riesame completo del sistema con periodicità triennale
The validity of this certificate is subject to periodical audits (every 6, 9 or 12 months) and the complete re-assessment of the system every three years

table of contents

in the listed chapters, the manual describes a **cino eC** vending machine in its hardware and software components for a complete and fully-aware use of all machine functions; due to the large variety of available options and the constant technical update of our vending machines, some special device or function might be indicated and described not in the manner you expect; in this case, do not hesitate to contact us;

telephone: 0039 02 966 551
fax: 0039 02 96 55 086
e mail: rheavendors@rheavendors.com

ATTENTION: this label applied next to the serial number label inside the vending machine points out that the instructions supplied by this manual must be carefully read before the installation and operation of the vending machine;

please, print this manual only if necessary; environmental protection is our common interest;

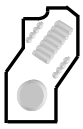
01.
legend

some general instructions that may be of use for reference to this manual;

01.01. abbreviations and pictograms

E = dispensing cycle of drinks based on instant products and coffee beans;
A = machines with internal water tank;
R = machines with external water supply;
⌘ = mixer for mixing the instant product with water;
VSF = worm screw pitch in the product canister;

§ = product shaker for instant canisters;

 = espresso coffee brewer;

 = hot water dispenser;

01.02. symbols of attention

if the text is highlit by this symbol, it is recommended to pay special attention to the performance of the procedures described; if not carefully performed on safe conditions, they can be source of general danger;

if not properly performed, the actions marked by this symbol may expose to accidental contacts with electric voltage;

if not properly performed, the actions marked by this symbol may expose to accidental contacts with high-temperature parts;

the same symbols can be found inside the vending machine to specify the parts on which to act with the outmost care;

the symbol recommends the utmost attention during the actions described; the use of the service key intended to activate all machine functions when the door is open is only reserved to the technical operators who know the operation of the vending machine, who are aware of potential risks and who make sure they are operating on totally safe conditions;
the use of the service key shall be strictly limited to the time necessary to perform the actions requiring the use thereof; users shall be informed of the prohibition on using and approaching the vending machine;

the symbol means that it is forbidden to dispose of the equipment as urban waste and compulsory to provide for separate collection in order to prevent any potential effect on the environment and human health; strictly follow the provisions of the European Parliament's 2002/96/EC Directive;

01.03. tools

some tools commonly used and easy to find are necessary to act with this vending machine:

- a pair of scissors for electricians;
- a star screwdriver 4/6 mm;
- a set of fixed wrenches up to 13 mm;
- a set of socket head screws from 2 to 8 mm;

it may be of use to procure some expendables, such as disposable paper, single-use gloves, clean cloths, cups and a bucket for the collection of waste water;

02. introduction

02.01. copyright information

this manual is intended for the owner of the vending machine; it is an integral part of the machine and it shall be kept with it;

the information supplied by this manual are intended to achieve the best performances of the vending machine within the scope of application established by the Manufacturer; Rheavendors Industries S.p.A. reserves the right to improve future production without serving any prior notice and without assuming any obligation to update the products on the market; the manufacturer will disclaim all responsibility for any inaccuracy due to misprints;

02.02. rules

<u>safety rules for using the vending machine</u>

** ** pay special attention to the chapters and notes high lit by the symbols of alert; <u>strictly observe</u> the rules concerning, in particular, the operators' and users' safety;

** ** <u>under no circumstance</u> may the vending machine be used by children or by people with poorer physical, sensorial or mental capacities or who have not been properly informed on correct use; children shall be supervised to prevent them from playing with the vending machine;

** ** if you should find out a water leak or the presence of smoke, <u>immediately detach</u> the vending machine from the electric and hydraulic network, never try to restore its operation and apply to skilled technicians;

** ** the machine shall be installed according to national rules; pay special attention to the rules about the machines directly connected with the hydraulic network;

** ** the user <u>is not allowed</u> to access the maintaining and servicing area that shall be properly signalled;

** ** <u>never remove protections</u>, never override safety devices and never modify the machine or its components;

02.03. contacts

Rheavendors Services S.p.A. is at disposal for any kind of support and information on this vending machine;

telephone: 0039 02 966 551
fax: 0039 02 96 55 086
e mail: rheavendors@rheavendors.com

for any reference about our partners all over the world please visit site:

www.rheavendors.com

02.04. serial number labels

to be able to identify the vending machine rapidly and univocally as well as to get the best support, please specify the data of the serial number label;

code : D12345A67890 (example)
s/n: 1234 56 7890

silvery serial number labels are applied inside and outside the case of the machine;

03. **technical data**		
03.01. dimensions	height: height (including opened water door): width: depth:	560mm 625mm 315mm 530mm
03.02. weight		26 kg
03.03. supply		
water	- connection by means of a solenoid valve with 3/8“ gas male face: - supply by a submersible pump: - connection from internal tank;	from 0.1 MPa to 0.8 Mpa; 24 V dc, 1.2 A max.; 3.4 litres capacity;
energy	- 230 V ac, 50/60 Hz; single-phase and ground; - cable of the following type: H05VV-F 3G 1 mm² 300/500 V; anyway refer to label data	1,600 W;
03.04. sound pressure	A-weighted sound pressure level;	less than 70 dB(A);
03.05. keyboard	eight selection buttons;	
03.06. display	two sixteen-character lines; graphic; three color;	64 x 128 pixel resolution;
03.07. dispensing cpt.	open; folding cup support (useful height 85 mm);	maximum 140 mm;
03.08. drip tray	drip tray beneath the cup surface:	capacity 750 ml;
03.09. dispenser	a fixed dispensing place;	
03.10. safety		
water	overflow sensor and pressure relief valve; water inlet solenoid valve with anti-flood sensor;	
energy	a main switch, a door switch; two 6.3x32 mm fuses;	220 V ac; 12 A delayed;
heat	manually resettable sensors;	88 °C;
software	time limits for water dispensing cycles;	
03.11. grinder motor		220 V dc;
03.12. grinders	conical;	
03.13. coffee brewer	made of plastics; the dimension of the brewing chamber can be mechanically programmed in three volumes;	Ø 40 mm orange chamber; Ø 36 mm black chamber;
03.14. air break	air break with overflow and level switch;	
03.15. pump	a vibration pump with bypass;	220 V ac; 0,8 Mpa;
03.16. product motors	two;	95 r.p.m.; 24 V dc;
03.17. mixing bowl	one;	
03.18. mixer motor	one;	15,000 r.p.m.; 24 V dc;
03.19. boiler	pressurised boiler;	0.4 litres, 1,500 W;

03.20. product canisters

two; single (55 mm) or double (110 mm) width; dispensing worm screws 9 mm or 18 mm in pitch; with mixer gear and product shaker, if arranged by the configuration and with standard or shorter product slide outlet (see 05.22.);

- coffee beans canister (or hopper) capacity: 0.8 kg

- instant canister capacity:

width 55 mm capacity 1.7 litres	
coffee	0.33 kg
milk	0.38 kg
chocolate	0.94 kg

width 110 mm capacity 3.5 litres	
coffee	0.76 kg
milk	0.80 kg
chocolate	2.20 kg

03.21. miscellaneous

machine parameters programmable by means of a flash key or selection keyboard; NRI G13 or similar payment system compartment; protocols: serial, parallel, executive, MDB; data collection by means of a flash key (see 09.06.);

03.22. notes

the water and energy supply tolerance limits that can ensure a good and proper operation of the **cino eC** machine are:

water:

- total hardness:	from 10 °F to 25 °F (*)
- recommended conductivity:	400 µS @ 20 °C

(*) if harder, please use anti-limestone filters;

energy:

- nominal voltage:	+10 % /- 25 %
- nominal frequency:	+/- 5 %

room (during storage and operation):

- temperature:	5 °C ÷ 35 °C
- relative humidity:	max 80 %

the power supply cable supplied with the vending machine shall not be altered under any circumstance; in case of loss or damage replace it by using an original component only;

make sure that the electric installation can deliver the power suitable for the machine (see 03.03.);
a good ground connection is not only a legal obligation for the protection of users and operators, but it can also provide for correct power supply;

04. configurations

04.01.

cino eC configurations are numerous; they are coded by means of some categories exemplified here below in the abbreviation of the machine:

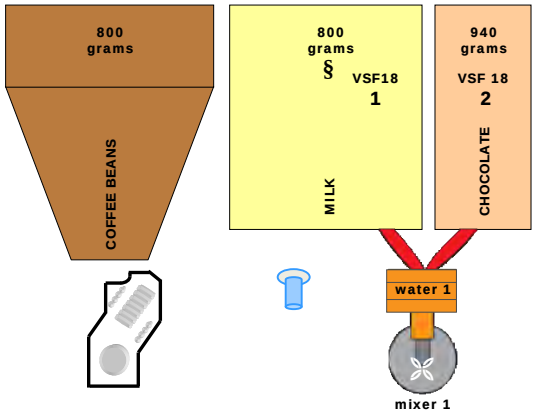
a. product canisters — number of instant products and coffee beans:

b. water supply — - external, by means of the inlet solenoid valve: cino eC E/**3**
- internal, from the internal tank to the vending machine: cino eC E/3 **R**

c. numbering — product canisters, mixing bowls and mixers are numbered in progression, from the left to the right, as it is shown later on; this numbering is used in the chapter on how to programme (see 09.) drinks; cino eC E/3 **A**

04.02. examples of configurations

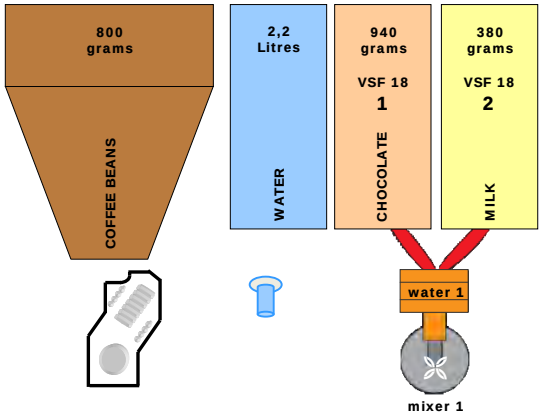
V.M. cino eC E/3 R



keyboard selections

1. Short coffee
2. Long coffee
3. Short white coffee
4. Cappuccino
5. -
6. Milk
7. Latte macchiato
8. Mocaccino
9. Chocolate
10. -

V.M. cino eC E/3 A



keyboard selections

1. Long coffee
2. Espresso
3. Cappuccino
4. Latte macchiato
5. -
6. Milk
7. Chocolate
8. Mocaccino
9. Hot water
10. -

the configurations above are just some of possible **cino eC** configurations, considering the vending machine releases and programmability; the principles of operation and information are anyway universal and applicable to all machines of the **cino eC** range;

04.03. accessories — to complete and supplement the vending machines of the **cino eC** range, Rheavendors Industries S.p.A. has got a series of accessories manufactured for these machines, such as cabinets, autonomous water supply kits, anti-limestone filters, payment systems, ... ;

Rheavendors Services S.p.A. is at disposal for any kind of support and information on special configurations (see 02.03.);

04.04. LM selection

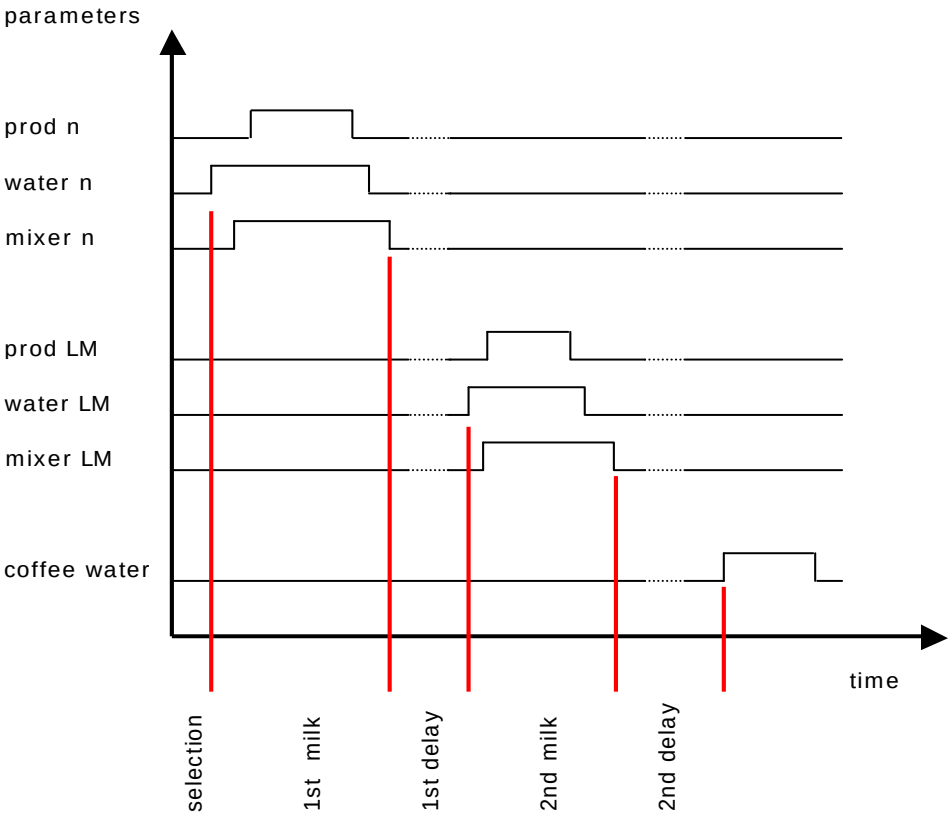
cino eC can produce a drink called Latte Macchiato, composed by milk and coffee and served in the cup in differently coloured bands, typically milk, coffee and milk;

to get this special drink, refer to a specific package of instructions, every step of which is called “LM dispensing cycle”; please keep in mind some general principles to achieve this special drink quality:

