

Scotsman[®]

SERVICE MANUAL

GOURMET ICE

AC | EC SERIES

MXG SERIES



Dear Installer,

this manual is reserved for specialised technicians and is designed to provide:

- technical specifications of our products, designed and manufactured to a high quality standard
- start-up and operating instructions
- principles of operation
- ordinary and extraordinary cleaning and maintenance instructions.

We therefore advise you to read it carefully before installation and keep it for future reference.

If any step is not understood well, the Manufacturer remains available to provide any information.

For safety and warranty reasons, the use of original Scotsman spare parts is mandatory. The use of non-original spare parts releases the manufacturer from any liability and automatically invalidates all warranty rights.



SERVICE MANUAL

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For any information, always state:

- product model
- serial number
- data in the purchase invoice

SAFETY

Pictogram explanation

In order to make reading clearer and more pleasant, symbols have been used within this manual to convey to the reader the meaning or importance of the information provided by the statements alongside them.



Indicates that caution is required when performing an operation described in a paragraph that bears this symbol. The symbol also indicates that maximum operator awareness is required in order to avoid unwanted or dangerous consequences.



Indicates important information to be read and complied with.



Indicates requirements relating to actions that must be avoided.



This symbol placed on the appliance or used in the manual identifies the areas with an electrical hazard.



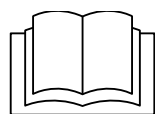
Indicates grounding



Identifies the terminals which, when connected together, bring the various parts of an appliance or system to the same potential (not necessarily the earth potential)



Indicates that the paragraph marked with this symbol must be read carefully before the installation, use and maintenance of the product



Who is this manual for?

These instructions are primarily intended for the installer and maintenance personnel, who should read them carefully before working on the appliance. If you do not understand all the contents of the manual contact your local Scotsman distributor before working on the appliance.

Intended use and classification

● This appliance is an ice maker and must only be used for making ice (not as a container for bottles, cans, etc.)

⚠ The appliance is designed to be used in domestic and similar applications such as:

- the kitchen area for staff in shops, offices and other work environments;
- farms and by customers in hotels, motels and other residential-type environments;
- bed and breakfasts;
- catering services and similar applications, not for retail.

General warnings

⚠ Partial or total failure to observe these instructions and the following prescriptions, an installation, use, ordinary or extraordinary maintenance other than those indicated in the manual, improper use, tampering with or modification of the appliance or some of its parts (unless expressly authorised), use of non-original spare parts or spare parts not specific to the model, may:

- cause damage, injury or fatal accidents;

Given the continuous progress in the design sector, the Manufacturer reserves the right to make changes to the production and instructions, without this entailing the obligation to update the production and previous instructions. If necessary, further copies or updates of these instructions must be requested from the Manufacturer.

- void the warranty
 - reduce or compromise the quality and safety characteristics of the appliance;
- release the Manufacturer from any liability.

● Installation must be performed by authorized and specialized personnel, complying with the instructions in this manual.

Personnel must be adequately trained and instructed on how to assemble the machine and how to operate on electrical and refrigeration systems.

Under no circumstances may the customer perform the operations described in this manual.

● Before installation:

- check the compliance of the systems with the regulations in force in the country of use and with what is stated on the serial plate;
- check that you are familiar with all the safety and fire prevention regulations in force in the country of use;
- check that a high sensitivity (30 mA) differential magnetothermic switch to which the machine must be connected and a power socket with ground connection of the type used in the country of use have already been prepared in the vicinity of the appliance.

⊘ Do not transport, install or carry out maintenance work on the appliance without using the personal protective equipment prescribed in this manual.

⚠ Keep all ventilation openings in the casing of the appliance free of obstructions.

⚠ Do not place objects that cause poor ventilation on and around the appliance.

● Ensure that the installation location offers adequate clearance around the

machine, so that the required periodical maintenance work may be carried out in full safety.

● If the machine is being repaired, display appropriate signals in visible locations indicating that the machine **MUST NOT** be used.

● Before working on the machine, make sure that any hot parts have returned to room temperature.

● Disconnect the appliance from the power supply before carrying out any installation or maintenance work, ordinary or extraordinary.

⊘ During the installation of the appliance, persons not involved in the installation activities are not permitted to pass or remain in the vicinity of the work area.

⊘ The appliance is **NOT** designed to be installed:

- in explosive atmospheres;
- outdoors, in places exposed to salt-laden sea air or direct sunlight and weather elements (rain, humidity, etc.).

● The appliance must be easily moved for any extraordinary maintenance: pay attention that any masonry work subsequent to installation (e.g. construction of walls, replacement of doors with narrower ones, renovations, etc.) do not hinder movement.

● The appliance must be transported by means suitable for its weight and size and wearing appropriate personal protective equipment. When moved, even for very small distances, the appliance should always be lifted, **NEVER** pushed or pulled across the floor.

● If the appliance is on wheels, make sure to be gentle when moving it around, to prevent it from tipping over and being damaged. Also pay attention to any roughness of the sliding surface. The appliance equipped with wheels cannot be

levelled, so make sure that the support surface is perfectly horizontal, flat and free from roughness.

 Do not overturn or lay the appliance on its side for maintenance.

Unauthorised interventions, tampering or modifications not in accordance with this manual will invalidate the warranty.

 The rating plate provides important technical information that is vital in case of a request for maintenance or repair of the appliance: please do not remove, damage or modify it.

 It is absolutely forbidden to tamper with or remove the adopted safety devices (protective grids, danger stickers, etc.). The Manufacturer declines all responsibility if the above instructions are not complied with.

 Packaging material is potentially dangerous and must be kept out of the reach of children or animals, and properly disposed of according to local regulations.

 The appliance must be periodically checked by an authorised service centre. In order to ensure the best conditions of use and safety, such checks should be carried out in accordance with current national regulations or, preferably, every year.

 The stationary state of the appliance, detected by visual inspection, does not guarantee with certainty that it is switched off. In order to protect his own safety, the operator must check that the machine is not powered, that is, that its plug is disconnected or that the switch of the panel to which it is connected is in the "OFF" position.

 When installing the machine ALWAYS replace any pre-existing water supply pipes with the new ones supplied with it.

 **WARNING:** If the power cable is damaged, have it replaced **ONLY** by **QUALIFIED PERSONNEL** in order to prevent any risks.

We recommend the installation of a water softener filter on the water line upstream the machine.

Refrigerant gas safety warnings

 The appliance contains fluorinated greenhouse gases governed by the Kyoto protocol, in the quantities indicated on the serial plate.

 The GWP (Global Warming Potential) of the gases is as follows:

HFC R404A = 3750; HFC R452A = 2140;
HFC R134a = 1430; R290 = 3.

 Propane is a highly flammable gas. It is heavier than air, which means that in the event of a refrigerant leak it migrates to the ground.

Propane used in refrigeration systems is odourless. The system is hermetically sealed.

Safety instructions for UV lamps (only for XSafe models)

 This machine contains an apparatus that emits UV and generates O₃ dissolved in the air. In some circumstances and if not properly managed, O₃ can generate risks to human health. The XSafe appliance is designed to produce O₃ below the legal limits when properly installed, used and maintained.

 Improper use of the appliance or damage to the container can lead to the release of dangerous UV radiation. UV radiation can, even in small doses, cause damage to the eyes and skin. Appliances which are obviously damaged must not be used.

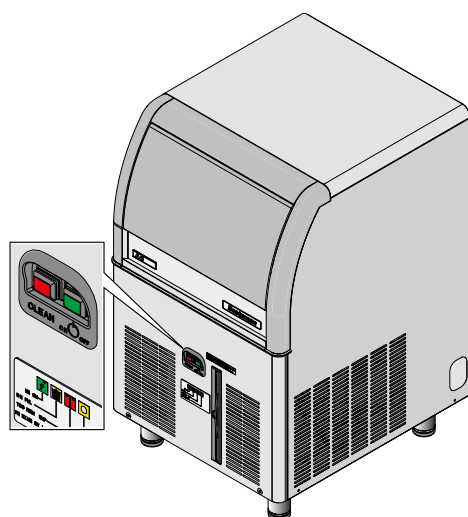
 The replacement of the UV lamp **CANNOT** be carried out by the user, contact a specialized technician.

 Please contact your local Scotsman dealer for the annual maintenance plan.

TECHNICAL DATA

Operating limits (for all models)

Parameters	Minimum	Maximum
Ambient temperature	10 °C	43 °C
Water temperature	5 °C	38 °C
Water pressure	0.1 MPa (1 bar)	0.5 MPa (5 bar)
Water hardness	7 °f (French degrees) 4°dH (German degrees)	18 °f (French degrees) 10°dH (German degrees)
Voltage tolerance with respect to the data indicated on the plate	-10 %	+10 %
Sound level produced by the operation of the appliance	<70 dB(A)	

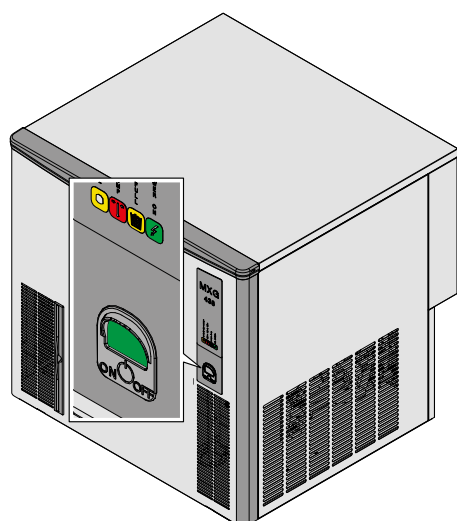


AC series

Ice maker with built-in ice container

EC series

Ice maker with integrated ice bin and drain pump



MXG series

Modular ice maker without built-in ice container

For more technical information regarding the appliance, scan the QR code



SINGLE-PHASE 230V/50 Hz - TEMPERATURE 32 °C

AIR COOLING						
MODEL	AC/EC47			AC/EC57		
VOLTAGE	230/50/1 - 50 Hz	230/50/1 - 50 Hz	230/50/1 - 50 Hz	230/50/1 - 50 Hz	230/50/1 - 50 Hz	230/50/1 - 50 Hz
ICE CUBE SIZE	S	M	L	S	M	L
Charge R290 (g) 	N/a	100	N/a	100	100	100
SUCTION PRESSURE (bar)	N/a	3.7/0.9	N/a	3.8/1.2	4/1.1	3.3/1.1
DELIVERY PRESSURE (bar)	N/a	17.5/12.5	N/a	17/13	17/12.5	15.1/12.4
DEFROSTING SUCTION PRESSURE (bar)	N/a	1.4/7	N/a	1.6/8.3	1.2/7.8	1.2/6.1
DEFROSTING DELIVERY PRESSURE (bar)	N/a	11.2/7.8	N/a	12/9.2	11.8/8.5	10.9/6.7

AIR COOLING						
MODEL	AC/EC87			AC/EC 107		
VOLTAGE	230/50/1 - 50 Hz	230/50/1 - 50 Hz	230/50/1 - 50 Hz	230/50/1 - 50 Hz	230/50/1 - 50 Hz	230/50/1 - 50 Hz
ICE CUBE SIZE	S	M	L	S	M	L
Charge R290 (g) 	110	100	135	N/a	120	120
SUCTION PRESSURE (bar)	0.8/0.7	3.7/0.8	3.7/0.9	N/a	3.5/0.9	3/0.6
DELIVERY PRESSURE (bar)	12.5/11	19/13	18.2/11.8	N/a	19.5/13	14.1/10.6
DEFROSTING SUCTION PRESSURE (bar)	1.1/9.5	1/8.1	4.7/9.5	N/a	1/9.3	1.3/7.7
DEFROSTING DELIVERY PRESSURE (bar)	12.1/11.6	12.1/10.4	7.2/11.3	N/a	12.5/11.4	7.9/10.9

AIR COOLING						
MODEL	AC/EC127			AC/EC177		
VOLTAGE	230/50/1 - 50 Hz	230/50/1 - 50 Hz	230/50/1 - 50 Hz	230/50/1 - 50 Hz	230/50/1 - 50 Hz	230/50/1 - 50 Hz
ICE CUBE SIZE	S	M	L	S	M	L
Charge R290 (g) 	N/a	130	150	N/a	100	120
SUCTION PRESSURE (bar)	N/a	3.4/1.4	3.8/1.1	N/a	3.8/1.2	4.2/1
DELIVERY PRESSURE (bar)	N/a	16.5/13	16.4/12	N/a	17/12.5	17.3/12.5
DEFROSTING SUCTION PRESSURE (bar)	N/a	1.5/8.5	2.4/8.6	N/a	1.7/7.5	10/11.7
DEFROSTING DELIVERY PRESSURE (bar)	N/a	12.5/11	10.5/11.3	N/a	9.8/10	1.4/8.5

AIR COOLING									
MODEL	AC/EC46			AC/EC56			AC/EC86		
VOLTAGE	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1
ICE CUBE SIZE	S	M	L	S	M	L	S	M	L
Charge R134a	N/a	270	N/a	270	270	270	290	290	290
SUCTION PRESSURE (bar)	N/a	1.1/0	N/a	1.3/0.2	2.1/0.1	2/0.4	1.3/0	1.6/0	2/0.2
DELIVERY PRESSURE (bar)	N/a	14.5/9	N/a	11.5/9	13.7/8.1	15.5/9	12.5/8.7	14.4/8.5	16.5/9.5
DEFROSTING SUCTION PRESSURE (bar)	N/a	0/7.7	N/a	0.1/7.9	0.1/7.9	0.1/7.9	0.8/8.1	0.8/8.1	0.8/8.1
DEFROSTING DELIVERY PRESSURE (bar)	N/a	8.6/11.9	N/a	7.3/10.3	7.3/10.3	7.3/10.3	6.9/14.9	6.9/14.9	6.9/14.9

AIR COOLING									
MODEL	AC/EC 106			AC/EC126			AC/EC176		
VOLTAGE	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1
ICE CUBE SIZE	S	M	L	S	M	L	S	M	L
Charge R134a	N/a	340	350	430	430	430	435	415	400
SUCTION PRESSURE (bar)	N/a	1.4/0	1.6/0.3	N/a	1.2/0.1	1.2/0.1	1.1/0.1	1.5/0	1.1/0.2
DELIVERY PRESSURE (bar)	N/a	13/8.8	14/9	N/a	13/8.7	13/8.7	15/10	15/9.2	14.8/9.2
DEFROSTING SUCTION PRESSURE (bar)	N/a	1.7/5.4	1.7/5.4	N/a	0.1/5	0.1/5	1.12/5.1	0/2.9	0.9/5.3
DEFROSTING DELIVERY PRESSURE (bar)	N/a	5.8/9.6	5.8/9.6	N/a	7.7/10.5	7.7/10.5	8.2/10.4	7.8/8.3	7/10.8

AIR COOLING								
MODEL	AC/EC 206					AC/EC 226		
VOLTAGE	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1
ICE CUBE SIZE	S	M	L	XL	ICE SHOT	S	M	L
Charge R452A	670	770	780	740	740	850	620	620
SUCTION PRESSURE (bar)	4.2/1.9	3.9/1.7	4.3/1.6	4.1/1.8	4.4/2.2	5/2.5	3.7/1.7	3.7/1.7
DELIVERY PRESSURE (bar)	21.5/19.3	22/17.3	22.9/17.6	22.9/17.5	23/19	29/21	25.5/19.5	25.5/19.5
DEFROSTING SUCTION PRESSURE (bar)	2.8/9.1	1.9/9.1	1.6/9.4	3.2/9.4	3.4/9.4	2.6/9.5	1.6/9.9	1.6/9.9
DEFROSTING DELIVERY PRESSURE (bar)	17/17.1	14.1/18	15.9/18.6	14.3/16.3	17.5/19.8	17.6/20.6	18.8/17.7	18.8/17.7

WATER COOLING									
MODEL	AC/EC46			AC/EC56			AC/EC86		
VOLTAGE	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1
ICE CUBE SIZE	S	M	L	S	M	L	S	M	L
Charge R134a	N/a	220	N/a	240	240	240	N/a	250	250
SUCTION PRESSURE (bar)	N/a	0.9/0.3	N/a	N/a	1.6/0.2	N/a	N/a	1.1/0	1.2/0
DELIVERY PRESSURE (bar)	N/a	10.5/9	N/a	N/a	10.5/7.5	N/a	N/a	11.5/7.5	13/9
DEFROSTING SUCTION PRESSURE (bar)	N/a	0.3/5.6	N/a	N/a	0.2/7.2	N/a	N/a	0/3.6	0/3.6
DEFROSTING DELIVERY PRESSURE (bar)	N/a	7.9/8.7	N/a	N/a	9.8/10.4	N/a	N/a	10.1/7	10.1/7

WATER COOLING									
MODEL	AC/EC 106			AC/EC126			AC/EC176		
VOLTAGE	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1
ICE CUBE SIZE	S	M	L	S	M	L	S	M	L
Charge R134a	N/a	280	280	N/a	370	370	350	390	380
SUCTION PRESSURE (bar)	N/a	2/0	N/a	N/a	1.3/0.3	1.3/0.3	1.2/0.2	1.2/0.2	0.8/-0.1
DELIVERY PRESSURE (bar)	N/a	19/11	N/a	N/a	10.5	10.5	12.2/10.8	12.2/10.8	10.1/9.6
DEFROSTING SUCTION PRESSURE (bar)	N/a	0/5.4	N/a	N/a	0.3/5.3	0.3/5.3	0.3/5.6	0.3/5.6	0.8/4.9
DEFROSTING DELIVERY PRESSURE (bar)	N/a	9.6/9.7	N/a	N/a	9.6/10.2	9.6/10.2	8.3/11.4	8.3/11.4	7/10.1

WATER COOLING								
MODEL	AC/EC 206					AC/EC 226		
VOLTAGE	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1
ICE CUBE SIZE	S	M	L	XL	ICE SHOT	S	M	L
Charge R452A	N/a	670	650	N/a	N/a	550	550	550
SUCTION PRESSURE (bar)	N/a	3.9/1.7	4.3/1.6	N/a	N/a	4.3/1.6	4.3/1.6	4.3/1.6
DELIVERY PRESSURE (bar)	N/a	22/17.3	22.9/17.6	N/a	N/a	23.5/18	23.5/18	23.5/18
DEFROSTING SUCTION PRESSURE (bar)	N/a	1.9/9.1	1.6/9.4	N/a	N/a	1.7/9.7	1.7/9.7	1.7/9.7
DEFROSTING DELIVERY PRESSURE (bar)	N/a	14.1/18	15.9/18.6	N/a	N/a	13.6/17.1	13.6/17.1	13.6/17.1

AIR COOLING			
MODEL	MXG 327	MXG 437	MXG 427
VOLTAGE	230/50/1	230/50/1	230/50/1
ICE CUBE SIZE	M	M	M
Charge R290 (g) 	145	150	150
SUCTION PRESSURE (bar)	3.4/1.2	2.3/0.9	2.3/0.9
DELIVERY PRESSURE (bar)	17.5/13	17/13	17/13
DEFROSTING SUCTION PRESSURE (bar)	1.2/7	0.9/5.9	0.9/5.10
DEFROSTING DELIVERY PRESSURE (bar)	11.2/10.7	13/11.1	13/11.2
DEFROSTING DELIVERY PRESSURE	11.2/10.7	13/11.1	13/11.2

AIR COOLING						
MODEL	MXG 328			MXG 428		
VOLTAGE	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1
ICE CUBE SIZE	S	M	L	S	M	L
Charge R134a	N/a	N/a	N/a	N/a	N/a	N/a
Charge R452A	630	550	550		680	580
SUCTION PRESSURE (bar)	1.9/3.1	3.1/1.5	3.5/1.6	3.1/1.6	3.1/1.4	2.3/1.2
DELIVERY PRESSURE (bar)	18/21	21/17	21/16.5	26/20	25.5/18.5	23.5/18
DEFROSTING SUCTION PRESSURE (bar)	1.9/8.5	1.7/8.6	1.6/9.2	1.6/6.9	1.4/7.1	1.1/6.5
DEFROSTING DELIVERY PRESSURE (bar)	17.5/16.1	16.8/15.7	16.8/15.8	20.4/20.4	19.6/19.6	18.4/17.8

AIR COOLING							
MODEL	MXG 438			MXG 638			
VOLTAGE	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1
ICE CUBE SIZE	S	M	L	S	M	L	XL
Charge R134a	N/a	N/a	N/a	N/a	N/a	N/a	N/a
Charge R452A	710	680	580	930	910	930	900
SUCTION PRESSURE (bar)	3.1/1.6	3.1/1.4	2.3/1.2	1.67/3.55	2.8/1.5	3.4/2.6	3.3/1.3
DELIVERY PRESSURE (bar)	26/20	25.5/18.5	23.5/18	18.3/24.4	21.7/19.2	23.1/20.8	22.2/17
DEFROSTING SUCTION PRESSURE (bar)	1.6/6.9	1.4/7.1	1.1/6.5	1.7/7.3	1.4/6.1	1.6/6.7	1.3/6.5
DEFROSTING DELIVERY PRESSURE (bar)	20.4/20.4	19.6/19.6	18.4/17.8	18.5/16.9	17.9/16.3	18.6/17.8	17.1/16.5

WATER COOLING						
MODEL	MXG 328			MXG 428		
VOLTAGE	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1
ICE CUBE SIZE	S	M	L	S	M	L
Charge R134a	N/a	N/a	N/a	N/a	N/a	N/a
Charge R452A	630	540	520	N/a	520	410
SUCTION PRESSURE (bar)	3.8/2.3	3.6/1.9	4.1/1.6	2.8/1.5	2.3/1.3	2.2/1
DELIVERY PRESSURE (bar)	18	17.5/17	17.5	17	16.5/17.5	17.5
DEFROSTING SUCTION PRESSURE (bar)	2/10	1.8/9.3	1.6/9.9	1.5/7.3	1.3/6.2	1/6.7
DEFROSTING DELIVERY PRESSURE (bar)	17.3/17.5	16.8/17	16.8/17.2	16.9/17.3	16.8/17.1	17/17.3

WATER COOLING							
MODEL	MXG 438			MXG 638			
VOLTAGE	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1	230/50/1
ICE CUBE SIZE	S	M	L	S	M	L	XL
Charge R134a	N/a	N/a	N/a	N/a	N/a	N/a	N/a
Charge R452A	N/a	520	410	750	800	780	780
SUCTION PRESSURE (bar)	2.8/1.5	2.3/1.3	2.2/1	3.1/1.5	3.5/1.5	3.2/1.3	3.2/1.1
DELIVERY PRESSURE (bar)	17	16.5/17.5	17.5	20.1/17.8	23.3/18.5	20.1/17.4	20.7/17.3
DEFROSTING SUCTION PRESSURE (bar)	1.5/7.3	1.3/6.2	1/6.7	1.5/7.2	1.5/7.1	1.3/6.8	1.2/6.3
DEFROSTING DELIVERY PRESSURE (bar)	16.9/17.3	16.8/17.1	17/17.3	17/17.6	18.1/18.4	17.2/17.5	15.9/17.6

AIR COOLING				
MODEL	MC46			
VOLTAGE	230/50/1	230/50/1	230/50/1	230/50/1
ICE CUBE SIZE	S	M	L	XL
Charge R452A	N/a	1230	1120	N/a
SUCTION PRESSURE (bar)	N/a	2.6/1.5	2.2/1.4	N/a
DELIVERY PRESSURE (bar)	N/a	22/18.8	20/18.3	N/a
DEFROSTING SUCTION PRESSURE (bar)	N/a	5.2/5.8	1.6/6.5	N/a
DEFROSTING DELIVERY PRESSURE (bar)	N/a	16.2/18.4	16.2/17.3	N/a

WATER COOLING				
MODEL	MC46			
VOLTAGE	230/50/1	230/50/1	230/50/1	230/50/1
ICE CUBE SIZE	S	M	L	XL
Charge R452A	N/a	770	750	770
SUCTION PRESSURE (bar)	N/a	3.3/1.5	3.2/1.3	2.8/1.4
DELIVERY PRESSURE (bar)	N/a	20.7/17.5	21.4/17.6	17.5
DEFROSTING SUCTION PRESSURE (bar)	N/a	4.3/7	1.3/6.6	1.4/6.8
DEFROSTING DELIVERY PRESSURE (bar)	N/a	12.5/17.8	17.2/17.7	16.9/17.3

Three-phase 380V/400 - 50 Hz

AIR COOLING						
MODEL	MXG 638			MXG 938		
VOLTAGE	380V/400 50 Hz	380V/400 50 Hz	380V/400 50 Hz	380V/400 50 Hz	380V/400 50 Hz	380V/400 50 Hz
ICE CUBE SIZE	S	M	L	S	M	L
Charge R452A	N/a	910	900	N/a	2500	2200
SUCTION PRESSURE (bar)	N/a	3/1.4	3.2/1.3	N/a	2.3/1.1	2.6/2.9
DELIVERY PRESSURE (bar)	N/a	22.8/18.1	22.6/17.7	N/a	21.8/18.3	21/16.5
DEFROSTING SUCTION PRESSURE (bar)	N/a	1.4/6.4	1.3/6.6	N/a	1.1/4.6	3.8/4.5
DEFROSTING DELIVERY PRESSURE (bar)	N/a	18.1/16.1	16.5/16.1	N/a	18.3/15.5	13/14.3

WATER COOLING						
MODEL	MXG 638			MXG 938		
VOLTAGE	380V/400 50 Hz	380V/400 50 Hz	380V/400 50 Hz	380V/400 50 Hz	380V/400 50 Hz	380V/400 50 Hz
ICE CUBE SIZE	S	M	L	S	M	L
Charge R452A	N/a	800	780	N/a	1300	1300
SUCTION PRESSURE (bar)	N/a	3/1.4	3.3/1.2	N/a	2.4/0.8	2.6/0.8
DELIVERY PRESSURE (bar)	N/a	18.4/17.6	21/17.2	N/a	19.3/16.5	18/17.1
DEFROSTING SUCTION PRESSURE (bar)	N/a	1.4/7	1.2/7.3	N/a	0.8/4.1	3.1/5.2
DEFROSTING DELIVERY PRESSURE (bar)	N/a	15.2/17.6	16.8/17.1	N/a	16.1/15.6	10.6/16

AIR COOLING						
MODEL	MC46				MC1210	
VOLTAGE	380V/400	380V/400	380V/400	380V/400	380V/400	380V/400
ICE CUBE SIZE	S	M	L	XL	M	L
Charge R452A	N/a	1230	1190	1100	2600	2600
SUCTION PRESSURE (bar)	N/a	2.5/1.5	2.5/1.4	1.9/1.3	3.1/1.5	3.2/1.3
DELIVERY PRESSURE (bar)	N/a	21.6/18.4	19/17	19.4/18.1	23.3/19	24.4/17.7
DEFROSTING SUCTION PRESSURE (bar)	N/a	1.6/6.5	1.5/6	1.5/6.3	1.5/9.1	1.3/9.3
DEFROSTING DELIVERY PRESSURE (bar)	N/a	18.3/17.1	16.9/16.1	16/16.6	18.8/15.7	13/16.2

AIR COOLING						
MODEL	MC46				MC1210	
VOLTAGE	380V/400	380V/400	380V/400	380V/400	380V/400	380V/400
ICE CUBE SIZE	S	M	L	XL	M	L
Charge R452A	N/a	750	N/a	890	2000	2100
SUCTION PRESSURE (bar)	N/a	3/1.5	N/a	1.9/1.3	4/1.3	4.5/1.5
DELIVERY PRESSURE (bar)	N/a	18.9/17.4	N/a	19.4/18.1	26/18.3	26.6/18.6
DEFROSTING SUCTION PRESSURE (bar)	N/a	1.5/6	N/a	1.5/6.3	1.3/8.5	1.5/9.3
DEFROSTING DELIVERY PRESSURE (bar)	N/a	17/17.1	N/a	16/16.6	17.4/15.2	17/15.5

REMOTE CONDENSER 230V/50 Hz

MODEL	MXG 438 RC	MXG 638 RC		MC 46 RC
VOLTAGE	380V/400	380V/400	380V/400	380V/400
ICE CUBE SIZE	M	M	L	M
Charge R452A	720	1000	1000	980
SUCTION PRESSURE (bar)	2/1.2	2.8/1.5	2.6/1.3	2.8/1.6
DELIVERY PRESSURE (bar)	20.5/18.5	21.7/19.2	22/18.5	22/20.1
DEFROSTING SUCTION PRESSURE (bar)	1.2/6.1	1.5/7.1	1.3/6.5	1.6/7.1
DEFROSTING DELIVERY PRESSURE	16.8/16.7	18.9/18.1	14.7/17.5	20/19.7

REMOTE CONDENSER 400V/50 Hz/3N

MODEL	MXG 638 RC		MXG 938 RC		MC 46 RC
VOLTAGE	380V/400	380V/400	380V/400	380V/400	380V/400
ICE CUBE SIZE	M	L	M	L	M
Charge R452A	N/a	1000	3500	3800	980
SUCTION PRESSURE (bar)	N/a	2.4/1.4	2.2/1	2.6/0.8	2.7/1.5
DELIVERY PRESSURE (bar)	N/a	19.5/17.7	19.6/17.7	21/18.6	21.4/18.4
DEFROSTING SUCTION PRESSURE (bar)	N/a	1.4/7.1	1/4.7	0.8/5.9	1.6/6.6
DEFROSTING DELIVERY PRESSURE	N/a	17.5/16.8	17.7/15.4	18.4/17.3	18.4/18

Personal notes

Personal notes

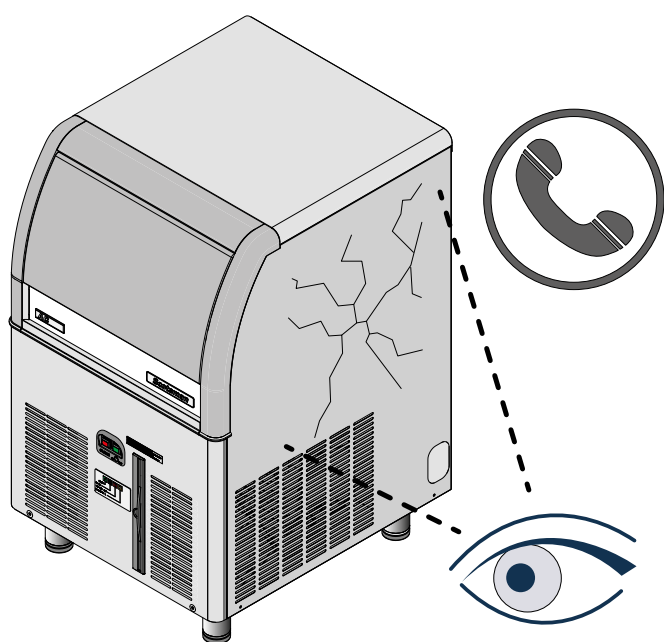
INSTALLATION

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PRELIMINARY CHECKS

F01 After unpacking and before taking the appliance to the installation site:

- ① remove the front and rear panels (if present) and visually check that it has not been damaged during transport; if damage or anomalies are noted, do not proceed with the installation but inform the carrier or the manufacturer accordingly without delay;
 - ② remove all internal supports used for shipping and protective adhesive tapes.
 - ③ check that:
 - the refrigerant circuit pipes do not touch other pipes or surfaces;
 - that the fan turns freely;
 - that the compressor is free to swing on its mounting brackets;
 - ④ also check that all components and accessories required for the model to be installed are present.
- The feet, if provided, are supplied disassembled and are stored inside the cell. If any components are missing or damaged, contact the manufacturer;



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- 5 clean all internal and external surfaces of the appliance with a clean cloth dampened with water. Before proceeding with the installation, dispose of the packaging in accordance with the regulations in force in the country of installation. This prevents it from being in the way when the appliance is being moved to the installation site, or children or animals from playing with it, with the risk of suffocation.

Materials used for packaging:

Pallet: wood

Corners: polystyrene

Outer box: cardboard

Straps, films, bags: plastic

Clips: metal

Note: depending on the packaging, all or only some of the materials indicated may have been used.

TRANSPORT

The manufacturer is not liable for any inconvenience caused by transport under conditions other than those specified in this chapter.

Transport and lifting of the appliance must take place:

- in **full compliance with the accident prevention**

regulations and current laws, and with the utmost caution;

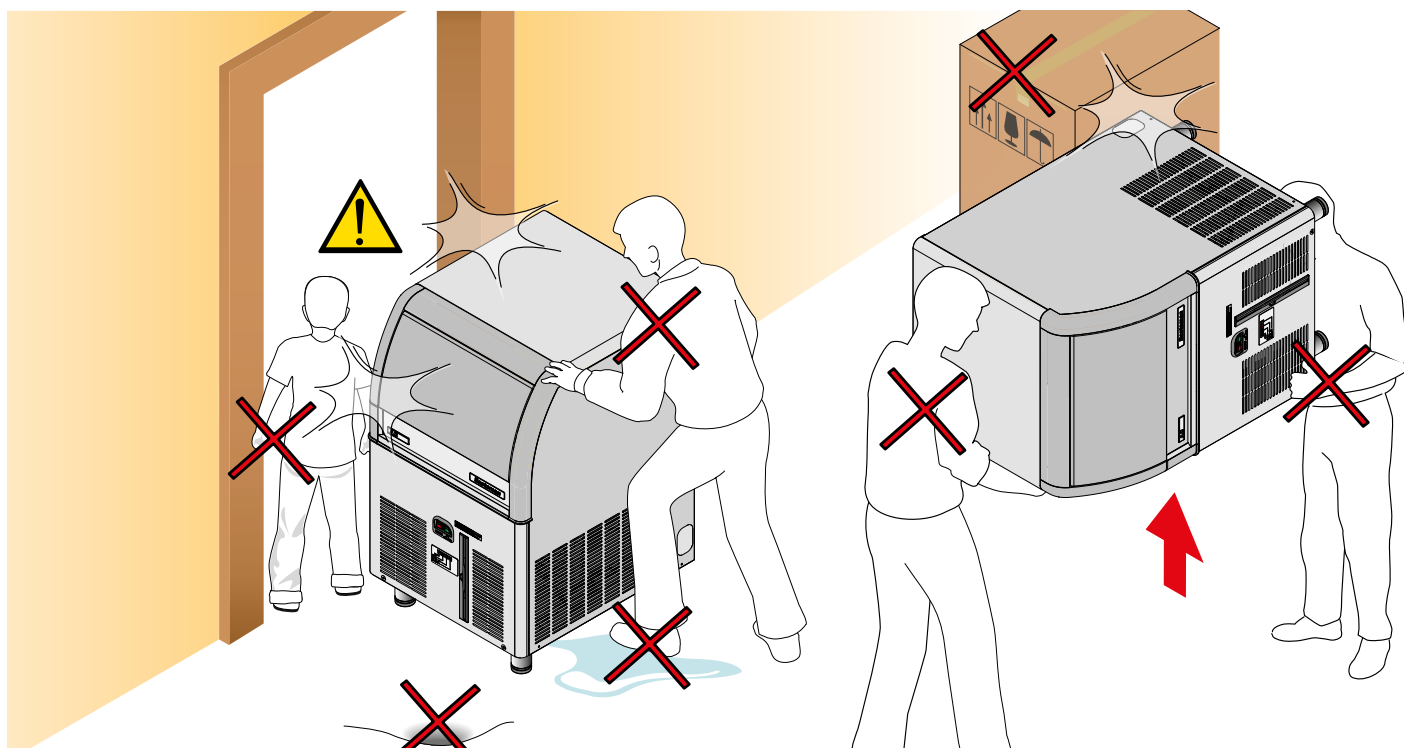
- by professionally qualified personnel, authorised and trained for the performance of these tasks and in **full possession of their physical and mental capacities**;
- **wearing all the appropriate PPE - Personal protective equipment**;
- **keeping the appliance in the vertical position**.
If this is not possible, wait **24 hours** before putting it into operation;
- after ensuring that **no persons or objects** that may prevent the activities from being carried out in full safety are present in the working area;
- after ensuring that the **floor is smooth**, perfectly level, free of bumps and obstacles, and not slippery.

F02 Appliances must NOT be moved:

- manually;
- with straps;
- pulling or pushing them.



