Scotsman®

SERVICE MANUAL

DICE ICE

NW SERIES

NU SERIES

Dear Installer,

This manual is reserved for specialized 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 passages are not well understood, the manufacturer is 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 the warranty entitlement.

SERVICE MANUAL

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For any information always indicate:

- the product model
- the serial number
- the data on 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.

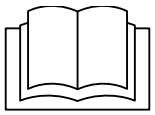
This symbol placed on the appliance or used in the manual identifies the areas with an electrical hazard.

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

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.



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;

- 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 O_3 dissolved in the air. In some circumstances and if not properly managed, O_3 can generate risks to human health. The XSafe appliance is designed to produce O_3 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 | NW

Operating limits (for NW)

Parameters	Minimum	Maximum
Ambient temperature	10 °C	43 °C
Water temperature	5 °C	35 °C
Water pressure	0.1 MPa (1 bar)	0.5 MPa (5 bar)
Water hardness	7,12 °f (French degrees) 4°dH (German degrees)	17,8 °f (French degrees) 10°dH (German degrees)
Voltage tolerance compared to nameplate data	-10 %	+10 %
Sound level produced by the operation of the appliance	1008 < 75dB- 1408 < 80dB	

Refrigerant charge R 290

Model	Air cooling	Water cooling
NW 307/507/457/607	149 g	N.A

Model	Cycle suction pressure	High pressure cycle	Defrosting suction pressure	High defrosting pressure
NW307	1.6	16	4.5	6
NW507	1.6	16	4.5	6
NW457	1.6	16	4.5	6
NW607	2,7	14,5	6	7,2

Refrigerant charge R452A | R404A

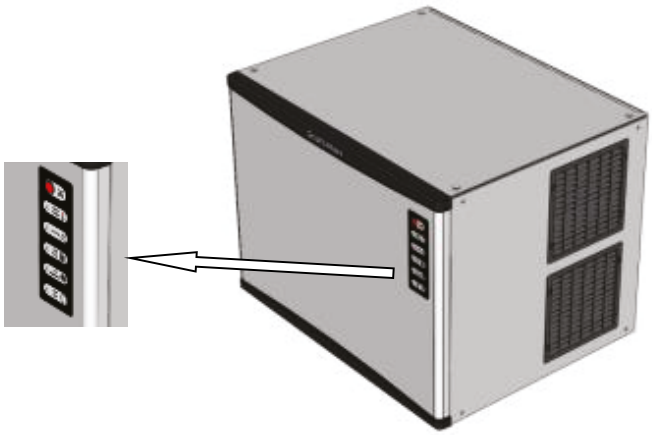
Model	Air cooling	Water cooling
NW 308	550 g | 460 g	380 g | 330 g (300 g for 60Hz)
NW 508	800 g | 730 g	500 g | 500 g
NW 458	700 g | 650 g	500 g | 500 g
NW 608	950 g | 900 g	550 g | 550 g
NW 1008	1350 g | 1350 g	1200 g | 1200 g
NW 1408	2200 g | 2200 g	1800 g | 1800 g

Operating pressure R452A (BAR)

Model	Cycle suction pressure	High pressure cycle	Defrosting suction pressure	High defrosting pressure
NW308	2.0	17.5	8.0	10.0
NW508	2.0	18.0	8.5	11.0
NW458	2.0	19.0	8.5	11.0
NW608	1.5	17.0	6.5	11.0
NW1008	2.0	16.0	5.5	11.5
NW1408	1.5	20.0	7.0	14.0

Operating pressure R404A (BAR)

Model	Cycle suction pressure	High pressure cycle	Defrosting suction pressure	High defrosting pressure
NW308	2.0	16.0	9.0	10.0
NW508	2.0	18.0	9.0	11.5
NW458	2.0	19.0	9.0	11.0
NW608	1.5	17.0	6.5	11.0
NW1008	2.0	18.0	6.0	11.5
NW1408	1.5	20.0	7.0	14.0



NW Series

Modular ice maker without integrated ice container

TECHNICAL DATA | NU

Operating limits (for NU)