- the first milk dispensing cycle shall not be too much mixed;
- the second milk dispensing cycle should occur after 10/15 seconds; mixing shall be extended and performed at the maximum rotation speed of the impeller;
- the espresso coffee should be dispensed at least 15/20 seconds after the second milk dispensing cycle in the cup;

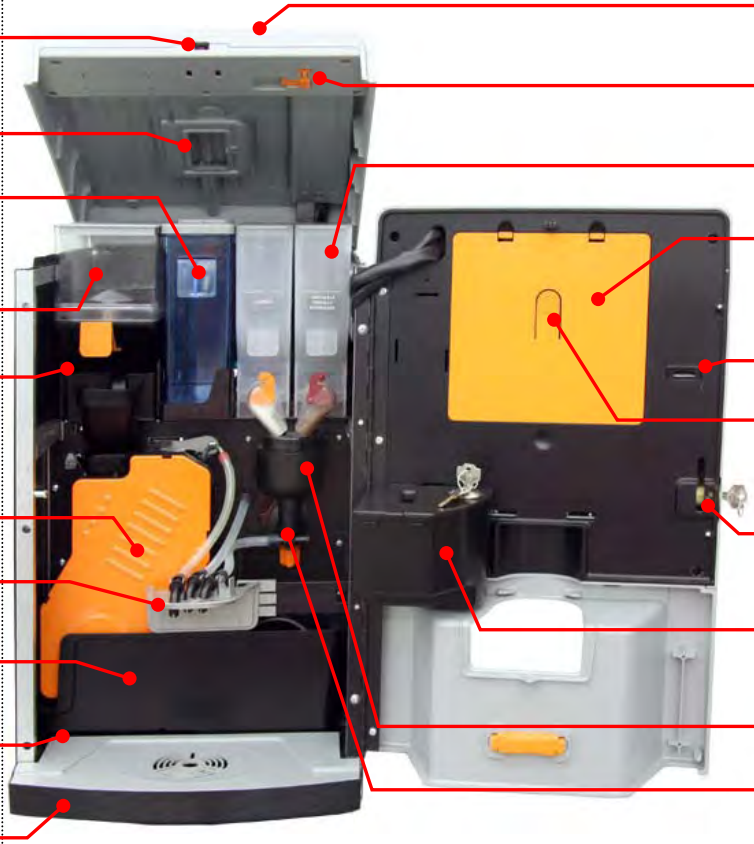
"Latte Macchiato" selection

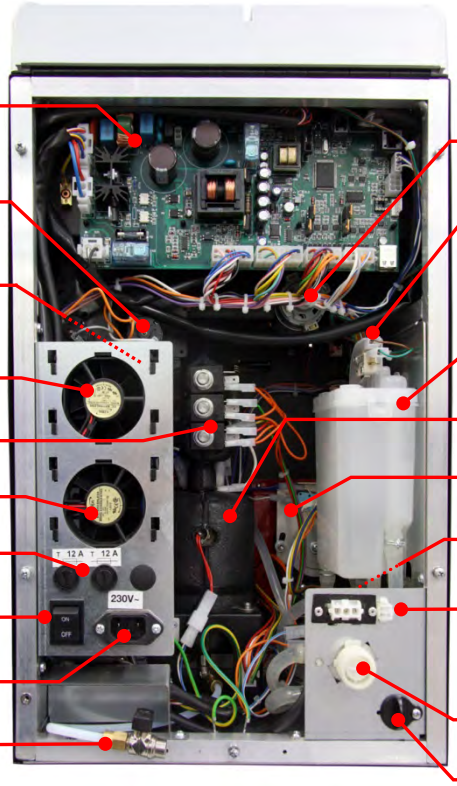
flow diagram

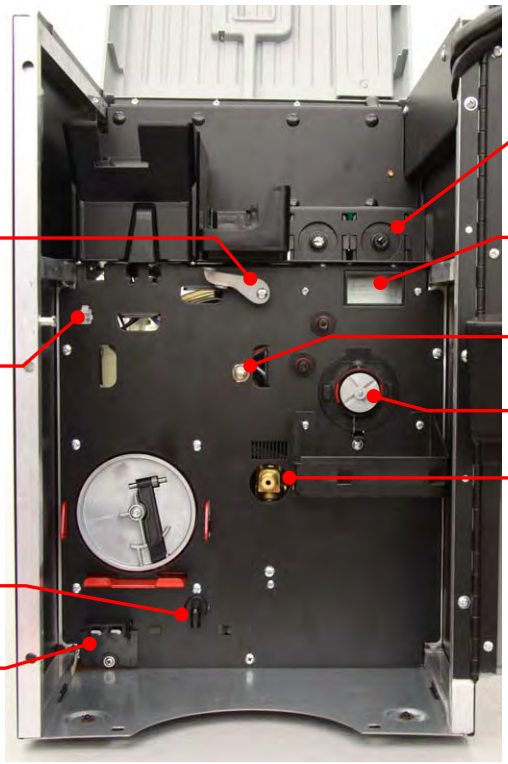


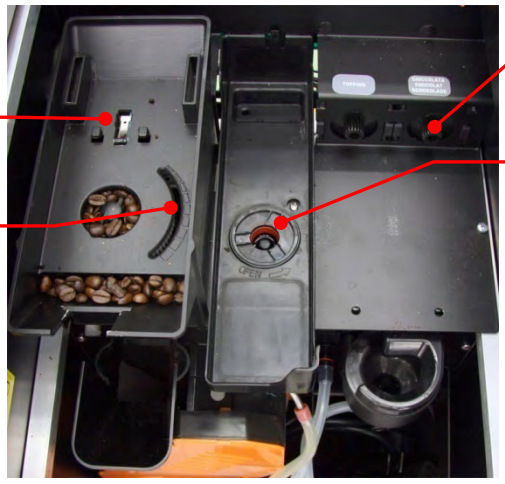
parameters	values
1st milk	
time prod n	24
start delay prod n	5
water time n	60
start delay water n	0
time mixer n	60
start delay mixer n	3
speed mixer n	low
2nd milk	
time prod LM	24
start delay prod LM	200
water LM time	60
start delay water LM	150
time mixer LM	80
start delay mixer LM	180
speed mixer LM	high
2nd delay	
espresso coffee start	200

the data supplied by the table provide for a “latte macchiato” dispensing cycle and they can be adapted to achieve dispensing cycles more suitable for the users’ wishes;


05.14.
door switch
05.23.
water door
05.22.
internal water tank
05.22.
coffee beans canister
05.18.
grinder
05.19.
coffee brewer
05.27.
nozzle support
05.20.
grounds container
05.06.
level sensors
05.06.
drip tray
machine cover
05.14.
service key
05.22.
instant product canister
05.15. e 05.37.b.
protection carter
05.16.
flash key housing
05.15.
internal button (PROG)
05.05.
door lock
05.33.
coin box
05.26.
mixing bowl
05.28.
mixer motor


05.37.a.
CPU
05.25.
product motor
05.28.
mixer motor
05.29.
powder aspirator
05.33.
instant solenoid valves
05.30.
air aspirator
05.09.
fuses
05.08.
power on switch
05.07.
electric connection
05.12.
drain tap
05.18.
grinder motor
05.31.
switch floater
05.31.
air break
05.36.
pressure boiler
05.21.
coffee brewer motor
05.32.
volumetric counter
05.10.
service connectors
05.13. water inlet
solenoid valve
05.11.
water drain plug


05.19. coffee brewer lock lever
05.19. coffee brewer chamber heating connection
05.06. waste water discharge
05.06. level sensors
05.25. product motor
05.30. powder extraction drawer housing
05.21. coffee brewer presence switch
05.26. mixer motor
05.19. coffee brewer water supply


05.19. coffee hopper presence switch
05.18. grinding regulation
05.25. product motor
05.22. internal water tank connector

05.01. general information

the Rhea **cino eC** vending machine is a machine explicitly designed for being easily used by all users since no specific competence is required in preparing drinks;

the function consists in dispensing drinks by mixing food products and water at a proper temperature; the correct operation of the vending machine occurs in closed rooms in normal environmental conditions and at a room temperature between 5 °C and 35°C, the relative humidity below 80%;

use only specific ingredients for vending machines;

dispense by briefly pressing a key of the selection keyboard (see 05.02.); make sure that the cup has been properly positioned at the dispensing station, if necessary by using the flap support for caps (see 03.07.);

05.02. selection keyboard

after having closed the door, press the buttons to dispense; all buttons are lighted in standby mode whereas they turn off during the dispensing cycle and only the selected button turns on; keys will assume various functions in the programming mode (see 09.) and enable the user to modify the machine parameters; keys are numbered progressively from the top: 1, 2, … and from the left;

05.03. display

the display messages inform users and operators about the operation state of the vending machine;

05.04. dispenser

the **cino eC** vending machine has got a fixed drink dispenser on the cup support surface;

05.05. door lock

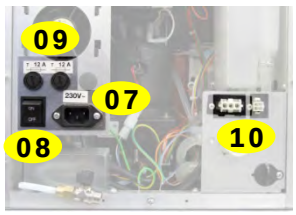
the door is closed by means of a lock; the key is mapped and numbered for identification;

05.06. drip tray

it collects possible residual drops from the dispenser and, if necessary, the waste water in excess from the air break; it is slided at the bottom of the machine case, in the front, and it is composed by a covering drawer and a grilled cover that can be washed by running water; an electric contact is intended to control the filling level (see 11. and 13.01.).