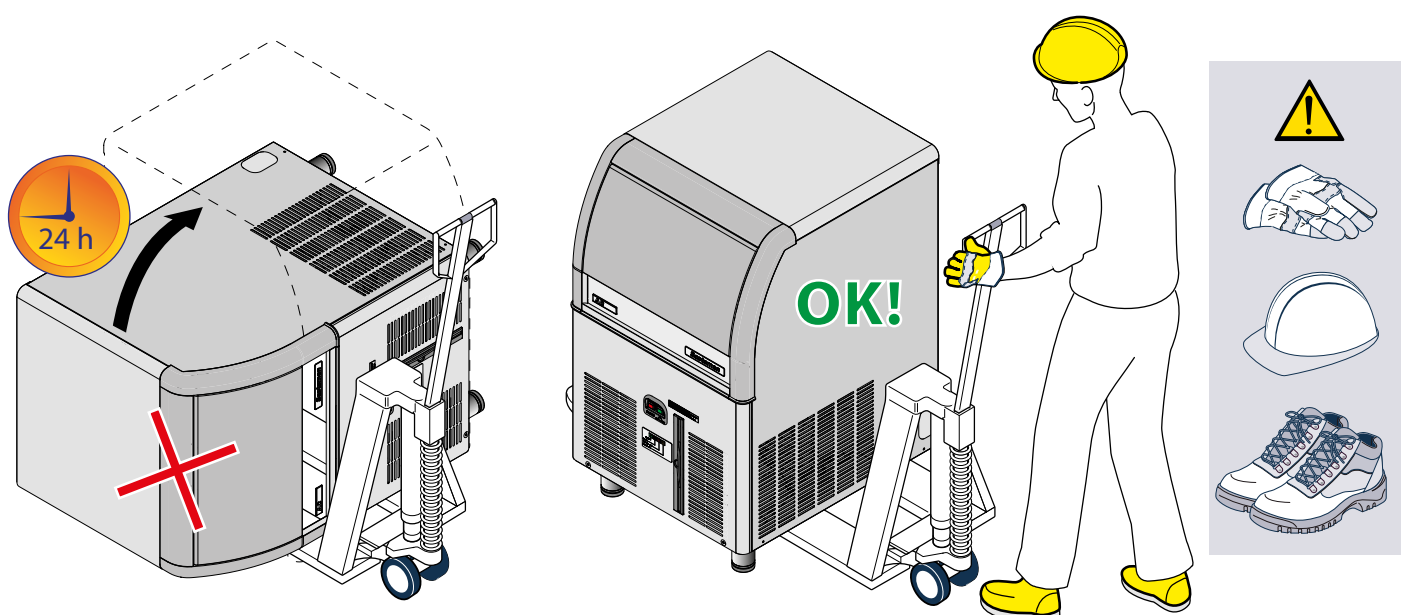
To find out the weight of the appliance being transported, please refer to the model data sheet, which can be downloaded using the QR code.



Correct transport of the appliance

F03 Insert the forks of a **pallet truck** suitable for the weight of the appliance under the **sides** of the same, taking care not to damage the bottom. Raise the appliance high enough so that it can be moved easily and take special care to balance the weight, as the centre of gravity does not coincide with the geometric centre of the appliance. Pay attention to the inclination when moving; **always keep the appliance in the vertical position**. If this is not possible, wait **24 hours** before putting it into operation. When handling the appliance using a **pallet truck or forklift truck**, insert the forks on the inside of the feet (if present). In case of mistake, do not try to counteract the load but drop it.

- Lifting equipment (pallet trucks, forklift trucks, etc.) must be suitable for the masses, dimensions and movements to be carried out.
- When lifting each part, make sure to use lifting equipment with a lifting capacity that is at least 20% greater than the weight of the part.
- ⊘ It is forbidden to make modifications on one's own initiative or to use makeshift means to secure and lift machine parts.
- ⊘ The use of lifting equipment other than that specified in these instructions is prohibited.
- ⊘ No person should be in the vicinity of the machine during transport, except the person transporting it.



POSITIONING

Installation Warnings

The installation of the machine must **ONLY** be carried out by authorised and qualified personnel.

This manual discusses the assembly instructions for various appliances, although only some of the currently available models are indicated.

Unless expressly otherwise specified, **the instructions are valid for all models.**

Appropriate personal protective equipment must be worn during the installation operations.

The installation location must meet the minimum installation requirements indicated by the manufacturer.

The machine must be installed following the methods and meeting the requirements described in these instructions, as well as allowing for the required free surrounding spaces.

The installer must assess the installation position of the machine and equipment in such a way as to ensure that the assembly and disassembly of its various components is simple and convenient, and guarantee the necessary clearance and access to the machine for maintenance purposes.

Preliminary Operations

CHECK OF THE SUPPLIED COMPONENTS

Check that all the components required for the installation have been received and are in good condition.

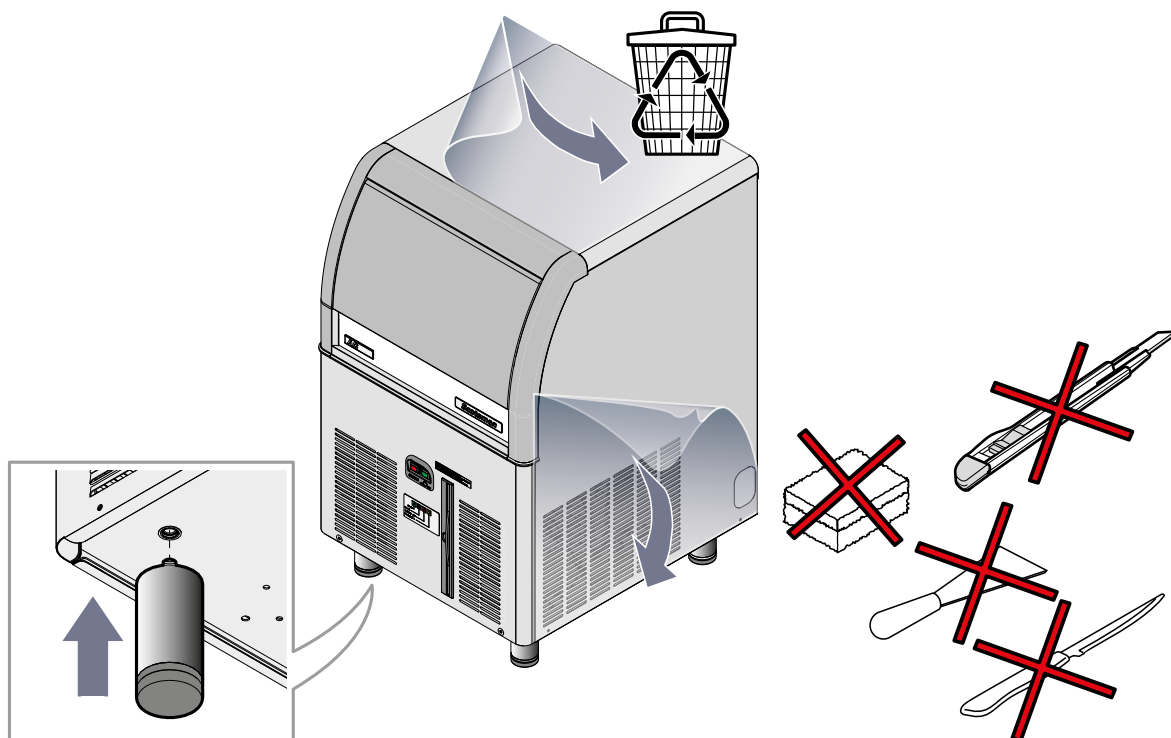
If any are missing, do not proceed with the installation but promptly inform the manufacturer or dealer.

REMOVAL OF THE PROTECTIVE FILMS

F04 Slowly peel off the protective films from the appliance. Clean any glue residues with a suitable solvent without using tools or abrasive or acid detergents, which could damage the surfaces. Once removed, protective films must be kept out of the reach of children or animals, as they are potentially dangerous, and properly disposed of according to local regulations.

MOUNTING FEET

F04 Models are normally supplied with feet (except AC/EC 47-57): these must be fitted at the time of installation by screwing them tightly onto the fittings at the base.



Positioning in the installation room

ROOM CHARACTERISTICS

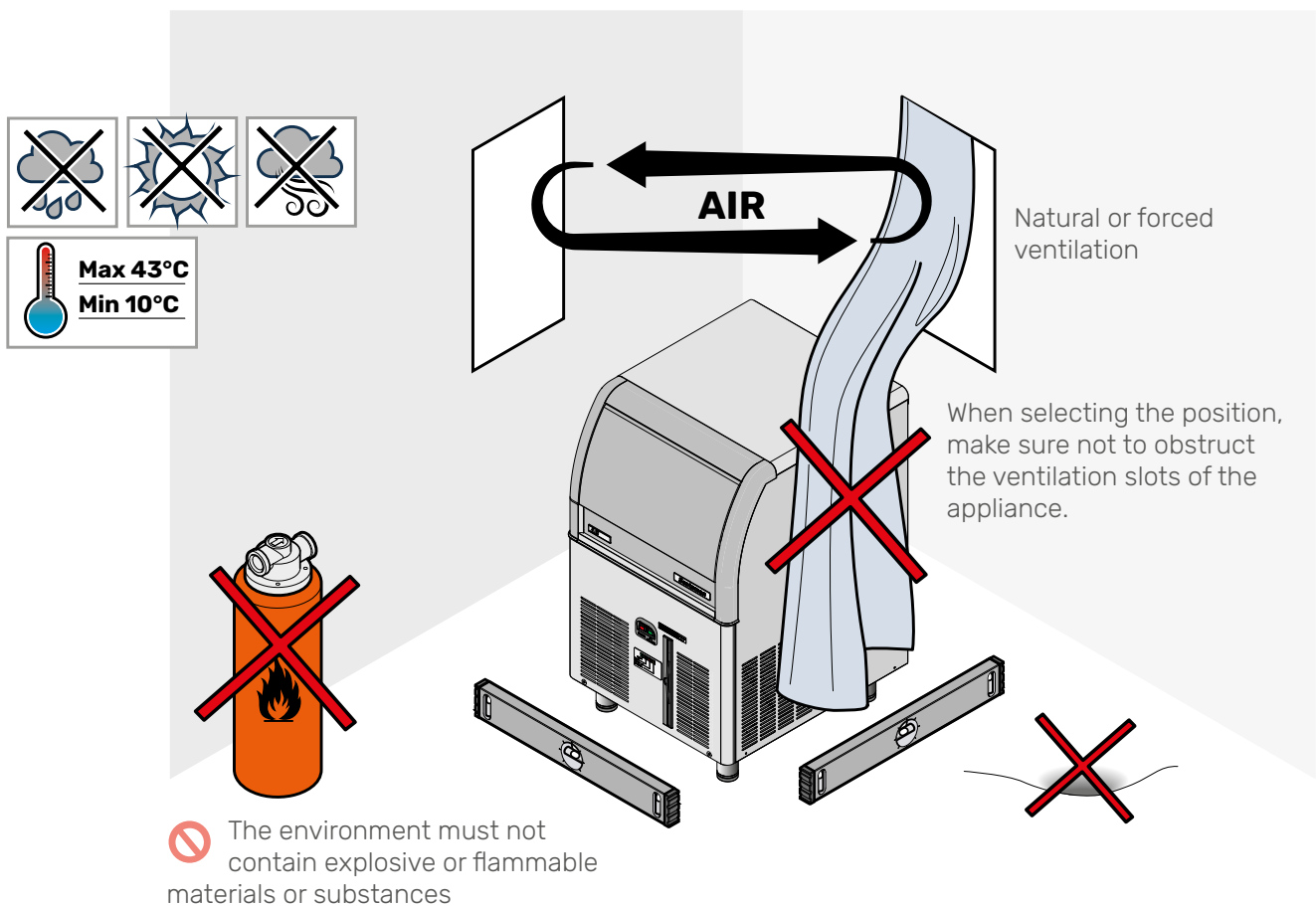
F05 WARNING. This ice maker is designed to be installed **inside** rooms solely dedicated to the **storage of foodstuffs** and which **comply with the current regulations** in terms of work safety, installations and fire prevention.

Prolonged periods of operation at temperatures outside the following limits constitute misuse according to the SCOTSMAN warranty terms and automatically void the warranty.

The manufacturer's warranty does not cover oxidation due to installation in marine environments or in the presence of salt air.

 The appliance must not be exposed to vibrations, high-frequency noise, dust or foreign materials, as such exposure may lead to deterioration or mechanical failure. It must also not be exposed to the elements (rain, hailstones, fog, snow, etc.).

The appliance must be easy to move for any extraordinary maintenance that may be required. Pay attention that any masonry works subsequent to the installation (for example construction of walls, replacement of doors with narrower ones, renovations, etc.) do not hinder movement.



MINIMUM DISTANCES TO BE RESPECTED

F06 Install the appliance:

- so that the electricity and water connection points are at easy reach;
- leaving the spaces indicated in the figure from any walls or other neutral appliances;
- at a distance of about **15 cm** from hot appliances (for example fryers, ovens, hotplates, etc.).

Always ensure that the position chosen for the installation allows for the convenient and easy removal of the ice cubes and that there is sufficient space for daily cleaning and extraordinary maintenance (for example repairs).

Also check that there are NO curtains or obstacles in the vicinity of the appliance that could obstruct or prevent proper air circulation through the ventilation slots.

POSITIONING

AC | EC series appliance

Appliances must **only be placed on the floor**.

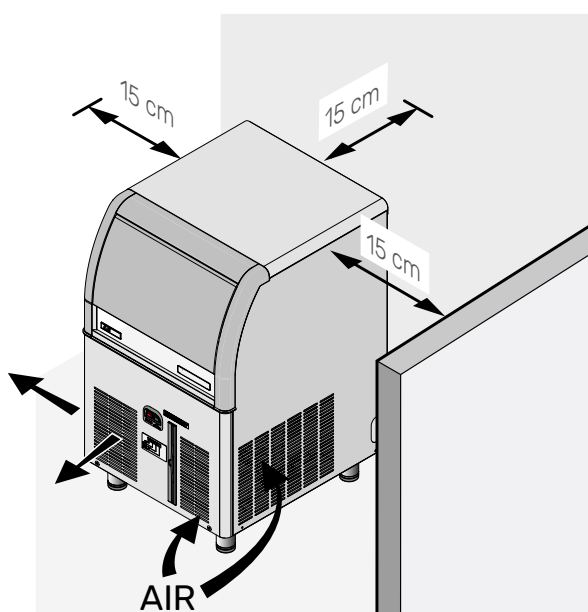
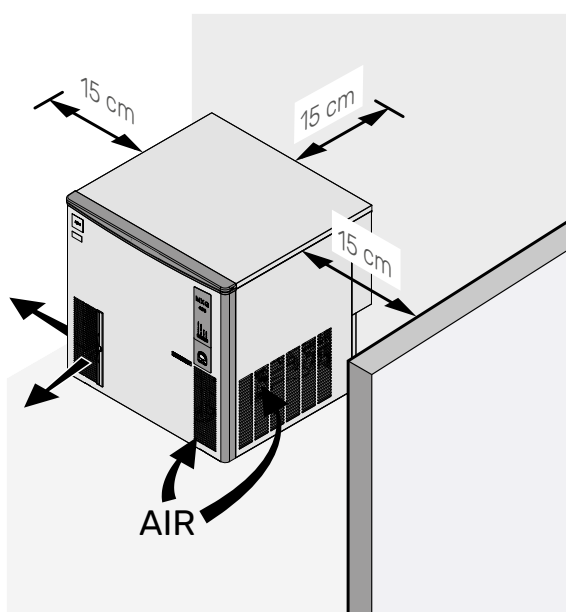
The floor on which the machines (AC | EC series) rest must be flat, smooth, fireproof and have the technical and structural characteristics to support the weight of the appliance and the ice cubes produced.

Slight unevenness of the floor can be compensated for by adjusting the feet of the appliance, rotating them until perfect levelling is achieved.

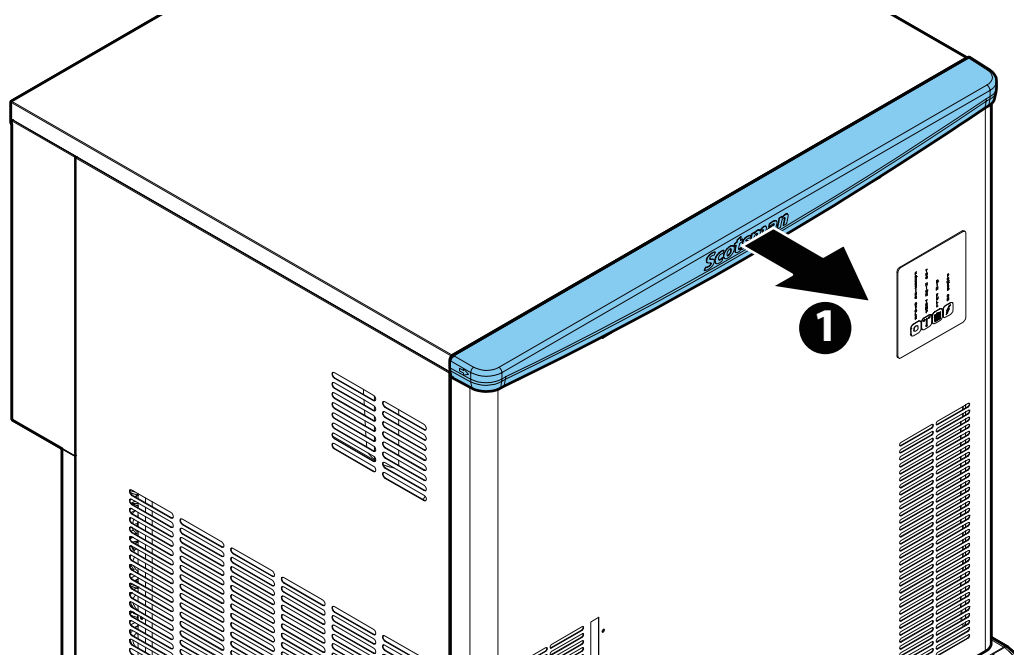
If, due to severe unevenness or slopes in the floor, the appliance cannot be set perfectly level, operation and drainage may be impaired!



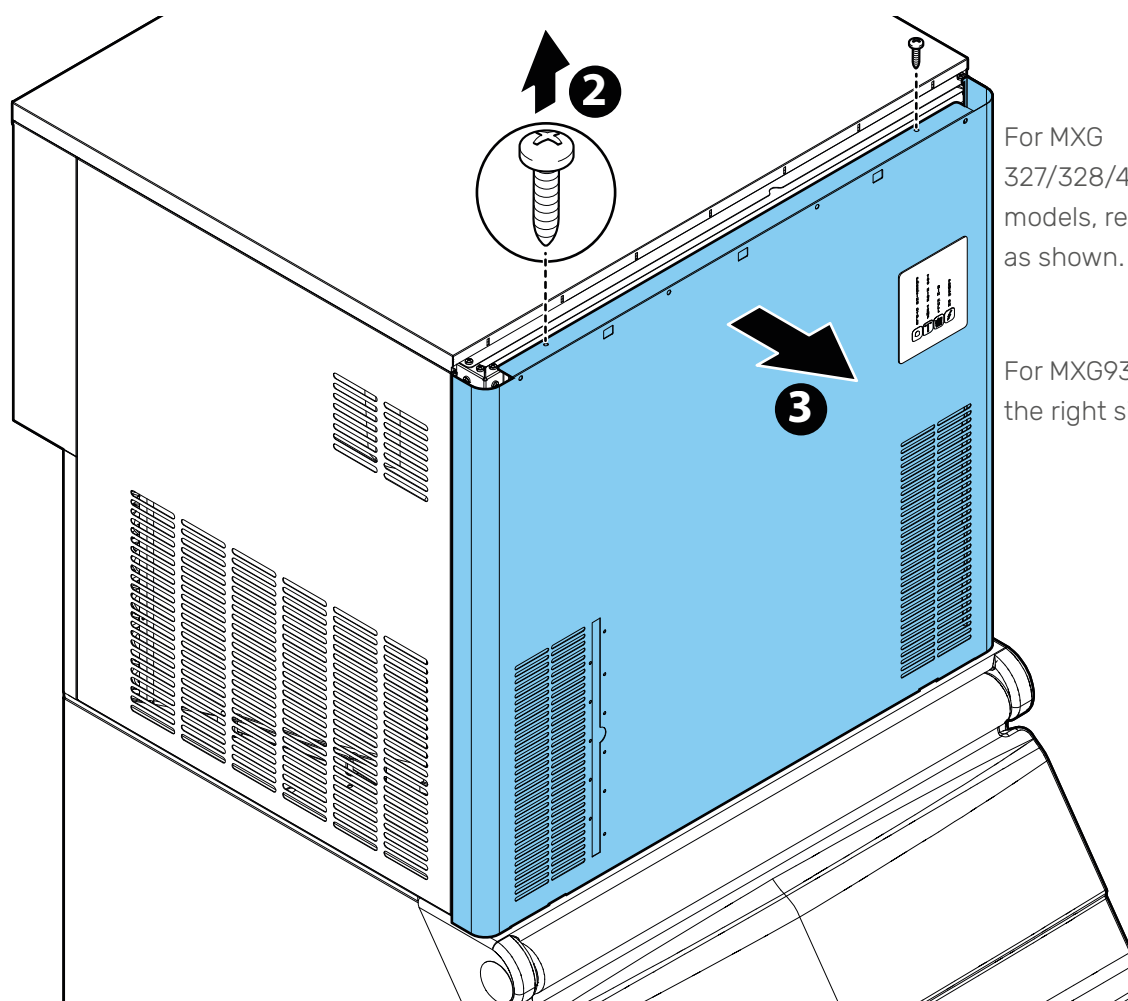
Caution! Do not install the machine on containers with an area lower than the base of the machine.



Bin full optical reader assembly (MXG SERIES only)

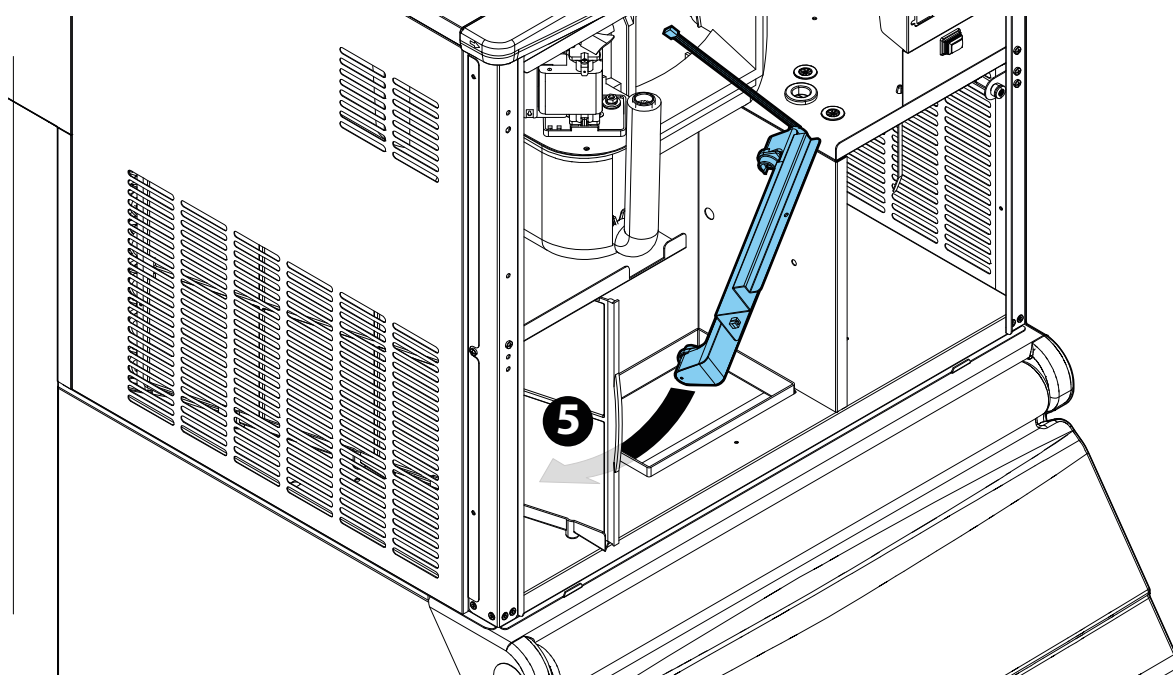
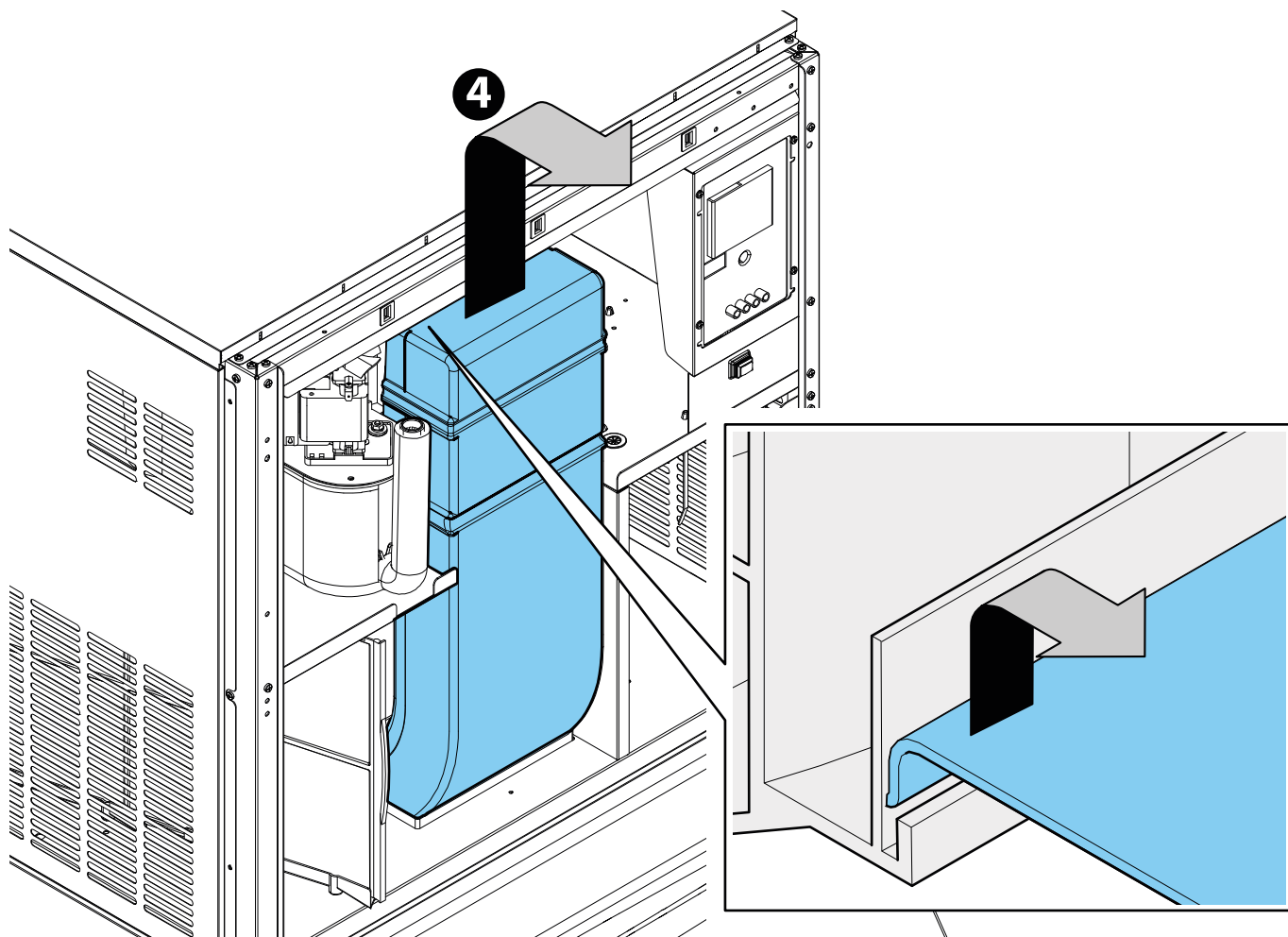


The bracket + photocell kit can be found by opening the left and right panels

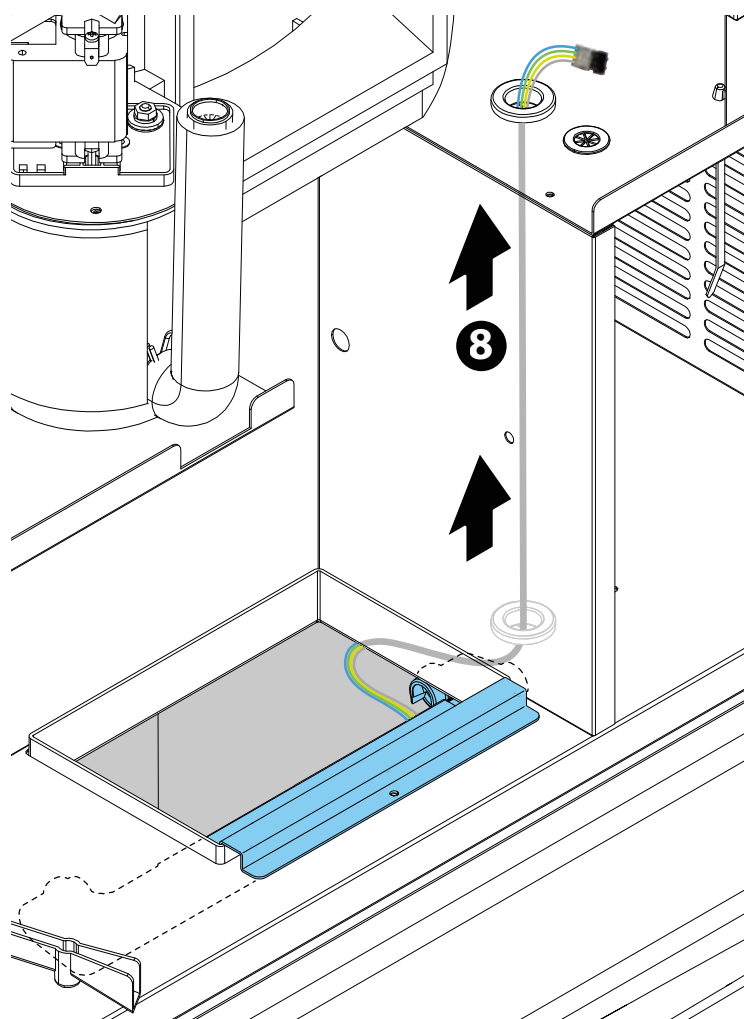
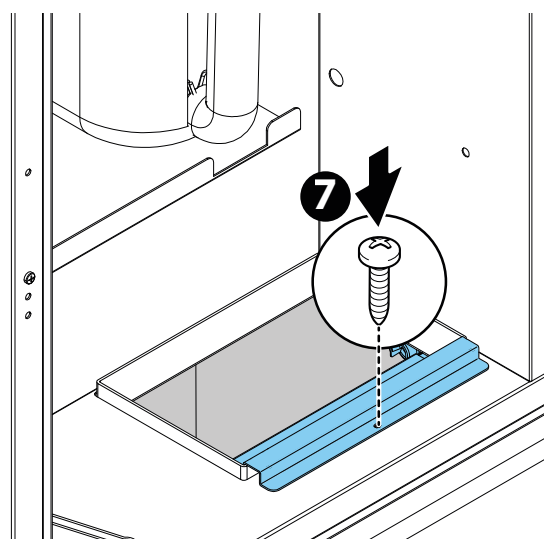
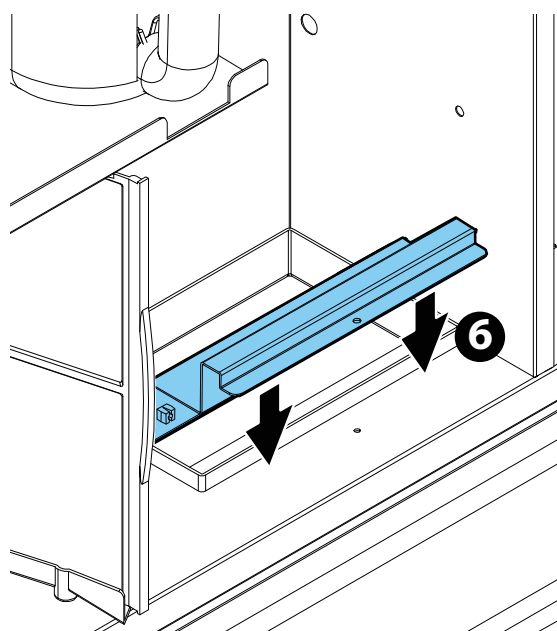


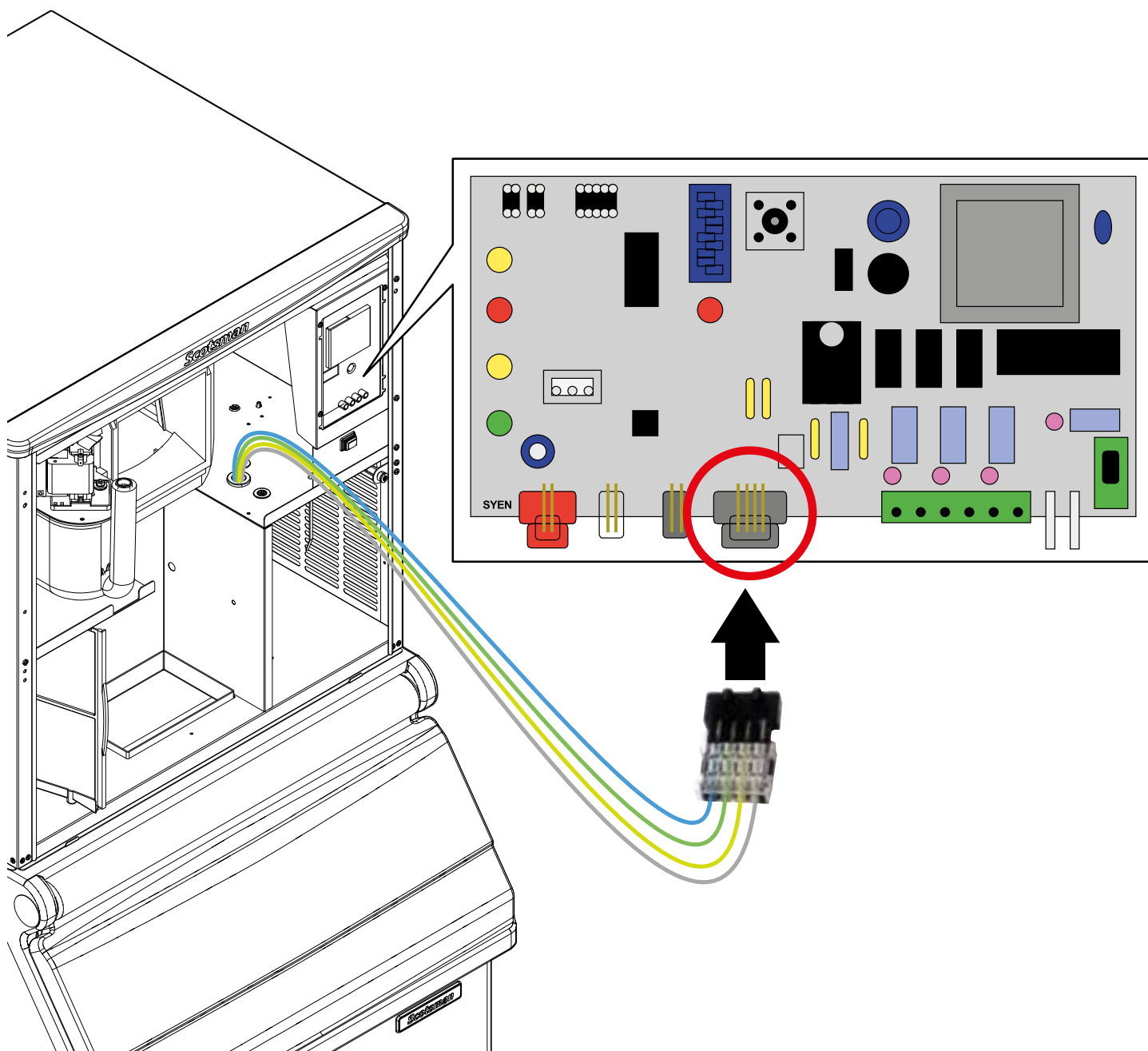
For MXG 327/328/427/428/437/438/638 models, remove the front panel as shown.

For MXG938 models, remove the right side panel



Assemble the bracket + photocell kit.





CONNECTIONS

Connection warnings

The appliance requires the following connections to the systems inside the room:

- **water** connection (1 or 2 water ports depending on the machine install);
- **electricity** connection.

● All connections must be completed by qualified personnel, wearing personal protective equipment (for example gloves, safety shoes, etc.), in accordance with the regulations in force in the country of use and in compliance with the regulations on installations and safety at work.