Parameters	Minimum	Maximum
Ambient temperature	10 °C	43 °C
Water temperature	5 °C	35 °C
Water pressure	0.1 MPa (1 bar)	0.5 MPa (5 bar)
Water hardness	7,12 °f (French degrees) 4°dH (German degrees)	17,8 °f (French degrees) 10°dH (German degrees)
Voltage tolerance compared to nameplate data	-10 %	+10 %
Sound level produced by the operation of the appliance	< 75dB	

Refrigerant charge R452A | R404A

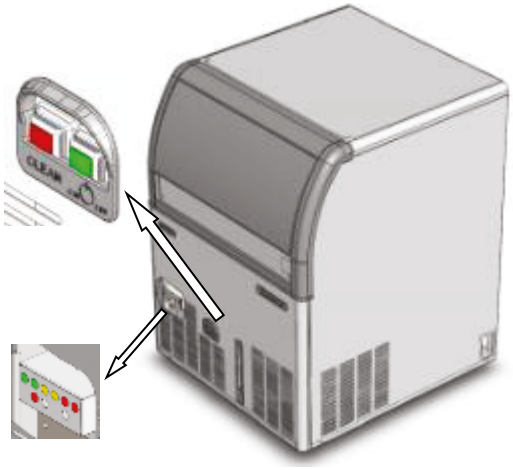
Model	Air cooling	Water cooling
NU 100 NU 100 (220/60/1)	380 g | 310 g (350 g for Large) 380 g | 310 g (350 g for Large)	330 g | 330 g N.A | 330 g
NU 150 NU 150 (220/60/1)	410 g | 350 g (370 g for Half) 450 g | 350 g	330 g | 300 g N.A | 330 g
NU 220 NU 220 (220/60/1)	500 g | 360 g 550 g | 500 g	350 g | 350 g N.A | 500 g
NU 300	450 g | 420 g	420 g | 350 g

Operating pressure R452A (BAR)

Model	Cycle suction pressure	High pressure cycle	Defrosting suction pressure	High defrosting pressure
NU100	0.5	16.0	5.0	6.0
NU150	1.0	16.0	5.5	6.5
NU220	0.5	16.0	7.0	7.5
NU300	1.0	16.5	6.5	9.0

Operating pressure R404A (BAR)

Model	Cycle suction pressure	High pressure cycle	Defrosting suction pressure	High defrosting pressure
NU100	1.0	16.0	6.0	7.0
NU150	1.5	17.0	7.0	7.5
NU220	2.0	16.0	9.0	10.5
NU300	1.5	17.5	9.0	11.0



NU Series

Ice maker with integrated ice container

For more technical information on the device, scan the QR code

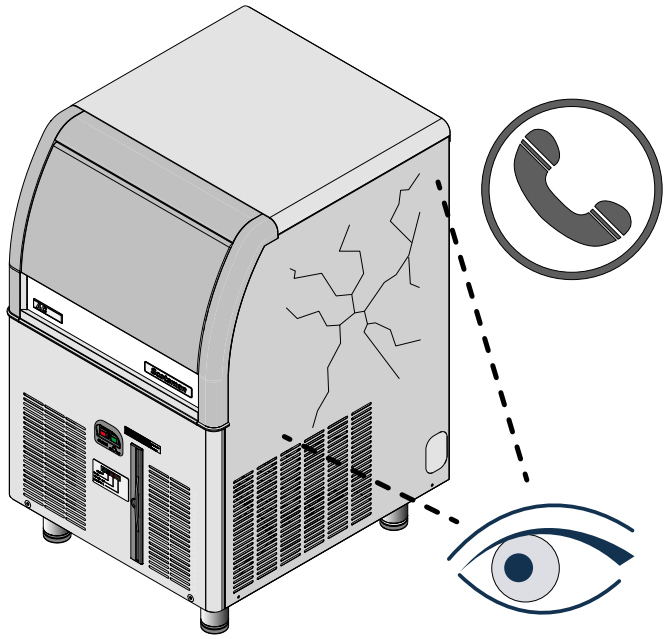
INSTALLATION

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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F01

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.