05.07. electric connection

a three-terminal socket is arranged at the back of the case for the connection of the mains cable;



05.08. power on switch

to power on and off the machine;

05.09. fuses

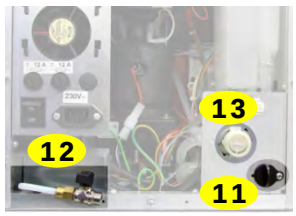
installed on the mains power supply (see 03.10.);

05.10. service connector

they provide for electrical connection with an accessory module that can work in combination with **cino eC**;

05.11. water drain plug

from where to let the silicone tube from the air break come out for emptying; (see 13.08.);



05.12. pressure boiler drain tap

open it to let water come out of the boiler and empty it; (see 13.08.);

05.13. water inlet solenoid valve

the water inlet solenoid valve on R machines only has got an anti-flood safety device intended to stop the water inlet in case of failures; to its electrical pins can be connected in parallel an any submersible pump (see 03.03.);

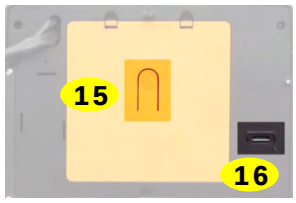
05.14. door switch

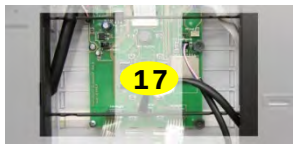
to power off the machine when the door is open;

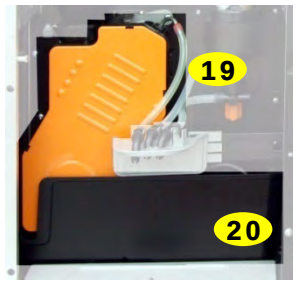
attention
some parts remain anyway network-connected
act extremely carefully;

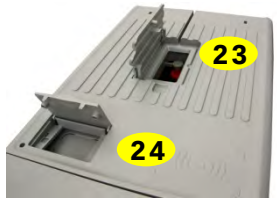
use the service key to supply the vending machine if it is necessary to activate the machine when the door is open;
the key is housed in the cover;

05.15. internal button (PROG)	the button giving access to the machine programming mode is arranged on the orange protection carter inside the door;
05.16. flash key housing	programming flash keys are arranged in the carter inside the door (see 09.06.);
05.17. label slot	product labels are arranged inside the door panel, beneath the orange carter; insert the labels into the pockets by observing the machine configuration (see 13.13.);
05.18. grinder	the grinder grinds the coffee beans in the canister and pours them directly into the coffee brewer, the coffee powder quantity is established by a “grinder time” software parameter (see 09.01.a); you can programme the grinding time necessary to obtain the drink you wish for each espresso selection; the selections with coffee beans are inhibited if the coffee canister presence switch is not pressed (see 05.19.); there is a lever just beneath the coffee beans canister; move it to change the grinding degree (move it to the back of the machine to make powder finer);
05.19. coffee brewer	after having received and compressed the ground dose from the grinder, brewing occurs in the coffee brewer by using the water coming from the pump; the used dose is conveyed to the grounds container (see 05.20.); the presence of the brewer is detected by a switch; if it is not pressed, espresso dispensing cycles are inhibited; there is a version with a heated metal brewing chamber (see picture on page 13);
05.20. grounds container	it collects over thirty ground doses after having used them in the coffee brewer; a software option (see 09.01.o.) will show a warning message as soon as the tray is full;
05.21. coffee brewer motor	the coffee brewer motor will rotate some parts of the coffee brewer to compress ground coffee for brewing; rotation is controlled by a switch driven by a cam that will inform the CPU on the position of the coffee brewer;
05.22. product canisters	instant product canisters dispense their content in the underlying mixing bowls; an internal worm screw driven by the product motor will push the instant product to the product slide; they can be equipped with a wheel and a product shaker for constant dispensing; the outlet, the dimension of which can be either standard or smaller, has got a closing baffle; the coffee beans canister (hopper) has a closing blade; pull it before lifting the container; to protect the products, containers are closed by a cover; a water tank is intended for supply in the versions not connected with the water network (see 01.01.); this tank can be filled through a hatch of the vending machine cover;
05.23. water door	in A machines, a door on the vending machine cover will enable you to access to the internal water tank and fill it in; an internal water tank is complete with a float signalling by means of a red strip if you have filled it in excess;
05.24. “Your private coffee” door	a single-dose of ground coffee at your choice can be used in some versions, coming directly to the coffee brewer through a hatch on the machine cover;







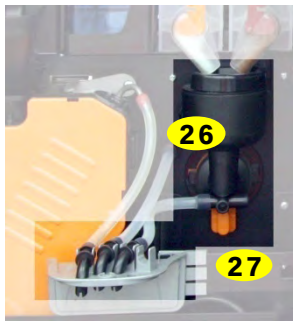


05.25. product motors

they are intended to rotate the worm screws inside instant product canisters to pour the product quantity necessary for selection in the mixing bowls;

05.26. mixing bowl

the mixing bowl of the mixer will accommodates the instant products you have poured to mix them with water; the fan of mixer motor will act at the bottom and the drink outflow to the dispenser occurs by means of a silicone tube; mixing bowl and outlet tubes can be washed with lukewarm running water;



05.27. nozzle support

a fixed support on the cup station is intended to house the dispensers from the coffee brewer, the mixer bowl and the direct hot water unit;
press the release lever to move it to the right to clean or to remove the coffee brewer;

05.28. mixer motor

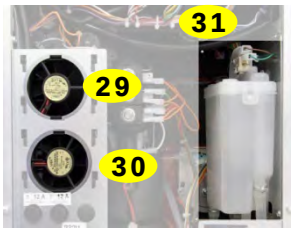
the motors of mixers help you mix instant products with water by means of the rotation of the fan mounted on their axis; the rotation speed can be adjusted (see 09.01.a.) to the features of the various products;

05.29. powder aspirator

an aspirator will eject suspended product residuals from the vending machine; the aspirator is connected with a drawer beneath product slides to intercept the residual impalpable powder coming from selections; the action time of the aspirator is programmable by means of a software parameter (see 09.01.f.); aspirated air is ejected through the slots of the rear panel;

05.30. air aspirator

to aspirate the air from the internal environment of the machine to avoid any condensate;



05.31. air break

it accumulates water for sending to the pressure boiler; the level is controlled by a float and – if above the established level – it will flow back to the inlet solenoid valve safety device, thus preventing the inlet of new water;

05.32. volumetric counter

it supplies the CPU the water quantity running through the coffee brewer to establish its volume; the water quantity of instant selections is established by the time set in the “water N” parameter only (see 09.01.a.);

05.33. coin box

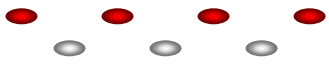
the components intended to support the payment system (not supplied) are made available in some versions, inside the door; the coin box is equipped with a lock and the payment system cable shall be connected with the CPU board; (see 05.37.a.);

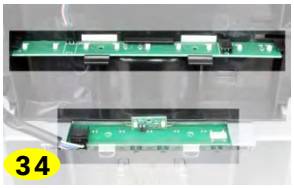
05.34. door lighting

- each selection key is lighted by a led mounted on the display board (see 05.37.b.);

- the front transparent stud, the dispensing compartment and the door panel are lighted by a led mounted on printed circuits inside the door;
  the dispensing compartment is lighted by four leds in standby mode and during a dispensing cycle;

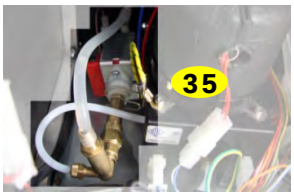
  leds of different colours turn on alternatively to signal the end of a dispensing cycle;





05.35. pressure boiler pump

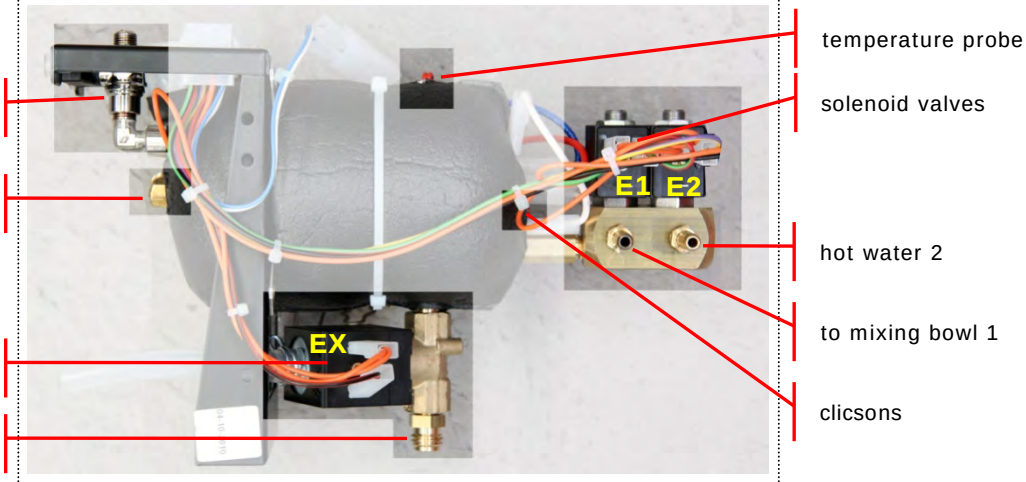
a vibration pump with bypass conveys water to the solenoid valves block for instant and three-way valve for espresso;



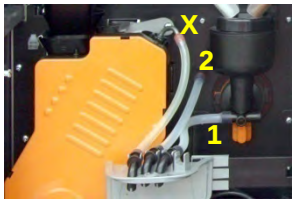
05.36. pressure boiler

pressure boiler complete with a temperature probe and protection clicsons; the drain tap may be used to empty the hydraulic circuit (see 09.01.f.);

attention
these components may be very hot even
if the machine is off



solenoid valve	name sw	outlet
E1	water 1	mixing bowl 1
E2	water 2	hot water 2
EX	coffee water	coffee brewer

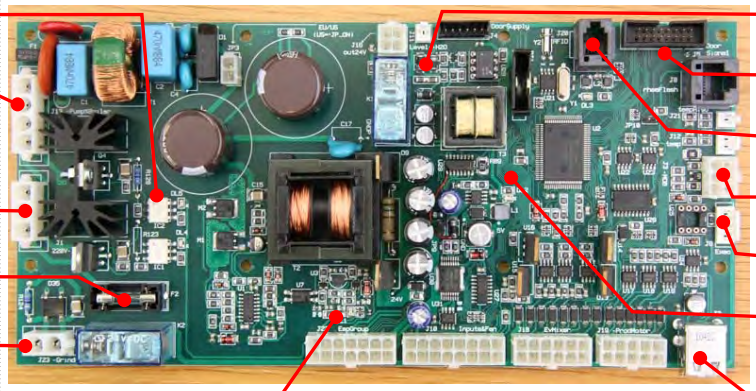


the water quantity of instant selections is established by the time set in the “water N” parameter (see 09.01.a.);

05.37. electronics

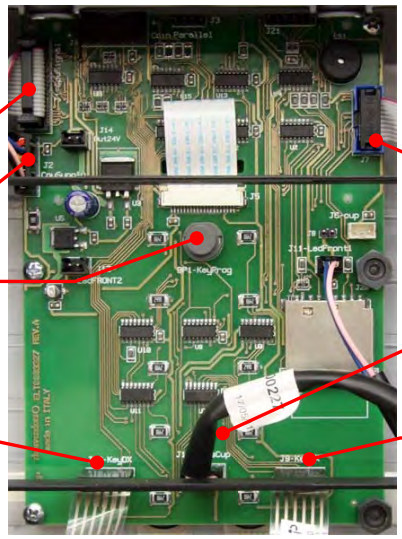
05.37.a. CPU

the CPU board governs the operation of the machine, it is the seat of the machine programmes and it is secured to the frame by means of turrets;
the temperature probe cable is separated from the machine wiring to avoid hampering any removal of the probe itself;



05.37.b. display board

it collects and processes the signals necessary to display the messages for the user and the operator; it receives the signals from the two selection keyboards and supplies the lighting leds of the cup compartment;



05.37.c. RFID

the RFID card is a hardware option that can equip the machine; it is housed inside the cover, it enables the operator to programme the product decounters (see 09.01.n.) and/or it can be used as a payment system (see 09.01.p.);

05.38. software

the software installed in **cino eC** can be subdivided into two different chapters called:

- master:
  it is the software determining the machine cycles, the links between the functions, the order of execution of operations; this software can not be modified by the operator, but it can be replaced in the CPU by means of a flash key written at works or by means of rheAction (see 09.06. and 05.39.);

- configuration:
  it is the software determining the times and the succession of dispensing drinks, the payment system protocol, the display modes, ...; variables may be modified by the operator either manually aboard the machine or by means of rheAction (see 09.06. and 05.39.) to adapt the machine behaviour to the final users' needs (product quantities and mixtures, warning messages ...) (see 09.);

if it is necessary to update one of the software programmes above on the machine, the flash key may be of great use; the key can contain either software or both of them and provide for a rapid and safe transfer;

please note that the flash key used for these software handlings must have been previously initialised (with RheAction for example);

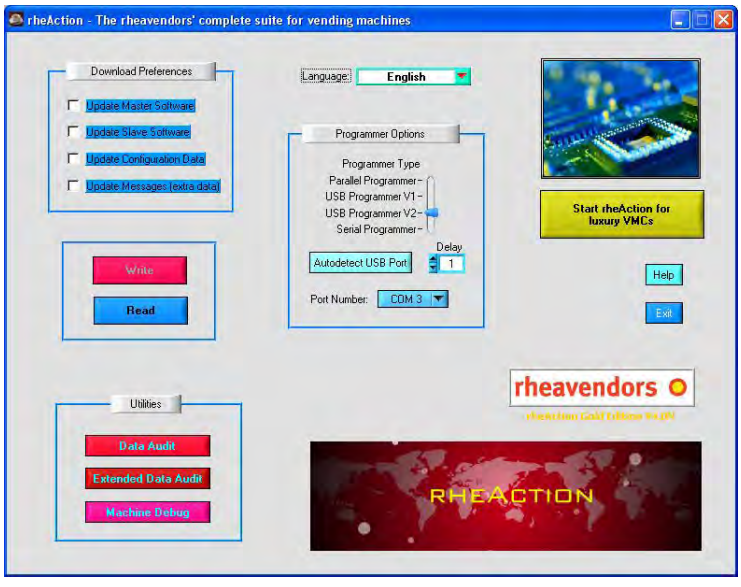
in general, the transfer procedure is:

- power off the machine;
- insert the flash key into the corresponding connector (see 05.16.);
- power on the machine by means of the service key (see 05.14.);
- wait for the message on the machine display;
- answer the messages on the display;
- power off the machine and remove the flash key;

please note: if the flash key should contain a master software, the transfer will certainly occur from the key to the machine, whereas it will be necessary to follow the steps described by 09.06 in case of a configuration software;

05.39. rheAction

a system called rheAction is intended to complete and supplement the programming executable in the machine; it is composed by a software and hardware, installable in a pc, capable of storing, modifying and writing the configuration data of Rhea machines;
Rheavendors Services S.p.A. is at disposal for any kind of support and information on the RheAction system (see 02.03.);
e informazioni riguardanti il sistema RheAction (vedi 02.03.);



06. preliminary actions

06.01. handling

the vending machine may be transported, handled and positioned by skilled and trained personnel only; while handling, never overturn the machine; observe the orientation arrows on the package;

attention

handle the machine carefully to prevent the authorised personnel from being injured; considering the weight and overall dimensions of the vending machine, it is recommended to use a truck at low speed;

06.02. unpacking

- approach the packed vending machine to its work position;
- cut the two plastic belts;
- lift the external package;
- remove the drip tray;
- extract the protection bag up;
- lift the vending machine and arrange it on the work surface;

attention

the materials composing the package shall never be left within the reach of people from outside, in particular of children, because they represent a potential source of danger;
only specialised companies may be charged to provide for the disposal of package components;

06.03. positioning

the vending machine shall be arranged for work in a sheltered room by using a support suitable for the weight of the machine (see 03.02.); its distance from the walls shall provide for good air circulation and easy access;

any inclination of the surface shall not exceed 2°;

it is recommended to arrange an easily cleanable impermeable protection beneath the vending machine to collect any accidental product fall;

06.04. preparation

when the machine is in its final working position:

- cut the clamp securing the door key to the drip tray grilled cover;
- insert the door key into the lock (see 05.05.), rotate it and open the door;
- remove the envelope of documents and labels;
- take the power supply cable and the water union; the water union can be used for water connection with the network;
- lift the machine cover and remove the guards intended to fasten product containers for transport;
- insert the labels by observing the order of selections determined by the machine configuration (see 04.02.);

07.
connections

07.01. water

make sure that the water used to supply the vending machine has all proper features for human consumption;

make sure that there is no sign of impurity and check the degree of hardness; if necessary, contact an analysis lab;

if necessary, use a softening filter and replace the cartridge at regular intervals to preserve the machine components;

make sure that the network pressure is the one preset for the machine (see 03.03.); use a pump or a reducer in case of non-compliance; it is recommended to install a tap to detach the machine from the network; connection shall occur by means of a tube type-approved for food use and capable of supporting the operating pressure; if the machine is supplied by an internal water tank, make sure that the tank is properly positioned in its seat and fill it;

for the drinkability features of “waters intended for human consumption” refer to the following Internet address:

http://eur-lex.europa.eu/
directive 98/83/EC of 03/11/1998

07.02. energy

observe the rules on connections with the electric network, in particular on grounding; connect the machine permanently without using any reduction, adaptor, multiple socket or extension; use the network connection cable supplied with the vending machine only; it is recommended to install a switch detaching the machine from the network;

it is recommended to install a differential current device operating below 30 mA, detaching the machine from the mains and promptly tripping in case of improper electric input in order to considerably reduce the risks arising out of any short-circuit;

attention

check the power plant capacity to supply the power required by the machine (see 03.03) and the observance of the rules in force; strictly refer to the data of the serial number label (see 02.04.)

insert the cable into the connection socket (see 05.07.); then, connect the plug with the socket and supply the vending machine;

for a correct and safe configuration of the electric power supply installation refer to the following Internet address, if necessary:

http://eur-lex.europa.eu/
directive 2006/95/EC of 12/12/2006

08.
first power on

08.01. introduction

after having unpacked the vending machine, arranged it firmly in the work place and connected or supplied it (machine A) hydraulically and electrically, carry out some actions to operate it;

wash hands thoroughly with water and soap before handling the machine and the products; only use potable water to clean the components;

08.02. activity

open the door, lift the cover, power on the main switch of the machine (see 05.08.);

pour a small quantity of coffee beans into the coffee hopper to avoid displaying the no coffee message; remember to open the hopper orange blade;

no coffee beans
OFF 09

attention
arrange a cup beneath the nozzles;

insert and rotate the service key into the door switch (see 05.14.);

attention

the vending machine is supplied and running to all effects; the mobile parts of the coffee brewer will be handled; act extremely carefully;

refilling water
wait

at the end of the assembly and final inspection, discharge the water used for tests from the machine; at the time of the first power on, fill in the whole water circuit; the machine will constantly load water and display:

switching on...
please wait

wait for the water to come out of the dispensing nozzles for some seconds; the water flow will automatically stop and the display show:

INSTALLATION

end
installation

water will start heating in the pressure boiler to reach the temperature value you have set up (see 09.01.e.); at the end of this phase, the display will show the message:

wait
temperature

cino eC
Espresso

08.03. washing

transportation, storage and installation conditions can not provide for immediate utilisation of the vending machine and it is recommended to perform a complete wash cycle before using the vending machine;
press the programming button (see 05.15.);
the display shows alternatively the messages:

1= PROGRAMMING
3= FREE VEND

2= DATA 4= CLEAN
5= MAINTENANCE

attention

the vending machine is supplied and running to all effects; the mobile parts of the coffee brewer will be handled; act extremely carefully;
arrange a cup beneath the nozzles; the machine will dispense a pre-fixed water quantity for each wash cycle;

press “4” to enable the wash cycle of the water circuit (pressure boiler, tubes, mixing bowls, ….);
the display shows:

cleaning
sel. 1-2-3 8=hc

- key “1” will dispense water through the coffee brewer; selections “2” and “3” will do it respectively in the mixing bowl for instant products and in the hot water outlet hole to the cup; key “8=hc” will carry out the sanitary wash cycle for the brewer (see 09.04.);

repeat the operation for some times to rinse the whole water circuit of the machine; during the wash cycles, the display shows:

cleaning N

power off the vending machine by means of the service key; arrange it in its support (see 05.14.); power off the main switch at the back of the machine (see 05.08.);

08.04

prepare a chlorine-based anti-bacterial sanitising solution by observing the instructions supplied with the product; remove and immerse the following into the solution: the product canisters you have disassembled, the trays of mixers, their fans and the silicone tubes intended to dispense products; the time necessary to sanitise is specified by the anti-bacterial product package; at the end, remove all the parts you have sanitised from the solution, dry them carefully by using clean cloths and reassemble them into the machine; rotate the baffles of the product slides of instant canisters to close them and load the canisters with reference to the machine configuration (see 04.) and to the canister labels; fill in the coffee hopper with coffee beans; close the canisters and the coffee hopper with their upper covers;
rotate the baffles of the product slides (see 05.22.) to open them and insert the orange blade to the bottom intended to close the coffee hopper;
(see also 12.);

to clean and treat food products properly, refer to the content of the following Internet address:

http://eur-lex.europa.eu//
regulation 2004/852/EC of 29/04/2004

lower down the cover and close the door by means of the lock key (see 05.05.) and place it in a safe place;

08.05.

power on the machine by means of the main switch; the display will show in sequence following messages:

cino eC
Espresso

switching on...
please wait

wait
temperature

till the water temperature of the pressure boiler is suitable for the value set in the memory (by default);

at the end of this phase intended to heat water in the pressure boiler, the vending machine is ready to dispense on a free basis and the display will alternatively show some stand-by messages:

rheavendors

cino eC
Espresso

09. programming

the vending machine is programmed by means of parameters considered standard for the specific configuration required; values forming the composition of recipes – written in the board memories – enable the user to dispense drinks without requiring the installer to set up special programmes; to modify these parameters to adapt the drinks you have produced, refer to the following; at the end of the chapter (see 09.07.), a summary table may help the user trace back all the programming items;
to access the programming mode, open the front door of the machine and use the service key in the safety switch;

attention

the vending machine is supplied and running to all effects in this mode of operation; act extremely carefully;

access the programming mode

press the "PROG" key (see 05.15.);
the display shows alternatively the messages:

1= PROGRAMMING
3= FREE VEND

- "1" to access the programming mode of machine variables;
- "2" to display the drink quantities you have dispensed;
- "3" to dispense on a free basis;
- "4" to dispense water to wash the water circuits;
- "5" to schedule maintenance operations;

2= DATA 4= CLEAN
5= MAINTENANCE

quit the programming mode

after having programmed, press "1" and then the key "PROG" to go back to the usual operation of the vending machine and to store all changes you have made; the display will show:

END PROGRAMMING
wait .....

09.01. "progr"

press the key "PROG", press "1"; the buttons of the selection keyboard will assume the following functions:

1= PROG.

Key 1	to scroll the items forward
Key 6	to scroll the items backward

Key 2	to scroll the variables of items forward
Key 3	to scroll the variables of items backward

Key 4	to increase the value of the variable on the screen
Key 5	to decrease the value of the variable on the screen

the items are (scroll by means of key "1"):

09.01.a. key 1 ... key 8

contains the variable composing selection 1;
...
contains the variables composing selection 8;

PROGRAMMING BUTTON N

09.01.b. prices

to establish the prices of every single dispensing cycle;

PROGRAMMING PRICES

09.01.c. happy price

to establish the prices of every single dispensing cycle produced in special time bands;

PROGRAMMING HAPPY PRICE

09.01.d. coins

to determine the values of coins;

PROGRAMMING COINS

09.01.e. temperatures

to set up the pressure boiler water temperatures;

PROGRAMMING TEMPERATURE

09.01.f. miscellaneous

to programme different options;

PROGRAMMING MISCELLANEOUS

09.01.g. diagnostics

to display some machine parameters;

DIAGNOSTICS

09.01.h. sales audit

to display the quantity of dispensing cycles you have performed;

SALES AUDIT

09.01.i. MDB

it contains the programming of the MDB protocol parameters;

PROGRAMMING MDB

09.01.l. clock	to set up the machine clock;	PROGRAMMING CLOCK
09.01.m. out of service	to record any failure that may have occurred;	REGISTRATION OUT OF SERVICE
09.01.n. product qty	to check and enable product dispensing cycles;	PROGRAMMING PRODUCT QTY
09.01.o. maintenance	it contains the maintenance control parameters of the machine;	PROGRAMMING MAINTENANCE
09.01.p. RFID CARD	to determine the RFID card parameters;	PROGRAMMING RFID CARD
09.01.q. tuning motors	to regulate the speed of the product motors;	PROGRAMMING PRODUCT MOTORS
09.01.r. flux product	to programme the product quantities dispensed within the time unit;	PROGRAMMING FLUX PRODUCT
09.01.s. product audit	to audit the product quantities dispensed;	PRODUCT AUDIT
09.01.t. id. machine	it contains the machine identification parameters;	PROGRAMMING ID MACHINE
09.01.a. button from 1 to 8	press key “2” when the display shows “button n” to scroll the variables composing the function of that key;	
	the display shows:	FUNCTIONING
	and pressing “4” and “5”, the display shows:	INHIBITED
	- if you press “2” when “FUNCTIONING”, the key will perform the function you have programmed (dispensing cycle of a drink); see paragraph “functioning”;	PRESELECTION
	- if you press “2” when “INHIBITED”, the key will be inhibited and it will perform no function;	
	- if you press “2” when “PRESELECTION”, the key you have pressed before the real selection will fulfil the function of the items listed in the “pre-selection” paragraph;	
“functioning”	use key “2” to scroll the following items:	
	choose the “extended” option to display all variables and the “reduced” option to display only the parameters, the values of which are other than zero (use keys “4” and “5” to change the option);	programming: TOTAL programming: PARTIAL
	espresso coffee is the first product you can programme for each selection key; there are three variables:	
	- the water quantity in the cup; change it by means of “4” and “5”; if the variable is zero, no espresso will be dispensed (drink composed by instant products only);	COFFEE WATER 0= inhib. cc: 00
	- coffee will be dispensed before (value 1) or after (value 0) instant products;	coffee sequence 1=coffee before 0.0
	- if set to 1, espresso will be dispensed twice during the same selection;	Double coffee 0=no 1=yes N
	press “2” to display:	
	press keys “4” and “5” to change the rotation time of the N product motor, thus changing the product quantity you have dispensed; if time is zero, no product N will be dispensed; you can carry out a “time test” on the set-point; (see 13.18.);	PRODUCT N 0= inhib. 0.0