Consult the rating plate

F07

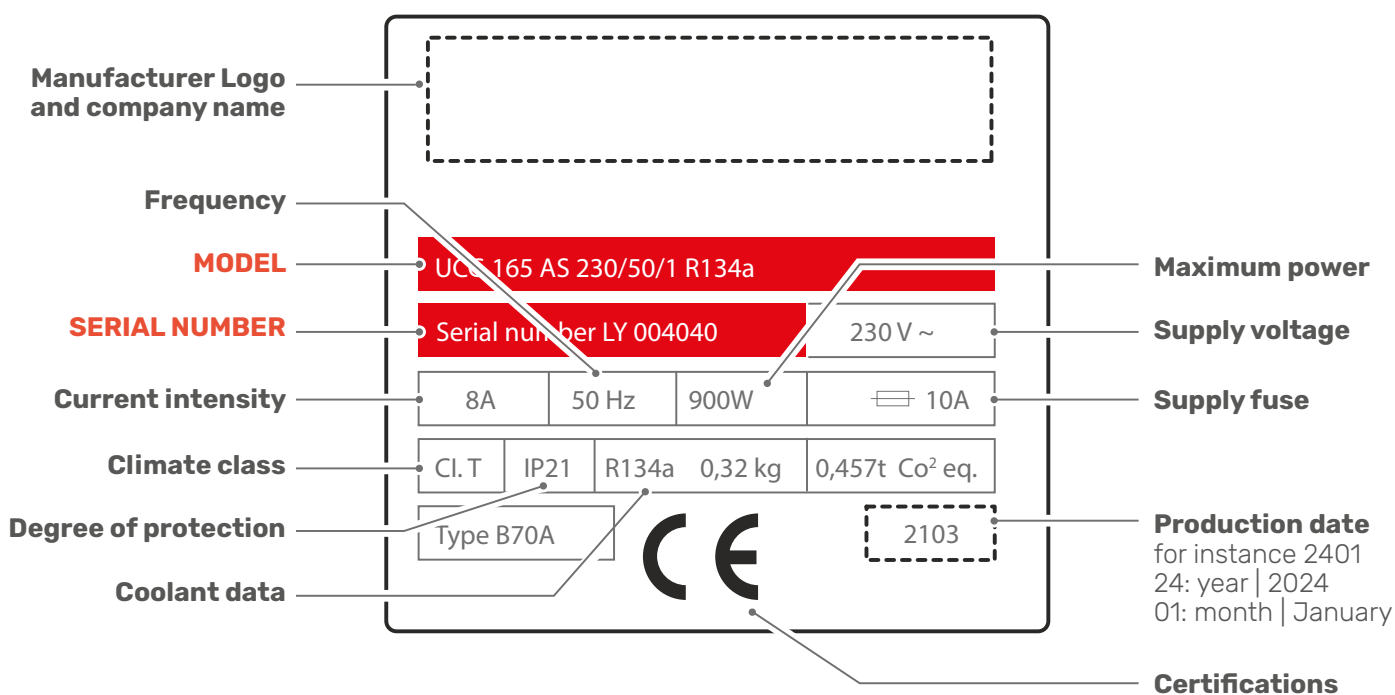
Before completing the connections, it is necessary to **check the details** of the appliance to ensure that they match those of the system; all data can be found on the rating plate **located on the back of the equipment**.

The rating plate provides important technical information, which are also indispensable in the event of a request for maintenance or repair of the appliance. It is therefore recommended not to remove, damage or modify it.

Machine: Ice Maker Series AC | EC | MXG

Manufacturer:

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sales@scotsman.it



Water connection

Before connecting the appliance to the water mains, it is mandatory to carefully read the safety instructions on page 29 of this manual.

The following are supplied with the appliance:

Air models

- 1 reinforced plastic hose with 3/4" female fitting
- 1 X 20 mm diameter water outlet pipe, not threaded

Water models

- 2 or 3 reinforced plastic hoses with 3/4" female fitting;
- 1 or 2 20 mm diameter water outlet pipe, not threaded;
- 1 "Y" fitting (if present).

CONNECTION TO THE WATER MAINS

The position of the inlet ports is different depending on the model. Refer to the data sheet of the appliance to be installed.

Air-cooled models

The appliance requires the following water connections:

- 1 3/4" connection to the water mains in order to fill the machine with the drinking water required for making ice cubes.

Water-cooled models

The appliance requires the following water connections:

- 1 3/4" connection to the water mains in order to fill the machine with the drinking water required for making ice cubes;
- 1 3/4" connection to the water mains to load the water (not necessarily of drinking quality) required for the water condenser.

In both cases, install a shut-off tap (not supplied) at the water ports, so that the appliance can be isolated when necessary.

CHARACTERISTICS OF INLET WATER

Water is the only ingredient for making ice; therefore, the characteristics of the incoming water must not be neglected. For example, a supply water pressure of less than 1 bar can cause malfunctions in the appliance. The use of excessively mineralised water could result in the production of opaque ice cubes and considerable fouling of the internal parts of the water circuit.

The incoming water must have the following characteristics:

- be **potable** (only the water used to create the ice cubes);
- have a **temperature** between 5°C and 38°C;
- have a **maximum conductivity** of 100µ S/cm
- have a maximum **hardness** of 17.8 °f (French degrees) | 10°dH (German degrees) and a minimum hardness of 7.12 °f (French degrees) | 4°dH (German degrees); if the water hardness is higher, use a water softener (not supplied). The choice of the type of softener is the responsibility of the installer. Damage to components due to limescale deposits is not covered by the warranty;
- have a **pressure** value between 1 Bar and 5 Bar. If the inlet pressure is lower than the indicated value, use a pump with a suitable flow rate (minimum flow rate 300 l/h); if it is higher, use a pressure reducer.

DRAIN CONNECTION

The position of the drains differs depending on the model. Refer to the data sheet of the appliance to be installed.

F08 Connect to the **ø 20mm "A" fitting a "T" drain pipe** made of rigid plastic and with a 18 mm internal diameter as extension (not supplied). The discharge of excess water takes place by gravity; to ensure a regular outflow, it is essential that the drain has an air vent and goes into an open siphon. The choice of the type and the fixing method is the responsibility of the installer; it is advisable to have a length and slope such to allow the proper drainage of condensate and to install a siphon.

An air gap of 2.5 cm must be maintained between the exhaust pipe and the evacuation area (grating or other receiving pipe). This ensures that potentially dangerous bacteria are NOT able to travel up the drain and contaminate the appliance.

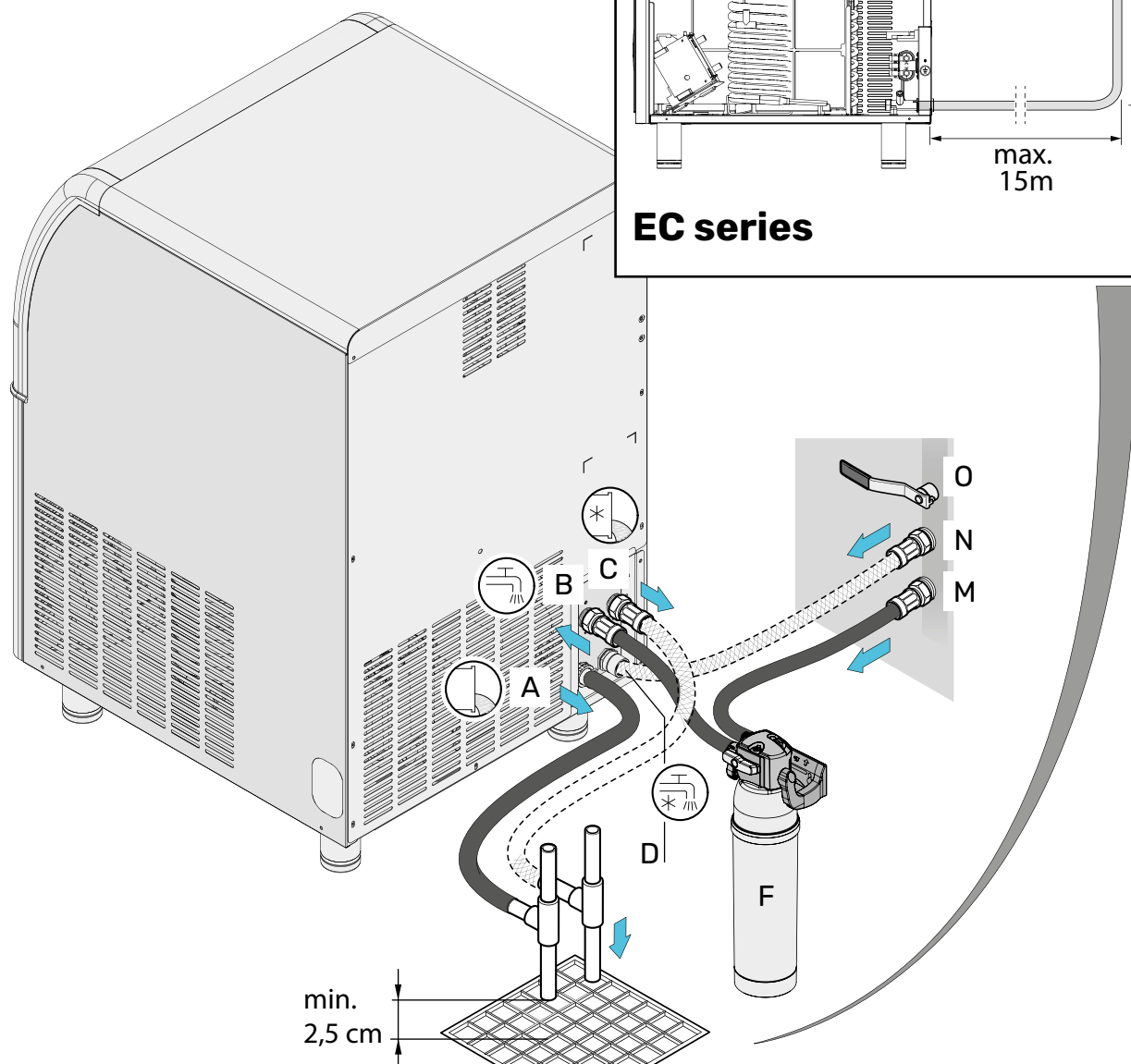
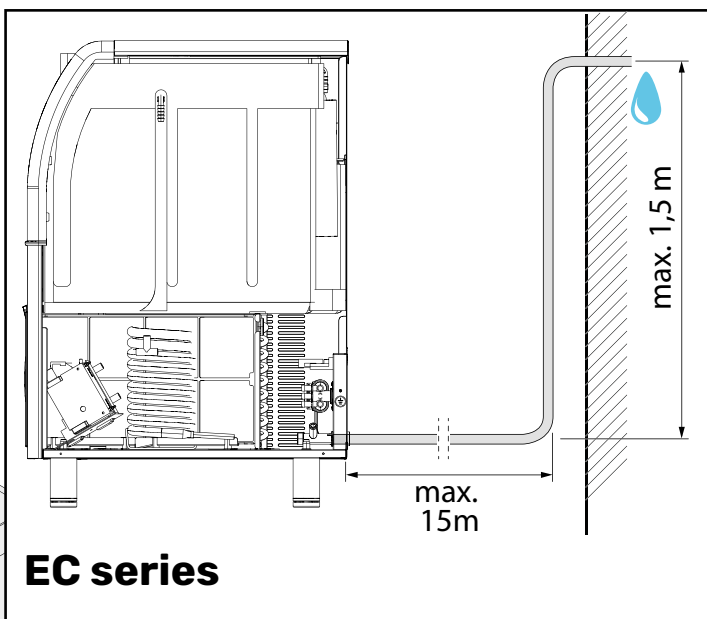
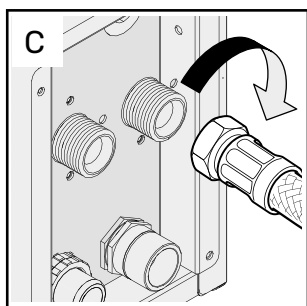
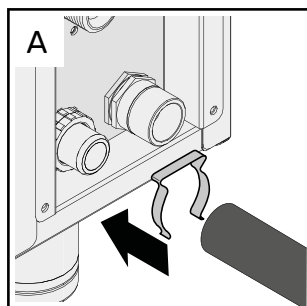
F08 Water-cooled appliances require a separate water drain line to be connected to the 3/4" fitting marked "Water drain - water-cooled only".

For EC series appliance only

EC series appliances have the pump for draining the water built into the machine; this is useful if there is no drain available near the machine.

The maximum distance between the pump and the ice maker is **30 metres** and approx **1.5 metres** in height.

AC | EC series



A: ø 20 mm tray water drain



B: 3/4" gas drinking water inlet



C: 3/4" gas or 20 mm depending on model - water drain (water-cooled models only)



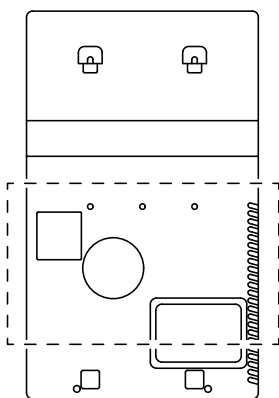
D: 3/4" gas inlet (water-cooled models only)

F: softener filter recommended (not supplied)

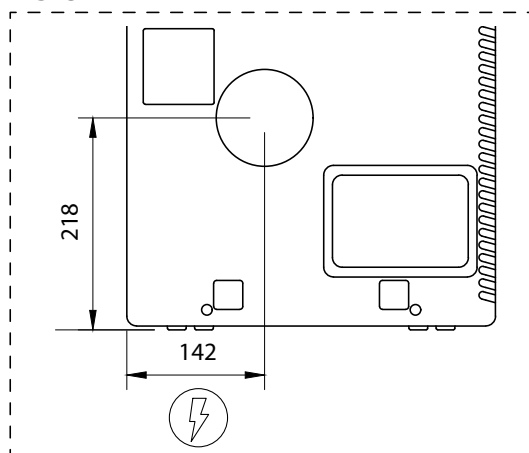
M: 3/4" drinking water connection

N: 3/4" water connection (water-cooled models only)

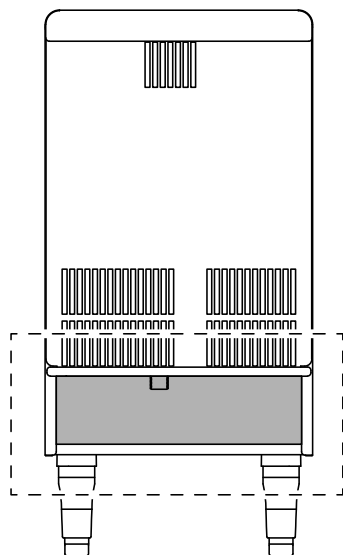
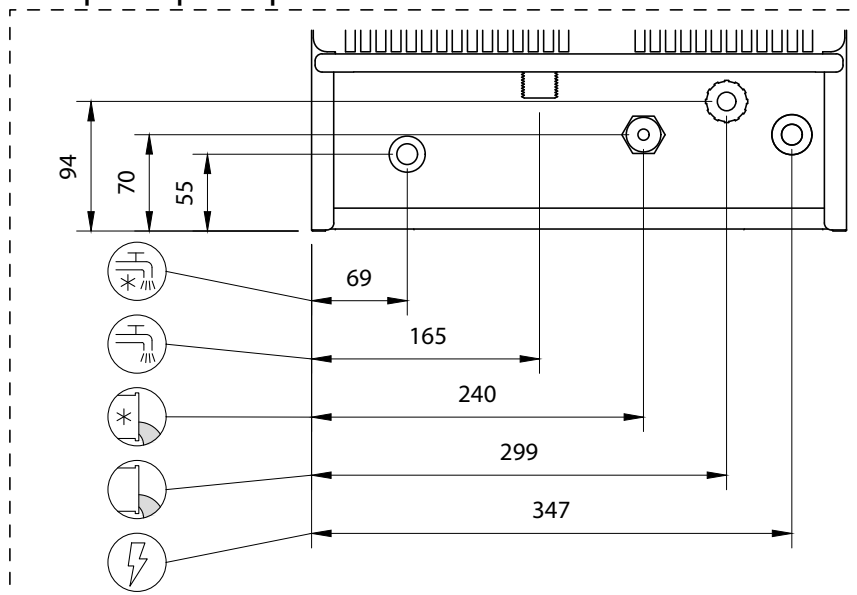
0: shut-off tap



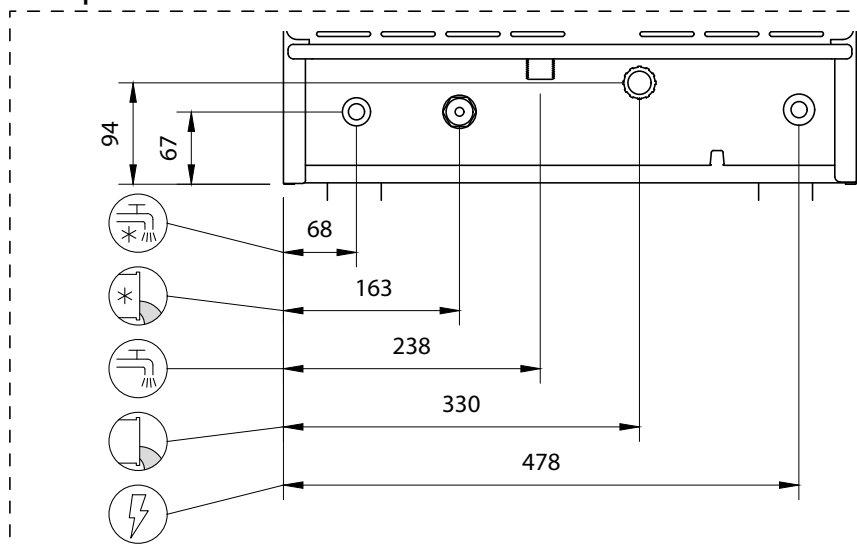
AC25



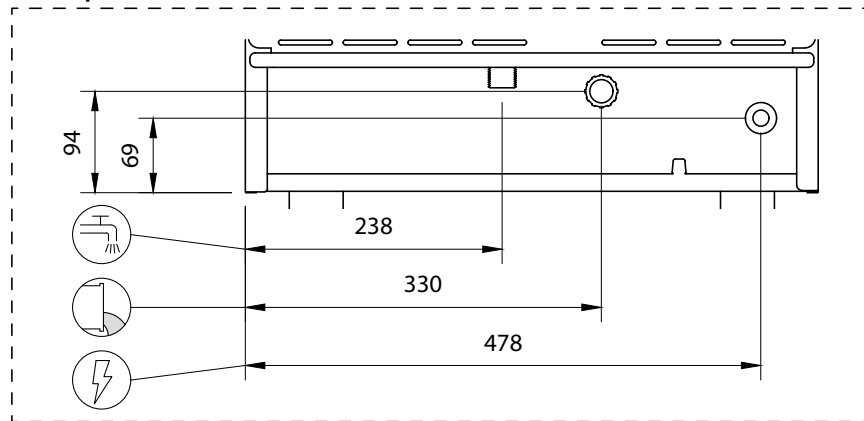
AC46 | AC47 | AC56 | A57



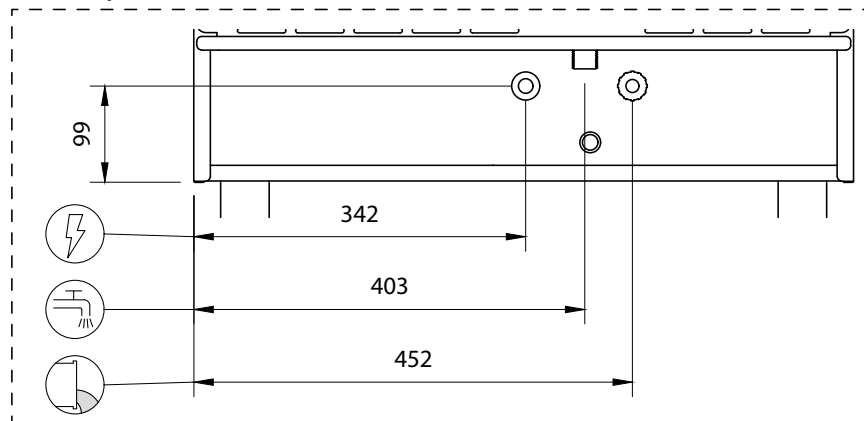
AC86 | AC106



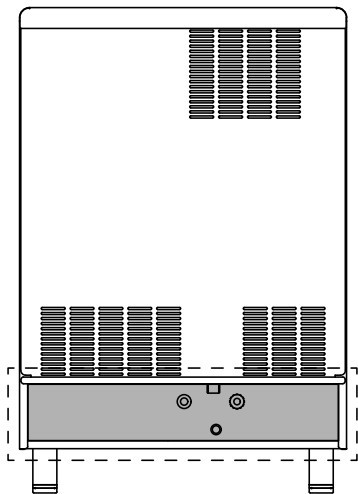
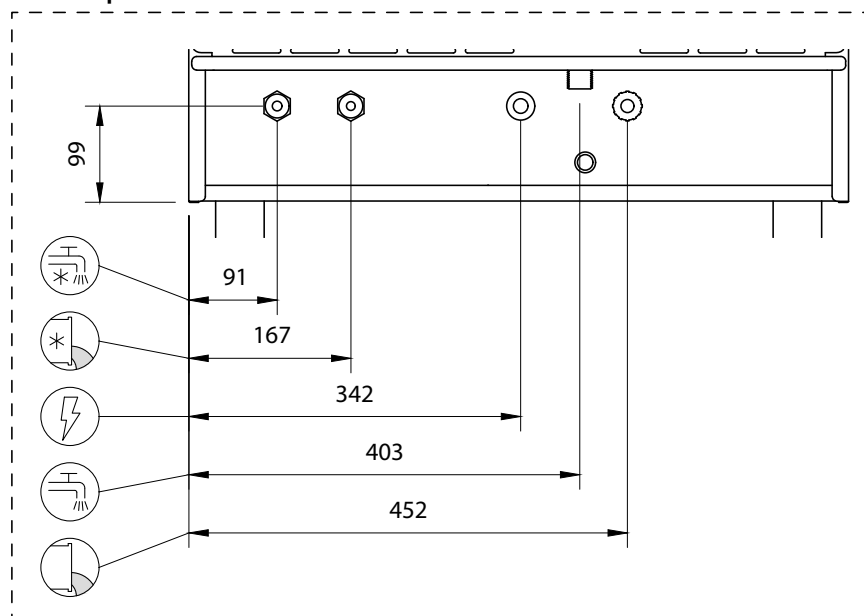
AC87 | AC107



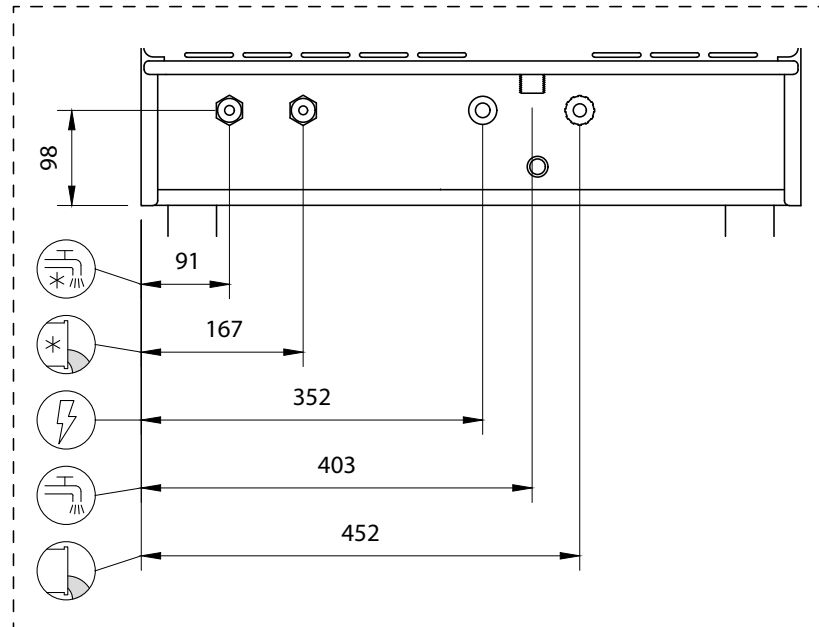
AC127 | EC127



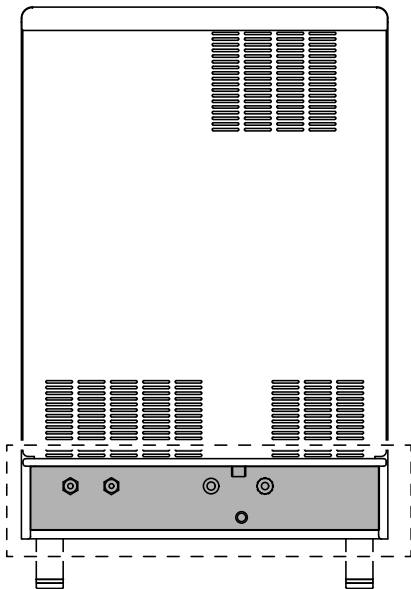
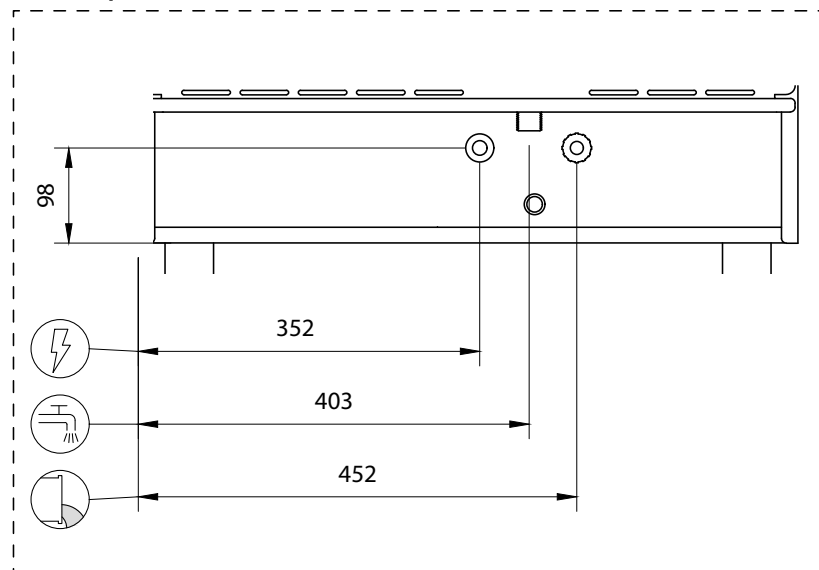
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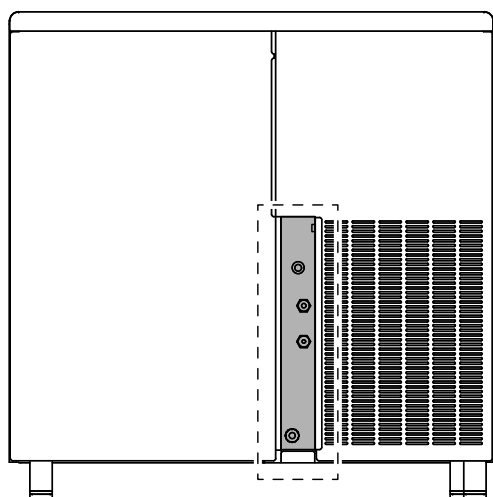


AC176 | EC176

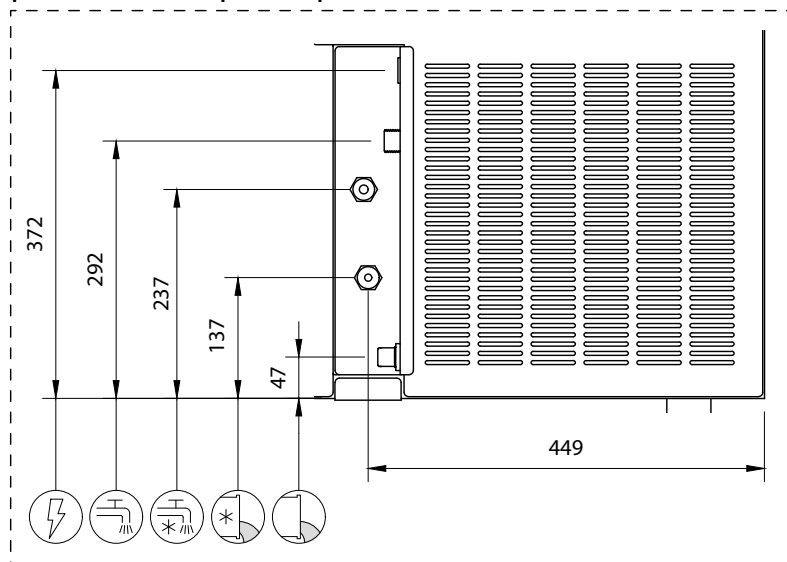


AC177 | EC177

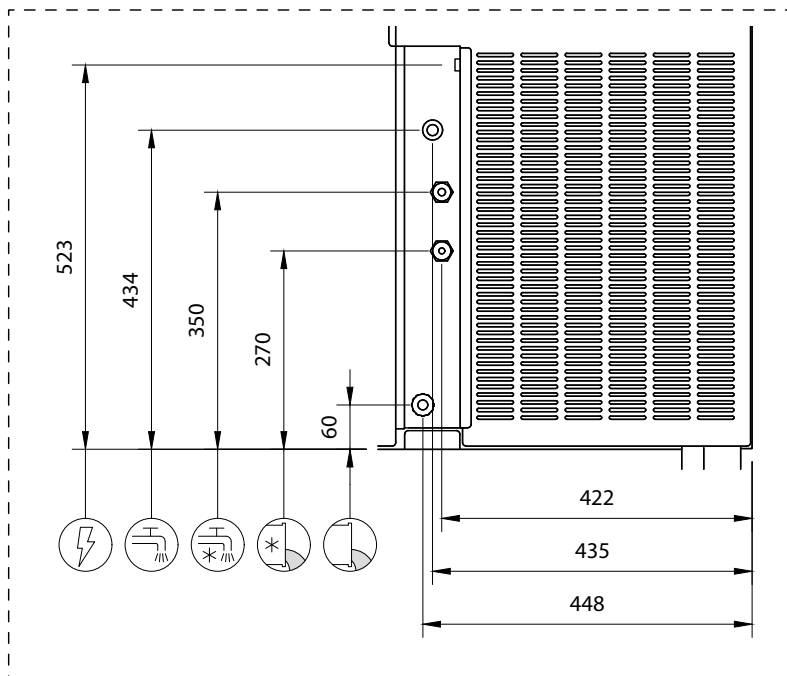


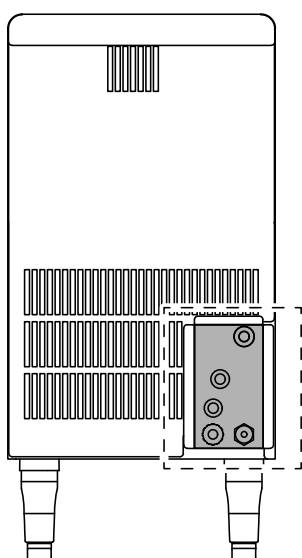


AC206 | AC206ICESHOT | EC206 | EC206ICESHOT

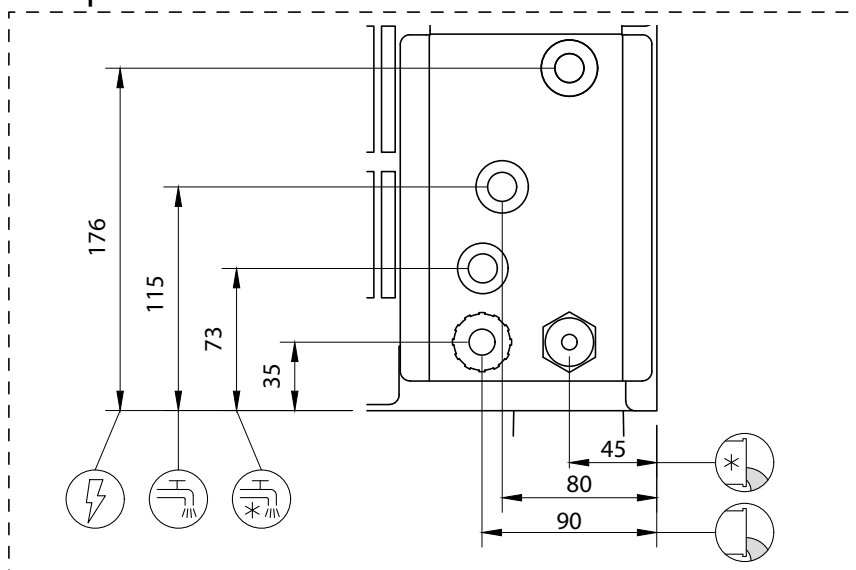


AC226 | EC226

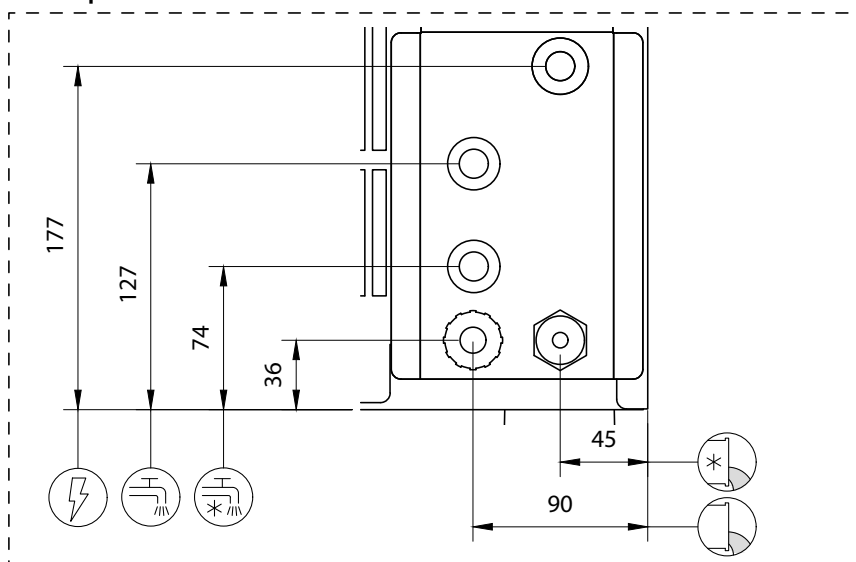




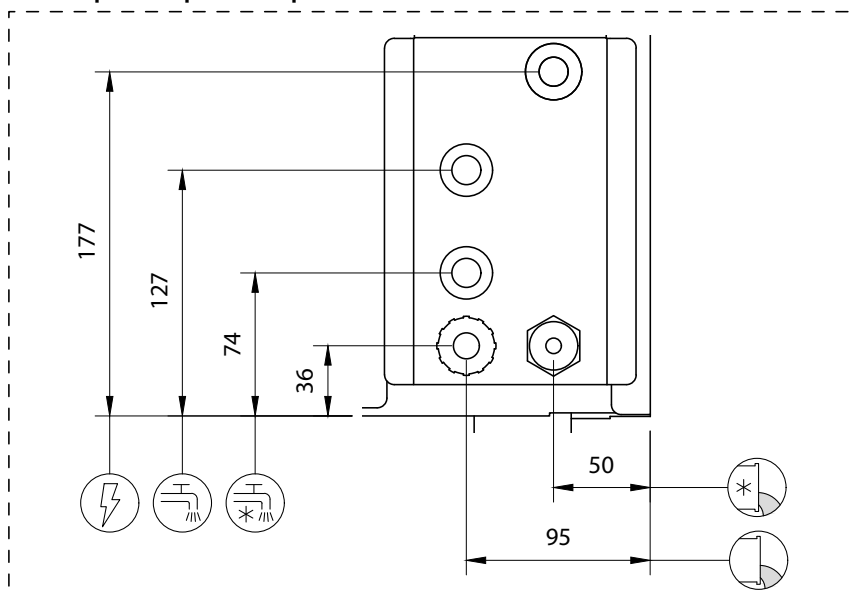
EC46 | EC47



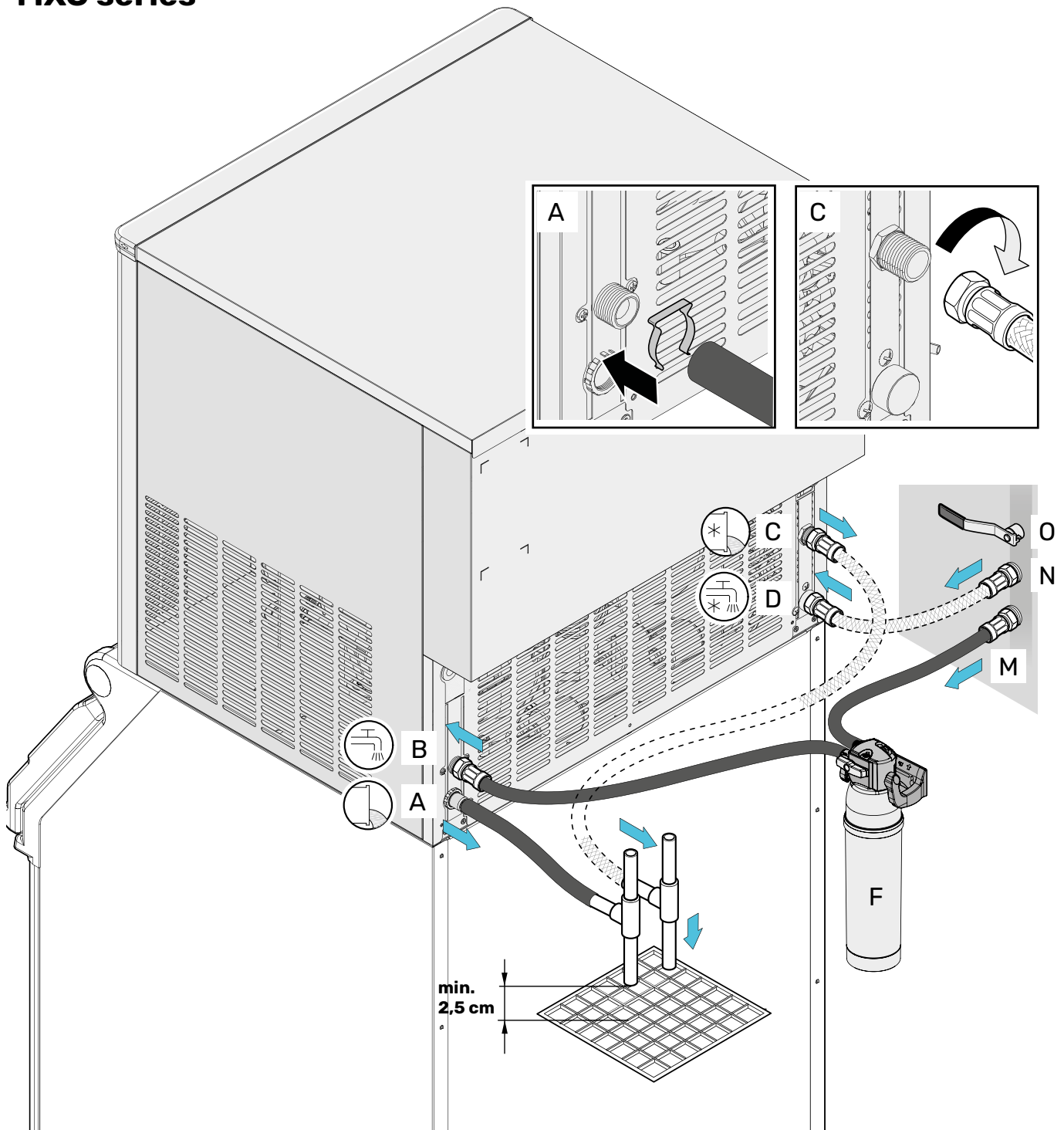
EC56 | EC57



EC86 | EC87 | EC106 | EC107



MXG series



A: ø 20 mm tray water drain



B: 3/4" gas drinking water inlet



C: 3/4" gas or 20 mm depending on model - water drain (water-cooled models only)