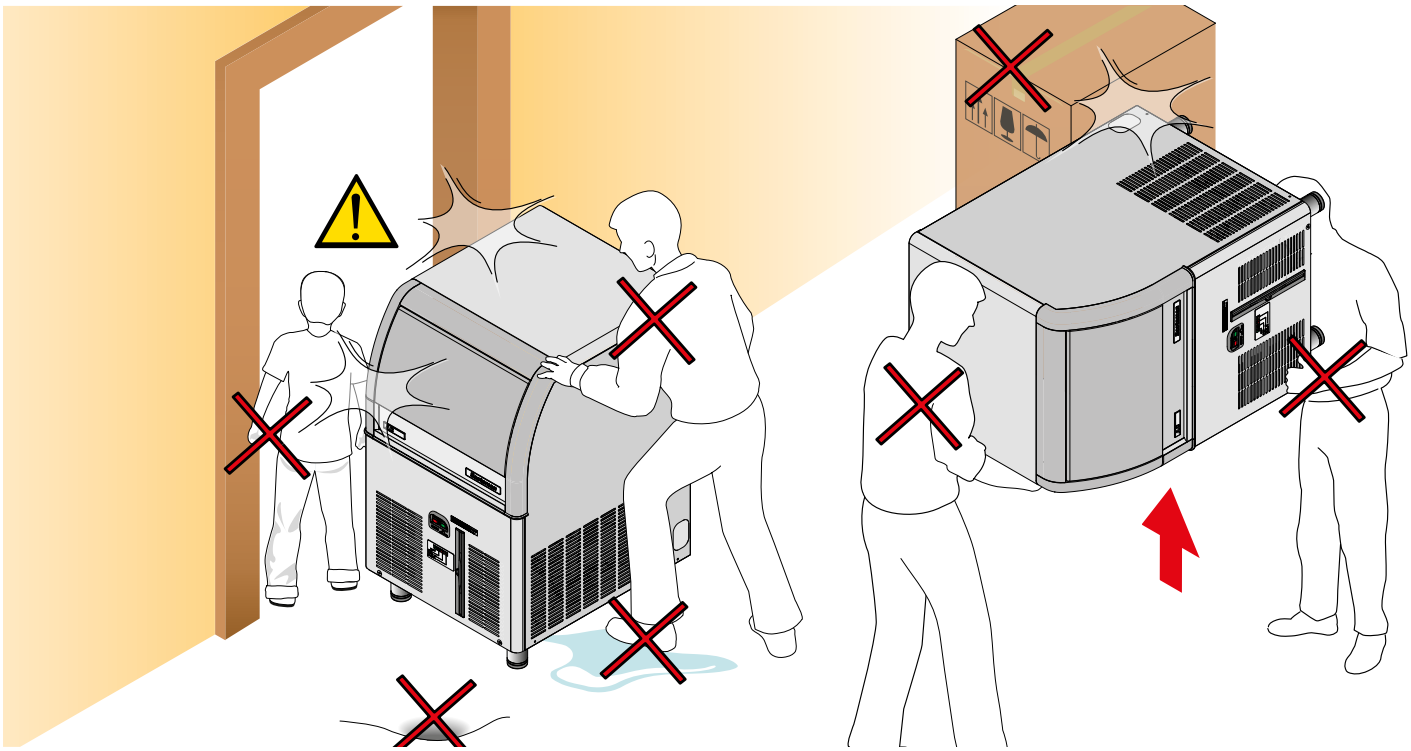
TRANSPORT

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.