	if the time you have programmed is other than zero, the N product motor will be activated at the expiry of the delay time you have programmed; the delay time is increased or decreased by pressing keys “4” and “5”;	start delay PRODUCT N 0.0
	the rotation time of the product motor can be briefly interrupted one or two times during the dispensing cycle (0 = no break); (see also 13.16.);	breaks number 0-1-2 00
	parameter used in machines complete with a time doser;	grinder time 0.0
	if you enable this option after having compressed the ground dose, the pump will deliver a small water quantity to make it wet, stop and restart the usual dispensing cycle;	pre-brewing 0=no N
	to determine the solenoid valve opening time and then the water quantity it will deliver; you can carry out a “time test” on the set-point; (see 13.18.);	WATER N time 0= inhib. 0.0
	water will be dispensed in the mixing bowls at the expiry of the delay time you have programmed;	start delay WATER N 0.0
	the rotation time of the mixer fan can be changed by pressing keys “4” and “5”; if time is equal to zero, the mixer will not rotate; you can carry out a “time test” on the set-point; (see 13.18.);	MIXER N 0= inhib. 0.0
	if the rotation time is other than zero, the mixer fan will be rotated at the expiry of this delay time;	start delay MIXER N 0.0
	the mixer rotation speed can be regulated between low, medium, high by pressing keys “4” and “5”;	MIXER speed N medium
LM dispensing	to establish the delay between the second milk and the espresso coffee dispensing cycle in the “Latte macchiato” selection;	Latte-Macchiato start coffee 0.0
LM dispensing	to establish the milk quantity of the second dispensing cycle;	PRODUCT LM 0= inhib. 0.0
LM dispensing	to determine the delay of the second milk dispensing cycle;	start delay PRODUCT LM 0.0
LM dispensing	to determine the breaks of the second milk dispensing cycle;	breaks number 0-1-2 00
LM dispensing	to establish the water quantity of the second milk dispensing cycle;	WATER LM time 0= inhib. 0.0
LM dispensing	to determine the water quantity delay of the second milk dispensing cycle;	delay water LM 0= inhib. 0.0
LM dispensing	to establish the mixer rotation time of the second milk dispensing cycle;	MIXER LM 0= disab. 0.0
LM dispensing	if other than zero, the mixer power on will be delayed by the time you have set up;	start delay MIXER LM 0.0
LM dispensing	to determine mixer rotation speed of the second milk dispensing cycle;	MIXER LM speed medium
LM dispensing	to specify the product canister to be used for the milk dispensing cycle;	PRODUCT MILK LM n: N
LM dispensing	to establish the water to be used for the second milk dispensing cycle;	Ev virtual Number= 0
	to repeat the selection by N times automatically and produce drinks of remarkable volume (jug);	JUG 0=no n:00

	press “4” and “5” to choose the drink name to display during the dispensing cycle; options are listed here below: - “**standard**”, the display will show “drink N under preparation”; - “**list of names**” of drinks made available in the machine memory; the display will show “*drink name* under preparation”; - “**custom**”: the display will show the user’s customised names; it is necessary to create a configuration file with RheAction (see 05.39.) and load it on the machine by means of a flash key see 09.06.);	selection name N ------- n:00
“pre-selection”	several pre-selection messages are made available according to the various machine releases; they are supplied here below:	
“decaffeinated/ barley”	espresso coffee can be replaced with decaffeinated coffee or barley by means of pre-selection; variables are listed here below:	
	- message appearing on the display during the dispensing cycle;	preselection BARLEY
	- barley product canister (keys “4” and “5”);	canister BARLEY n:N
	- mixing bowl and mixing water (keys “4” and “5”);	ev-mixer BARLEY n:N
	- price change with respect to the standard espresso drink; (see *);	BARLEY price 0=+ 1=- 00
	- keys for which preselection has effect (scroll by means of key “2” and select enable or disable by means of key “4” and “5”); this instruction is repeated in any preselection to enable the effect in the key or not (*);	enable presel. button N: YES **(*)**
“extra milk”	- to choose the milk canister;	PRODUCT MILK n:N
	- to determine by how many seconds to change the rotation time of the product motor you have set up in the configuration; to enable see (*);	extra milk quantity + 0.0
“espresso”	- to decrease the NN water percentage to the water you have set up in the espresso selections; to enable see (*);	water quantity ESPRESSO -00 %
“long”	- to increase the water quantity of the drink by the percentage you have set up; to enable see (*);	water LONG +00 %
“cup to go”	- to increase the product quantity by the percentage you have set up;	PRODUCT percent +00 %
	- to increase the water quantity by the percentage you have set up	WATER percent +00 %
	- price change with respect to the standard drink; to enable see (*);	+ o - PRICE 0=+ 1=– 00
“jug”	- to establish that a dispensing cycle is repeated the number of times you have set up in “JUG” before, to produce a greater product volume;	preselection JUG

09.01.b. prices	press key “2” to display: each selection can be assigned a sales price; use “4” and “5” to change the amount and “2” to scroll the price lines;	PRICE N 0.00
09.01.c. happy price	press key “2” to display: every single selection may be assigned a sales price that will be valid only in well-defined time ranges (see 09.01.l.); use “4” and “5” to change the amount and “2” to scroll the price lines;	PRICE N 0.00
09.01.d. coins	assign each channel its value for the parallel payment system; press “2” to scroll the coins from A to J and use “4” and “5” to change its value;	COIN A 0.00
09.01.e. temperature	use keys “4” and “5” to change the pressure boiler temperature:	TEMPERATURE espresso NN
	press “2” to display:	
	to establish how many minutes after the latest espresso to activate the following parameter;	DEFINITION first coffee 00
	to establish the power on time of the pressure boiler heating element to increase the water temperature;	heating time sec.: 00
	(see also 10.02.);	
09.01.f. miscellaneous	the “miscellaneous” item includes some options (press keys “4” and “5” to modify the values of these options):	
	- machine code A and B: you can number the machine to distinguish it from others similar (data collection);	machine code A NN
		machine code B NN
	- message number: press keys “4” and “5” to choose the messages to display on the screen when the machine is in standby mode;	message number N
	- coin mechanism programming options: press keys “4” and “5” to display the options of communication with the payment system; choose among:	
	- parallel single vend	coin-mech type PAR. SING. VEND
	- parallel multiple vend	coin-mech type PAR. MULT. VEND
	- executive	coin-mech type EXECUTIVE
	- executive price holding	coin-mech type PRICE HOLDING
	- MDB	coin-mech type MDB
	- fan time: to determine for how many minutes after the latest dispensing cycle the powder suction fan will remain active;	fan time min. NN
	- beep time: beep time active at the end of each machine function;	Beep time 0.0
	- number of decimals: to determine how many decimals are considered in the comparison between the selection price and the credit you have inserted;	decimal number N
	- language: to display the messages in one of the three languages made available;	language : english

- grinder type: in the E machine, to decide whether coffee is ground for the espresso selection in progress or for the next one;

Type grinder
0=a 1=b 2=t. N

- display colour; to select the display aspect you wish; (12 options);

display color
00

- first installation: used to make sure that the water circuit will be filled in at the next power on; if the value is zero, the machine will perform the cycle just as for 08.02 at the next power on;

first installat.
0=first N

- deinstallation: empty water circuits automatically:

  - disconnect the water supply, insert an extension into the drain tap of the pressure boiler (see 05.12. and 13.08.), remove the plug from the outlet hose of the air break (see 05.11. and 13.08), put them close to a bucket and press “4”;

Deinstallation
4=START

  - open the pressure boiler tap and press “5”;

Open boiler tap
P5=START

  - the display shows:

Deinstallation

  - remove the tube, close the pressure boiler tap and reinsert the drain plug of the air break when the display shows:

END
close boiler tap

  at the end of the uninstall cycle, the boiler water temperatures will be set to zero and the machine will be set to “FIRST INSTALLATION=0”;

- to decide whether to keep the brewing chamber of the coffee brewer in the upper piston in standby mode (close) or not;

Position Brewer
0=close 1=open N

- to enable the summer time function (from the last Sunday in March to last Sunday in October, the set time is automatically increased by one);

Summer Time
1= yes N

- if enabled, the operator can reset the water filter decounter by pressing the “PROG” key; (see 05.15.);

activ. H2o filter
Reset 0=no 0

09.01.g. diagnostics

press key “2” to access diagnostics and to enable the machine to display (keys “4” and “5”) the standby message and the boiler water temperature, alternatively;

ENABLE DISPLAY
TEMPERA. 1=YES N

press “2” once again to display the voltage value intended to supply devices at 24 V dc;

VOLTAGE
volt 00.0

09.01.h. sales audit

this menu is intended to gather the quantities of the selections made by the machine: names are assigned according to the EVA-DTS standard:

- VA 102
  quantity of total vends (parameter not resettable);

- VA 104
  quantity of the vends made after the reset;

- VA 101
  total amount of receipts (parameter not resettable);

- VA 103
  total amount of receipts after the reset;

- VA 202
  quantity of total tests (parameter not resettable);

- VA 204
  quantity of tests after the reset;

- VA 302
  quantity of free vends (parameter not resettable);

- VA 304
  quantity of free vends after the reset;

- CA 201
  total amount sold by cash (parameter not resettable);

- CA 203
  total amount sold by cash after the reset;

- CA 202
  total amount of the selections sold by cash;

- CA 204
  quantity of the selections sold by cash after the reset;

- CA 305
  total amount of cash receipts;

- CA 301
  partial amount of cash receipts;

- DA 401
  total amount loaded on RFID cards;

- DA 402
  total amount loaded on RFID cards after the reset;

- DA 201
  total amount sold by means of a RFID card;

- DA 203
  total amount sold by means of a RFID card after the reset;

- DA 202
  quantity of selections sold by means of a RFID card;

- DA 204
  quantity of selections sold by means of a RFID card after the reset;

- LA 1*1
  selections sold at a standard price;

- LA 1*2
  selections sold at a happy price;

- PA 403
  free selections;

09.01.i. MDB

press “2” to display the variables necessary for the MDB protocol; since **cino eC** is unable to accommodate changegiver payment systems, some of these variables will be of no significance, even if made available; press keys “4” and “5” to scroll the values;

- tube dispensing: to empty coins tubes;

Ejection tubes
button: 9-10-11-12

- changegiver enable: to enable the coins change of the changegiver

escrow enable
0=enab. 1=dis. N

- maximum credit: to establish the maximum acceptable credit amount;

credit max
0.00

- maximum change: to determine the maximum change amount;

rest max
0.00

- single/multiple vend: to keep the residual credit amount after a dispensing cycle or not;

Sell type
0=sing. 1=mult. N

- token value: to quantify the value of the token;

Token value
0.00

- coins change N: to establish the coins to be used for the change when the machine is able to give it; from A to P;

coin rest a N
0=acc. 1=disab. 0

- coins no change N: to establish the coins not to be accepted when the machine is unable to give the change; from A to P;

coin no rest a N
0=acc. 1=disab. 0

- set “0” to enable the changegiver; “1” to enable the changegiver only if the change made available is enough or if there is the RFID card; “2” to enable the changegiver only if there is the RFID card;

Bill validator
enab.= 0,1,2 = 0

- tube value: to specify the value in the ensemble of coins tubes;

MDB tubes value
0.00

09.01.l. clock

this chapter is intended to determine:

- current time;

HOUR:
00:00

- current day;

DAY:
00

- current month;

MONTH:
00

- current year;

YEAR:
00

- day of the week;

day of week:
(ex.) Tuesday

use the three pairs of parameters (Start FN and End FN) to establish three time bands during which the machine will apply “happy prices” (see 09.01.c.);

START FN:
00:00

END FN:
00:00

for each day of the week you can establish a time band during which the machine will accept no selection and reduce the water temperature of the boiler;

SWITCHING ON:
xxxxx 00:00

SWITCHING OFF
xxxxx 00:00

to count the energy consumption of the machine;

Kilowatt hours:
0.0

the machine will perform a wash cycle at the time you have specified provided that it has performed at least five dispensing cycles after the last cycle;