D: 3/4" gas inlet (water-cooled models only)

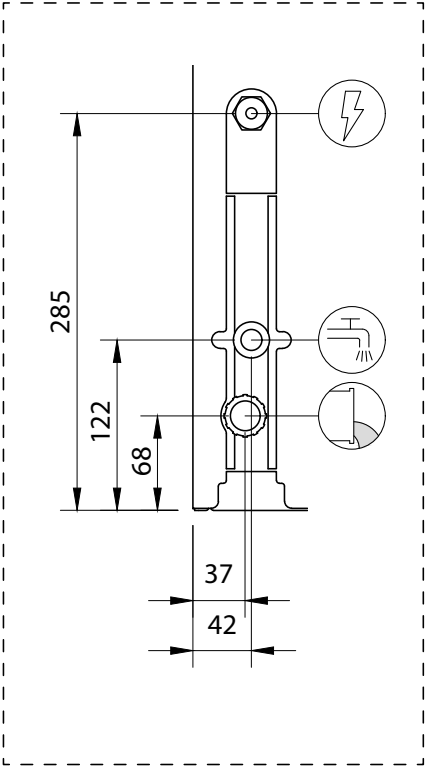
F: softener filter recommended (not supplied)

M: 3/4" drinking water connection

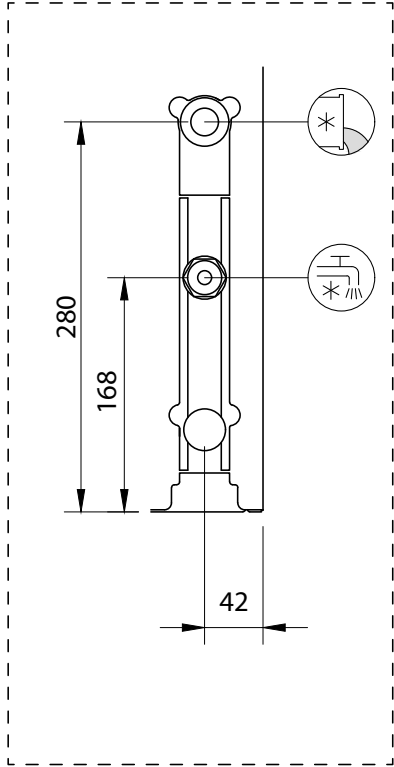
N: 3/4" water connection (water-cooled models only)

O: shut-off tap

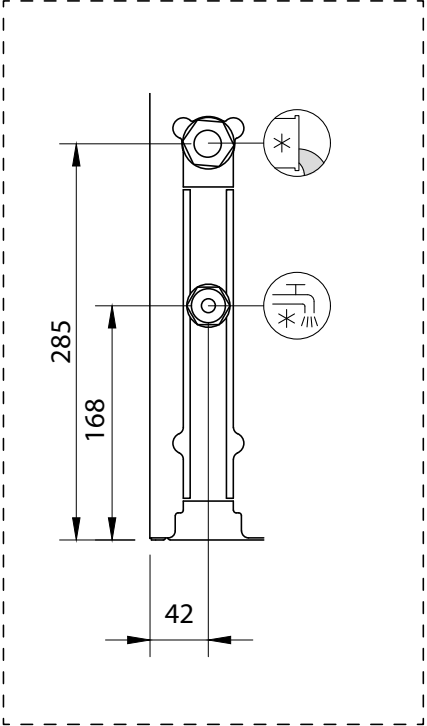
MXG638



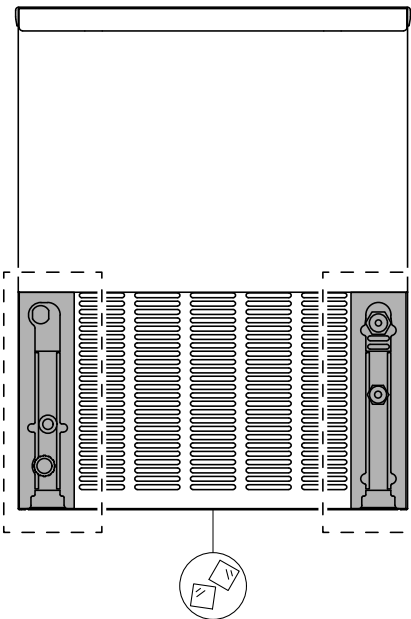
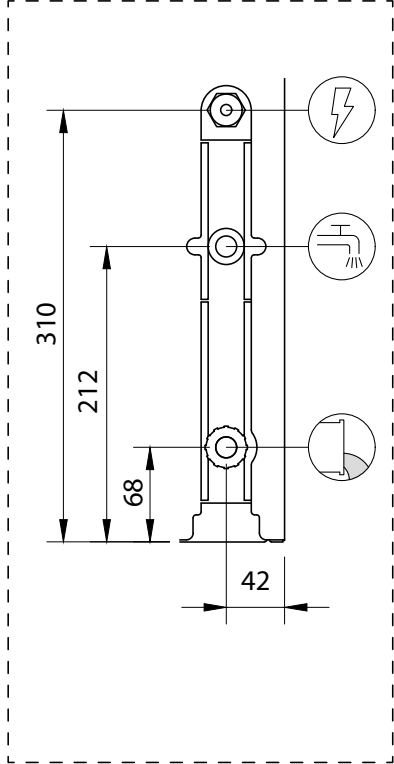
MXG638



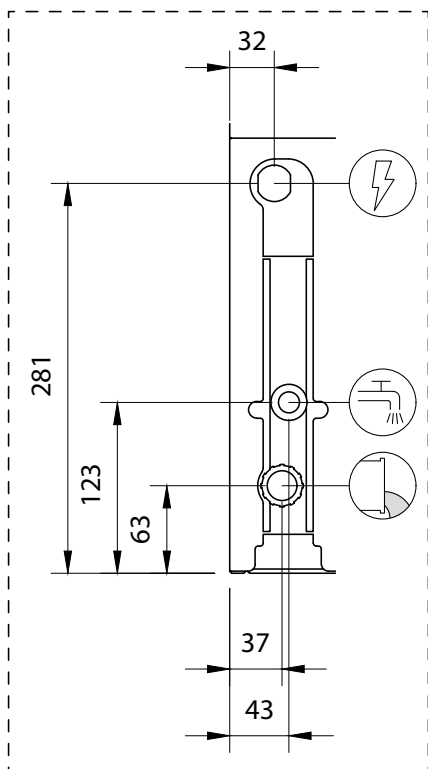
MXG938



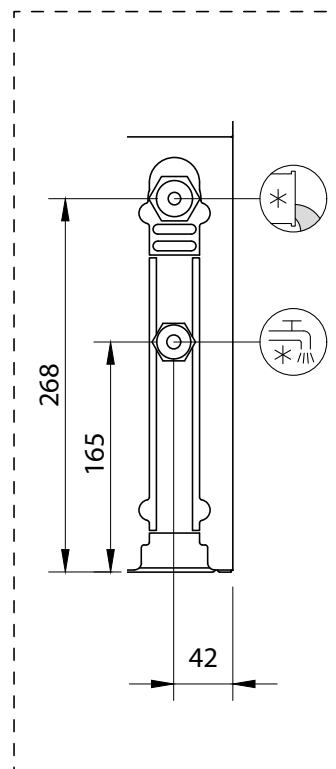
MXG938



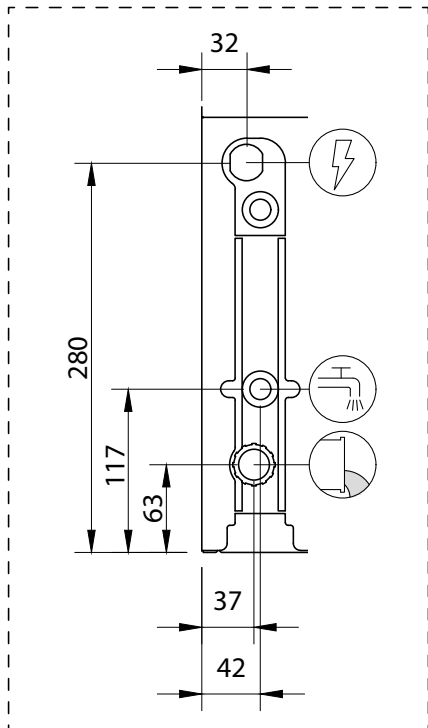
MXG327 | MXG328
MXG427 | MXG428



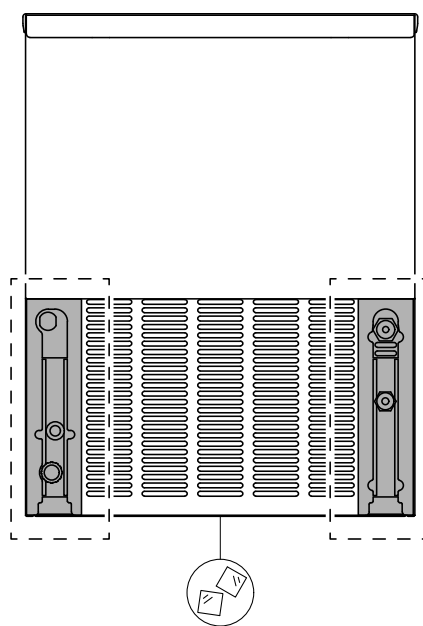
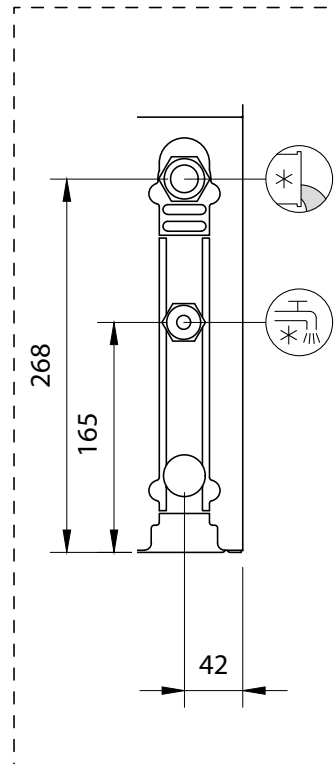
MXG327 | MXG328
MXG427 | MXG428



MXG437 | MXG438



MXG437 | MXG438



Electrical connection

SAFETY WARNINGS

Before making any electrical connections, it is mandatory to carefully read the safety instructions on page **4** of this manual and always compare the system data with the data on the rating plate.

● The connection to the power supply network must comply with the regulations in force in the country where the appliance is installed and must be carried out by **qualified personnel authorised by the manufacturer**. Failure to comply with these requirements may result in damage and injury, invalidates the warranty and releases the Manufacturer from all liability.

For the connection **do not use adapters or multiple sockets. It is not possible to lengthen or join** the power cable in any way. **Do not roll up** the cable on itself if it is too long, and take care that it is not pinched, crushed or in the way of people passing by.

The connection system must:

- have a **maximum voltage variation** of +/-10% from what indicated on the rating plate (low voltage can cause abnormal operation and can result in serious damage to protections and electrical windings);
- have suitable **earth connection**  using a single seamless cable, not even interrupted by the circuit breaker. The yellow/green earth conductor must be at least 10 mm longer than the other conductors;
- have an easily accessible **thermal-magnetic ON/OFF switch**, with appropriate fuses (see rating plate) and with a contact opening distance such as to ensure complete disconnection in case of category III overvoltage conditions. Disconnection devices must be incorporated into the power supply in compliance with the installation rules. This switch is necessary to cut off the power supply to the machine if it is directly connected to an electrical panel or if its plug is positioned in a place that is difficult to access.

Each appliance must also be part of an efficient **equipotential system**  that complies with the regulations in force in the country of installation.

● Replacement of the power cable, if necessary, should only be carried out by a qualified and authorised technician. The cable may only be replaced with one of similar characteristics.

CONNECTION TO THE POWER GRID

The appliance can be supplied:

- with power cable and plug or
- with power cable without plug.

APPLIANCES WITH POWER CABLE AND SHÜKO PLUG ALREADY FITTED

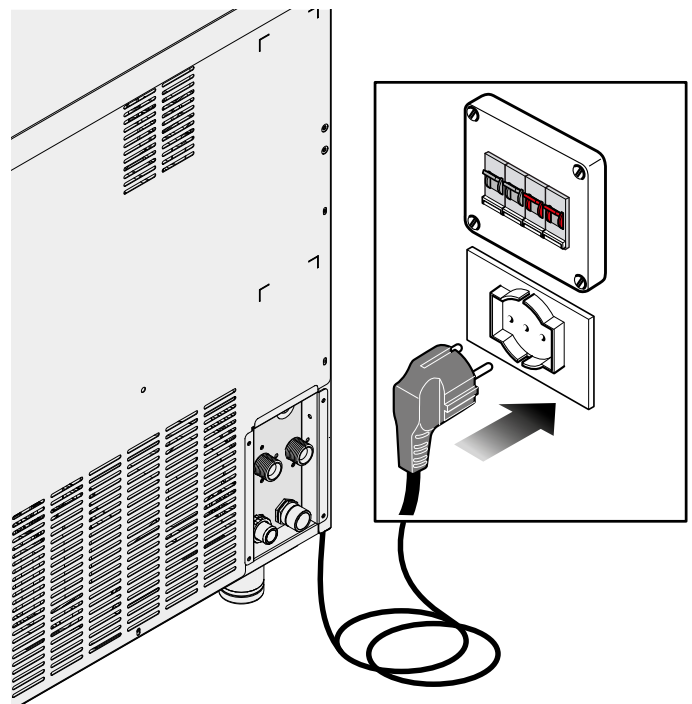
F10 To connect appliances **with power cable** and **shüko plug already fitted**, simply insert the plug into a socket with a capacity appropriate for the electrical characteristics of the machine, which can be found on the rating plate.

APPLIANCE WITHOUT A PLUG FITTED

The connection must be carried out by qualified personnel in one of two ways:

- by fitting a **plug** appropriate for the electrical characteristics of the machine;
- by connecting to an **electrical panel** that complies with the regulations in force in the country where the appliance is installed.

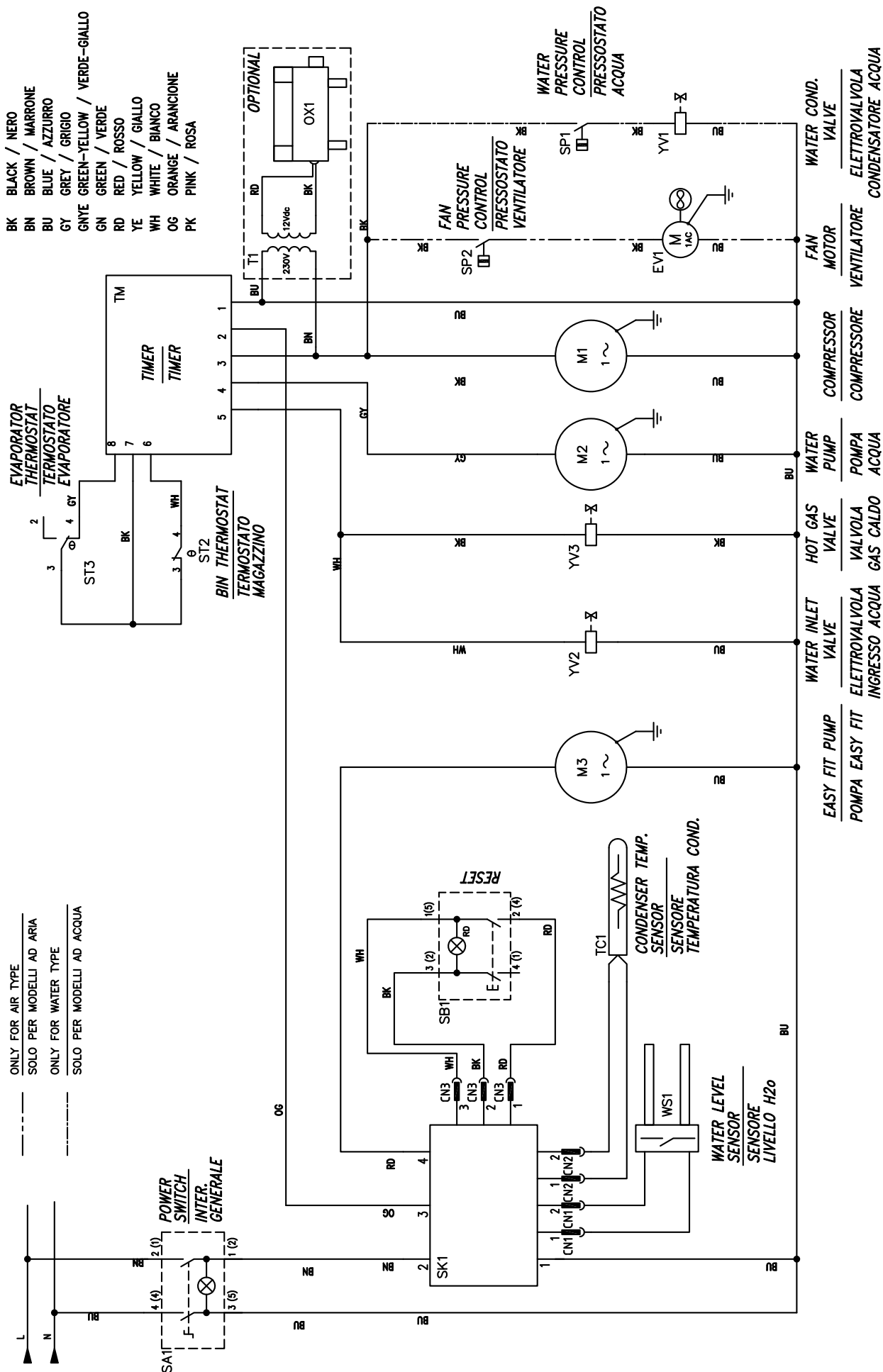
All electrical data can be found in the data sheet of the appliance to be installed.

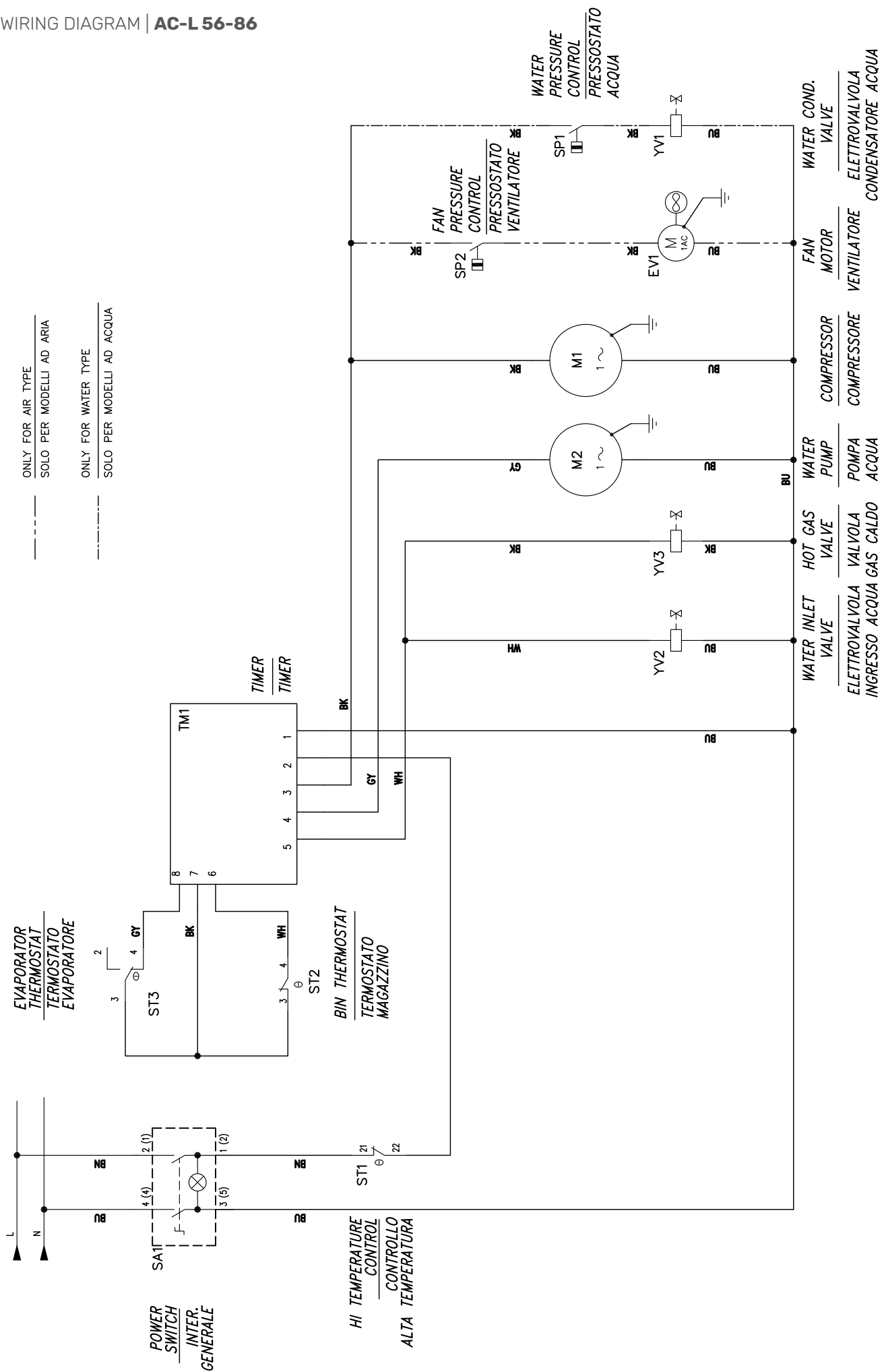


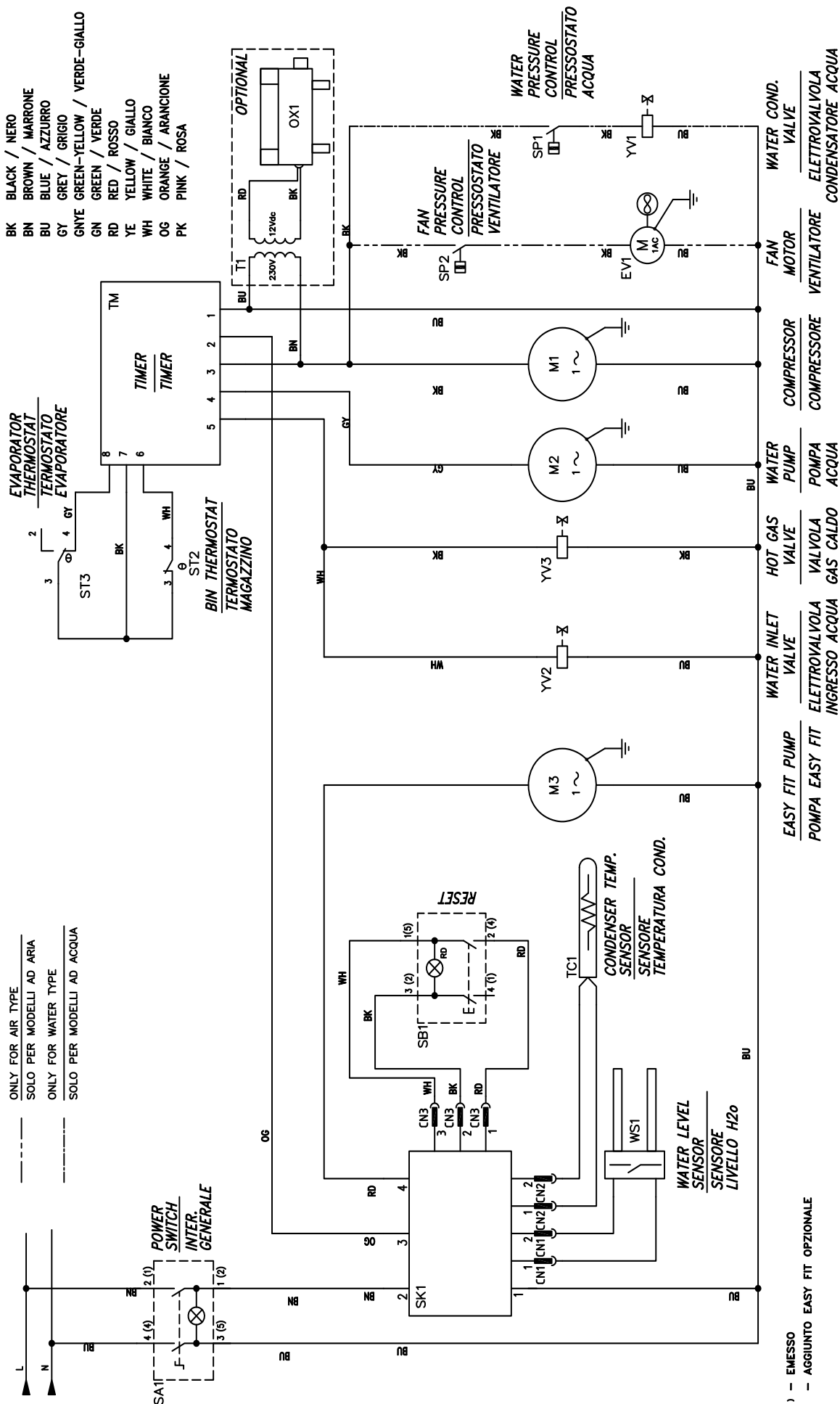
	C1	Fan operation condenser
	EV1	Fan
	FN1	Fan speed controller
	HL2	High pressure alarm
	KA1	Liquid solenoid valve relay
	KM1	Compressor contactor
	M1	Compressor
	M2 M2a M2b	Water pump
	M3	Water drain pump
	NF	Noise filter
	OP1	Container full sensor
	OX1	Biozone device
	QM1	Compressor thermal protector
	R1	Compressor heater
	SA1	Main switch
	SB1	Reset button
	SCK1	Control printed circuit board
	SK1	PWC control board
	SP1	Water pressure switch
	SP2	Fan pressure switch
	SP3	High-pressure safety pressure switch
	ST1	High-temperature control thermostat
	ST2	Storage thermostat
	ST3	Evaporator thermostat
	T1	230V/12Vdc transformer
	TC1	Condenser temperature sensor
	TC2	Evaporator temperature sensor
	TM1	Electronic timer
	WS1	Water level sensor
	YV1	Condenser water solenoid valve
	YV2 YV2a YV2b	Water inlet solenoid valve
	YV3 YV3a YV3b	Hot gas solenoid valve
	YV4 YV4a YV4b	Water drain solenoid valve
	YV5	Condenser valve
	X1	Connector

BN	brown
BK	black
BU	Blue
GY	grey
GNYE	yellow-green
GN	green

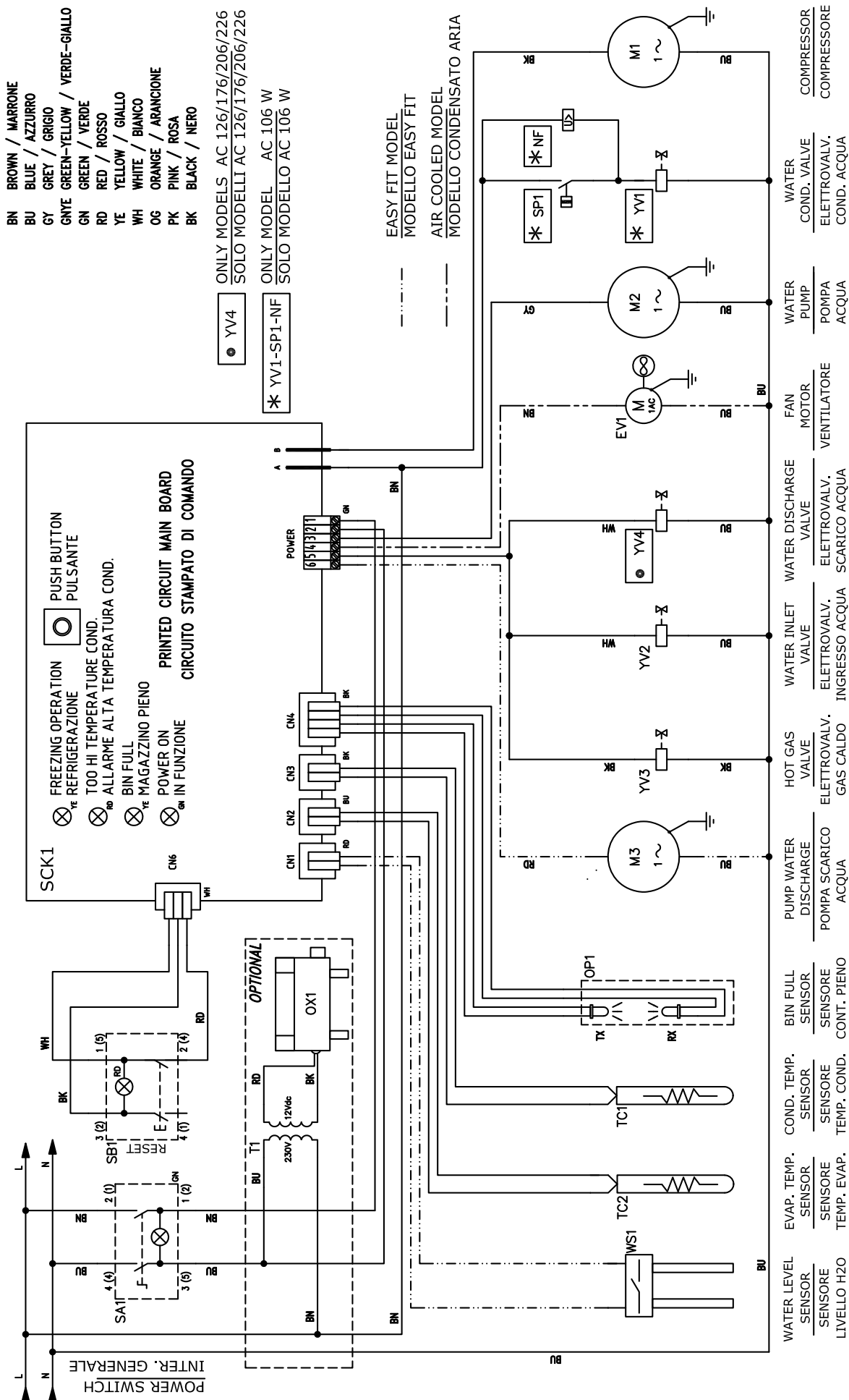
YE	yellow
OG	orange
PK	pink
RD	red
WH	white