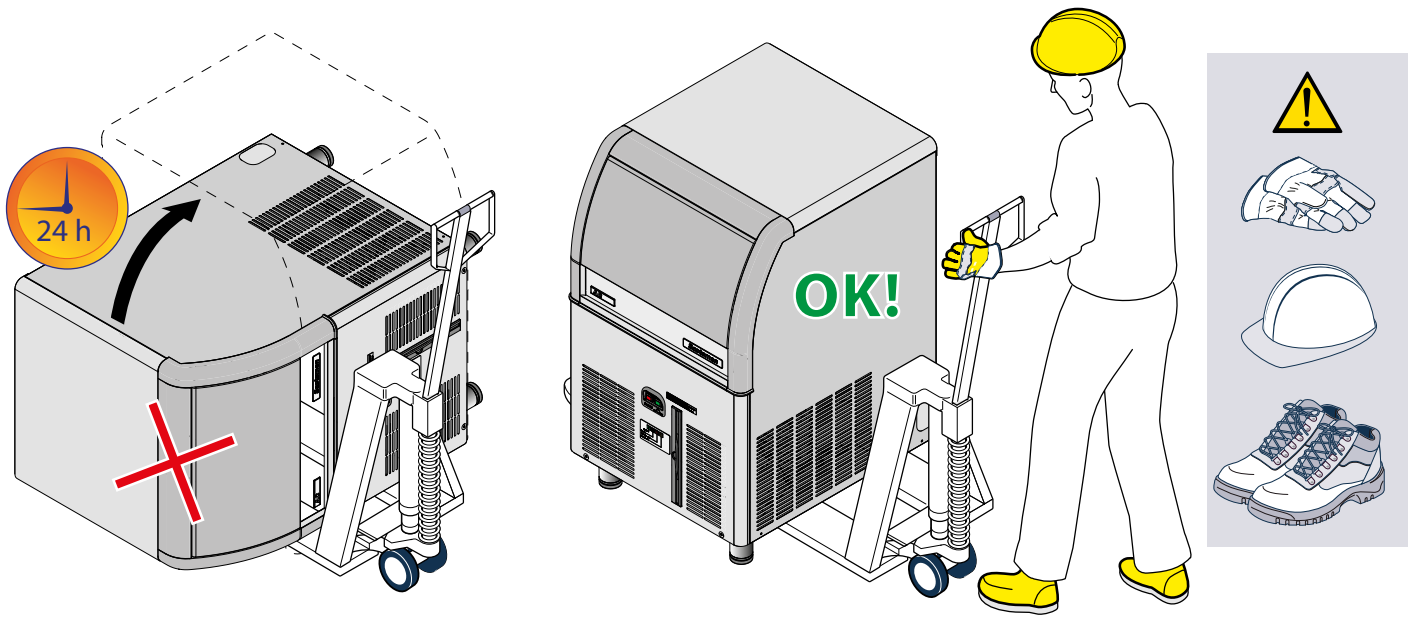


F02

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.



F03

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

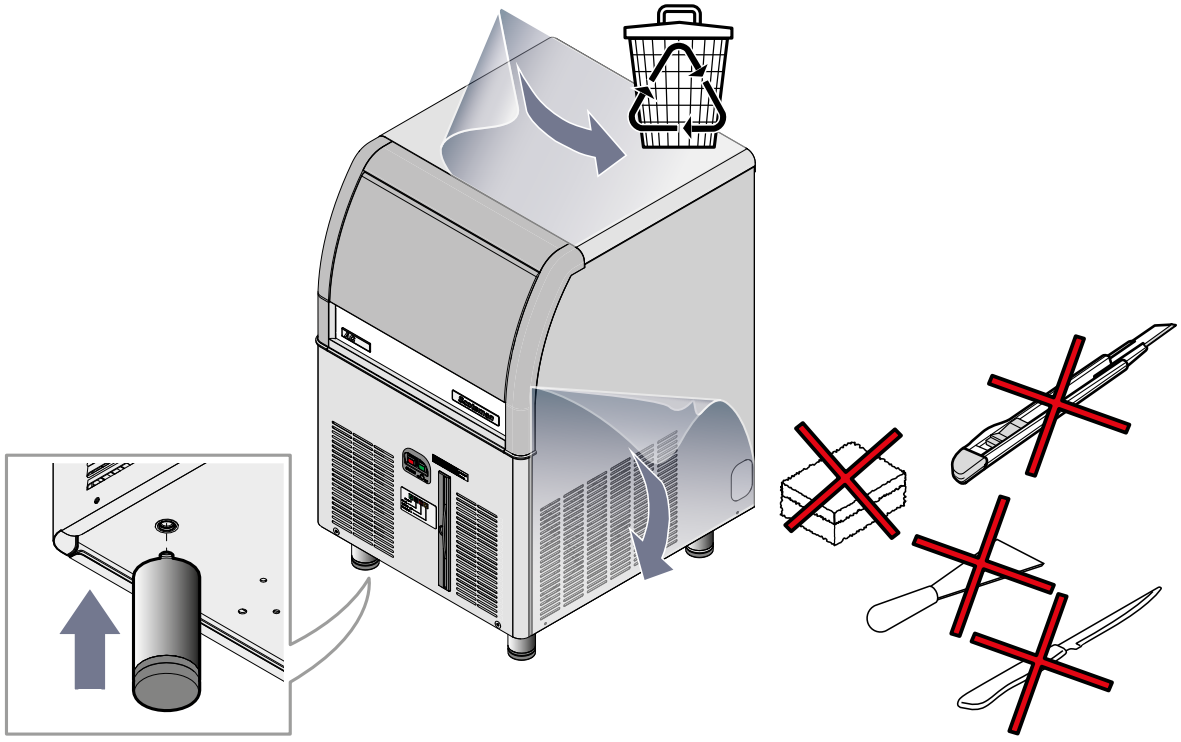
Check that all the components required for the installation have been received and are in good condition.
If any are missing, do not proceed with the installation but promptly inform the manufacturer or dealer.