CLEANING:
00:00

09.01.m. out of service

to display the recording of the twenty errors last occurred in the machine; press key “2” to scroll the records and key “4” to reset the recording (see 11.);

n. N off NN
hh:mm dd-mm-yyyy

09.01.n. product qty

each product motor can be assigned a time credit in seconds that will be decreased at each dispensing cycle of that product; after having used up the credit, the machine will answer “selection not available” whenever a request is made for that product; this control is disabled at the beginning and the machine has got no constraint;

product qty N
[0.0] 150.0

this function can be:

- **manual**: the operator programmes the values by means of the machine keyboard;
  to programme the credit time of a product motor, just increase the variable by pressing key “4” and “5”; after having reached the time quantity you wish, press key “PROG”; the value will be copied between parentheses on the left of the display;
  quit the programming mode as usual;

product qty N
[150.0] 150.0

  please note that the first warning threshold can be programmed; if exceeded, the display will show an alarm message without interfering with the operation of the machine;

prod. N warning
thresold: 15.0

  after having used up the time credit, the operator may decide whether to inhibit or not the dispensing cycle of the selections, including that product;

enable stop prod. N
1=stop 0

- **half-automatic**: as above, but only if the RFID card is enabled;
- **automatic**: the values can be modified only by means of a programmed RFID card;

09.01.o. maintenance

in this ensemble of parameters, key “2”, you can set up some counters to trigger an alarm after a programmable number of events (press “4” and “5” to set up and PROG to store):

- dispensing cycles before having to replace the cartridge of the external filter, if any; as soon as 500 dispensing cycles are left, the display will show “change water filter” and as soon as the decounter has reached 0, it will display “out of service water filter”, thus inhibiting the operation of the machine;

water filter cnt
[00] 00

- espresso dispensing cycles before having to service the coffee brewer (see 12.02.); as soon as 5 dispensing cycles are left, the display will show “make brewer cleaning” and as soon as the decounter has reached 0, it will display “out of service cleaning brewer”, thus inhibiting the operation of the machine;

dec. cof. brewer
[00] 00

- espresso dispensing cycles before having to empty the grounds container (see 13.02.); as soon as the decounter has reached 5, it will display the message “remove coffee grounds” until the decounter has reached 0, thus inhibiting the operation of the machine and the display will show “out of service coffee grounds”;

dec. cof. grounds
[00] 00

09.01.p. rfid card

- the maximum credit you can load from the RFID card;

max credit card
0.00

- 0 for each coin (from A to J) that can be accepted when the RFID card is available;

coin A N
with card 0=acc.

- 0 for each coin (from A to J) that can be accepted when the RFID card is not available;

coin A N
no card 0=acc.

09.01.q. tuning motors

with respect to the setup in 09.01.a:

- the rotation time of every single product motor can be changed (key “4” and “5”) by +/- 30% compared to the time set in the recipe variables (see 09.01.a.); the change concerns all the activations of the product motors for all selections;

tuning motor N
percent +00 %

- the time required to start the grinder motor can be tuned by +/- 30%, with respect to the setup of every single selection; once established, this increase or decrease is active for each activation;

tuning grinder N
percent +00 %

09.01.r. programming product flux

the quantity in product grams dispensed for each operation second of the motor can be set up for each container (keys “4” and “5”);

product N
gr./sec. 0.0

09.01.s. product audit

to display the partial and total product quantity dispensed; the partial audit of each counter is reset by displaying it and holding key 4 down for some seconds;

dispensed qty N
Part. Gr. 00

dispensed qty N
Tot. Gr. 00

09.01.r. id.machine

identification codes to detect the EVA DTS data

- machine number;

codice ID 101
00

- location number;

codice ID 104
00

- machine configuration;

codice ID 106
00

- address for connection with the DDCMP protocol;

indirizzo VIDTS
00

- 0 to enable the EVA DTS acquisition; 1 for the audit via telemetry (option); 2 to disable the acquisition;

Data Audit 0=EvaD
1=TLM 2=off 00

09.02. “data”

choose the option “data” to enable the display to show the data of the dispensing cycles you have performed in succession, just as in 09.01.h.;

09.03. “free”

to dispense selections on a free basis; the selections made in this mode are counted separately (09.01.h.);

TEST VEND

09.04. “clean”

choose this option and press “1”, “2” or “3” to enable the vending machine to dispense a pre-fixed water quantity to wash the corresponding circuit (see 08.03.);
the display shows:

cleaning
sel. 1-2-3 8=hc

cleaning N

a special wash cycle is intended to sanitise the coffee brewer by using specific cleaning products in tabs; access the programming mode when the door is open and the machine on (use the service key); after having chosen “4” and pressed “8”, the display shows:

Heath cleaning
Brewer P1=START

attention

the vending machine is supplied and running to all effects; the mobile parts of the coffee brewer will be handled; act extremely carefully;

after having positioned the cup beneath the dispensing nozzles, put a tab in the coffee brewer chamber; press “1” and wait for the wash cycle to automatically come to an end;

a special wash cycle is installed on some versions, including various separate steps that can be carried out by following the display instructions, such as for example:

put pastille and
push P4=START

P3 to continue
rising

cleaning brewer
N/N

09.05. “maintenance” to carry out the same functions as those described by point 09.01.o.;

09.06. data support

the values of the variables composing the machine programming (configuration) can be transferred to an external support, i.e. the flash key; to transfer the machine parameters to the key:

- power off the machine;
- open the door;
- insert the flash key into the apposite connector (see 05.16.);
- power on the machine by means of the service key (see 05.14.);
- the display shows:

1 from key to VMC
2 from VMA to key

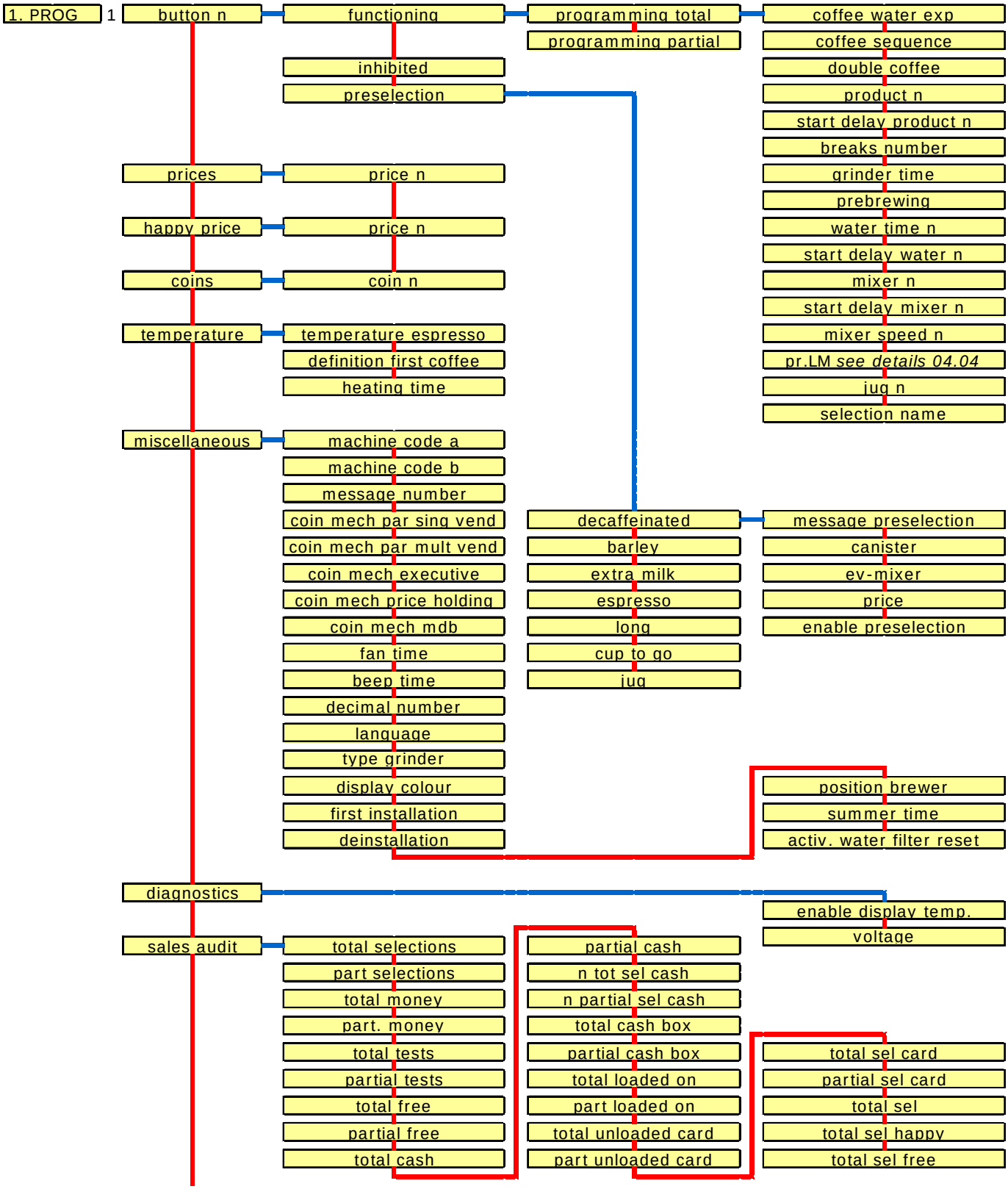
- press “2”
- and wait for the display to show:

END PROGRAMMING
wait .....

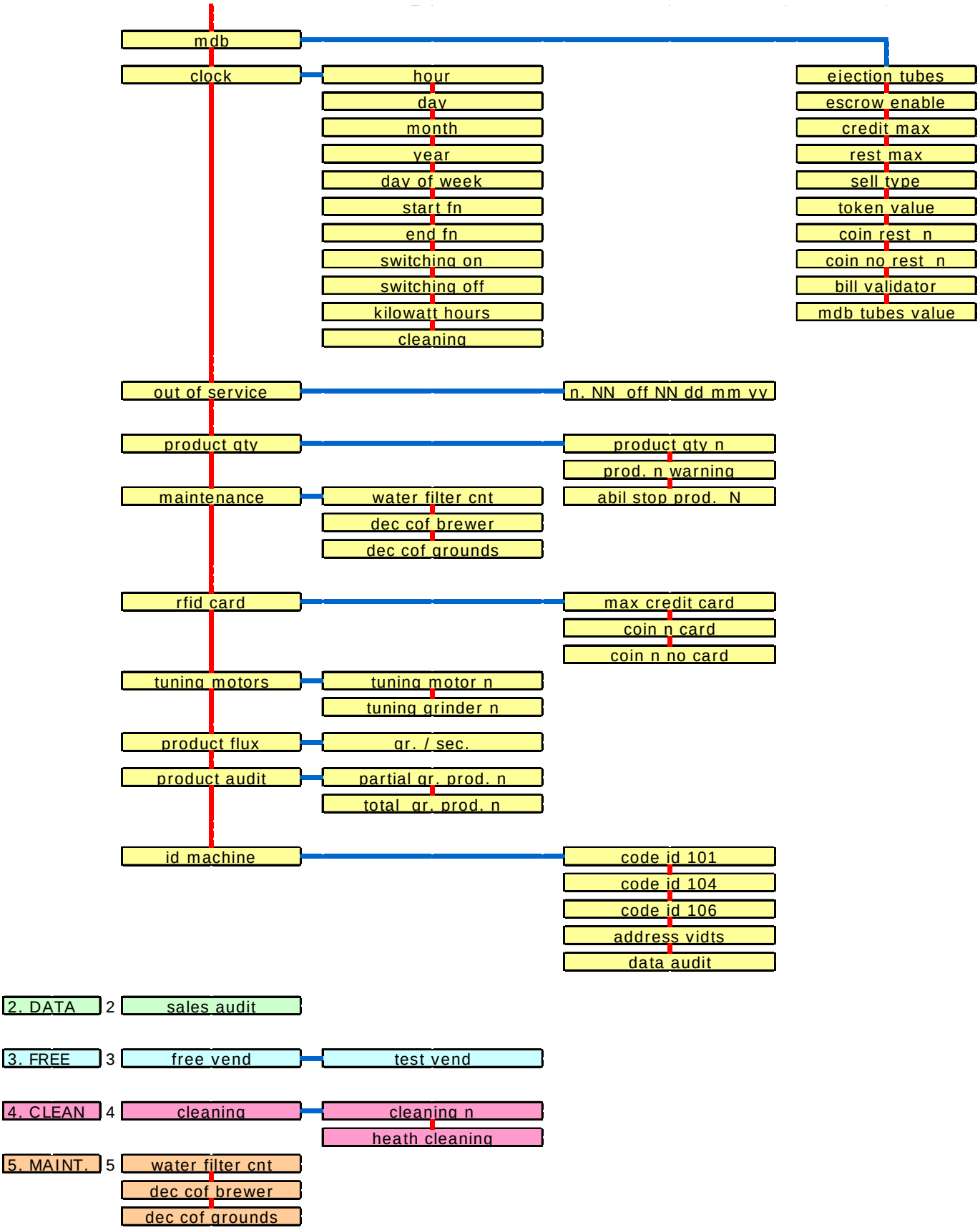
- power off the machine and remove the flash key;

now, the flash key contains all the parameters typical of the machine from which they have been fetched; if you wish to programme another vending machine with these data, the previous procedure can be repeated by pressing key “1” instead of “2”: the information will be transferred from the flash key to the vending machine; both procedures will not alter the data contained in the supports from which they have been fetched;