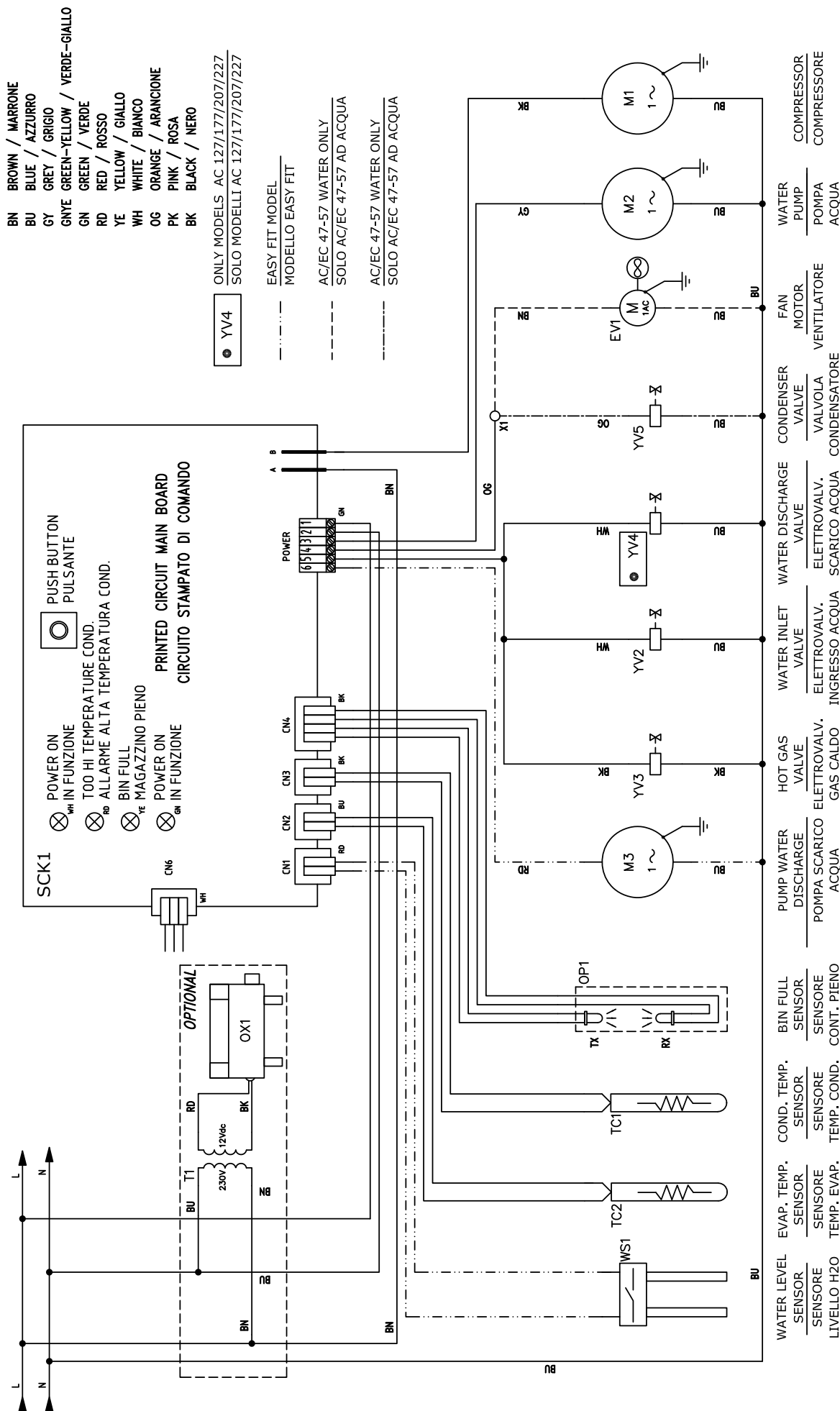


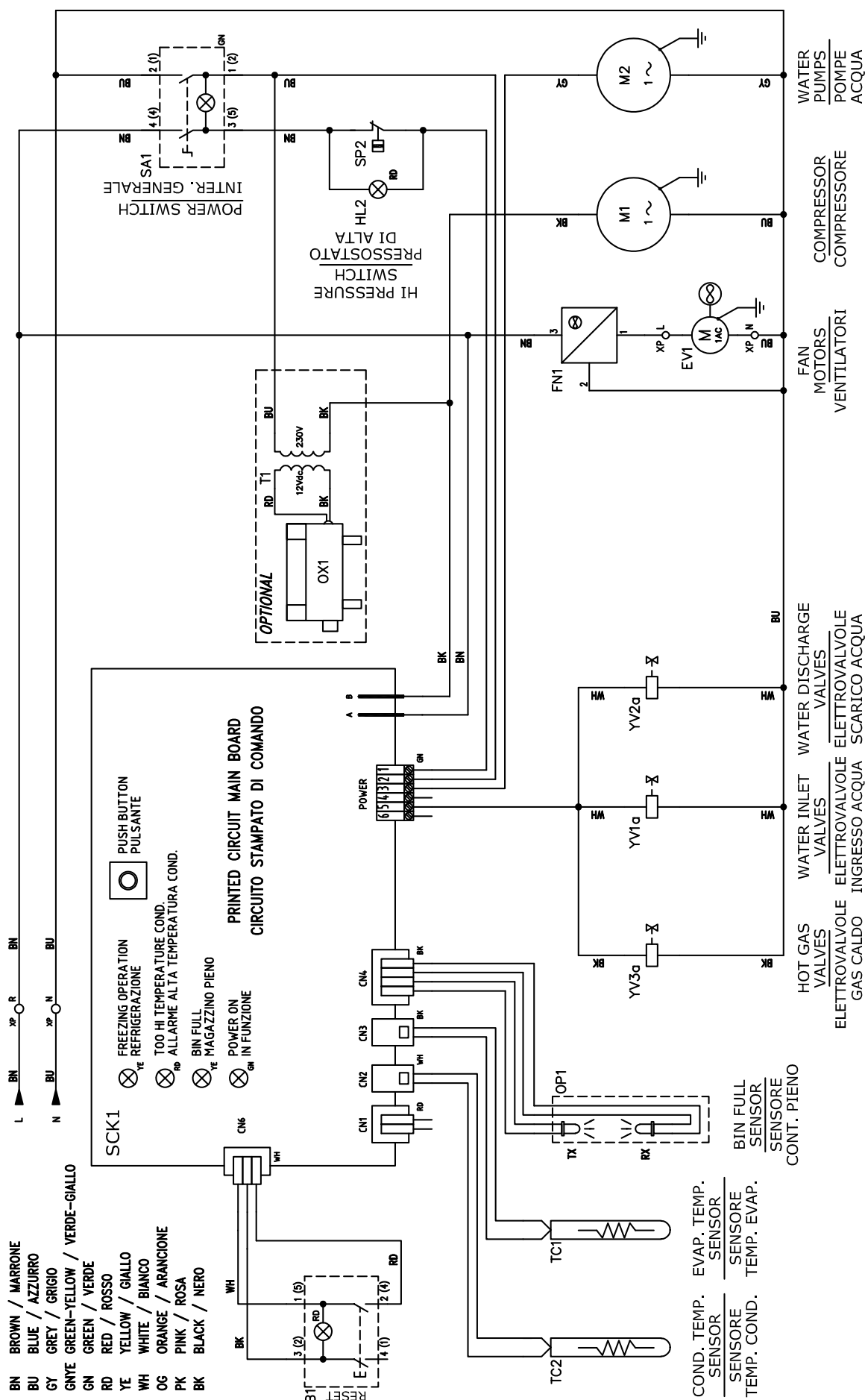


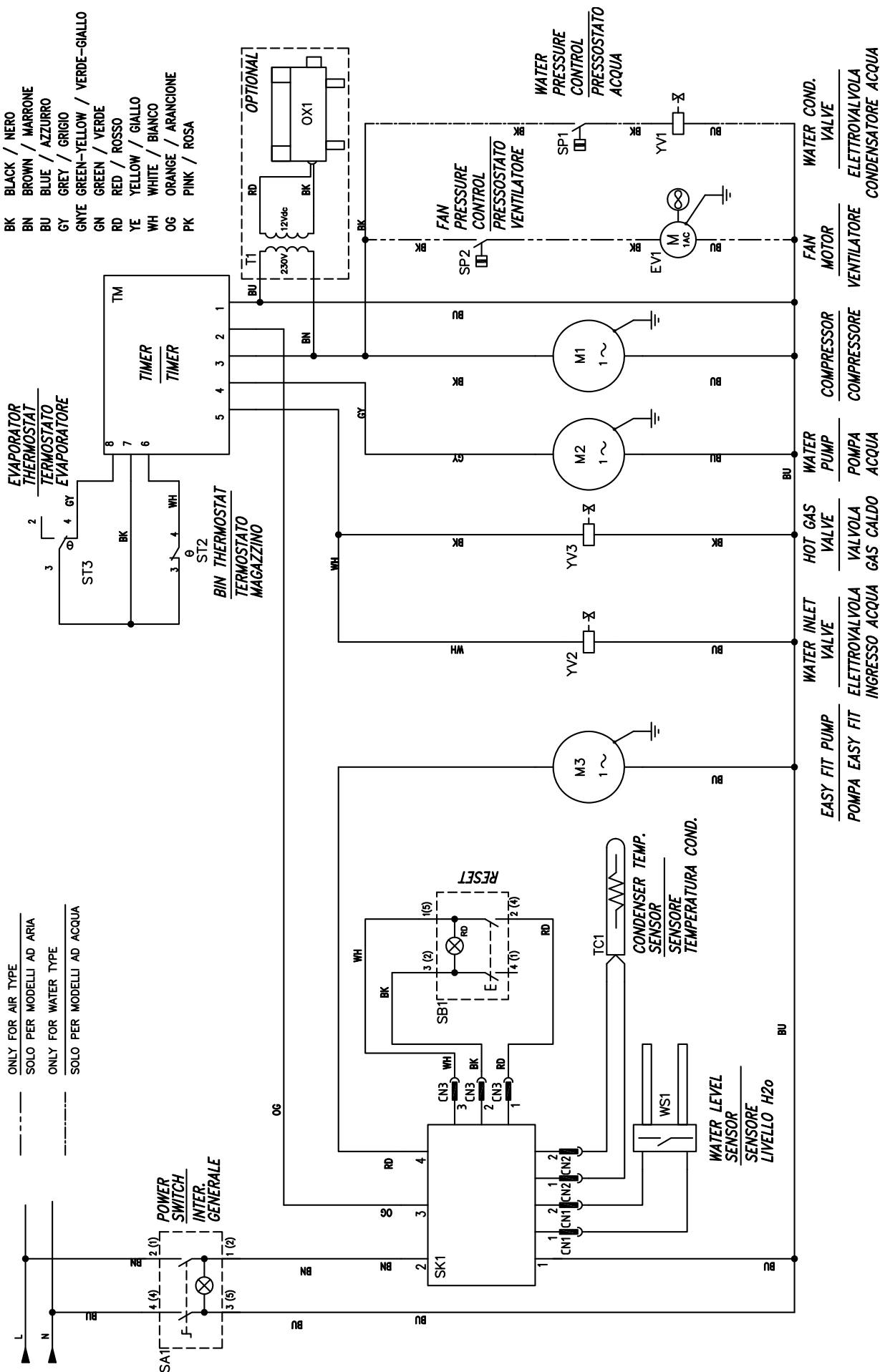


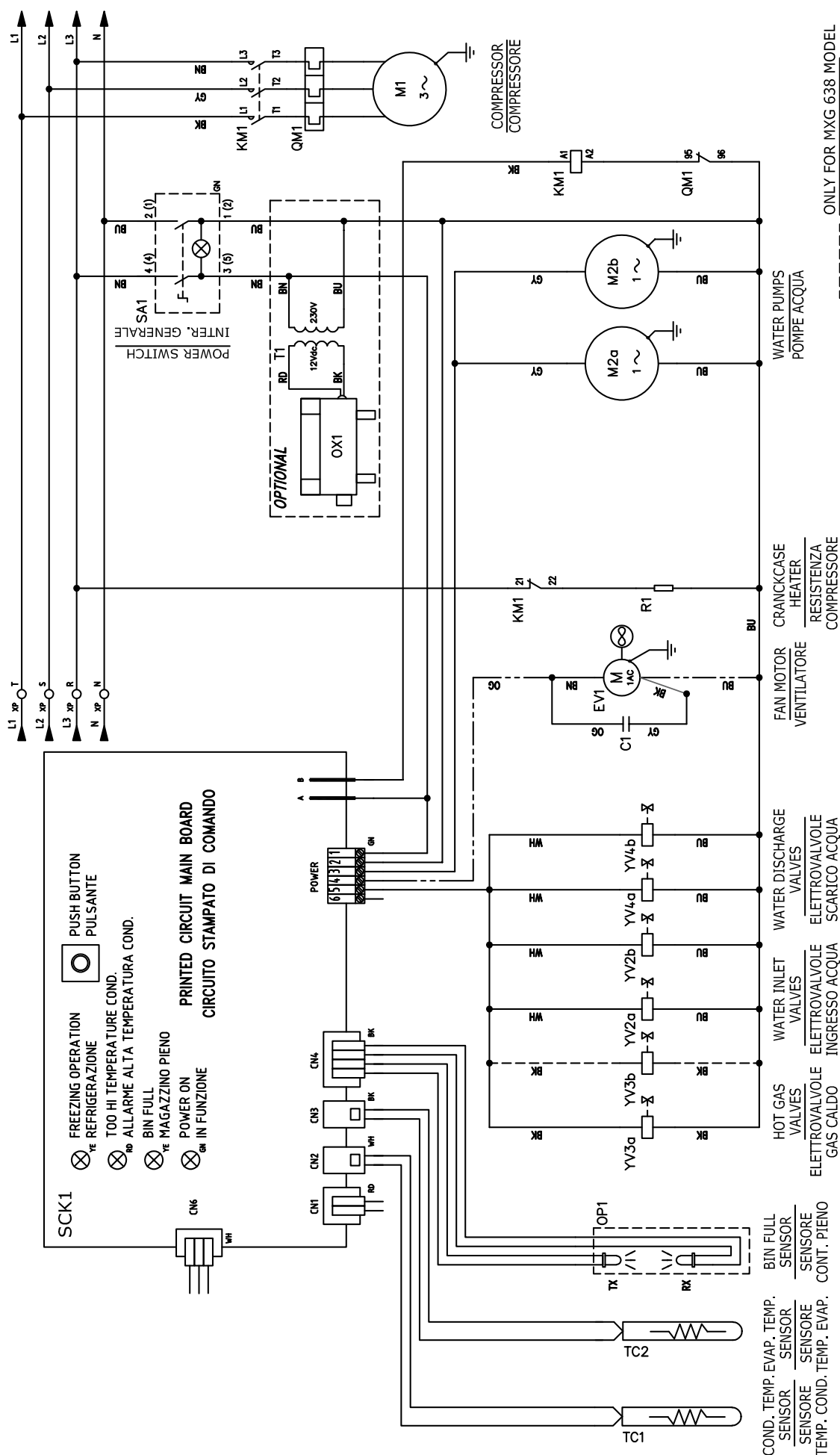
)- EMESSO
 - AGGIUNTO EASY FIT OPZIONALE

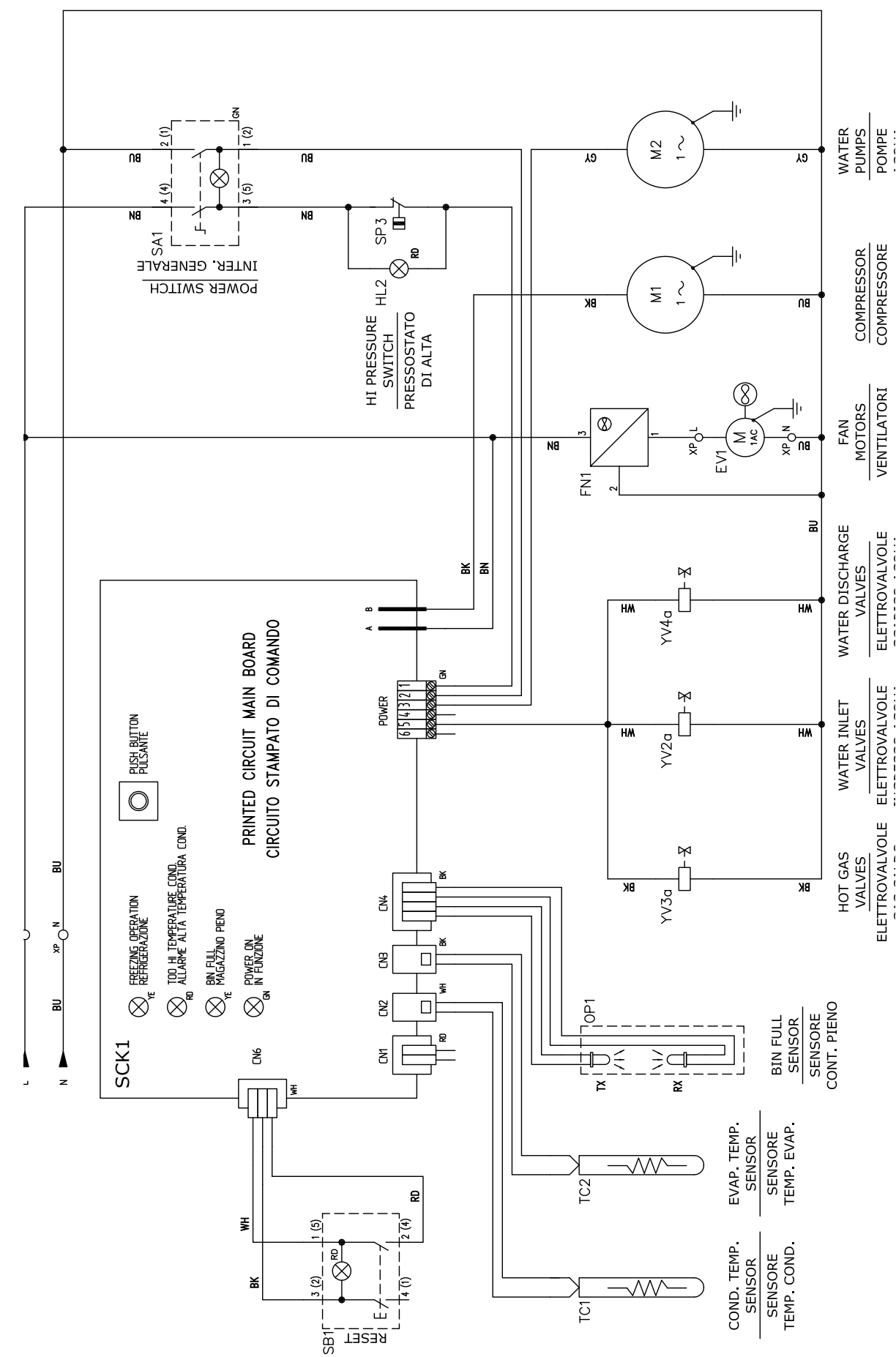




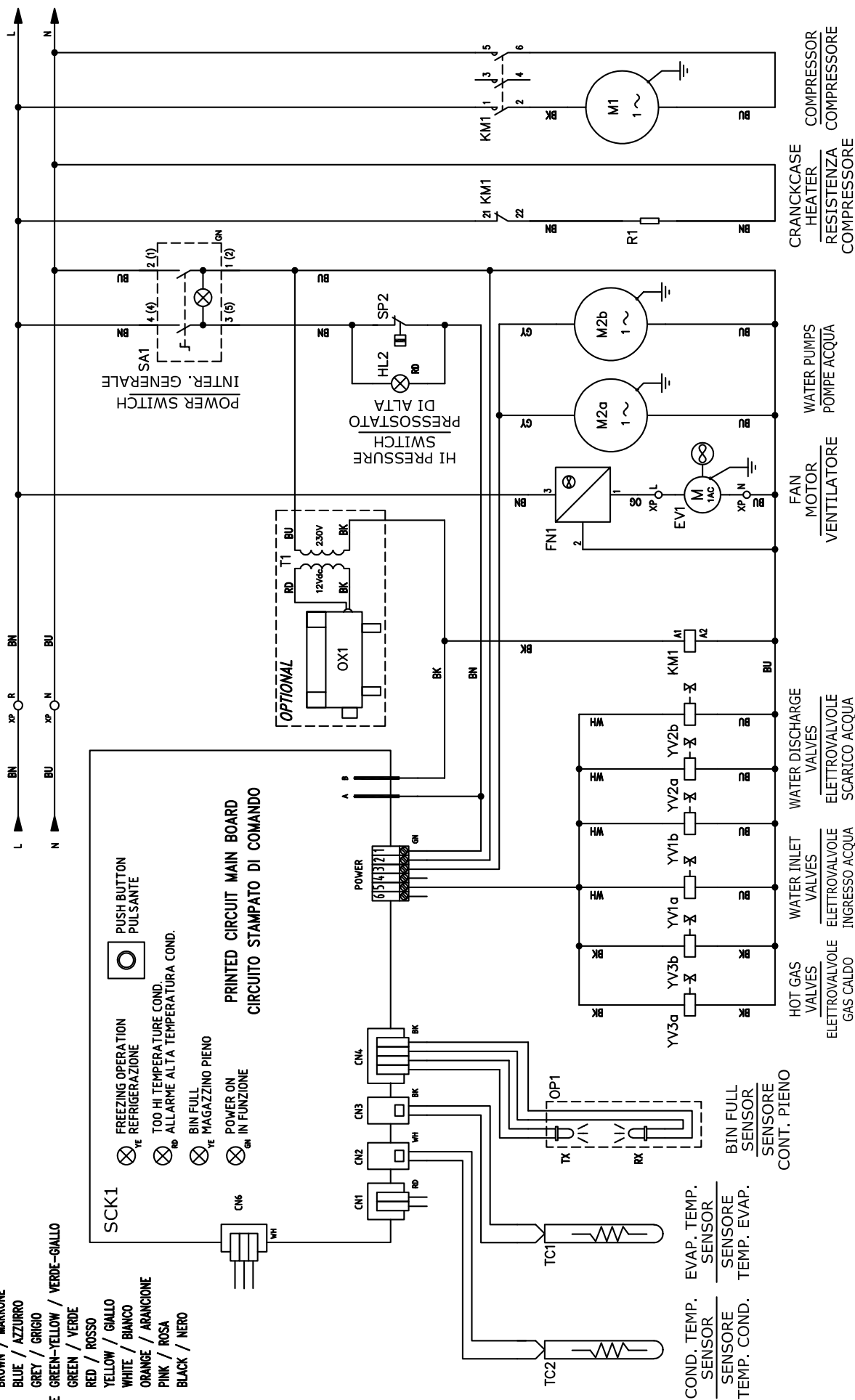


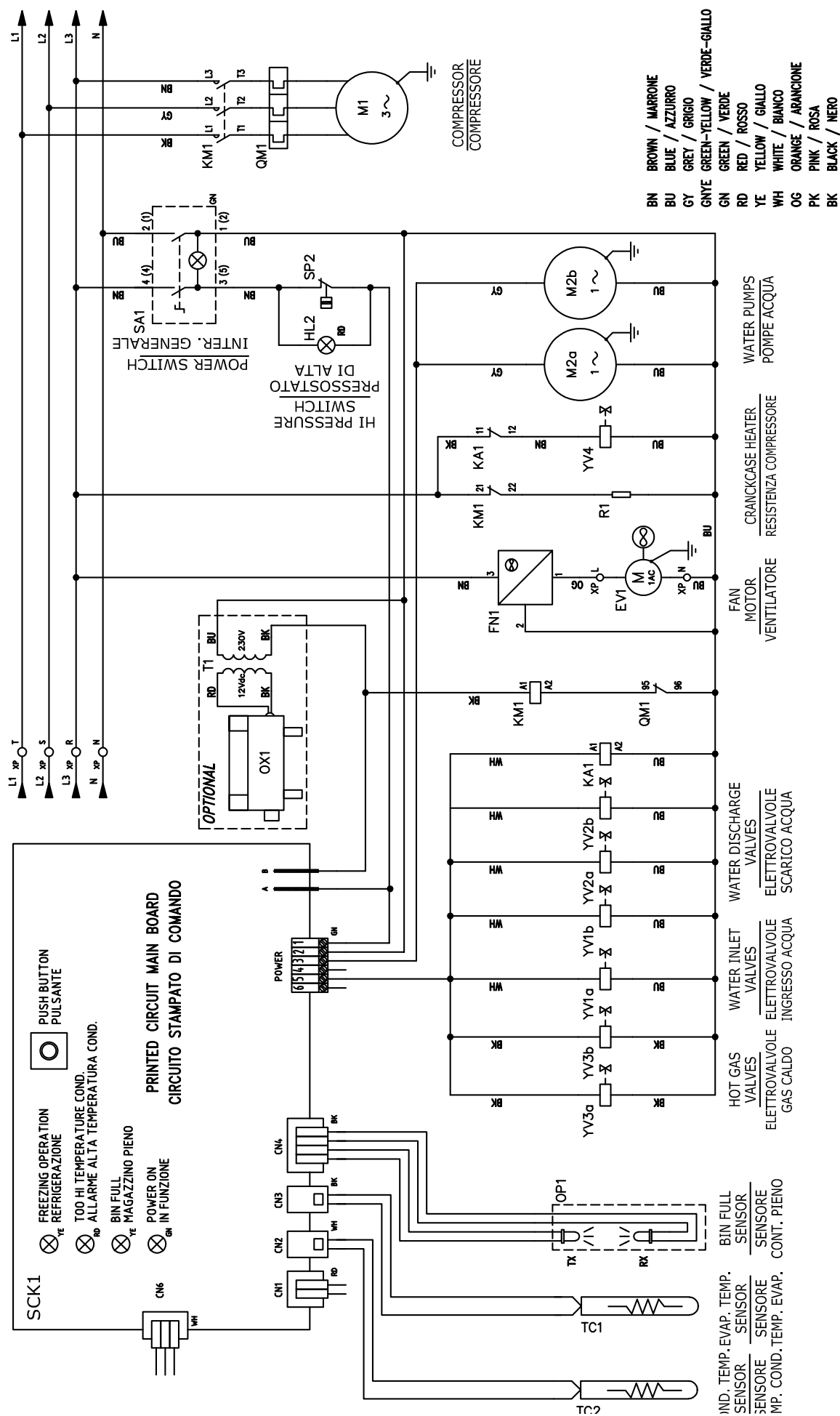


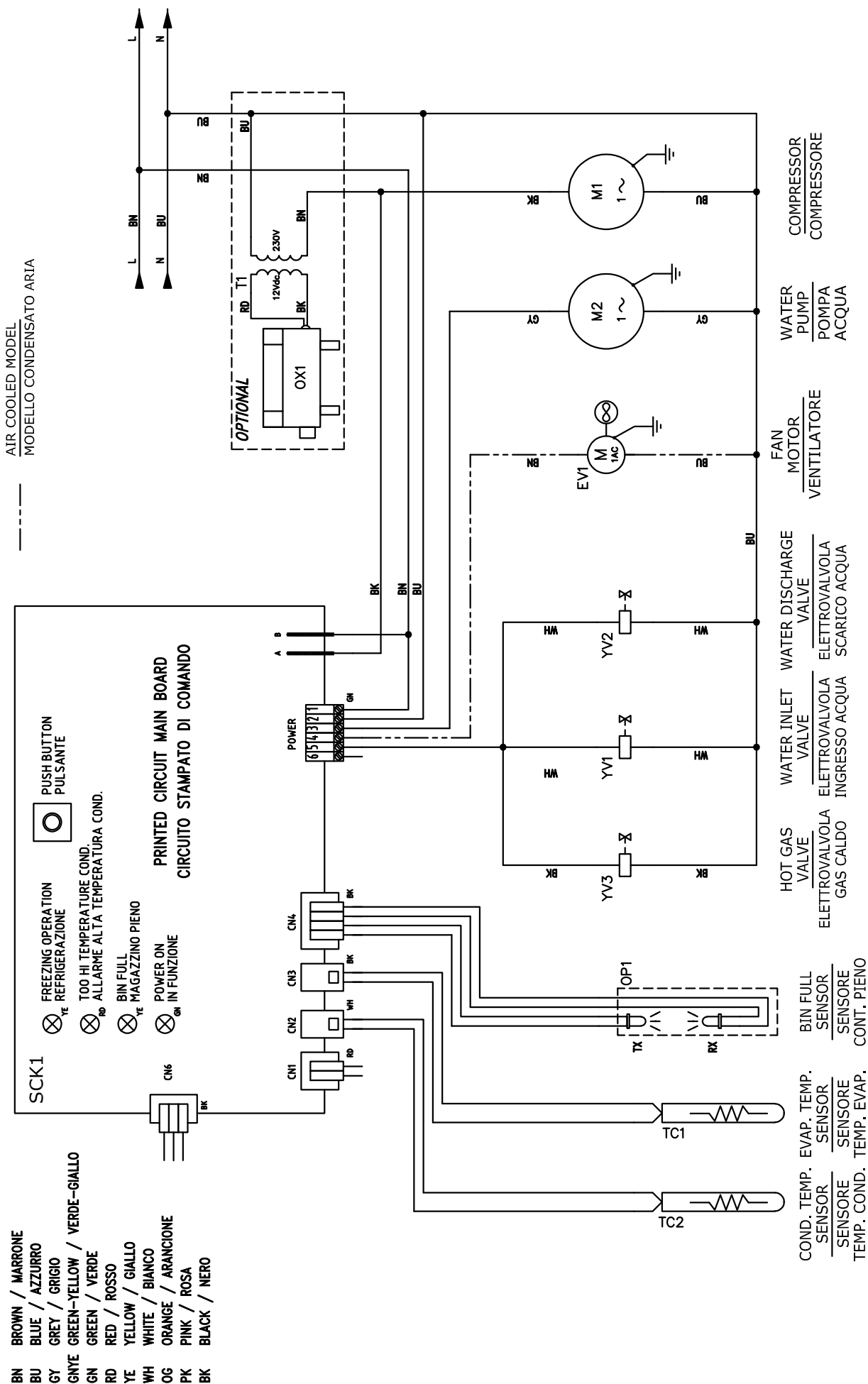




BN BROWN / MARRONE
 BU BLUE / AZZURRO
 GY GREY / GRIGIO
 GNYE GREEN-YELLOW / VERDE-GIALLO
 GN GREEN / VERDE
 RD RED / ROSSO
 YE YELLOW / GIALLO
 WH WHITE / BIANCO
 OG ORANGE / ARANCIONE
 PK PINK / ROSA
 BK BLACK / NERO







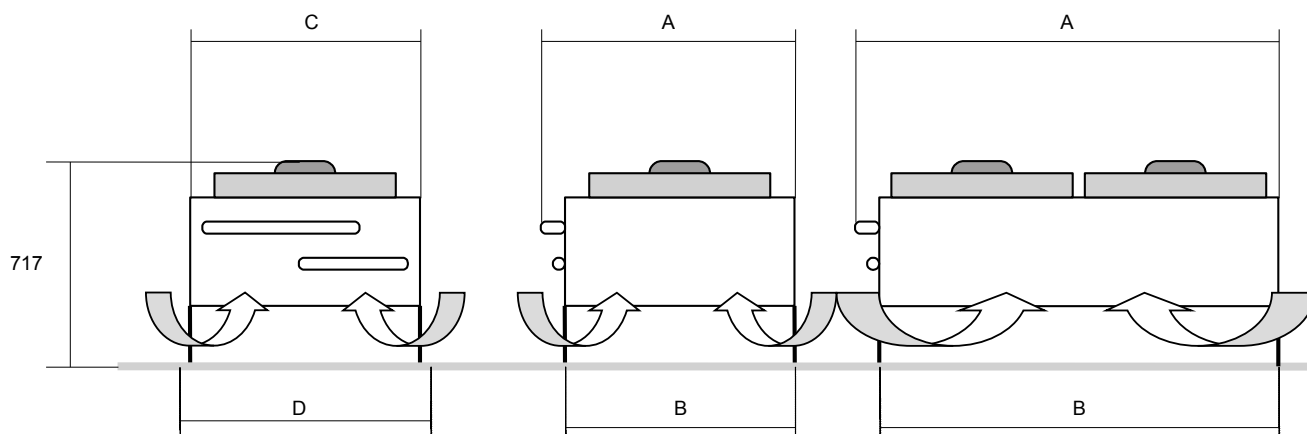
Refrigeration connections

Appliances with integrated air or water cooling units do not require any connection.

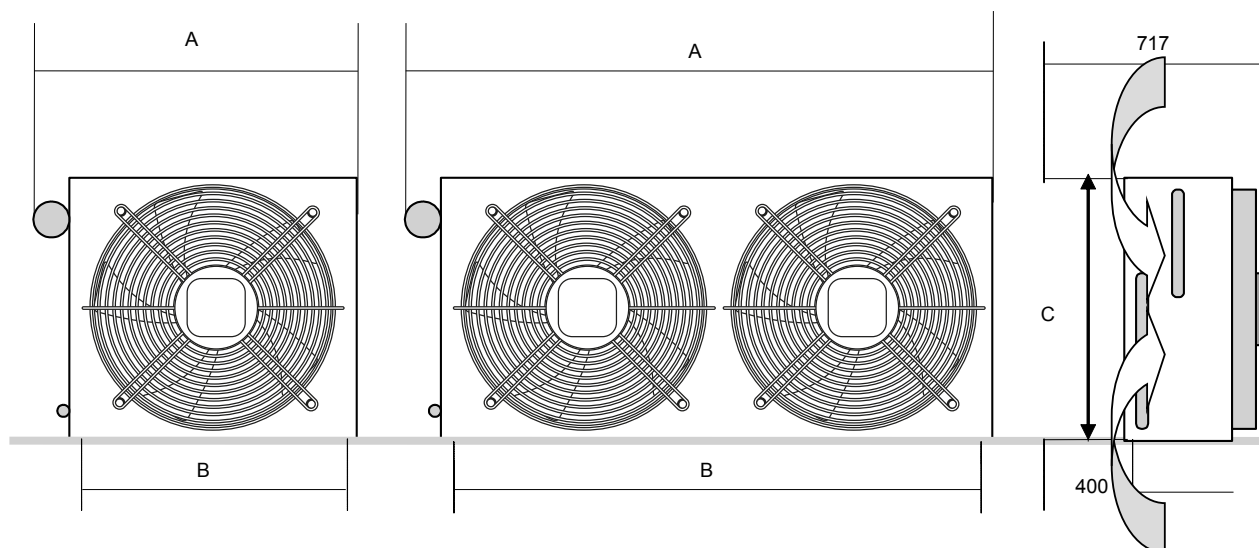
If, on the other hand, the cooling unit is separate, the connections with the machine must be completed by a technician authorised and qualified to do so.

The remote cooling unit can be placed on the floor, in the **horizontal** position (recommended), or on a wall, in the **vertical** position. Based on their experience and the wall or floor material, the installer will assess the correct installation method and choose the most suitable fixing screws (fixing screws not supplied).

HORIZONTAL INSTALLATION (RECOMMENDED)



VERTICAL INSTALLATION (RECOMMENDED)



	1 fan TKE351A2R.0370 RMTCOND164656J	1 fan TKE351A4.0370 RMTCOND MF6100J	2 fans TKE352A4.0370 RMTCONDASK0000	1 fan LU-VE SHVN 5/8	1 fan LU-VE SHVN 6/3
A mm	600	754	1304	540	748
B mm	440	590	1140	445	556
C mm	415	614	614	463	578
D mm	445	594	594	N/A	N/A

REFRIGERANT CHARGE R404A (grams)

MC 16 SHORT	MC 46	MXG 438	MXG 638	MXG 938
680	1400	700	980	3500

TECHNICAL SPECIFICATIONS

The cooling capacity with ΔT 15K is:

- 4.5 KW for MXG438 and MXG638 models;
- 10.5KW for MXG938 models;

Fan motor specifications: 220-240/50-60/1 - 180 Watt - 0.8 Amp with IP44 protection (against liquids and solids) and a flow rate of 2150 m³/hour (2 motors on MF 66 and MF 86).

Electronic fan speed control set to 16 Bar.

10 m **pre-charged refrigerant lines** with AEROQUIP.5 quick connections.

High pressure **safety control** (manual reset) set to 34 bar (replaces the temperature sensor condenser)

High pressure control lamp

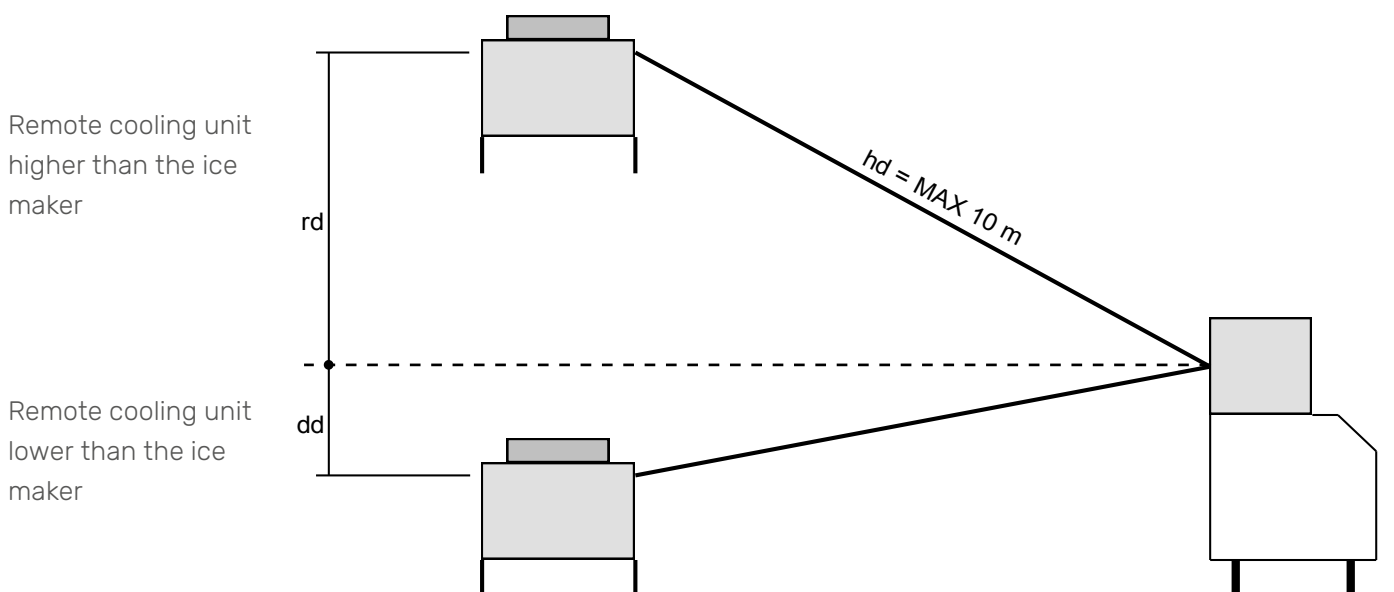
CONNECTION OF REFRIGERANT LINES

The remote cooling unit must be installed in an **indoor or outdoor location**, protected from dirt, dust and weather elements (e.g. rain, snow, etc.).

Between the remote cooling unit and the ice machine there must be a maximum distance of:

- **1 metre** (in the figure "dd") if the unit is positioned **lower** than the ice machine;
- **3 metres** (in the figure "rd") if the unit is positioned **higher** than the ice machine;

The maximum length of the "hd" piping between the remote cooling unit and the ice machine is **10 metres**.



F11

Two pre-charged refrigerant lines are supplied:

- $\varnothing$ 3/8" external self-sealing GAS line ($\varnothing$ 12mm external for MXG938 models)
- $\varnothing$ 1/4" external self-sealing LIQUID line ($\varnothing$ 12mm external for MXG938 models).

Both lines have 12 mm UNEF AEROQUIP 1-20" quick connections on MXG 438-638.