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.



F04

Positioning in the installation room

ROOM CHARACTERISTICS

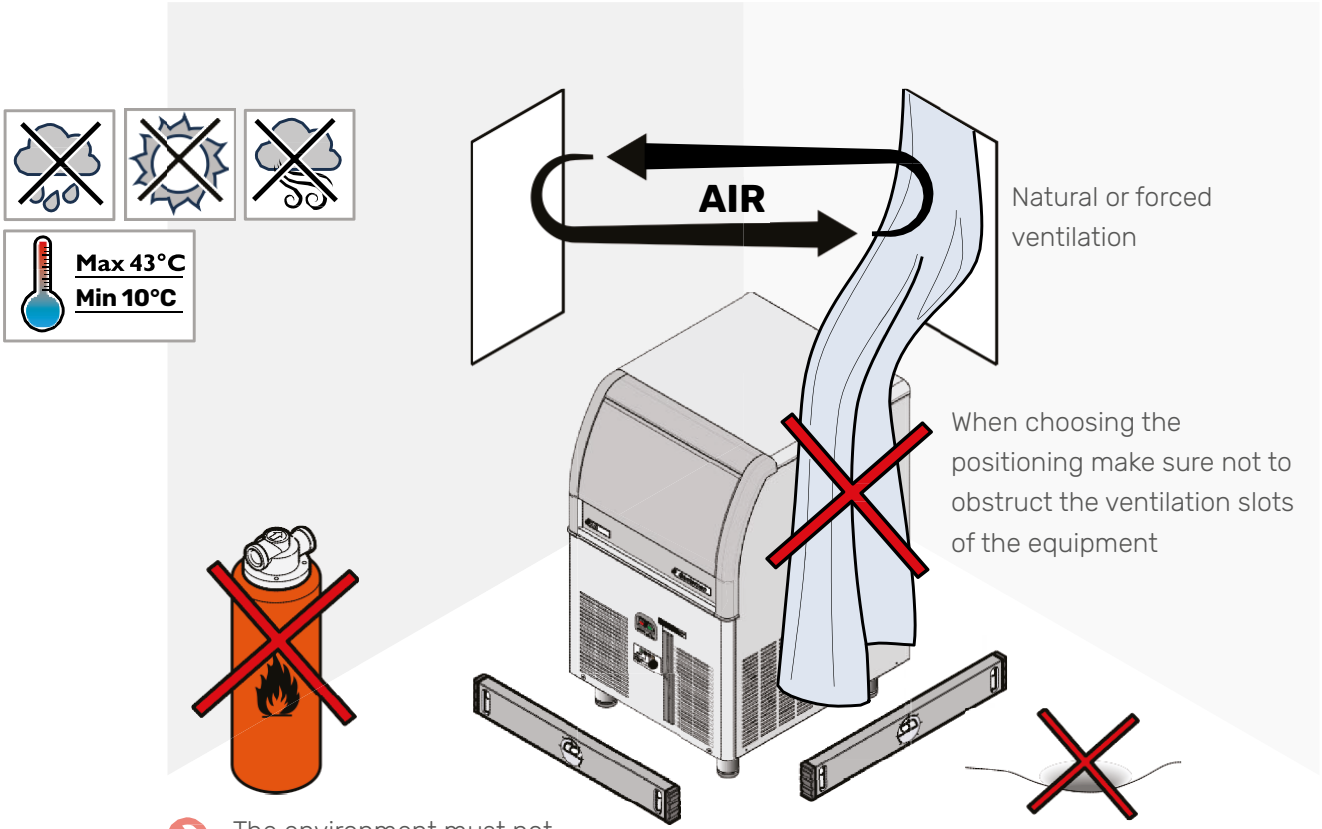
F05 WARNING. This ice maker is designed to be installed **inside** rooms solely dedicated to the **storage of foodstuffs** and which **comply with the current regulations** in terms of work safety, installations and fire prevention.