09.07. programming diagram



09.07. programming diagram



10. parameters

the following tables are intended to supply some information on the programmable parameters of the **cino eC** software; if not otherwise specified, the numeric time values of devices are understood in tenths of a second (e.g. 27 corresponds to 2 seconds and 7 tenths);

10.01. configuration

the generic parameters intended to dispense the drinks with the different possible products are supplied here below, just by way of example; these values enable the operator to program the selections of reference and they can be used to obtain some functional dispensing cycles even if it may be necessary to make some slight changes to appeal to the users;

see 04.02.

product canisters

milk	P1
chocolate	P2

01. espresso

water exp.	35

02. long coffee

water exp.	45

03. white coffee

water exp.	45		
prod. 2	8	delay prod. 2	7
water 1	20		
mixer 1	40	delay mixer 1	3

04. cappuccino

water exp.	65		
prod. 2	25	delay prod. 2	10
water 1	50		
mixer 1	60	delay mixer 1	5

06. milk

prod. 4	35	delay prod. 4	10
water 1	110		
mixer 1	115	delay mixer 1	5

07. latte macchiato

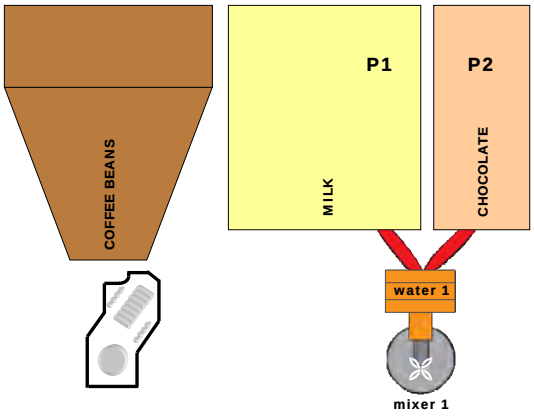
water exp.	30		
prod. 1	36	delay prod. 1	8
water 1	50		
mixer 1	65	delay mixer 1	3

08. mocaccino

water exp.	45		
prod. 1	10	delay prod. 1	20
prod. 2	22	delay prod. 2	7
water 1	35		
mixer 1	55	delay mixer 1	3

09. chocolate

prod. 2	45	delay prod. 2	15
water 1	120		
mixer 1	135	delay mixer 1	5



10.02. limits

the table is intended to list the minimum and maximum values you can assign to programmable variables;

	m.u.	from	to	
exp coffee water	n.	0	250	0 = no espresso;
product	sec.	0	20	0 = no product;
product start delay	sec.	0	20	0 = no delay;
number of product pauses	n.	0	2	0 = no pause;
water time	sec.	0	20	0 = no water;
water start delay	sec.	0	20	0 = no delay;
mixer	sec.	0	20	0 = no mixer;
mixer start delay	sec.	0	20	0 = no delay;
mixer speed	→	→	→	low, medium, high
temperature pressure boiler	°C	0	105	
first coffee temperature	°C	0	105	
first coffee time	min.	0	20	
product decounter	sec.	0	6.000	0 = no limit;
machine code A e B	n.	0	65.535	
message number	n.	0	7	
fan delay	min.	0	180	
beep time	sec.	0	1,5	
number of decimals	n.	0	3	
coin A ÷ J	n.	0	65.000	
prices 1 ÷ 8	n.	0	65.000	
tuning motor	→	→	→	+/- 30%
tuning grinder	→	→	→	+/- 30%

11.
solution of problems

some malfunctions produce an error message on the display; some general information is supplied here below for these messages;

error	actions / comments	cause
OFF 2	check the connection between the machine and the payment system; check the supply, programming (see 09.01.f.) and operation of the payment system; it can display OFF 2 E (executive) or OFF 2 M (mdb);	**no communication between the machine and the payment system**
OFF 3	power off the machine and empty the drip tray (see 13.01.);	**drip tray full**
OFF 5	EAROM of the CPU board failed; replace the CPU board (see 05.37.a.);	**no data storage**
OFF 6 o OFF 6A	water inlet solenoid valve in safety status (waste water from the boiler overflow) or non operating; the internal filter net clogged; water not supplied by the network, water supply flow rate not adequate; supply water circuit throttled or clogged; it may physiologically occur at the first power on when the pressure boiler that is completely empty will require more time than usual to fill; (see 05.13.);	**filling time for the air break too long**
OFF 6B	there is a control connecting water reloads with the drinks you have dispensed; if some water reloads occur without dispensing any drink, this will produce the 6B error; make sure there is no leakage in the water circuit;	**water reloads without dispensing any drink**
OFF 7	there is a maximum operation time of the brewing pump, at the expiry of which error 7 is produced; check the efficiency of the water circuit: volumetric counter, pump, three-way solenoid valve, ...; brewing chamber as well as upper and lower filter of the coffee brewer; the quantity and grinding degree of coffee shall cause the machine to brew for about 10/15 seconds;	**espresso brewing time too long**
OFF 8A	electrically and mechanically check the switch controlling the coffee brewer rotation, the control cam, the brewer rotation motor and its crank;	**false position of the coffee brewer**
OFF 8B	make sure that the coffee brewer has properly positioned (against the support wall); check the operation of the micro switch operated by the presence of the coffee brewer;	**no coffee brewer**

OFF 9	there is a control for the maximum grinding time; after this threshold has been exceeded, error 9 is produced; no coffee, hopper orange blade closed; wear, grinders excessively closed;	**grinding time too long**
OFF 10	the values written in the EAROM are not compatible with the operation of the machine or deleted; reload them; replace the CPU board CPU; (see 05.37.a.);	**loss of programming data**
OFF 14	there is a control causing the machine to reload water after a well-defined number of dispensing cycles; otherwise, error 14 is produced; make sure that the water supply from the outside is correct (see 03.03.) and that the water circuit of the machine is orderly (tubes, gaskets, …);	**no water reload**
OFF 16	check the display board (see 05.37.b.);	**display board**
OFF 17	a key of the selection keyboard is not operating (short-circuited); it may also occur if an operator should operate it for too long while programming the machine (keys 4 and 5 to increase and decrease the quantities); (see 05.02. e 09.01.a.);	**selection keyboard out of order**
OFF 24A	the 24 V dc power supply should exceed the limit value; replace the CPU board (see 05.37.a.);	**24 V dc power supply excessive**
OFF 24B	after al long inactivity, if this error happens, could be enough to switch off and switch on the machine; if the power failure persists, pay attention to the cause: a 24 V actuator could be faulty (mixer or product motor, water inlet electrovalve, …); check the alternate power supply at the board input; the voltage regulator might be faulty; replace the CPU board (see 05.37.a.);	**24 V dc power supply inadequate or lacking**
OFF 31A	the pressure boiler temperature has exceeded the one you have programmed (see 09.01.e.); replace the temperature probe; the device of the CPU board is not working according to control; replace the CPU board;	**water temperature high**
OFF 31B	temperature safety devices tripped (clicsons,, …); restore or replace them; heating element not supplied or not operating; check the connections and continuity of the heating element; if necessary, replace it;	**water temperature low**
OFF 31C	temperature probe interrupted; connector to the board, wiring; make sure that the cable between the probe and the CPU board is not interrupted or replace the probe;	**temperature probe**

12. maintenance

the **cino eC** vending machine requires no special maintenance procedure to do its job; however, if you provide for careful and frequent cleaning, this may help the machine keep its performance constant, prevent failures and ensure the high quality of dispensed drinks; the frequency of cleaning operations largely depends upon the number of dispensing cycles and the hardness of water in use (use a softener system) and it shall be adjusted to the working conditions of the vending machine;

the actions described are intended to prevent the bacterial growth in the machine areas directly in contact with foodstuffs and to keep the parts conveying drink-composing products clean; after having disassembled the parts of the machine listed here below, use plenty of lukewarm water to remove any residue that might build up;

the support of a bacterialstatic or bactericidal solution may strengthen a deep cleaning action, provided it is compatible with human health and the supply of foodstuffs; reassemble all the parts you have cleaned after having dried them by means of a clean piece of cloth;

refer to the content of the Internet address:

http://ec.europa.eu/food/food/biosafety/
hygienelegislation/index_en.htm

this site is intended to supply the European Parliament recommendations for properly and safely processing foodstuffs; consult also:

http://eur-lex.europa.eu//
regulation 2004/852/EC of 29/04/2004

before accessing the machine for each maintenance operation, it is recommended to warn the users by means of boards properly positioned that it is forbidden to approach the vending machine and to use it;

<u>attention</u>

never wash the machine by using water jets;

wash hands thoroughly with water and soap before handling the machine and the products;

only use potable water;

all components must only be cleaned with warm running water;

the drip tray, the mixers and the soluble canisters can be cleaned in a dish washer using a short washer cycle with a temperature not exceeding the 50° C;

12.01. **weekly**

power off the machine; detach the power supply cable and carefully make sure that there is no sign of wear; carefully check the stability and efficiency of the internal connections of the mains supply;

external body

use a non-abrasive piece of cloth after having dampened it with lukewarm water; only if necessary, use a neutral, non-foamy, detergent;

attention

use neutral detergent products only; never use abrasive cloths, steel sponges, aggressive or foamy detergents and other solvents, hot water and acids;

cups station

extract the drip tray, remove the upper grilled cover and wash them abundantly with water “A”; clean the seat of the drip tray and the nozzles holder spout “B”;

product slides

remove them from the product containers, wash them abundantly with lukewarm water (product slides are bayonet-fastened) “C”;

dispensing system

turn the fastening small levers of the mixing bowls “D” clockwise, remove the dispensing nozzles “B”, pull the mixing bowl and the powder suction ring; wash the assembly of disassembled parts abundantly with lukewarm water;

walls and bottom of the machine

remove any trace of residue from the internal surfaces of the machine and clean by using a damp piece of cloth;

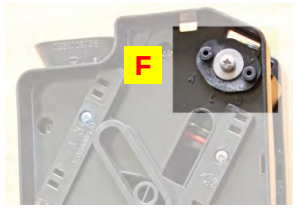
internal wall of the door

remove any trace of residue from the surfaces inside the door, above all in the proximity of the cup station;

12.02. **monthly**

environmental and powder aspirators

carefully make sure that the motors of the two aspirators can freely rotate and have no obstacles or obstructions;
make sure that the corrugated tube connecting the powder aspirator and the aspiration drawer is clean and free of any product deposit “E”;



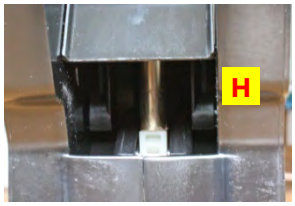
products canister

close the slides, remove the canisters from the machine, clean them externally; clean the support surface carefully to remove any trace of product;

coffee brewer

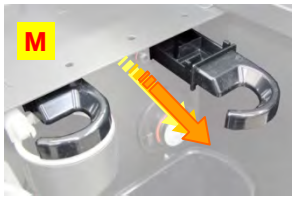
clean and wash the whole coffee brewer by using running water; to check, clean or replace filters and gaskets after having disassembled the unit from the machine (see 13.05.):

- unscrew the two lock screws from the setting plates “F”;
- rotate the upper piston to access the gasket as well as the upper and lower filters “G”;
- check the upper and lower piston gaskets;
- clean the upper and lower filters;
- grease the lower filter stem by using silicone-based grease for foodstuffs “H”;