WARNING. Each coupling on the refrigerant lines is self-sealed and should be tightened with an additional 1/4 turn. ALWAYS use two tools when tightening these fittings to avoid twisting of the pipes and possible kinking or line breaks.

Connect the ice machine GAS pipe fitting (located at the rear) to the fitting on the remote cooling unit (GAS label).
Connect the ice machine LIQUID pipe fitting (located at the rear) to the fitting on the remote cooling unit (LIQUID label).

WARNING. The condenser air-cooled remote control inlet (gas) must always be located above the outlet (liquid), both for horizontal and vertical installations.

ELECTRICAL CONNECTION



Switch on the electrical box of the ice machine, open it and locate the WAGO connectors (see photo).

Make the following connections:

- BLUE cable from the remote cooling unit -> connect to the BLUE WAGO connector
- BROWN cable from the remote cooling unit -> connect to the ORANGE/BROWN WAGO connector
- YELLOW/GREEN cable from the remote cooling unit -> connect to the YELLOW/GREEN WAGO connector.

● The connection cables coming from the remote cooling unit are 230 volts. Therefore, **it is essential to** correctly protect them by inserting them inside a metal tube or a cut-proof and insulating sheath that complies with the regulations in force in the country of installation.

[illegible][illegible]

RUNNING TEST

After positioning and connecting the appliance, check that:

	it is level and that all specified clearances are as required	page 21
	room temperatures never fall below 10°C, even during the winter months	page 21
	all required electrical and plumbing connections have been completed	page 28
	the water shut-off valve(s) is/are in the ON position (open)	page 29
	the inlet pressure of the water circuit is at least 1 Bar	page 29
	the refrigerant circuit and water circuit piping do not emit vibrations	page 29
	the voltage of the power supply line is the same as that specified on the rating plate	page 39
	the inside walls of the ice container have been cleaned and disinfected	user manual supplied with the appliance
	the compressor anchor bolts allow the compressor to swing on the supports	
	all the documentation relating to the appliance and the details of the authorised service centre have been handed over to the user	



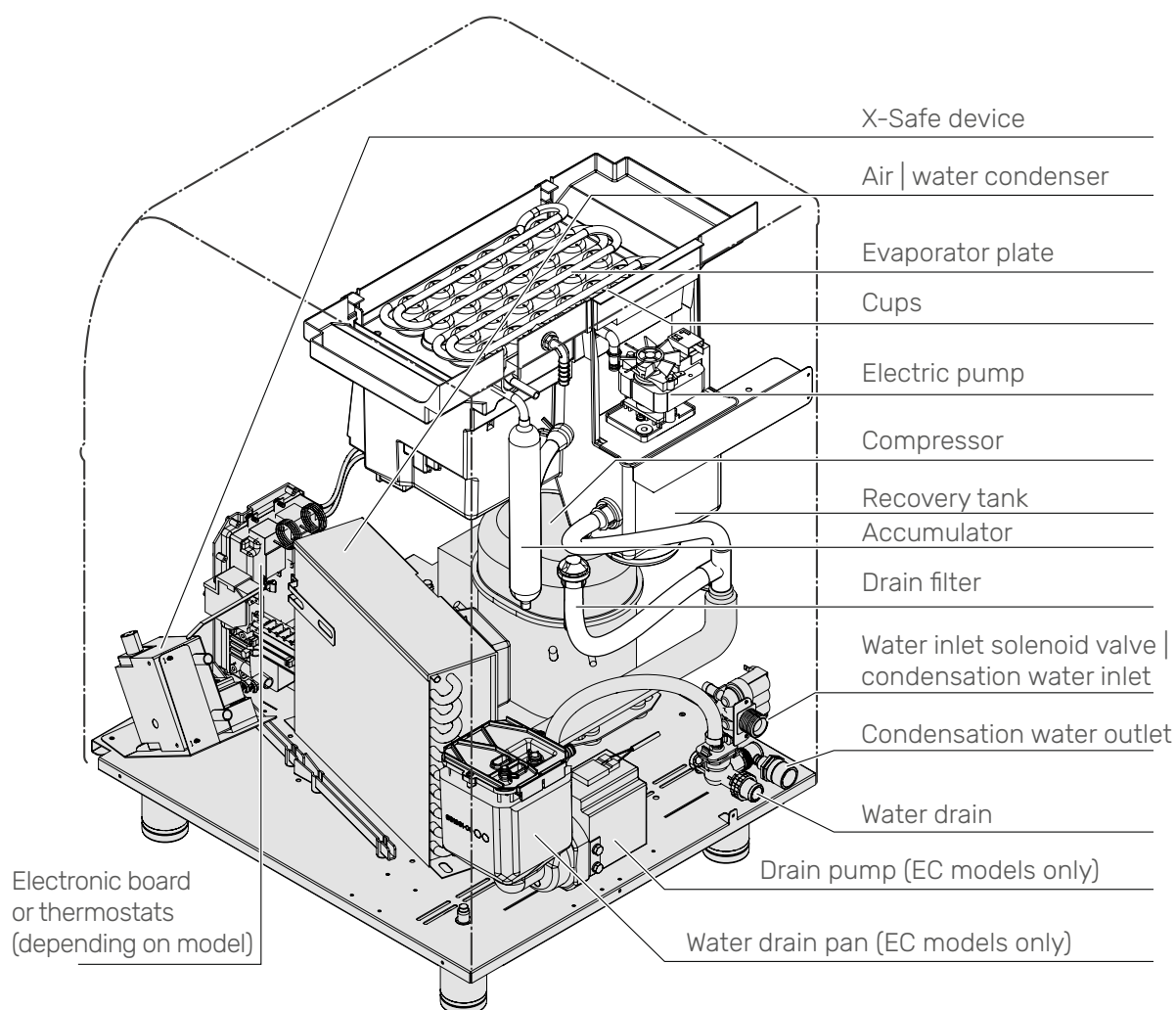
NOTES

DESCRIPTION OF THE COMPONENTS 60

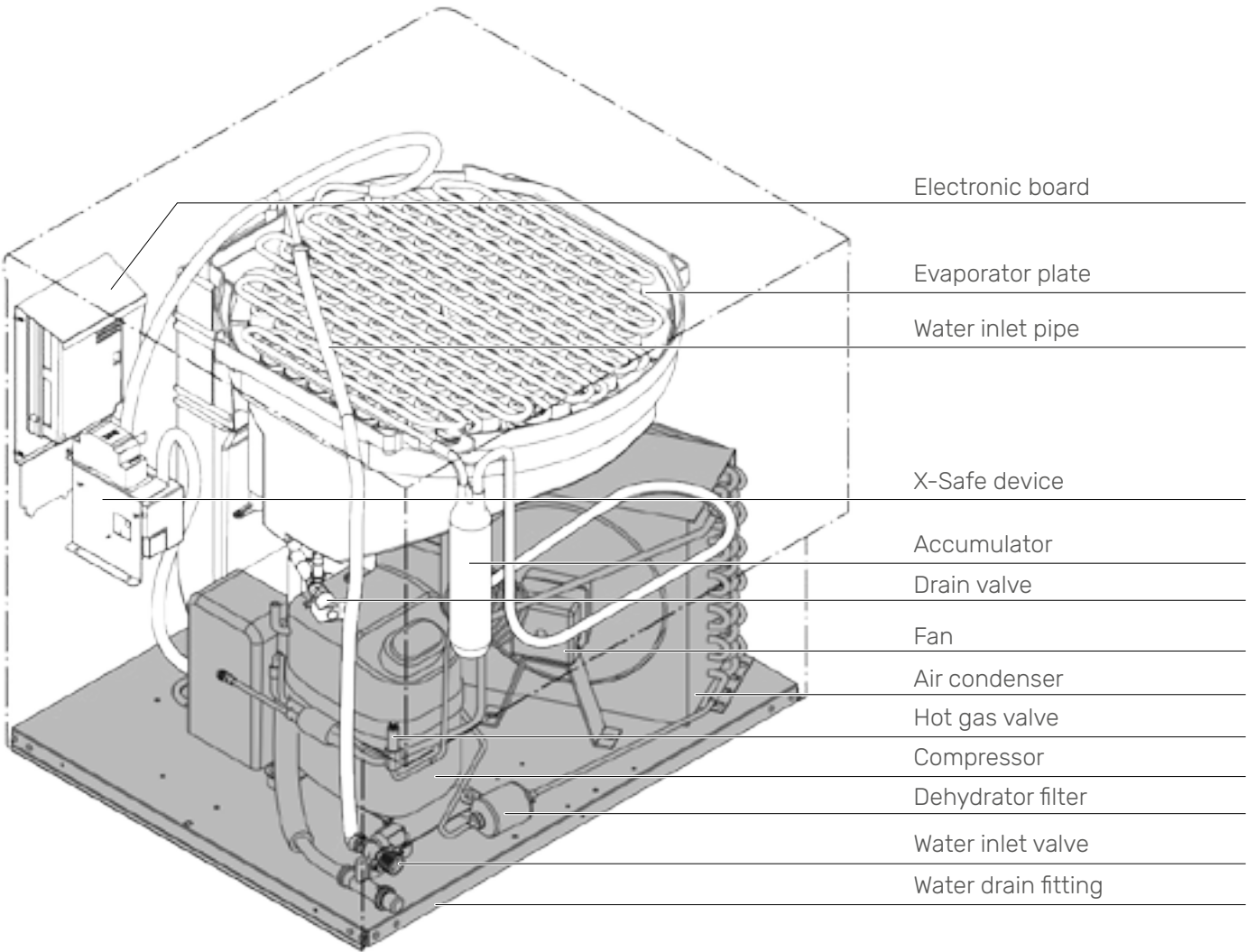
UV and ozone lamp (XSafe model only)	60
Condenser temperature probe	63
Evaporator temperature probe	63
Thermal probe	64
Optical ice level control reader.....	64
Electronic board (microprocessor)	64
Reset button.....	64
Leds (mounting panel)	66
Electronic board dip switches (microswitches).....	68

Initial dip-switch setup tables.....	69
Condenser air filter	87
Spray bar or plate	87
Electric pump	87
Water inlet solenoid valve	87
Hot gas solenoid valve	88
Pressostatic valve	88
Water drain solenoid valve	88
Motor fan	88
Compressor	88
High pressure switch	88

AC - EC series



MXG series



F13

DESCRIPTION OF THE COMPONENTS

UV and ozone lamp (XSafe model only)

This natural sanitation system based on the **UV lamp** is integrated inside the machine and guarantees absolute purity and hygiene.

The XSafe system requires quarterly or annual maintenance.

QUARTERLY MAINTENANCE | UV LAMP CLEANING

If the XSafe device is in a dusty environment, **every three months** check that the lamp is clean: this will considerably prolong its life. When cleaning it, **wear gloves** and remove it as indicated below.

Caution! When handling the UV lamp, avoid touching the glass element with bare hands as oil and skin residues can adversely affect the performance of the lamp.

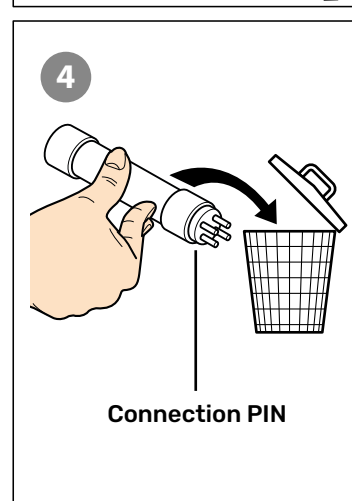
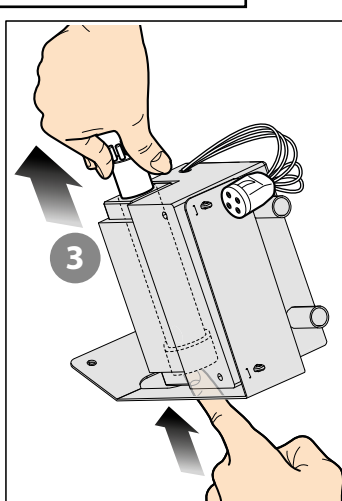
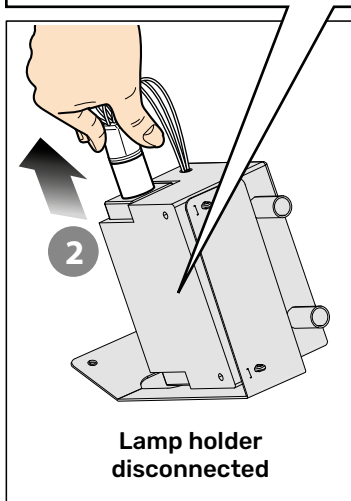
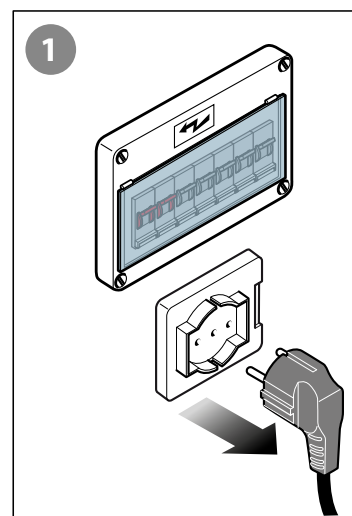
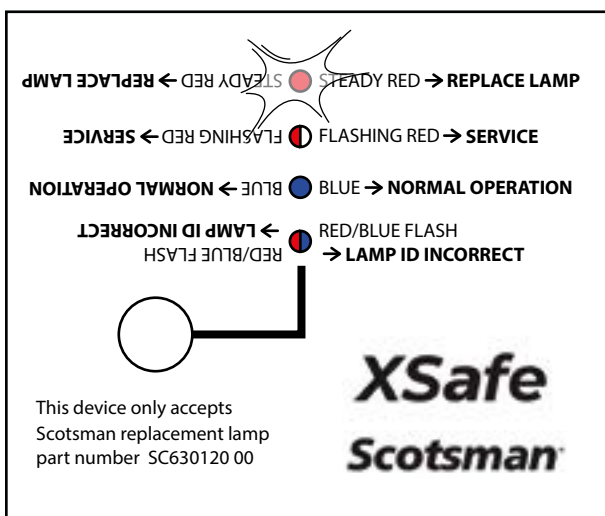
Once removed, clean it with a very soft cloth freshly soaked in a specific detergent compatible with quartz glass (for example denatured alcohol). Wait until the lamp is perfectly dry and replace it in its position.

ANNUAL MAINTENANCE | UV LAMP REPLACEMENT

The **switching on of the RED LED** indicates that the UV lamp needs to be replaced. However, regardless of the LED light, the lamp must always be replaced every twelve months to ensure maximum functionality and efficiency.

Meaning of the LEDs:

-  The UV lamp needs replacing
-  Operating fault
-  Normal operation
-  Incorrect Lamp ID



F14 HOW TO REMOVE THE UV LAMP

- **1. Disconnect the power supply from the ice machine**, remove its covers and access panels to access the XSafe device (see figures **F12** and **F13** on the previous pages for its position inside the machine).
- **2. Make sure that the entire XSafe device is cold. Wear protective gloves.**
- Gently pull the lamp holder to disconnect it from the lamp. Important: Do not detach the lamp holder by pulling on the connecting wires, this will damage it and may result in electrocution when reconnecting it. The 4 connection pins of the UV lamp will be exposed.
- **3.** Push the UV lamp from behind until it comes out by about 2 cm: this will facilitate its removal.
- **4.** Dispose of the old UV lamp in accordance with hazardous waste disposal regulations (these UV lamps contain small traces of mercury).
- **5.** Insert the new UV lamp, making sure that its 4 connection pins are exposed so that the lamp holder can be reconnected. Only use SCOTSMAN SC630102 00 UV lamps. The use of different types of lamps invalidates the warranty. **Caution!** When handling the new UV lamp, avoid touching the glass element with bare hands as oil and skin residues can adversely affect the performance of the lamp.
- **6.** Replace all the covers and panels removed from the ice machine and reconnect it to the power supply.

FREQUENTLY ASKED QUESTIONS

What is Scotsman XSafe?

XSafe is a natural sanitising system that relies on a UV lamp. It is integrated inside the appliance and guarantees absolute purity and hygiene:

- treats the air with ozone technology in the food area of the ice maker;
- keeps the ice maker and the container clean, reduces mould, viruses and other microorganisms;
- it is fully automated and chemical free.

How does it work?

The XSafe process replicates the positive effects of UV sunlight. The UV lamp generates a mixture of free oxygen atoms (O), hydroxyl radicals (HO), ozone (O₃) and super oxide ions (O₂⁻); this mixture is highly active against mould, viruses and other microorganisms.

Is XSafe dangerous to humans?

The XSafe appliance is designed to produce O₃ below the legal limits when properly installed, used and maintained.

Does the XSafe system contaminate or change the taste of ice?

No. The XSafe system works without the use of chemicals and the reactive oxygen mixture does not transfer any taste or odour to the ice.

Can XSafe be installed on any Scotsman machine?

Yes, the XSafe XR-30 kit can also be installed externally on all SCOTSMAN ice machines.

Why is XSafe better than devices that add ozone to water?

Because all the internal parts of the machine not in direct contact with water would not be sanitised and because the taste and appearance of ice could change.

Is any intervention required on the part of the operator?

The XSafe system requires no operator intervention. It works automatically 24 hours a day, regardless of whether the machine is producing ice or is on stand-by.

Is XSafe effective against Covid-19?

XSafe was tested with the influenza A virus (bird flu virus), which is a type of virus similar to Covid-19 (they belong to the same family). The result was 99.99% inactivation efficiency. A specific Covid-19 test is currently being investigated, and results are expected in six months.

Does XSafe also sanitise the ice scoop?

Yes, if the scoop is kept inside the ice tray.

Does XSafe sanitise incoming water?

XSafe was developed for the treatment of the internal areas of the ice machine (ice compartment). It will certainly have a slight disinfectant effect on the incoming water, but if the water is not drinking quality, it must be purified and filtered by other suitable means before use.

Will the ice machine still need a water filter?

To ensure that the ice machine produces clear and pure ice, it is always recommended to install a suitable filter system. The XSafe system has no beneficial effect on the formation of fouling; if hard water is used, a water filter is definitively necessary.

No, XSafe only has an effect on organic microorganisms, not on inorganic materials such as limestone, salts, sand, etc.

No, XSafe does not produce noise.

Yes. The ice machine must still be switched off and emptied periodically to remove physical contaminants and dirt that may have entered the machine.

On XSafe there are LEDs that indicate the status of the machine, the blue LED light indicates normal operation.

The UV lamp must be replaced every year by Technical Support with an original SCOTSMAN lamp. This guarantees the perfect effectiveness of the system. If the lamp is not replaced every year, in addition to the loss of efficiency, the manufacturer warranty is also invalidated.

The replacement of the UV lamp CANNOT be carried out by the user, contact a specialized technician.

[illegible]

Condenser temperature probe

The **condenser temperature probe** (inserted between the fins of the air condenser, or in contact with the condenser coil in case of water condenser) detects the **condensation temperature** and transmits its variations to the electronic board.

On **air-cooled appliances**, as soon as the **temperature of the condenser exceeds a certain value**,

the condenser temperature probe changes its electric potential, transmitting low-voltage current to the MICROPROCESSOR of the electronic board, which processes the signal received and electrically powers the fan motor via a TRIAC located at the output of the electronic board. Following this intervention,

the condenser temperature decreases:

the condenser temperature probe returns its electrical potential to its initial (primitive) value, thus reducing the current flow to the electronic board and consequently stopping the motor fan.

If the condensation temperature reaches 60°C (water-cooled appliances) or 70°C (air-cooled appliances) due to:

- *dirty condenser (air-cooled appliances)*
- *insufficient condensing water (water-cooled appliances);*
- *burned or jammed motor fan (air-cooled devices);*
- *room temperature above 40°C;*

*the **condenser temperature probe** immediately stops the appliance to prevent prolonged operation under abnormal conditions and simultaneously switches on the red warning LED on the board, and the external button (if present). In order to be able to put the device back into operation, it is necessary to:*

- *eliminate the cause of the tripping of the condenser temperature probe;*
- *switch off the machine,*
- *wait a few seconds and switch the machine back on.*

The appliance will restart with a new freezing cycle, preceded by a 5-minute water loading phase.

Evaporator temperature probe

The **evaporator temperature probe**, placed in contact with the evaporator coil, detects the temperature of the refrigerant circulating inside the coil (variable during the freezing cycle).

When it reaches **0°C** (red LED flashing) and then **-15°C** (red LED on steady), the **temperature probe** in contact with the evaporator coil activates the **electronic timer** incorporated in the board.

This intervention of the probe marks the end of the first freezing phase; the evaporator temperature probe is the same for all models and is calibrated at the factory; it is not possible to vary its tripping temperature.

From now on, the electronic timer takes control of the freezing cycle until completion (the powering of the timer of the electronic board is confirmed by the coming on of the front RED LED).

If after 15 minutes from the start of the freezing cycle the temperature of the evaporator sensor is still above 0°C (lack of refrigerant, hot gas valve leakage, etc.), the electronic board stops the operation of the appliance to prevent prolonged operation in abnormal conditions and the red LED starts flashing.

Thermal probe

The **temperature probe** monitors the presence of ice in the ice bin, detecting its temperature and mass near the bulb.

Optical ice level control reader

The optical ice level control **reader** inside the bin has the task of stopping the operation of the appliance only at the end of the subsequent defrosting cycle, when the ice level interrupts the light beam between the transmitter and the infrared reader. When the light beam is interrupted, the BIN FULL yellow LED starts flashing slowly.

Electronic board (microprocessor)

The **electronic board** on the front of the appliance consists of:

- a high and low voltage electronic circuit
- a **fuse** on the power supply line (6.3 A)
- four operation **LEDs**
- a signalling **LED**
- a set of ten **DIP SWITCH** keys
- the input (sensor) and output (electric components) peripheral connection **terminals**.

The electronic board is the actual brain of the system; it receives the incoming signals from the sensors, and after processing them through its **microprocessor**, it controls the electrical components accordingly (pump, compressor, etc.), therefore managing the operation of the entire appliance.

After each stop in the BIN FULL condition, the electronic board ensures the correct filling of the water tray by energizing the water inlet valve for 45'.

In the event of a malfunction of the **optical ice level control reader**, the Yellow and Red LEDs of the board will flash in succession.

The circuit board has **four jumpers** for setting:

- 0 months or 12 months as a reminder time for **washing and routine maintenance**;
- the **operation of the water drain system**, by means of an additional pump (EC series only);
- 0 min. or 60 min. **start delay**;
- **TEST**: If the TEST jumper contacts remain closed by mistake, the electronic board will power the individual components for up to 3 minutes. At the end of the first 3 minutes, the board will stop the operation of the machine and all the LEDs will start flashing.

RESET BUTTON

PRESSED DURING THE WATER FILLING PHASE

Pressed for >2" but <5": the ice-maker goes into flushing mode.

Pressed for >5": the electronic board bypasses the water filling phase.

PRESSED DURING THE FREEZING/DEFROSTING CYCLE

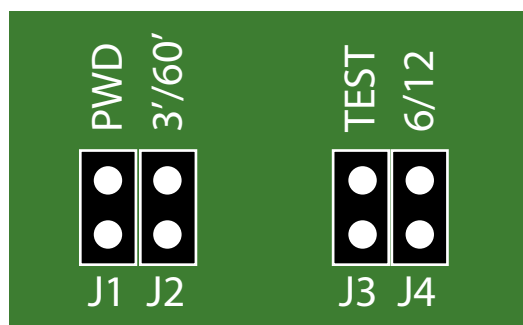
Pressed for >5" during the freezing cycle: the ice maker goes into defrosting mode.

Pressed for >5" during the defrosting cycle: the ice maker goes into freezing mode.

The duration of the defrosting cycle is equal to:

- 35" if the RESET button is pressed before the temperature at the evaporator reaches -15°C (red LED on electronic board on steady)
- what is indicated in the table for the thawing times if the button is pressed after -15° is reached (red LED on electronic board on steady).

JUMPER | CONTACTS



JUMPER 1-PWD

AC/EC models

Contact closed - AC series

Contact open - EC series

JUMPER 2 - 3'/60'

Start delay

Contact closed - 3 min.

Contact open - 60 min.

JUMPER 3 TEST

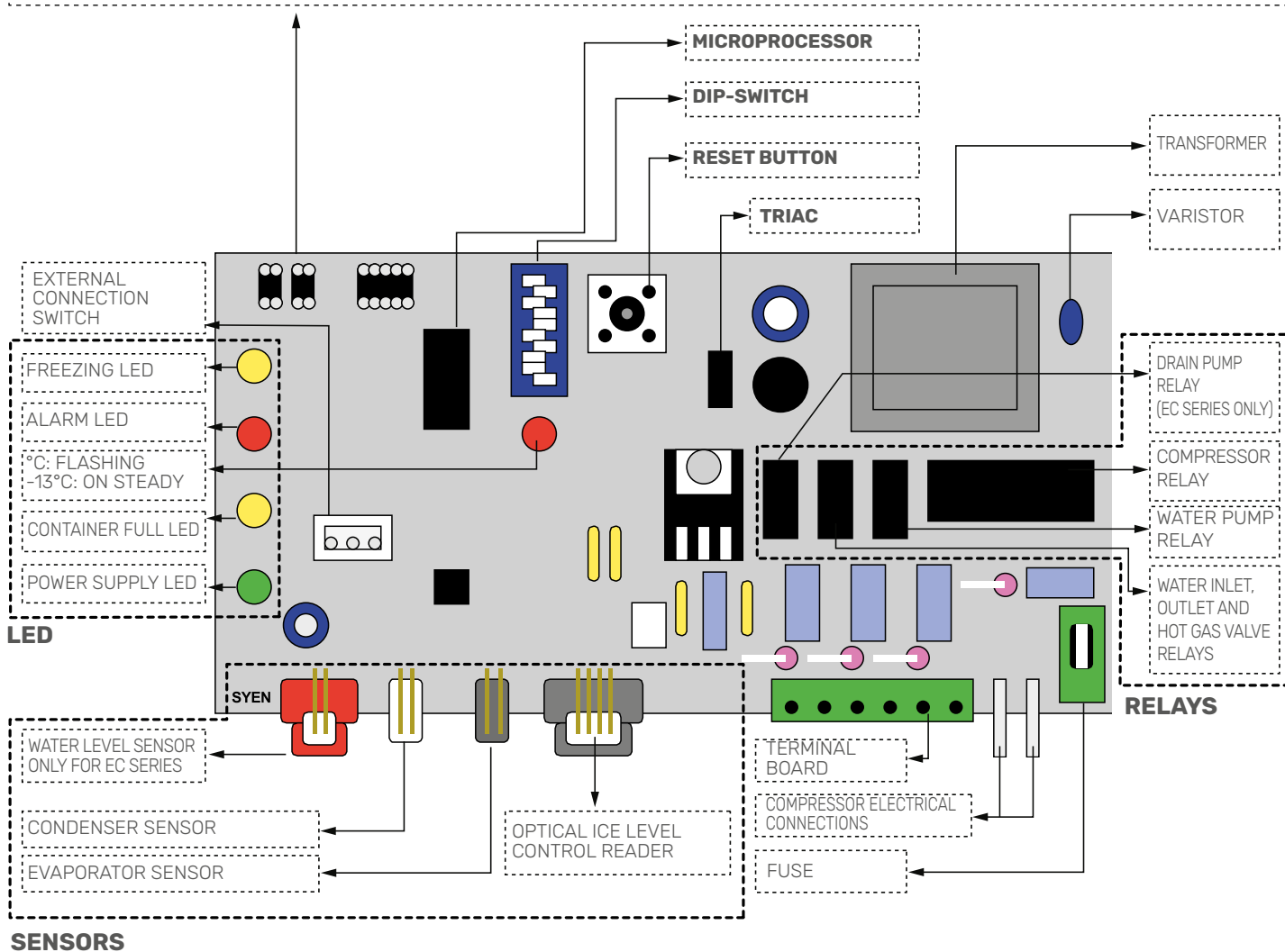
Factory use only

JUMPER 4 - 6/12

Water system cleaning reminder

Contact closed - 6 months

Contact open - 12 months



F15

LEDs (MOUNTING PANEL)

The four LEDs protruding from the front of the electronic board indicate:

Green LED:	Appliance powered
Yellow LED:	Ice bin full (steady) Tx/Rx beam interrupted (flashing)
Red LED on steady:	Tripping of the high condensation temperature probe
Red LED flashing:	High evaporation temperature
Yellow LED:	Appliance in freezing cycle
Yellow LED + Red LED on steady:	Faulty condenser sensor
Yellow LED + Red LED flashing:	Faulty evaporator sensor.

LED	STATUS	MEANING – SIGNIFICATO – SIGNIFICATION – BEDEUTUNG
   	ON STEADY FISSO FIXE STÄNDIG AN	UNIT UNDER POWER IN TENSIONE SOUS TENSION UNTER STROM
   	ON STEADY FISSO FIXE STÄNDIG AN	FREEZING CYCLE IN CONGELAMENTO EN RÉFRIGÉRATION GEFRIERZYKLUS
   	BLINKING LAMPEGGIANTE CLIGNOTANT BLINKT	60 MINUTES DELAY AT START UP – JUMPER J3 OUT 60 MINUTI DI RITARDO ALLA PARTENZA – CONTATTI J3 APERTI 60 MINUTES DE RETARD AU DEMARRAGE – CAVALIER J3 OUVERTE 60 MINUTEN VERSPÄTUNG BEIM START – JUMPER J3 OUT
   	ON STEADY FISSO FIXE STÄNDIG AN	TOO HIGH DISCHARGE PRESSURE/TEMPERATURE FERMATA ALTA TEMPERATURA CONDENSAZIONE COUPURE HP ZU HOHER FÖRDERDRUCK/TEMPERATUR
   	BLINKING LAMPEGGIANTE CLIGNOTANT BLINKT	TOO HIGH EVAPORATION TEMPERATURE (>0°C) AFTER 15' FROM START UP TEMPERATURA EVAPORAZIONE >0°C DOPO 15' DA INIZIO CONGELAMENTO COUPURE BP (0°C LU PAR LA SONE EVAP. NON ATTEINTE APRES 15' FONCT.) ZU HOHER VERDAMPF TEMPERATUR (>0°C) 15' NACH DEM START
   	ON STEADY FISSO FIXE STÄNDIG AN	UNIT OFF AT BIN FULL CONTENITORE PIENO CABINE PLEINE MASCHINE AUS, SPEICHER VOLL
   	BLINKING SLOW LAMPEGGIANTE LENTO CLIGNOTANT LENT BLINKT LANGSAM	I/R BEAM CUTTED RAGGIO INFRAROSSO INTERROTTO FAISCEAU INFRA ROUGE CELLULE NIVEAU GLACE INTERROMPU LICHTSCHRANKE UNTERBROCHEN
   	BLINKING FAST LAMPEGGIANTE VELOCE CLIGNOTANT RAPIDE BLINKT SCHNELL	I/R ON AFTER TRIP OFF AT BIN FULL RAGGIO INFRAROSSO RIPRISTINATO DOPO FERMATA A CONTEN. PIENO FAISCEAU INFRA ROUGE CELLULE NIVEAU GLACE ETABLI SPEICHER ENTLÉERT, MASCHINE STARTET GLEICH
   	ON STEADY FISSO FIXE STÄNDIG AN	I/R CALIBRATION DONE CALIBRAZIONE RAGGIO INFRAROSSO EFFETTUATA CALIBRATION FAISCEAU INFRA ROUGE CELL. NIVEAU GLACE REALISÉ INFRAROT-STRAHLENKALIBRIERUNG DURCHGEFÜHRT
   	BLINKING LAMPEGGIANTE CLIGNOTANT BLINKT	UNIT IN CLEANING MODE OR TRIPPING OFF AFTER TEST – JUMPER TEST IN MACCHINA NELLA FASE LAVAGGIO O FERMA DOPO IL TEST – PONTICELLO TEST CHIUSO MACHINE EN MODE DETARTRAGE OU ARRETE APRES LE TEST – CAVALIER TEST FERMÉ MASCHINE IN DER WASCH- ODER STOPPPHASE NACH DEM TEST – GESCHLOSSENER TEST JUMPER

LED	STATUS	MEANING – SIGNIFICATO – SIGNIFICATION – BEDEUTUNG
   	ON STEADY FISSO FIXE STÄNDIG AN	CONDENSER SENSOR OUT OF ORDER SONDA CONDENSATORE Malfunzionante SONDE CONDENSEUR HS KONDENSATORFÜHLER DEFECT
   	BLINKING ALTERNATIVELY LAMPEGGIO ALTERNATO CLIGNOTANT ALTERNÉ ABWECHSELNDES BLINKEN	CLEANING REMINDER REMINDER PULIZIA RAPPEL NETTOYAGE SYSTEM HYDRAULIQUE RÜCKRUF REINIGUNGSWASSERSYSTEM
   	BLINKING LAMPEGGIANTE CLIGNOTANT BLINKT	EVAPORATOR SENSOR OUT OF ORDER OR EVAPORATOR TEMP. < -50°C SONDA EVAPORATORE Malfunzionante O TEMP. EVAPORATORE < -50°C SONDE EVAPORATEUR HS OU A' < -50°C VERDAMPFERFÜHLER DEFECT ODER VERDAMPFERTEMPERATUR < -50°C
   	BLINKING ALTERNATIVELY LAMPEGGIO ALTERNATO CLIGNOTANT ALTERNÉ ABWECHSELNDES BLINKEN	I/R SENSOR OUT OF ORDER SONDA ALL'INFRAROSSO LIVELLO GHIACCIO Malfunzionante SONDE INFRA ROUGE CELLULE NIVEAU GLACE HS INFRAROTSSENSOR DEFECT
   	BLINKING ALTERNATIVELY LAMPEGGIO ALTERNATO CLIGNOTANT ALTERNÉ ABWECHSELNDES BLINKEN	TIME OUT PWD ALARM ALLARME Malfunzionamento PWD ALARME PWD DYSFONCTIONNEMENT PWD-FEHLFUNKTIONSLARM
   	BLINKING FAST LAMPEGGIANTE VELOCE CLIGNOTANT RAPIDE BLINKT SCHNELL	TOO LOW EVAPORATION TEMPERATURE (- 50°C < T < -30°C) TEMPERATURA EVAPORAZIONE BASSA (- 50°C < T < -30°C) BASSE TEMPÉRATURE D'ÉVAPORATION (- 50°C < T < -30°C) ZU NIEDRIGE VERDAMPFER TEMPERATUR (- 50°C < T < -30°C)
   	BLINKING LAMPEGGIANTE CLIGNOTANT BLINKT	XSAFE ALARM ALLARME XSAFE ALARME XSAFE XSAFE-ALARM

*



PUSH

PUSH >5 SEC DURING WATER FILLING TO MOVE THE UNIT INTO FREEZING
PUSH >5 SEC DURING FREEZING TO MOVE THE UNIT INTO DEFROST
PUSH >5 SEC DURING DEFROST TO MOVE THE UNIT INTO FREEZING
PUSH 2<5 SEC DURING WATER FILLING TO MOVE THE UNIT INTO CLEANING
PUSH DURING THE 60 MIN START UP DELAY TIME TO BY-PASS IT

PREMERE >5 SEC DURANTE CARICAMENTO ACQUA PER METTERE LA MACCHINA IN CONGELAMENTO
PREMERE >5 SEC DURANTE CONGELAMENTO PER METTERE LA MACCHINA IN SBRINAMENTO
PREMERE >5 SEC DURANTE SBRINAMENTO PER METTERE LA MACCHINA IN CONGELAMENTO
PREMERE 2<5 SEC DURANTE CARICAMENTO ACQUA PER METTERE LA MACCHINA IN LAVAGGIO
PREMERE DURANTE IL RITARDO ALLA PARTENZA PER BY-PASSARLO

APPUI >5 SEC EN REMPLISSAGE POUR BASCULER LA MACHINE EN REFRIGERATION
APPUI >5 SEC EN CONGELATION POUR BASCULER LA MACHINE EN DEGIVRAGE
APPUI >5 SEC EN DEGIVRAGE POUR BASCULER LA MACHINE EN CONGELATION
APPUI 2<5 SEC EN REMPLISSAGE POUR BASCULER LA MACHINE EN DETARTRAGE
APPUI PENDANT LE RETARD AU DEMARRAGE POUR LE BY-PASSER

DRÜCKEN SIE >5 SEK. WÄHREND DER WASSERFÜLLUNG, UM DIE GEFRIERPHASE EINZULEITEN
DRÜCKEN SIE >5 SEK. WÄHREND DER GEFRIERPHASE UM DIE ABTAUPHASE EINZULEITEN
DRÜCKEN SIE >5 SEK. WÄHREND DES ABTAUENS, UM DAS GERÄT IN DEN GEFRIERPHASE ZU STELLEN
DRÜCKEN 2<5 SEK. WÄHREND DER WASSERFÜLLUNG, UM DIE REINIGUNGSPHASE EINZULEITEN

ELECTRONIC BOARD DIP SWITCHES (MICROSWITCHES)

The electronic control device that regulates the operation of the ice-maker is equipped with a DIP SWITCH (numeric switching system) with 10 switching keys that allow the user to set the **microprocessor** program to vary the duration of the freezing and defrosting cycles in relation to the different appliance models and versions.