12.03. **yearly**

dispensing system	replace the gasket at the base of the mixing bowl of the mixer; remove the mixer motor fan by pulling it; replace the gasket of the mixer motor shaft “I”;
products canister	disassemble the products canister from the machine; empty them, disassemble them in their basic components and wash them carefully “L”;
powder aspirator drawer	disassemble the mixing bowls; pull out the extraction drawers “M”; wash them with plenty of lukewarm water;
silicone tubes	make sure that the water transport tubes are intact and that they have kept their transparency, replace them, if necessary;
coffee brewer	- replace the upper and lower pistons gasket; - replace upper and lower filters; - check the status of the brewing chamber;
pressure boiler	disassemble the pressure boiler; separate the pressure boiler from the solenoid valves block and check the seal o-ring; clean the instant and espresso outlet water circuits; check the third way of the espresso valve drain by removing any trace of residue; empty and clean the air break tank;



12.04. out of order — if the vending machine should be inactive for a long period, please act as follows:

temporary

- perform the uninstall cycle (see 09.01.f.);
- detach the water and energy supply;
  empty the liquid waste tray and the internal water tank;
- empty and clean the product canisters;
- clean the internal and external surfaces by using a wet piece of cloth;
- cover the machine by means of a cloth;
- store it in a sheltered place, at a temperature not below 5 °C, at a relative humidity not above 80%;

definitive

if you should definitively set the vending machine out of commission and provide for the disposal of some parts thereof, after having carried out the operations above, disassemble the vending machine by separating every single component and subdividing the parts according to the nature of materials; the applied symbol means that the components of the vending machine shall be not processed as home rubbish, but delivered to the collection points capable of recycling electric and electronic equipment; refer to the 2002/96/EC Directive and to the relative rules;

the complete text of the European directive about this specific subject-matter is made available on the Internet site:

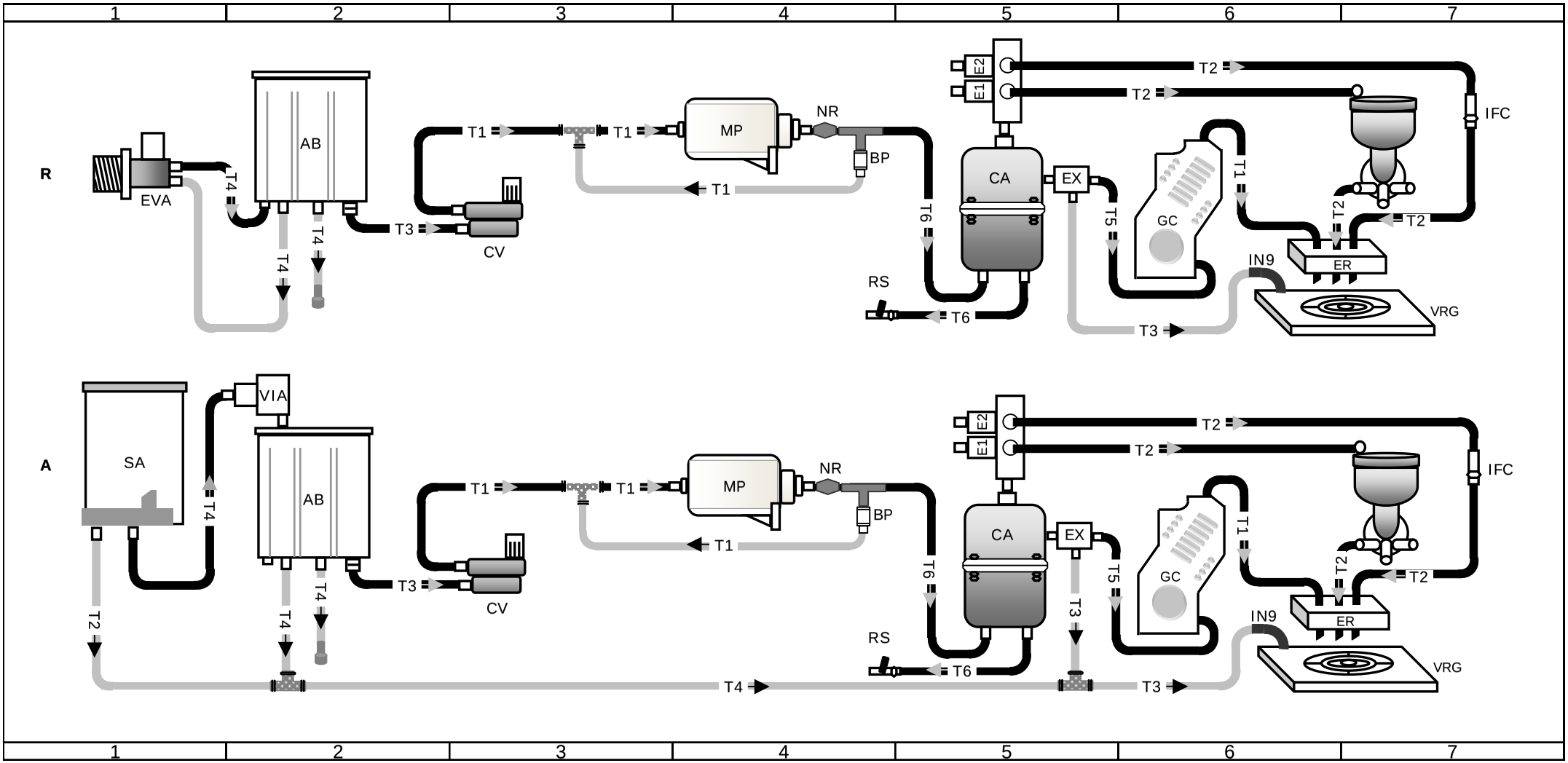
http://eur-lex.europa.eu/
directive 2002/96/EC of 27/01/2003

13.
how to do to:

13.01. empty the drip tray	the drip tray is arranged in its work seat and retained by the notches in the structure; pull to remove it;	see 05.06.
13.02. empty the grounds container	after having opened the door and removed the drip tray, pull the right side of the drawer forward and remove it; observe the position of the water inlet tube of the unit;	see 05.20.
13.03. remove the coffee hopper	pull the orange closing baffle and lift the coffee hopper;	see 05.22.
13.04. remove the instant canister	rotate the dispensing slide closure and pull the canister by lifting it slightly; to reassemble it, insert the rear bush into the motor gear and the lower pin into the horizontal surface hole; disassemble the product slides from the canisters by turning them counter clockwise;	see 05.22.
13.05. remove the coffee brewer	when the machine is open, after having removed the drip tray and the grounds drawer, unscrew the water inlet ring nut (made of orange plastics, knurled, at the bottom) and the upper connection (black knob, upper part of the unit); lift the lock lever; pull the upper part of the brewer;	see 05.19.
13.06. regulate the grinding degree	move the grinder sector (to the back of the machine for a finer degree); the effect produced by the regulation is shown in the drink after three or four dispensing cycles; the grinding degree and the coffee dose shall produce a ca. 15 sec. brewing time;	
13.07. access to the rear 	**attention** make sure that the power supply cable has been detached from the mains before unscrew the five screws intended to fasten the metal panel (○); lift slightly and extract the panel; all internal components of the machine can be now accessed;	
13.08. remove water	prepare a bucket beneath the support surface of the machine; after having removed the back of the machine, remove the plug closing the drain tube of the air break by unscrewing the screw (◁), access the drain tap of the boiler by unscrewing the two screws (□) and open it; activate the “uninstall” cycle (see 09.01.f.);	
13.09. replace the o-ring of mixing bowl	remove the silicone tubes intended to dispense the product; turn the orange ring nut clockwise; pull the mixing bowl body and extract the mixer fan; you can now access the w-ring of the motor shaft; the water inlet gaskets of the mixing bowl and the mixing bowl gaskets;	see 05.26.
13.10. replace the mixer motor	remove the silicone tubes intended to dispense the product; turn the orange ring nut clockwise and pull the mixing bowl body; unscrew the crosshead screw and extract the motor; the power supply wires can be removed without any tool;	see 05.38.
13.11. replace the product motor	remove the product canister; access the rear part of the machine; extract the two small electric cables from the motor, hold the body, push it to the bottom to release it from the bayonet connection of the structure; the power supply wires can be removed without any tool (observe the polarities);	see 05.25.
13.12. determine water and product times	the times specified by table 10.01. can be referred to as the times functional for the machine and the products to be dispensed; however, they can be adapted to the capacity of the user’s cups (by changing “time water N”) and its tastes (by changing “product N”); please, never forget to make sure that the dispensing time of the instant product is always lower than the one of corresponding water;	
13.13. insert labels	open the door and remove the orange carter; extract the two electric connectors of the keyboards; release the four holders from the front panel by removing the four safety clips; insert the labels into the pockets by observing the machine configuration;	see 05.17.

13.14. programme delays	(if accepted) dispensing starts as soon as the user presses a selection key; the order in which instant products are poured into the cup depends upon the values of delays (e.g. the one, the delay value of which is zero, will be dispensed before the one, the value of which is 40, dispensed four seconds after the user has pressed the selection key); pay special attention when programming the delays in dispensing a product and the water diluting it in the mixing bowl; except for the instant coffee product, for which just the opposite is applicable, it is recommended to dispense water before the product to enable the latter to drop on the water film already present in the mixing bowl for a better mix; espresso is dispensed before and after any instant product by programming the variable “coffee sequence”;	see 09.01.a.
13.15. regulate the speed of mixers	the rotation speed of the motors of product mixers can be adjusted between 15,000 r.p.m. and 5,000 r.p.m.; the drink quality of instant products depends a lot upon the action of the fans of mixers: instant chocolate generally requires a long mixing time at the maximum speed for dissolution in water whereas instant tea shall not be mixed to get a drink quality without any bubble on the surface;	see 09.01.a.
13.16. choose the quantity of break numbers	if instant products can be hardly dissolved in water, it may be of use to stop the product dispensing cycle from the product canister for a short time; the water flowing into the mixing bowl will have the time necessary to remove any product build-up;	see 09.01.a.
13.17. determine the suction fan time	to remove the residual powder of instant products from inside the machine, it is recommended to use the value in minutes you have already programmed (three); if you should use particularly volatile products, increase the time to five (and more) minutes;	see 09.01.f.
13.18. time tests	to check the rotation time of a product motor and a mixer fan or the activation time of a solenoid valve during the programming phase, when the display shows “PRODUCT N” or “WATER N time” or “MIXER N”, press the “PROG” key: the device will be activated for the programmed time;	see 09.01.a.
13.19. coffee brewer phase	the right phase of the coffee brewer that shall be positioned just as in the picture at the time of brewing is calibrated by means of the unit rotation control switch (see 05.17.); the central articulation of the connecting rod shall be moved “backward” by some degrees, compared to the ideal line joining the rotation axis of the unit and the upper end of the connecting rod; to achieve this result: - access the rear side of the machine; - loosen the Allen wrench; - regulate the switch position by rotating the support, i.e. by advancing or delaying the action of the cam on the lever; - screw the Allen wrench again;	 
13.20. install a payment system	there is a kit including all the parts necessary to install a payment system in **cino eC**; after having installed the components of this kit, refer to the above to programme the system functionality; Rheavendors Services S.p.A. is at disposal for any kind of support and information on the installation of payment systems; (see 02.03.);	
13.21. return some material under guarantee	if you should return any material under guarantee that is either defective or not in compliance with your requirements, fill in the form “MOD. PO 19.01/2B Materials under guarantee – Authorisation to return” and send it to the fax number above to apply for authorisation; only after having received the authorisation form signed and numbered, you are permitted to send the goods at your expenses to the address specified by the form;	

14. hydraulic diagram



	column	symbol	name	column	symbol	name	column	symbol	name	column	symbol	name
L	1	EVA	water inlet solenoid valve	4	BP	by pass	6	GC	coffee unit	/	T1	silicone hose 05/08T
E	1	VIA	water inlet valve	5	CA	pressure boiler	7	M1	mixer 1	/	T2	silicone hose 06/09T
G	1	SA	water internal tank	4	RS	drain tap	7	ER	nozzle support	/	T3	silicone hose 06/11T
E	2	AB	air break	5	EX	three-way valve	7	VRG	drip tray	/	T4	silicone hose 07/11T
N	3	CV	volumetric counter	5	E1	soluble solenoid valve 1	6	IN9	90° joint	/	T5	ptfe hose 02/04T
D	4	MP	pump ex 5	5	E2	soluble solenoid valve 2	7	IFC	short insert	/	T6	ptfe hose 04/06T
	4	NR	non return valve									