A. Table

DURATIONS OF THE SECOND PHASE OF THE **FREEZING CYCLE** DEPENDING ON THE DIFFERENT POSSIBLE COMBINATIONS OF THE FIRST 4 KEYS OF THE DIP SWITCH.

DIP SWITCH				FREEZING CYCLE 2 nd phase duration
1	2	3	4	
ON	ON	OFF	OFF	25 min
OFF	OFF	ON	OFF	23 min
ON	OFF	ON	OFF	21 min
OFF	ON	ON	OFF	19 min
ON	ON	ON	OFF	17 min
OFF	OFF	OFF	ON	15 min
ON	OFF	OFF	ON	13 min
OFF	ON	OFF	ON	11 min
ON	ON	OFF	ON	9 min
OFF	OFF	ON	ON	7 min
ON	v	ON	ON	5 min
OFF	ON	ON	ON	3 min
ON	ON	ON	ON	1 min

B. Table

FACTORY SET DIP SWITCH POSITIONS

Keys **1-2-3-4** of the DIP SWITCH are used to adjust the **duration of the second phase of the freezing cycle**, which is controlled by an electronic timer (see **A. Table** on page **68**).

INITIAL DIP-SWITCH SETUP TABLES

AC106

ACM106 A	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	M											
ACM106 W	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	M											
ACL106 A	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	L											
ACL106 W	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	L											
ACM106 A	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	M											
ACM106 W	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	M											
ACL106 A	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	L											
ACL106 W	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	W											
CUBE:	L											

ACS126 A	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	S											
ACM126 A	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	M											
ACM126 W	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	M											
ACM126 A	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	M											
ACM126 W	R404A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	W											
CUBE:	M											
ACL126 A	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	L											
ACL126 A	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	L											
ACL126 W	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	L											

ACS176 A	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	S											
ACS176 W	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	S											
ACS176 W	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	W											
CUBE:	S											
ACS176 A	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	S											
ACM176 A	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	M											
ACM176 W	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	M											
ACM176 A	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	M											
ACM176 W	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	W											
CUBE:	M											
ACL176 A	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	L											
ACL176 W	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	L											
ACL176 A	R134a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	L											

ACS206 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	S											
ACM206 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	M											
ACM206 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	M											
ACM206 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	M											
ACL206 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	L											
ACL206 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	L											
ACL206 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	L											

ACXL206 A	R452A												
ELECTRONIC BOARD:	620462 17												
VOLTAGE:	230/50						1	2	3	4			
						ON							
COOLING:	A					OFF							
CUBE:	XL												
		DIP-SWITCH XL						DIP-SWITCH IS					
INTERNAL CARDS ADJUSTMENT		1	2	3	4	5	6	1	2	3	4	5	6
	ON												
	OFF												
ACXL206 W	R452A												
ELECTRONIC BOARD:	620462 17												
VOLTAGE:	230/50						1	2	3	4			
						ON							
COOLING:	W					OFF							
CUBE:	XL												
		DIP-SWITCH XL						DIP-SWITCH IS					
INTERNAL CARDS ADJUSTMENT		1	2	3	4	5	6	1	2	3	4	5	6
	ON												
	OFF												
ACM207 A	R290												
ELECTRONIC BOARD:	620462 17												
VOLTAGE:	230/50		1	2	3	4	5	6	7	8	9	10	
		ON											
COOLING:	A	OFF											
CUBE:	M												

ACS226 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	S											
ACM226 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	M											
ACM226 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	M											
ACM226 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	M											
ACM226 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	W											
CUBE:	M											
ACL226 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	L											
ACL226 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	L											
ACL226 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	L											

MCS16S A												
ELECTRONIC BOARD:	620462 11		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
	400/50	OFF										
COOLING:	A											
CUBE:	S											
MCS16S W												
ELECTRONIC BOARD:	620462 11		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
	400/50	OFF										
COOLING:	W											
CUBE:	S											
MCM16S A												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
	400/50	OFF										
COOLING:	A											
CUBE:	M											
MCM16S W												
ELECTRONIC BOARD:	620462 11		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
	400/50	OFF										
COOLING:	W											
CUBE:	M											
MCL16S A												
ELECTRONIC BOARD:	620462 22		1	2	3	4	5	6	7	8	9	10
VOLTAGE:		ON										
	400/50	OFF										
COOLING:	A											
CUBE:	L											
MCL16S W												
ELECTRONIC BOARD:	620462 11		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
	400/50	OFF										
COOLING:	W											
CUBE:	L											

MXS328 A	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
LAB:		OFF										
COOLING:	A											
CUBE:	S											
MXS328 W	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	S											
MXS328 W	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	W											
CUBE:	S											
MXM328 A	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	M											
MXM 328 W	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	M											
MXM328 A	R452a	630g										
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	M											
MXM328 W	R452a	580g										
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	W											
CUBE:	M											
MXL328 A	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	L											
MXL328 W	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	L											
MXL 328 A	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	L											
MXL328 W	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	W											
CUBE:	L											

MXS428 A	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
LAB		OFF										
COOLING:	A											
CUBE:	S											
MXS428 W	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	S											
MXM428 A	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	M											
MXM428 A	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	M											
MXM428 W	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	M											
MXL428 A	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	L											

MXS938 A	R452a											
ELECTRONIC BOARD:	620462 11		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
LAB:		OFF										
COOLING:	A											
CUBE:	S											
MXM938A	R452a											
ELECTRONIC BOARD:	620462 11		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	A											
CUBE:	M											
MXM938 A	R452a											
ELECTRONIC BOARD:	620462 11		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	A											
CUBE:	M											
MXM938 W	R452a											
ELECTRONIC BOARD:	620462 11		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
	230/60	OFF										
COOLING:	W											
CUBE:	M											
MXM938 RC	R452a											
ELECTRONIC BOARD:	620462 11		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	RC											
CUBE:	M											
MXL938 A	R452a											
ELECTRONIC BOARD:	620462 11		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	A											
CUBE:	L											
MXL938 W	R452a											
ELECTRONIC BOARD:	620462 11		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	W											
CUBE:	L											
MXL938 A	R452a											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	L											
MXL938 W	R452a											
ELECTRONIC BOARD:	620462 11		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	W											
CUBE:	L											
MXL938 RC	R452a											
ELECTRONIC BOARD:	620462 11		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	RC											
CUBE:	L											

ACM47	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	M												
ACM47	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	W												
CUBE:	M												
ACM57	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/60	ON											
		OFF											
COOLING:	A												
CUBE:	M												
ACM57	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	W												
CUBE:	M												
ACS57	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	S												
ACL57	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	L												
ACM87	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	M												
ACM87	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	W												
CUBE:	M												
ACS87	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	S												
ACL87	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	L												
ACM107	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	M												

ACM107	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	M												
ACM107	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	W												
CUBE:	M												
ACL107	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	L												
ACM127	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	M												
ACM127	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	W												
CUBE:	M												
ACL127	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	L												
ACM177	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	M												
ACM177	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	W												
CUBE:	M												
ACL177	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	L												
ACM207	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	M												
ACM227	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	M												

MXS638 A	R452A												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	S												
MXS638 W	R452A												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	W												
CUBE:	S												
MXM638 A	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	M												
MXM638 W	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	W												
CUBE:	M												
MXM638 RC	R452a												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/60	ON											
		OFF											
COOLING:	RC												
CUBE:	M												
MXM638 RC	R452A												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	RC												
CUBE:	M												
MXM638 A	R452A												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	400/50	ON											
		OFF											
COOLING:	A												
CUBE:	M												
MXM638 W	R452A												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	400/50	ON											
		OFF											
COOLING:	W												
CUBE:	M												
MXM638 A	R452A												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/60	ON											
		OFF											
COOLING:	A												
CUBE:	M												
MXL638 A	R452A												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	400/50	ON											
		OFF											
COOLING:	A												
CUBE:	L												
MXL638	R452A												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/60	ON											
		OFF											
COOLING:	A												
CUBE:	L												

MXL638 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	W											
CUBE:	L											
MXL638 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	W											
CUBE:	L											
MXL638 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	L											
MXL638 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	L											
MXL638 RC	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	RC											
CUBE:	L											
MXL638 RC	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	RC											
CUBE:	L											
MXX638 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	XL											
MXX638 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	XL											
MXX638 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	XL											
MXX638 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	W											
CUBE:	XL											

MCS1210 A		R452A										
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/60	ON										
		OFF										
COOLING:	A											
CUBE:	S											
MCS1210 W		R452A										
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	W											
CUBE:	S											
MCM1210 A		R452A										
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	M											
MCM1210 A		R452A										
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	A											
CUBE:	M											
MCM1210 W		R452A										
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	W											
CUBE:	M											
MCM1210 A		R452A										
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	A											
CUBE:	L											
MCM1210 W		R452A										
ELECTRONIC BOARD:	620462 24	(2x1050)gr	1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	W											
CUBE:	L											

MCM 46 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	M											
MCM46 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	M											
MCM 46 RC	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	RC											
CUBE:	M											
MCM 46 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	A											
CUBE:	M											
MCM 46 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	W											
CUBE:	M											
MCM46 RC	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	RC											
CUBE:	M											
MCL46 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	A											
CUBE:	L											
MCL46 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	L											
MCL 46 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	L											
MCXL 46 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	XL											
MCXL46 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	A											
CUBE:	XL											
MCXL 46 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	400/50	ON										
		OFF										
COOLING:	W											
CUBE:	XL											

MXM 438 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	M											
MXS 438 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	S											
MXS 438 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	S											
MXS 438 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	W											
CUBE:	S											
MXM 438 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	M											
MXM 438 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	M											
MXM 438 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	A											
CUBE:	M											
MXM 438 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/60	ON										
		OFF										
COOLING:	W											
CUBE:	M											
MXL 438 A	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	A											
CUBE:	L											
MXL 438 W	R452A											
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10
VOLTAGE:	230/50	ON										
		OFF										
COOLING:	W											
CUBE:	L											

MXM 437 A	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	M												
MXM427 A	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	M												
MXM 327 A	R290												
ELECTRONIC BOARD:	620462 24		1	2	3	4	5	6	7	8	9	10	
VOLTAGE:	230/50	ON											
		OFF											
COOLING:	A												
CUBE:	M												

DIP SWITCH keys **5-6** can be used to set the duration of the **thawing or defrosting cycle** depending on the type of ice cube (small - medium - large) (see **C. Table** on page **87**).

C. Table

DURATIONS OF THE **THAWING | DEFROSTING CYCLE** DEPENDING ON TYPE OF ICE CUBE (SMALL - MEDIUM - LARGE)

DIP SWITCH		THAWING CYCLE
5	6	
ON	ON	Program A
OFF	ON	Program B
OFF	OFF	Program C
OFF	ON	Program D

DIP SWITCH keys **7-8** can be used to extend the thawing cycle (Ta) (see **D. Table** on page **87**).

D. Table

EXTENSION OF THE **THAWING | DEFROSTING CYCLE** DEPENDING ON THE DIFFERENT POSSIBLE COMBINATIONS OF THE DIP SWITCH KEYS.

DIP SWITCH		THAWING CYCLE
7	8	
ON	ON	0
OFF	ON	30 min
ON	OFF	60 min
OFF	OFF	the pump remains stationary during the defrosting cycle, without any additional time

DIP SWITCH key **9** can be used to operate (ON) or not operate (OFF) the pump during the first 15 or 30 seconds of the thawing cycle.

DIP SWITCH key **10** can be used to select whether the appliance is to be stopped (ON) or NOT stopped (OFF) when the condenser temperature probe detects a temperature of 60°C (water-cooled appliances) or 70°C (air-cooled appliances).

Condenser air filter

(Air-cooled version)

The **condenser air filter** is in front of the air condenser. It can be easily removed for cleaning or replacement by pulling it out through the front panel opening. A small plastic guide installed inside the machine facilitates the correct sliding and positioning of the air filter.

Spray bar or plate

The **spray bar or plate** is used to direct the water, forced by the pump, into the inverted cups of the evaporator through the nozzles on its surface.

Electric pump

During the freezing phase, the **electric pump** continuously directs water through holes drilled in the spray unit into the inverted cups; during this journey, the water undergoes some aeration, which results in solid, crystalline ice cubes. The pump remains in operation even during the first 15 seconds of the thawing cycle (if DIP SWITCH 9 has been set to ON), in order to discharge residual water rich in lime and minerals. It is recommended to check the condition of the bearings every 6 months.

Water inlet solenoid valve

The **water inlet solenoid valve** is energized through the electronic board during the first 5 minutes of the loading phase (when the appliance is started) and during the defrosting cycle. When energized, it allows a calibrated amount of water to flow over the top of the evaporator plate, which, together with the hot gas circulating in the coil, causes the ice cubes to break apart. The water drains through the drainage holes of the evaporator plate into the collection tank below, where it is then sucked by the recirculation pump and directed back to the spray unit.

ONLY FOR WATER-COOLED AC | EC 47-57-87-107

In water-cooled models, a second water inlet solenoid valve is used for the condenser. An automatic high-pressure control device (pressure switch) activates the second coil of the water inlet solenoid valve, so that a certain amount of water reaches the condenser and lowers the temperature and pressure inside.

Hot gas solenoid valve

The **hot gas solenoid valve** essentially consists of two parts; the body and the coil. Located on the compressor discharge line, it is activated by the electronic board during the thawing (and charging) cycle and opens the passage for the hot gas which, pumped by the compressor, flows directly into the evaporator coil to detach the ice cubes from the cups.

Pressostatic valve

(only for AC/EC 127-177) (Water-cooled models)

The **pressostatic valve** maintains the high pressure in the refrigerant circuit at a constant value by varying the condenser cooling water flow. As the pressure rises, the pressostatic valve opens further to increase the flow of cooling water to the condenser

Water drain solenoid valve

(only for AC/EC 127-177 and MXG)

The **water drain solenoid valve** is electrically connected in parallel to the water inlet solenoid valve and the hot gas solenoid valve, and remains energized for the duration of the thawing cycle. Together with the pump that runs for 15 seconds at the start of the thawing cycle, it allows all residual water (rich in limescale and minerals deposited during the previous cycle) to drain from the pump tray. In this way, the machine will have clean water with each new cycle, thus avoiding the accumulation of impurities and limescale, which sooner or later will cause partial or total blockage of the machine water circuit.

Motor fan

(Air-cooled models)

The **motor fan**, electrically connected to the TRIAC of the electronic board, operates during the freezing cycle, circulating air through the condenser fins. During the second part of the freezing cycle, the fan can run intermittently to keep the temperature and thus the condensing pressure within two preset values.

Compressor

The **hermetic compressor** is the heart of the system and circulates the refrigerant through the entire system. It draws in the refrigerant in the form of low pressure and low temperature vapour and then compresses it, causing its pressure and temperature to rise accordingly, transforming it into high pressure and high temperature vapour as it passes through the drain valve into the circuit.

High pressure switch

(Only for water-cooled AC|EC 47-57-87-107 models)

Only used in water-cooled models, its function is to keep within two preset values the delivery pressure of the refrigerant circuit by intermittently powering the coil of the condenser water inlet solenoid valve.

WORKING PHASES (NON-propane versions only)

WORKING PHASE

Start-up loading.....	90
Production phase	92
Thawing cycle	96
Residual water drain.....	99

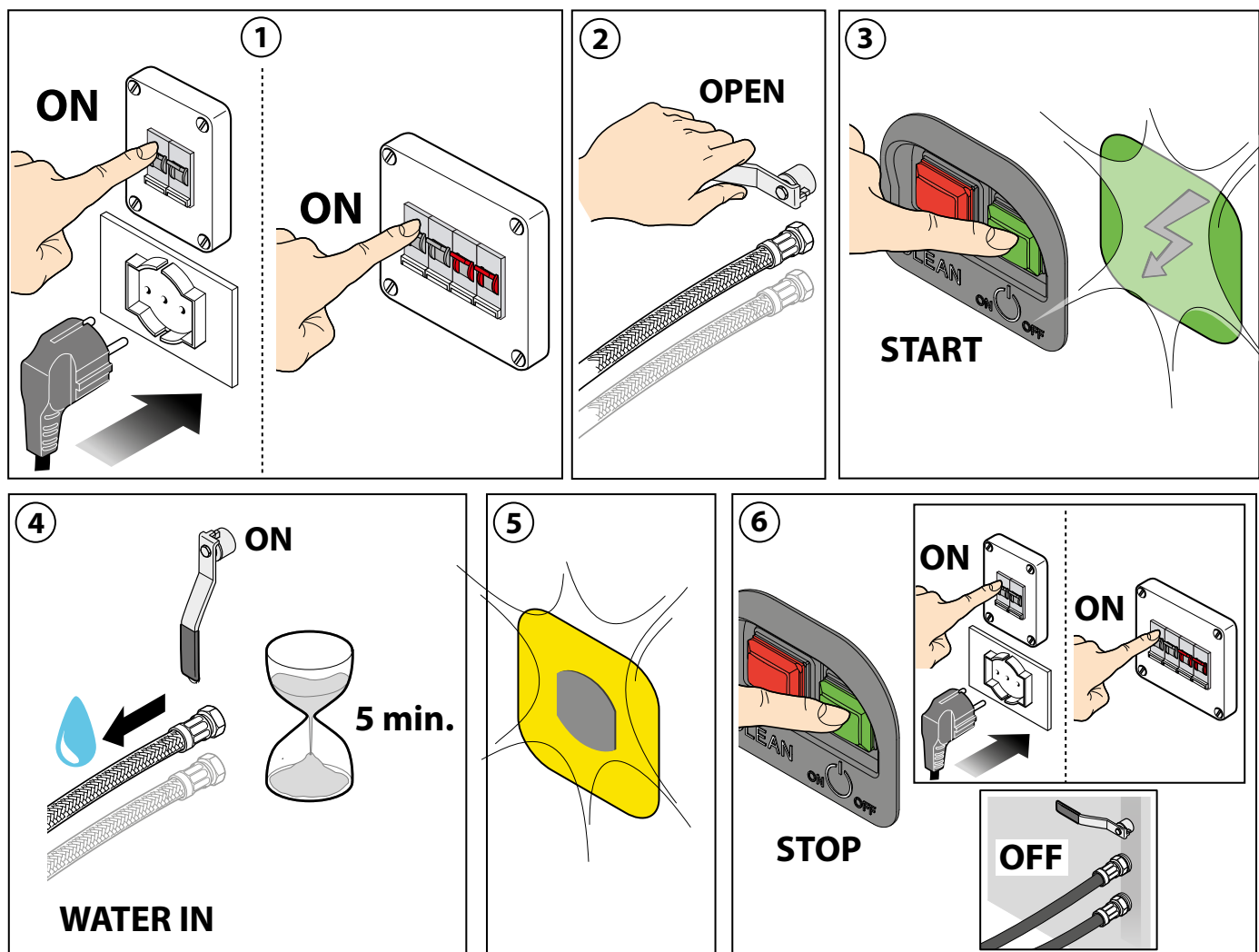
DIAGNOSTICS

Adjusting the size of the ice cubes	101
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START-UP | LOADING

After the appliance has been correctly installed and connected to the electricity and water supply, follow the procedure below to start it:

- 1 Open the **water supply tap** so that the machine can load the water.
- 2 **Power the machine** by inserting its plug into a socket of suitable voltage.
- 3 Set **the main switch of the dedicated panel** to ON if present (AC series only): the machine is now powered.



Every time the appliance is energized after a shutdown period (i.e. electrical disconnection), the water inlet solenoid valve, the hot gas solenoid valve and the water drain solenoid valve are energized for 5 minutes, ensuring that the tank is filled and rinsed, removing anything that may have accumulated during the shutdown period (e.g. dust).

④ **Press the green ON/OFF button** (if present (AC/EC NON-propane series only)): the green “machine powered” light comes on.

⑤ The appliance starts loading water automatically.



During the loading or filling phase, check that the water is falling in rivulets from the holes in the **evaporator plate** into the **tank** below. Also check that excess water overflows through the vertical **overflow** pipe and freely through the appliance’s **drain line**.

During the **water filling phase**, the components in operation are:

- water inlet solenoid valve
- hot gas solenoid valve
- water drain solenoid valve (AC | EC 127 and 177 only).

If the water tank is not full after the 5-minute filling time, check that:

- the water pressure is at least 1 bar (max. 5 bar);
- any filtration devices that may be installed on the water mains are not reducing the pressure of the water mains below 1 bar (max. 5 bar);
- there are no obstructions in the appliance’s water circuit (mesh filter inside the water inlet valve, flow control, etc.)

PRODUCTION PHASE (FREEZING CYCLE)

After about **5 minutes** loading is completed, the yellow “machine running” light comes on and the ice cube production cycle begins.

How the process happens | refrigerant state changes

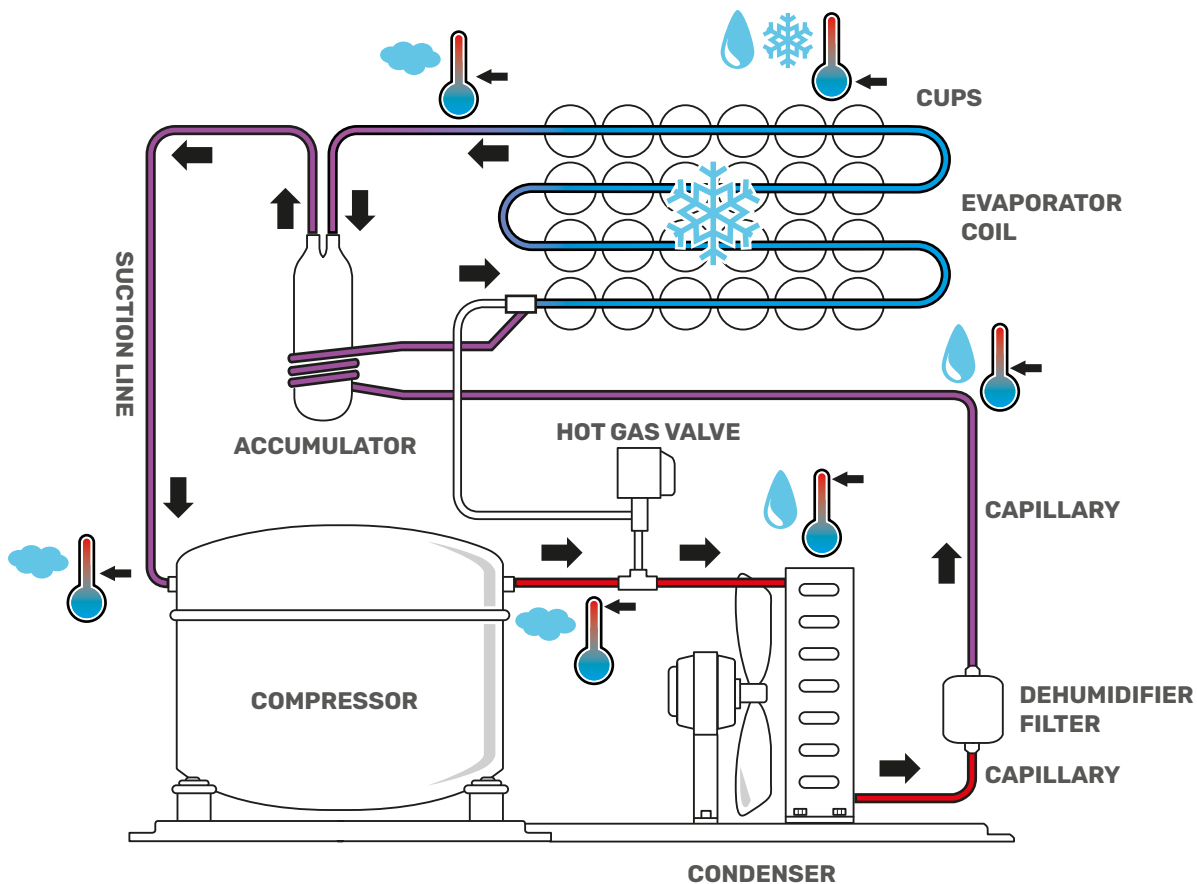
F17 Refrigerant in its **gaseous state** and at **high temperature** is pumped by the **compressor** and passes through the **condenser**, where it is turned into **liquid refrigerant**. The liquid line takes the refrigerant from the condenser to the **capillary tube**, through the **dehumidifier filter**.

As it passes through the capillary tube, the refrigerant in its liquid state gradually loses some of its pressure and, therefore, some of its temperature.

The water sprayed into the inverted cups of the evaporator via an **electric pump** releases heat to the refrigerant circulating inside the coil, causing its evaporation and its physical change of status, from liquid to **vapour**.

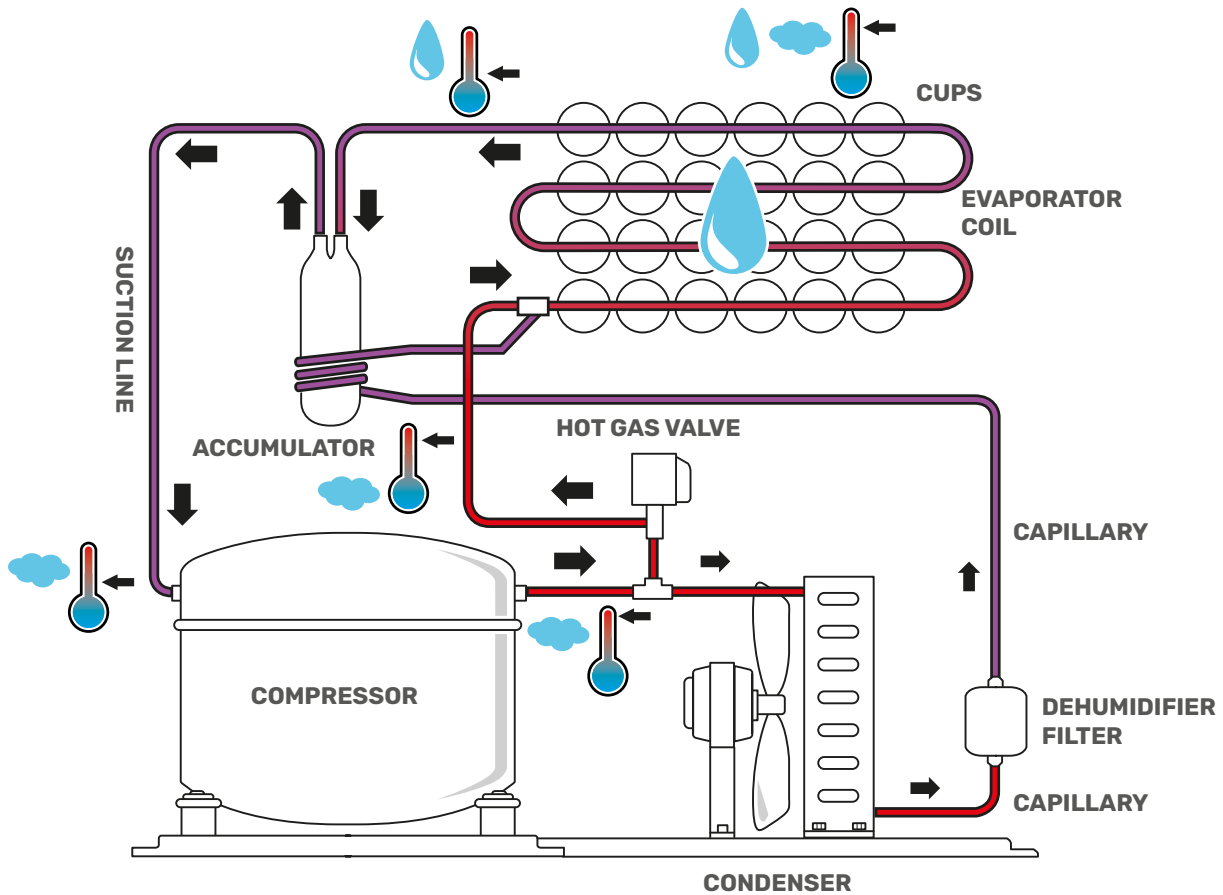
After going through the **accumulator**, the refrigerant in vapour state is sucked back into the **compressor** via the **suction line**.

FREEZING PHASE

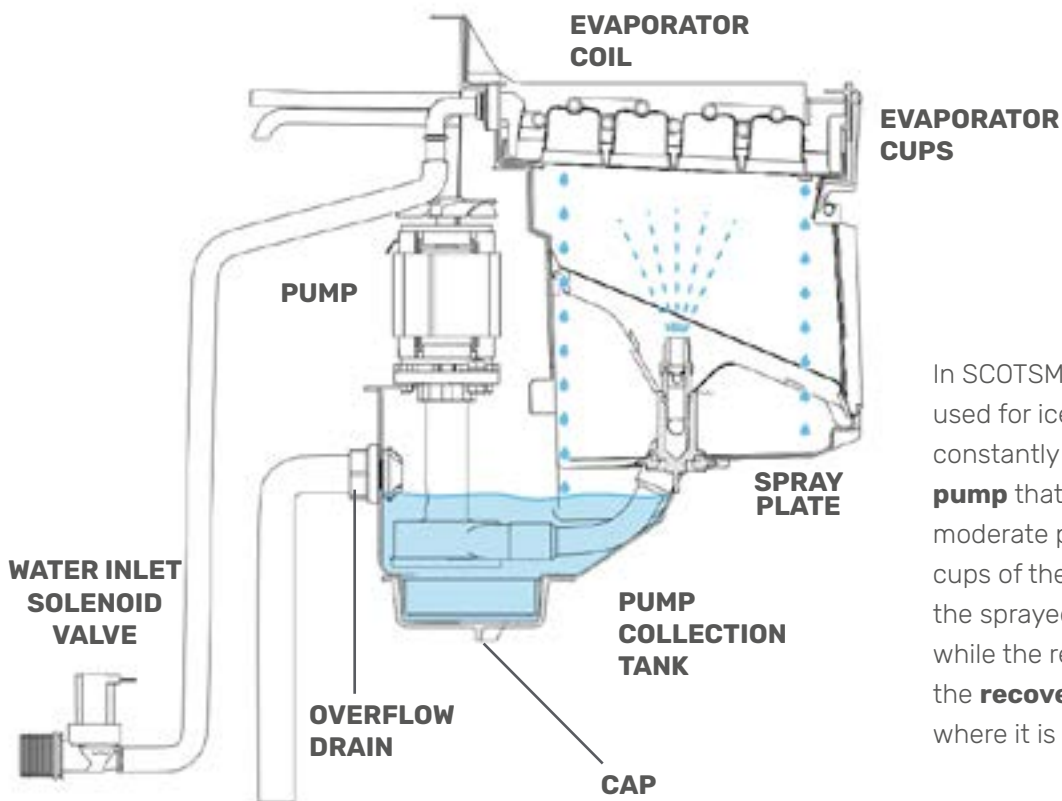


F17

DEFROSTING PHASE



F18



In SCOTSMAN ice-makers, the water used for ice production is kept constantly moving by an **electric pump** that sprays water with moderate pressure into the inverted cups of the evaporator. Here, part of the sprayed water freezes instantly, while the remainder falls back into the **recovery tank** below, from where it is recirculated.

F19

First freezing phase

(controlled by the evaporator temperature probe)

During the ice-making process, water is continuously sprayed inside the inverted cups and the temperature of the evaporator gradually drops.

When it reaches **0°C** (red LED flashing) and then **-15°C** (red LED steady on), the **temperature probe** placed in contact with the evaporator coil activates the **electronic counter** incorporated in the board with a low-voltage current flow.

This intervention of the probe marks the end of the first freezing phase; the evaporator temperature probe is the same for all models and is calibrated at the factory; it is not possible to vary its tripping temperature.

From now on, the electronic timer takes control of the freezing cycle until completion (the powering of the timer of the electronic board is confirmed by the coming on of the front RED LED).

If after 15 minutes from the start of the freezing cycle the temperature of the evaporator sensor is still above 0°C (lack of refrigerant, hot gas valve leakage, etc.), the electronic board stops the operation of the appliance to prevent prolonged operation in abnormal conditions and the red LED starts flashing.

During the **ice cube production phase**, the components in operation are:

- fan compressor (air-cooled models);
- pump;
- electronic timer;
- fan motor (in case of air-cooled appliances), controlled by the condenser temperature sensor located between the condenser fins

Second freezing phase

(controlled by the board's electronic timer)

The second phase of the freezing cycle is controlled by the electronic timer built into the board; it is preset at the factory according to the different ice-maker model, its version (air-cooled or water-cooled) and the size of the ice cubes (small, medium, large). The **B. Table** on page **68** shows, for the different models and versions of SCOTSMAN ice-makers, the positions of the DIP SWITCH keys as set at the factory.

If necessary, it is still possible to set the duration of the second phase of the freezing cycle by adjusting the positions of keys 1, 2, 3 and 4 of the DIP SWITCH on the front of the electronic board.

The **A. Table** on page **68** shows the durations of the second phase of the freezing cycle depending on the different possible combinations of the DIP SWITCH keys.

SUCTION PRESSURE CONTROL

The **suction pressure** (or low pressure) drops gradually, depending on the machine model, when the ice cube is fully formed; this phase lasts on average about 20-25 minutes.

DELIVERY PRESSURE CONTROL

The **discharge pressure** of the refrigerant system is maintained between two preset values depending on the model of the ice maker thanks to the action of the **condenser temperature sensor**, which is positioned between the condenser fins - in the case of air condenser -, or in contact with the liquid refrigerant line - in the case of water condenser.

CONDENSATION TEMPERATURE CONTROL

On **air-cooled appliances**, as soon as the **temperature of the condenser exceeds a certain value**, the condenser temperature probe changes its electric potential, transmitting low-voltage current to the MICROPROCESSOR of the electronic board, which processes the signal received and electrically powers the fan motor via a TRIAC located at the output of the electronic board. Following this intervention, **the condenser temperature decreases**: the condenser temperature probe returns its electrical potential to its initial (primitive) value, thus reducing the current flow to the electronic board and consequently stopping the motor fan.

If the condensation temperature reaches 60°C (water-cooled appliances) or 70°C (air-cooled appliances) due to:

- *dirty condenser (air-cooled appliances)*
- *insufficient condensing water (water-cooled appliances);*
- *burned or jammed motor fan (air-cooled devices);*
- *room temperature above 40°C;*

*the **condenser temperature probe** immediately stops the appliance to prevent prolonged operation under abnormal conditions and simultaneously switches on the red warning LED. In order to be able to put the device back into operation, it is necessary to:*

- *eliminate the cause of the tripping of the condenser temperature probe;*
- *switch off the machine,*
- *wait a few seconds and switch the machine back on.*

The appliance will restart with a new freezing cycle, preceded by a 5-minute water loading phase.



Checks during the start-up and production phase (freezing)

F10 Install the service pressure gauges on both Schröder valves – high and low – in order to **check the condensation and suction pressures**.

In air-cooled models, the condensation pressure is kept constant between the values indicated on page **8** by means of the probe/sensor installed between the condenser fins.

F10 Check, through the ice cube outlet opening, that the **spray plate** or the **spray bar** are correctly positioned and that the water is evenly sprayed inside the inverted evaporator cups. Check that the **plastic curtain** is correctly positioned, preventing water from escaping through its slats.

The following table shows which contacts and components are energised or not during the various stages of the ice-making cycle. Refer to the circuit diagram for reference.

THAWING CYCLE

As soon as the **timer on the circuit board** causes the second phase of the freezing cycle to end (according to the set duration), the appliance enters the thawing cycle.

In the event that the appliance reaches an evaporating temperature of 0°C within 15 minutes, but 45 minutes after the start of the freezing cycle has not yet reached -15°C, the electronic board directly switches the appliance to defrosting, bypassing the additional time controlled by the electronic timer.

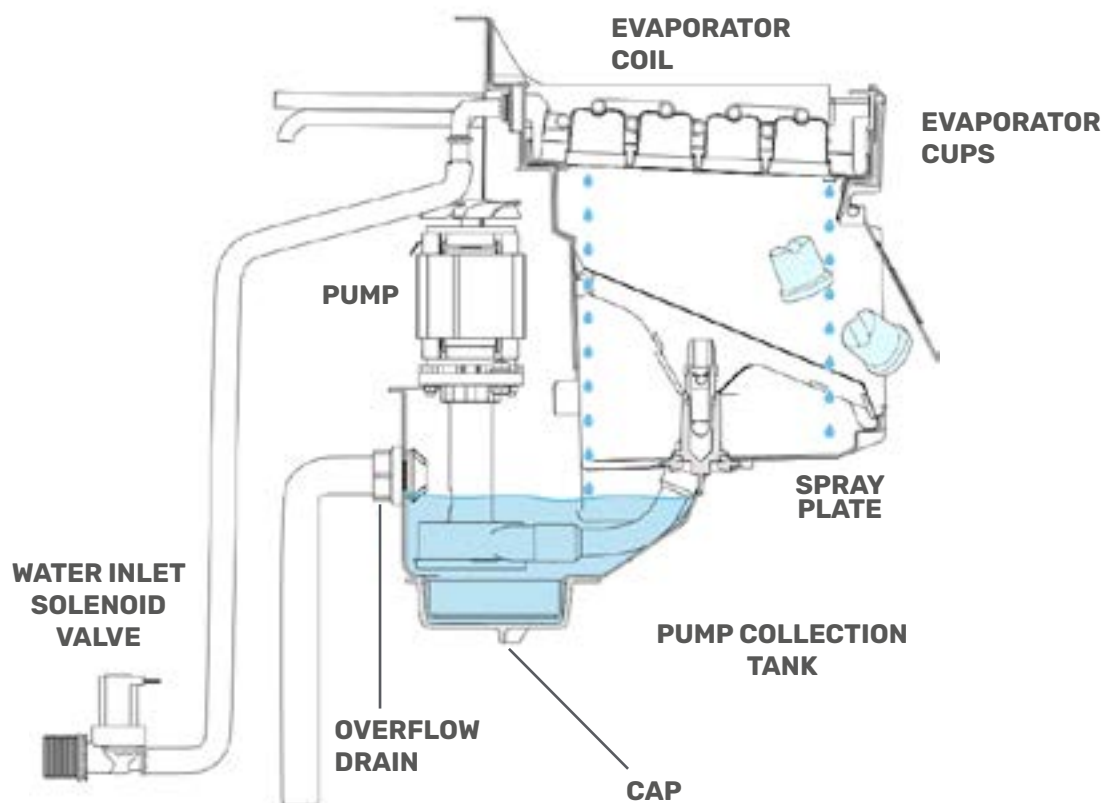
The **duration of the thawing cycle** depends on the position of DIP SWITCHES 5 and 6 (see **B. Table** on page **68**) and the duration of the second phase of the freezing cycle T2 (time required to bring the evaporation temperature down from 0°C - internal Red LED flashing - to -15°C - internal Red LED on steady). The duration of the thawing cycle can be set or extended using DIP SWITCHES 7 and 8. Tables **C. Table** and **D. Table** on page **87** show the thawing cycle times depending on the possible DIP SWITCH key combinations.

During the **thawing phase**, the components in operation are:

- compressor water inlet valve;
- hot gas valve;
- water drain valve (AC | EC 127-177 models only);
- pump for the first 15 seconds (AC | EC 127-177 models only).

The inlet water passes through the water inlet **solenoid valve** and the flow control, located inside the valve itself (models with ice collector) or the internal water supply line (modular cube models), to then reach the top of the **evaporator**, from where it falls through the drainage holes into the **pump collection tank** below. The water level in the tank is limited by an **overflow** pipe, which eliminate excess water by directing it to the drain of the appliance.

The refrigerant in its gaseous state, pumped by the compressor, is now directly diverted from the open **hot gas valve** to the **evaporator coil**, following the most direct path, therefore not passing through the condenser.



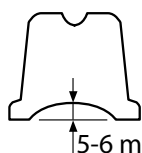
The hot gas circulating inside the evaporator coil raises the temperature of the cups, **causing the detachment of the ice cubes**. The detached ice cubes fall by gravity onto an inclined base and then slide through the **outlet**, into the ice bin. At the end of the thawing cycle, the water inlet and hot gas valves are deactivated, so that the appliance automatically restarts with a new freezing cycle.



Checks during the thawing phase

Make sure that during the thawing phase the water supply replenishes the water used to make the ice cubes, and that a certain amount of it overflows through the overflow pipe and into the drain line of the appliance. In EC series models, as soon as the water reaches its maximum level inside the hermetic collection tray, the two metal feet immediately close the contact using the water itself as a conductor, thus transmitting a low-voltage current to the **electronic board**. This will power the **water drain pump** for 8 seconds, which will pump out most of the water contained in the hermetic collection tray.

Check the ice cubes produced.



SIZE: check that the ice cubes are the right size with a cavity at the crown of about 5-6 mm. If not, after the second ice-making cycle change the **duration of the freezing cycle**, which is controlled

by the electronic timer, by adjusting the position of the DIP SWITCH keys (**A. Table** on page **68**), until the correct size is obtained.

APPEARANCE: Particularly opaque ice cubes indicate that the ice-maker has suffered a lack of water during the final phase of the freezing cycle, or that the water used for ice production does not meet the characteristics indicated on page **29**. In specific, it may be excessively mineralised (hard). In this case, suitable water treatment filters should be used.

Models equipped with **optical reader** or **temperature probe** (depending on the model) give the possibility of checking the ice level in the ice bin. The thermal probe can detect the presence of ice through the low temperature, and at the same time its mass in the vicinity of the bulb of the probe.

To test during operation:

THERMAL PROBE: place a few ice cubes in contact with the bulb: the ice maker will stop at the end of the next defrosting cycle. Removing the ice from the bin will restart the machine with a new freezing cycle.

OPTICAL READER: place a few ice cubes between the two sensors of the optical reader inside the ice bin to break the infrared beam: the ice maker will stop at the end of the next defrosting cycle. Removing the ice from the bin will restart the machine with a new freezing cycle.

The following stop and restart procedure applies to both appliances:

STOP DUE TO BIN FULL: The YELLOW bin full LED flashes slowly until the end of the current freezing cycle, after which the machine stops in the bin full condition with the YELLOW LED on steady.

RESTART: once the ice has been removed from the ice bin, the machine automatically restarts, with the YELLOW LED flashing quickly for about 6 seconds. The machine restarts loading water into the tray for about 45 seconds, and the YELLOW LED switches off.

The operation of the optical ice level control reader is independent of the temperature but can be affected by external light sources, as well as by any limescale deposits that may accumulate on its optical readers (infrared sensors). For proper functioning of the appliance, it is therefore advisable to install it away from direct light sources, keep the container door closed and strictly follow the instructions in the maintenance section regarding the periodic cleaning of optical readers.

After completing all checks, remove the service gauges and replace the previously removed front panel.

Train the owner on the operation, cleaning and sanitisation of the ice maker.

Residual water drain (PWD only EC models)

Components

- Hermetic water tray
- Hermetic water pump
- Non-return valve

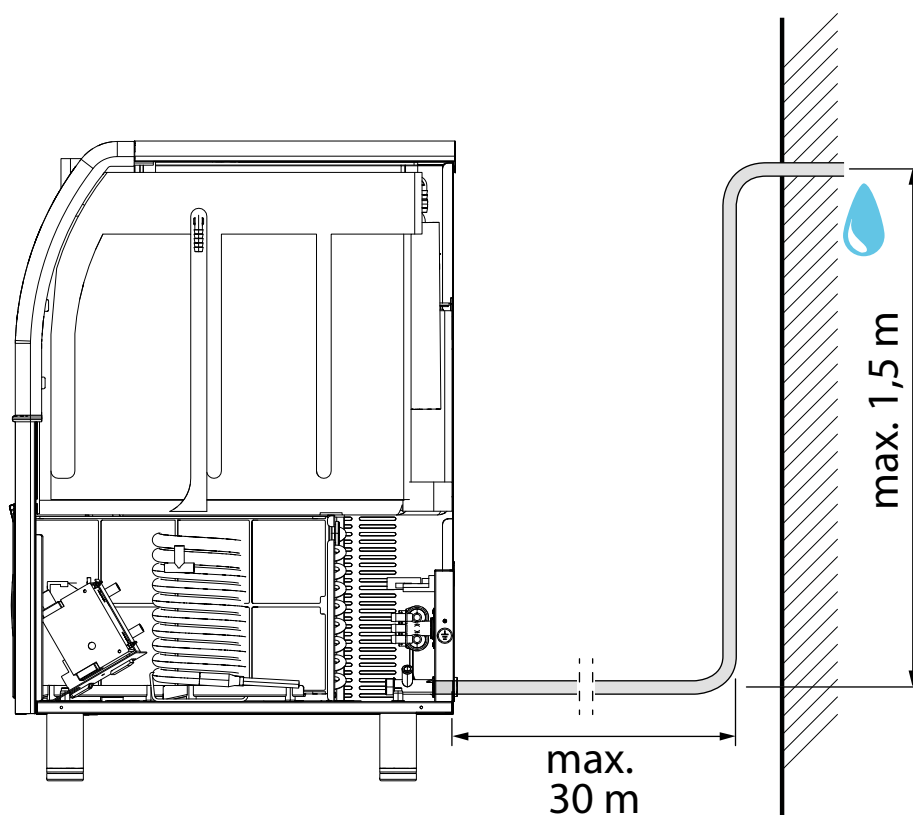
Operation

The water coming from the **overflow** fitting, the drain valve and the melting of the ice in the cell/ container is collected inside the **hermetic tray**.

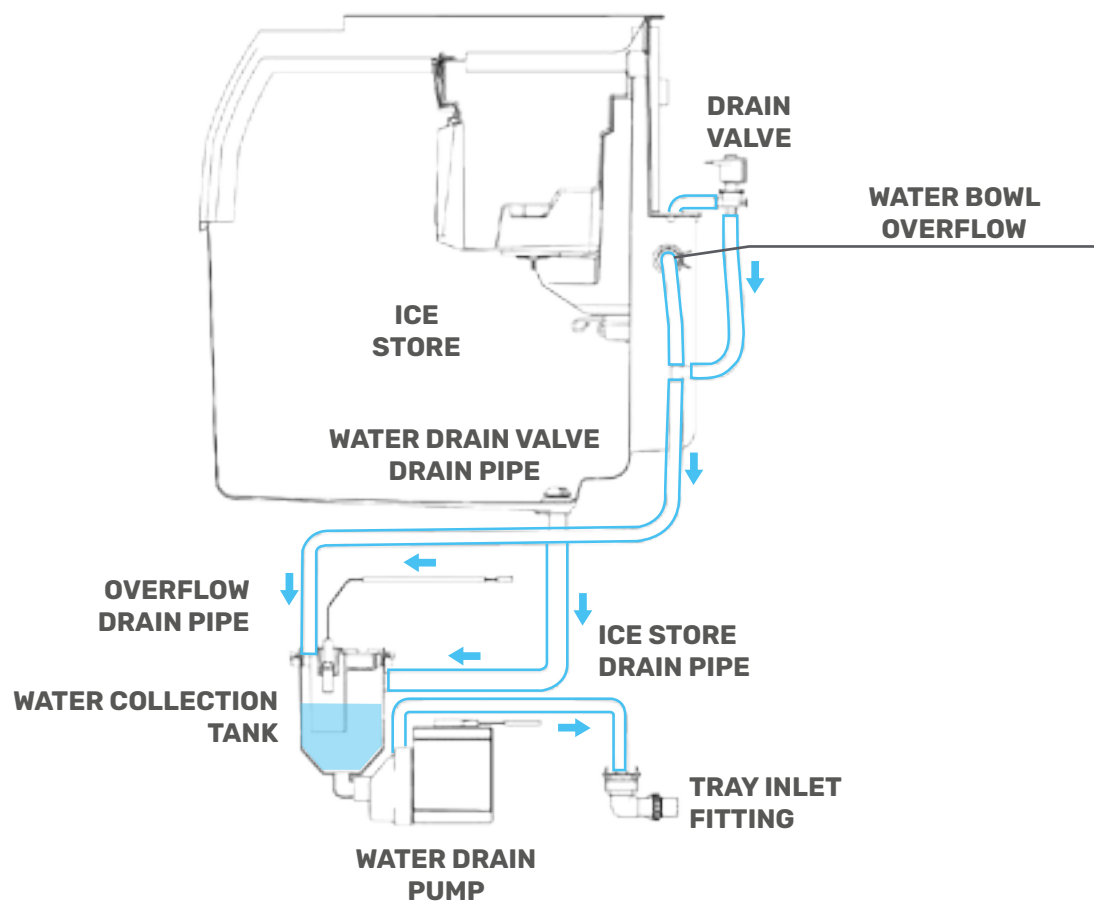
If the water level reaches the two metal sensors corresponding to the maximum level in the hermetically sealed tray, a low-voltage current is generated towards the electronic board. The same board powers the drain pump for 8 seconds (the time required to remove water from the tray).

F21 The water discharged under pressure can be sent up to 1.5 metres high or 30 metres horizontally.

A non-return water valve is installed on the drain line of the system.



F21

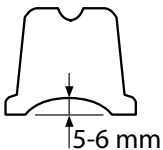


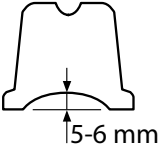
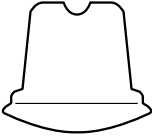
F22

DIAGNOSTICS

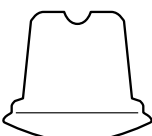
ADJUSTING THE SIZE OF THE ICE CUBES

Before proceeding with any adjustments, use the troubleshooting section of this paragraph to check for possible problem causes. Do not make any adjustments until the refrigeration system of the appliance has settled down by performing several freezing and defrosting cycles.

	ICE CUBE PROBLEM	SOLUTION
 NORMAL ICE CUBE  ICE CUBE with excessive cavity	undersized ice cubes (excessive cavity)	The duration of the second part of the freezing cycle is too short. To increase it: • Locate the DIP switches on the front of the circuit board. • Take note of the combination of the first four switches and check on the B. Table on page 68 the duration of the second phase of the freezing cycle (e.g. 11 minutes). • Adjust the DIP SWITCHES for a longer duration (for example 13 minutes) to extend the freezing cycle by two minutes. • Repeat the production cycle and observe the ice cubes produced in the next two defrosting cycles. • If the ice cubes are still not the right size, extend the duration of the second phase of the freezing cycle by a further two minutes. WARNING. Disconnect the power supply from the machine each time new adjustments are made.

	ICE CUBE PROBLEM	SOLUTION
 NORMAL ICE CUBE  ICE CUBE with excess ice	oversized ice cubes (convexity around the crown)	The duration of the second part of the freezing cycle is too long. To increase it: • Locate the DIP switches on the front of the circuit board. • Take note of the combination of the first four switches and check on the B. Table on page 68 the duration of the second phase of the freezing cycle (e.g. 11 minutes). • Adjust the DIP SWITCHES to a shorter duration (for example 9 minutes) to shorten the freezing cycle by two minutes. • Repeat the production cycle and observe the ice cubes produced in the next two defrosting cycles. • If the ice cubes are still not the right size, decrease the duration of the second phase of the freezing cycle by a further two minutes. WARNING. Disconnect the power supply from the machine each time new adjustments are made.

LED	SYMPTOMS	POSSIBLE CAUSE	SUGGESTED REMEDIES
	The unit does not work		
	No LED on	- Blown electronic board input fuse - Main switch off Electronic board not working - Electric cables disconnected	- Replace the fuse and search for the cause of the blown fuse - Set the switch to on - Replace the electronic board - Check the wiring
	Green operation LED on	Blown electronic board output fuse	Replace the fuse and search for the cause of the blown fuse
	Bin full LED on	- Optical ice level control dirty or not working. - Electronic board not working	- Clean or replace the optical ice level control. - Replace the board
	Red LED on	Excessive delivery pressure	- Condenser dirty - Clean the motor fan. - Burnt motor fan; replace. - Inlet water shortage (water-cooled models only).
	Red LED flashes	High evaporation temperature after 15 minutes from the start of the freezing cycle	- Leaking hot gas valve; replace. - The water inlet valve does not close; replace. - Evaporator sensor not working; replace. - Refrigerant shortage.
	Freezing LED + Alarm LED on steady	Faulty condenser sensor	Replace
	Freezing LED + Alarm LED flashing	Faulty evaporator sensor	Replace
The compressor cycles intermittently		Low voltage	- Check the circuit for overload - Check the power supply voltage - If low, contact the electricity supplier
		Non-condensing gases in the system	Download, empty and reload
		Compressor cables partially disconnected	Check the various terminals
		Mechanical problems	Replace the compressor
Insufficient water		Water sprays through the curtain	Check and replace the curtain
		Water inlet valve does not open	Replace the valve
		Water leakage from the tank	Locate and repair
		Obstructed flow control	Replace the water inlet valve
		Leaking drain valve	Replace

SYMPTOMS	POSSIBLE CAUSE	SUGGESTED REMEDIES
Ice cubes too small 	• Freezing cycle too short	• Adjust the DIP SWITCHES
	• Freezing cycle too short	• Drain, replace the dehumidifier filter, reinstate the vacuum and recharge
	• Moisture in the system	• As above
	• Insufficient water	• See lack of water troubleshooting
	• Lack of refrigerant	• Check for leaks and reload
	• Evaporator sensor not working	• Replace the sensor
Opaque ice cubes 	• Insufficient water	• See lack of water troubleshooting
	• Water dirty	• Use a water filter or purifier
	• Impurities build-up	• Use SCOTSMAN descaling fluid as instructed
Ice cubes of irregular and opaque appearance 	• Spray unit jets partially clogged	• Remove the cover and clean
	• Insufficient water	• See lack of water troubleshooting
	• Appliance not level	• Level as required
Ice cubes too big 	• Freezing cycle too long	• Adjust the DIP SWITCHES
Decline in production	• Inefficient compressor	• Replace
	• Leaking water inlet valve	• Repair or replace
	• Non-condensing gases in the system	• Download, empty and reload
	• Insufficient air circulation or room temperature too high (red LED on)	• Change the installation location
	• Refrigerant overload	• Adjust the charge by discharging slowly
	• Capillary tube partially clogged	• Drain, replace the dehumidifier filter, reinstate the vacuum and recharge
	• Leaking hot gas valve	• Replace
	• Lack of refrigerant	• Charge as per rating plate
	• Excessive delivery pressure	• See wrong delivery pressure
Inefficient defrosting	• Defrosting time too short	• Check and adjust DIP SWITCHES 5-6-7-8
	• Room sensor not working	• Replace the sensor
	• Clogged water inlet pipe	• Check the filter and the flow control. If necessary, widen the orifice
	• Water inlet valve does not open	• Replace the coil or valve
	• Hot gas valve does not open	• Replace the valve assembly
	• Clogged cup holes	• Clean the holes
	• Delivery pressure too low	• See wrong delivery pressure

SYMPTOMS	POSSIBLE CAUSE	SUGGESTED REMEDIES
No defrosting	• Electronic board not working	• Replace the electronic board
	• Hot gas valve does not open	• Coil blown; replace
	• Water inlet valve does not open	• Coil blown; replace
Incorrect delivery pressure	• Condenser sensor not working	• Replace the condenser
	• Electronic board not working	• Replace the electronic board
	• Pressostatic valve incorrectly adjusted (AC-EC 127-177 only)	• Adjust the pressostatic valve
Excessive water on the machine base	• Leaking pipes	• Check, tighten or replace the pipes

MAINTENANCE

MAINTENANCE

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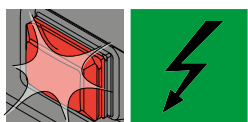
FOREWORD

The details of the maintenance and cleaning periods and procedures are supplied as a guide and should not be regarded as absolute and imperative. Cleanliness, in particular, is closely linked to the condition of the environment and the water used, and the amount of ice produced.

Each appliance must have its own individual maintenance plan, in accordance with its specific location.

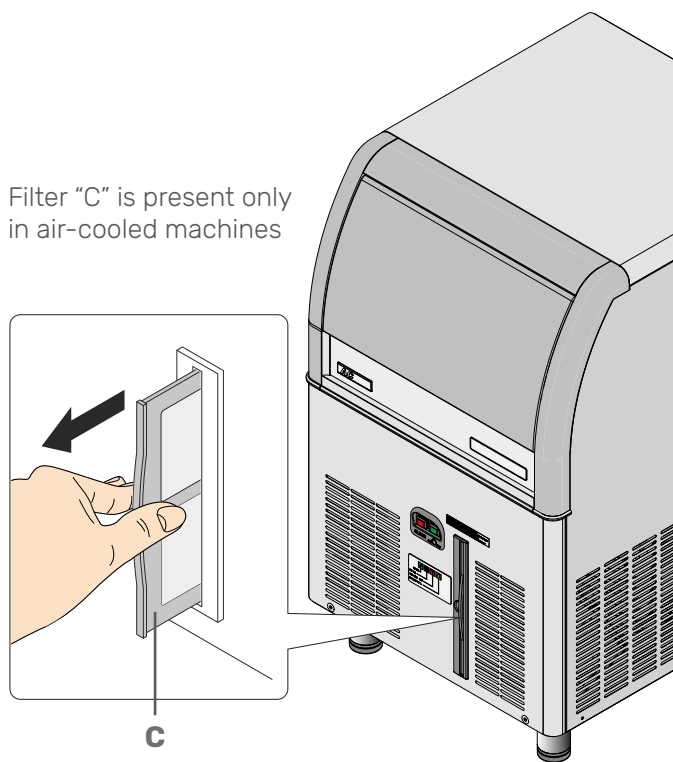
Cleaning-replacement of the condenser air filter

Some models have a condenser air filter and a function on the electronic board that reminds the end user of the need to clean the air filter and the water circuit (red button flashing slowly and green light on)



- **F23** Pull air filter 'C' through the opening in the front panel.
- Blow compressed air in the opposite direction of the condenser air flow to remove accumulated dust.
- If compressed air is not available, use clean water from the water mains, always running it in the opposite direction to the direction of the air flow. Once cleaned, shake the filter to remove any accumulated water and then dry it using a hair dryer. If damaged, the air filter must be replaced with a new one. Refit the air filter by pushing it through the front panel opening.

Filter "C" is present only in air-cooled machines

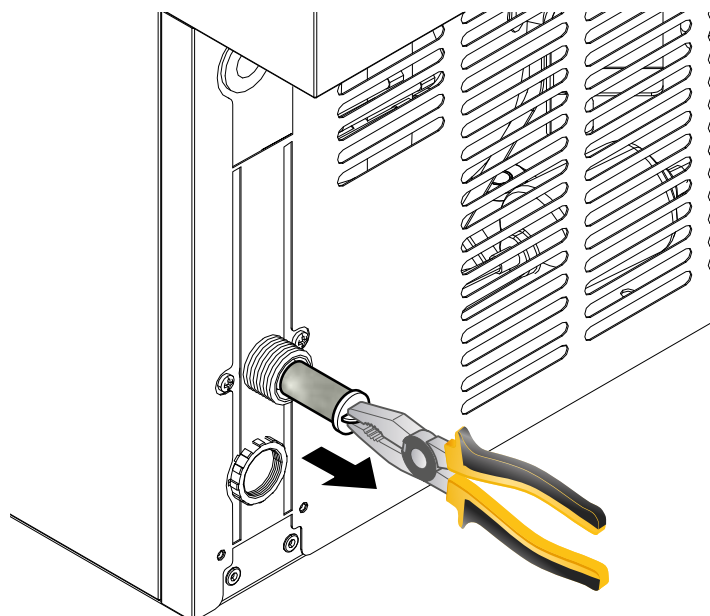


F23

Cleaning the ice maker

The following maintenance operations must be carried out at least twice a year:

- **F24** Check and clean **the filter screen** inside the water inlet valve.
- Check that the appliance **is level** in both directions. Otherwise, level using the adjustment nuts.
- Check the **water circuit for leaks**. Pour water into the ice container to ensure that the drain pipe is clear.
- Check the **size and appearance of the ice cubes**. If appropriate, change the DIP SWITCH key combination (see section “**ADJUSTING THE SIZE OF THE ICE CUBES**” on page **101**).
- **F25** Check the operation of the **optical ice level control**: it consists of two LEDs, transmitter and receiver, with a light beam running between them; in order for the appliance to operate properly, it is imperative to clean the sensitive lenses located at the ends of the LED support with a clean cloth at least once a month. Also perform another check: place a hand between the optical readers so as to interrupt the infrared light beam. When doing so, the second yellow bin full LED will start flashing and the machine will stop at the end of the next freezing cycle, with the same LED coming on steady at the same time. A few moments after the removal of the hand between the optical readers, the appliance restarts with a freezing cycle.
- Check for **refrigerant leaks**.



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F25

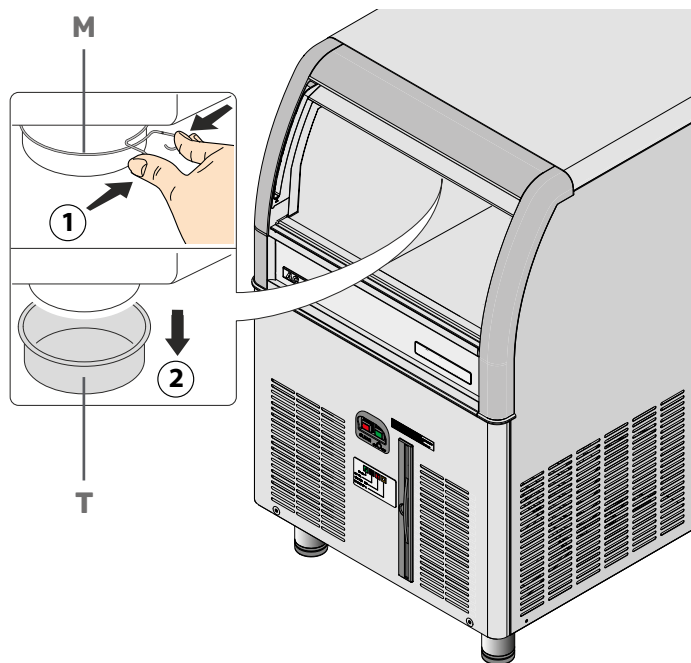
Cleaning the water circuit

Equipment required

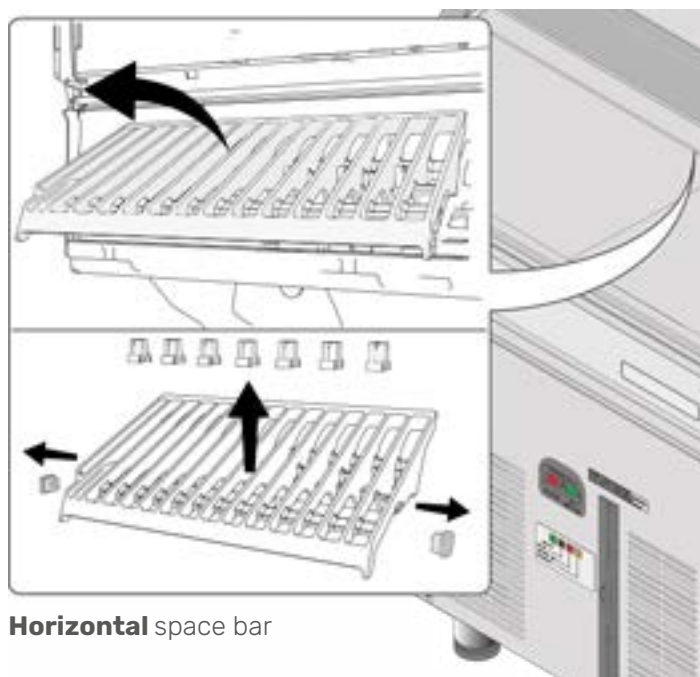


INSTRUCTIONS FOR CLEANING THE WATER CIRCUIT

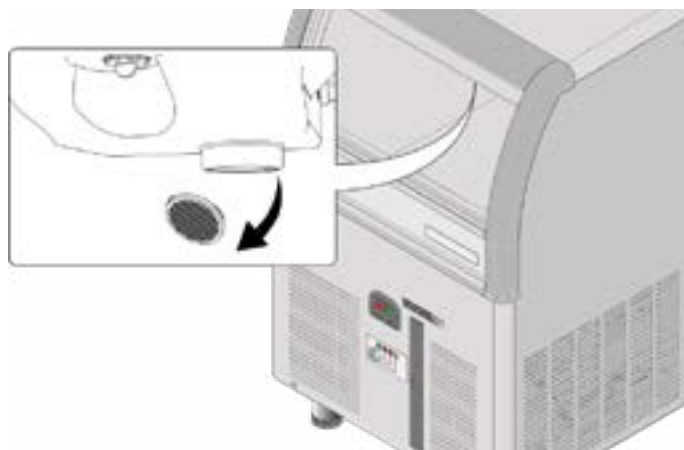
- **1** Make sure that all ice cubes have detached from the cups and then stop the operation of the machine using the external switch.
- **2** Remove the front and top panels to gain access to the evaporator.
- **3** Remove any ice cubes that may be inside the ice bin to prevent them from being contaminated during cleaning.
- **F26** Remove the plastic "T" cap located underneath the evaporator tank/casing to drain all the water and the coarse scale deposits and debris.
- Remove the curtain and clean it with a sanitising solution.
- **F27** **F29** Remove the sprayer and nozzles.
- **F28** Remove the pump filter.
- Pull the entire spray plate out of its lower housing for separate cleaning.
- **4** Descale and sanitise the water circuit and the evaporator tank/case using SCOTSMAN CLEANER (descaling) and SCOTSMAN SANITIZER (sanitising); see the following chapters for instructions.



F26

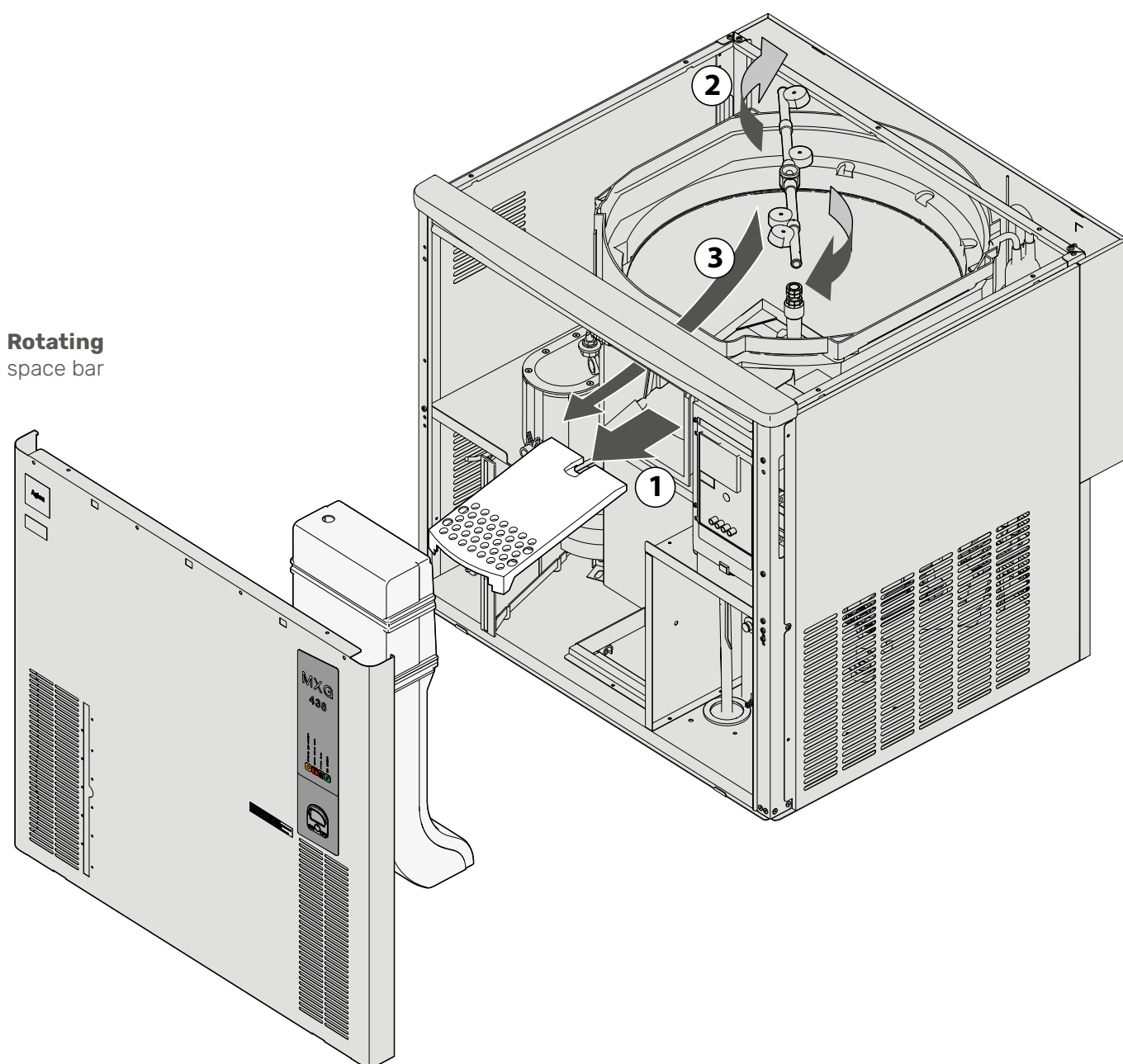


F27



F28

- The frequency of treatment of the hydraulic circuit depends on the water condition and the specific use of each individual appliance. Constantly check the clarity of the ice cubes; observing the water jets before and after the cleaning operations will give an indication of the frequency and the procedure to be followed in the various locations.



DESCALING OF THE WATER CIRCUIT (SCOTSMAN CLEANER)

- ① Using a bottle, pour clean water into the tank/ evaporator casing and remove the coarsest scale and lime deposits.
- ② Refit the nozzles, pump filter, spray plate, curtain and plastic "T" cap.
- ③ **Wear suitable PPE (gloves, goggles)** and prepare the descaling solution by diluting 2 litres of hot water (45°-50°C) with 0.2 litres of Scotsman cleaner in a plastic container.
-  **WARNING. SCOTSMAN CLEANER contains phosphoric and hydroxyacetic acid.** This solution is corrosive and can cause intestinal burning and disorders if ingested; DO NOT induce vomiting. Drink copious amounts of water or milk and immediately call the doctor. In case external contact, simply wash the area with water. **Keep it out of the reach of children.**
- ④ Remove the evaporator cover and slowly pour in the prepared descaling solution. With the help of a brush, remove stubborn and hidden deposits.

- ⑤ Switch the machine on again and press and hold the **reset button** on the electronic board for 2 to 5 seconds: this will activate washing/rinsing mode. With the unit in this mode, only the pump remains in operation, circulating the descaling solution through the whole water circuit.
- ⑥ Leave the machine in washing/rinsing mode for about 20 minutes and then stop it (the amount of SCOTSMAN cleaner and the time required to clean the water system depend on the condition of the water from the mains).
- ⑦ Switch off the machine and empty the evaporator tank/casing containing the descaling solution by removing the plastic "T" cap. Once the tank has been emptied, replace the plastic cap.
- ⑧ Pour two to three litres of drinking water into the evaporator tray to rinse the cups and the plate.
- Switch the machine on again. The pump will be activated again and circulate the water to flush the entire water circuit. Repeat the operations at least twice ⑥ ⑦ to ensure that no traces of descaling solution remain in the tray.



SANITISING THE WATER CIRCUIT (SCOTSMAN SANITIZER)

It is recommended to sanitise the water system at least once a month.

- **① Make sure to wear appropriate PPE (gloves, goggles)** and prepare the sanitising solution in a clean plastic container following the dilution instructions provided by the manufacturer and using lukewarm water (40-50°C). Caution, **never mix** CLEANER descaling solution with SANITIZER sanitising solution.
- **②** Follow the indicated descaling procedure, shortening the pump's operation time to just 10 minutes.

RESTORING THE MACHINE AFTER DESCALING OR SANITISING THE WATER CIRCUIT

- **①** Refit the evaporator cover and the previously removed front and top panels.
- **②** Check that the ice cubes produced after the first freezing cycle are transparent and do not taste sour. **WARNING. Do not use the opaque-white and sour-tasting ice cubes produced after sanitising or descaling the water system.** To be on the safe side, it is a good idea to pour lukewarm water into the bin to melt the newly produced ice cubes.
- **③** Rinse and dry the inside walls of the ice bin. Remember that to prevent the accumulation of unwanted bacteria it is necessary to clean and sanitise the inside walls of the container every week with a solution of water mixed with a bactericidal substance.

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These instructions and all accompanying documentation have been checked prior to sale. If errors or inaccuracies are found, please inform the Manufacturer.

The manufacturer reserves the right to make improvements to the appliance or accessories at any time, without notice. Measurements are purely indicative and not binding. In the event of disputes, the original language of the manual is Italian. The Manufacturer is not responsible for any translation/interpretation errors.



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