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.



F06 Install the equipment:

- so as to have easy access to electricity and water connections;
- leaving the spaces indicated in the figure from any walls or other neutral equipment;
- at a distance of about **15 cm** from hot equipment (e.g. fryers, ovens, hotplates, etc.).

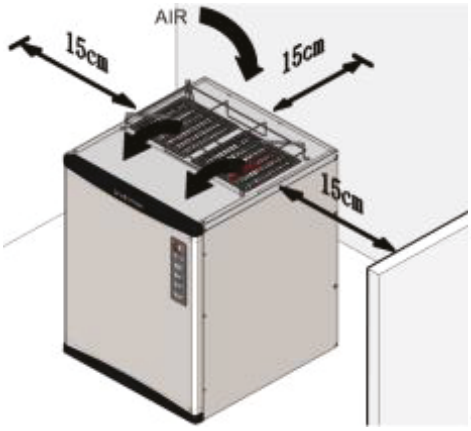
NU series equipment

Equipment should **ONLY** be placed **on the floor**.
The floor on which the machines (NU series) rest must be flat, smooth, fireproof and have the technical and structural characteristics to support the weight of the equipment and the ice cubes produced.
Slight unevenness of the floor can be compensated for by acting on the equipment's feet, rotating them until perfect leveling is achieved.

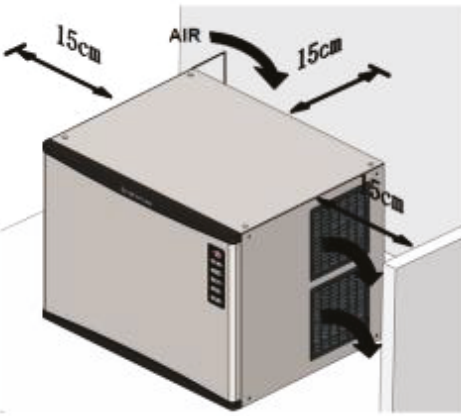
If, due to severe unevenness or slopes in the pavement, perfect evenness of the equipment cannot be achieved, operation and drainage may be impaired!

Attention! Do not install on containers with an area smaller than the machine base.

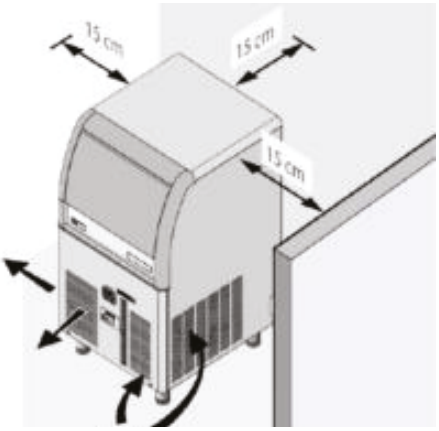
NW308/307/507/508



NW457/458/608/1008/1408



NU100/150/220/300



CONNECTIONS

Warnings for connections

The equipment requires the following connections to the installations in the room:

- **water** connection (1 or 2 water sockets depending on the machine to be installed);
- **electrical** connection.

All connections must be carried out by qualified personnel, wearing personal protective equipment (e.g. gloves, safety shoes, etc.) and 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 making connections, it is necessary to check the **date** on the equipment to ensure that they correspond to those on the system; all data can be found on the rating plate **on the back of the equipment**

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

Machine: Ice Maker Series NW | NU
Fabbricante:

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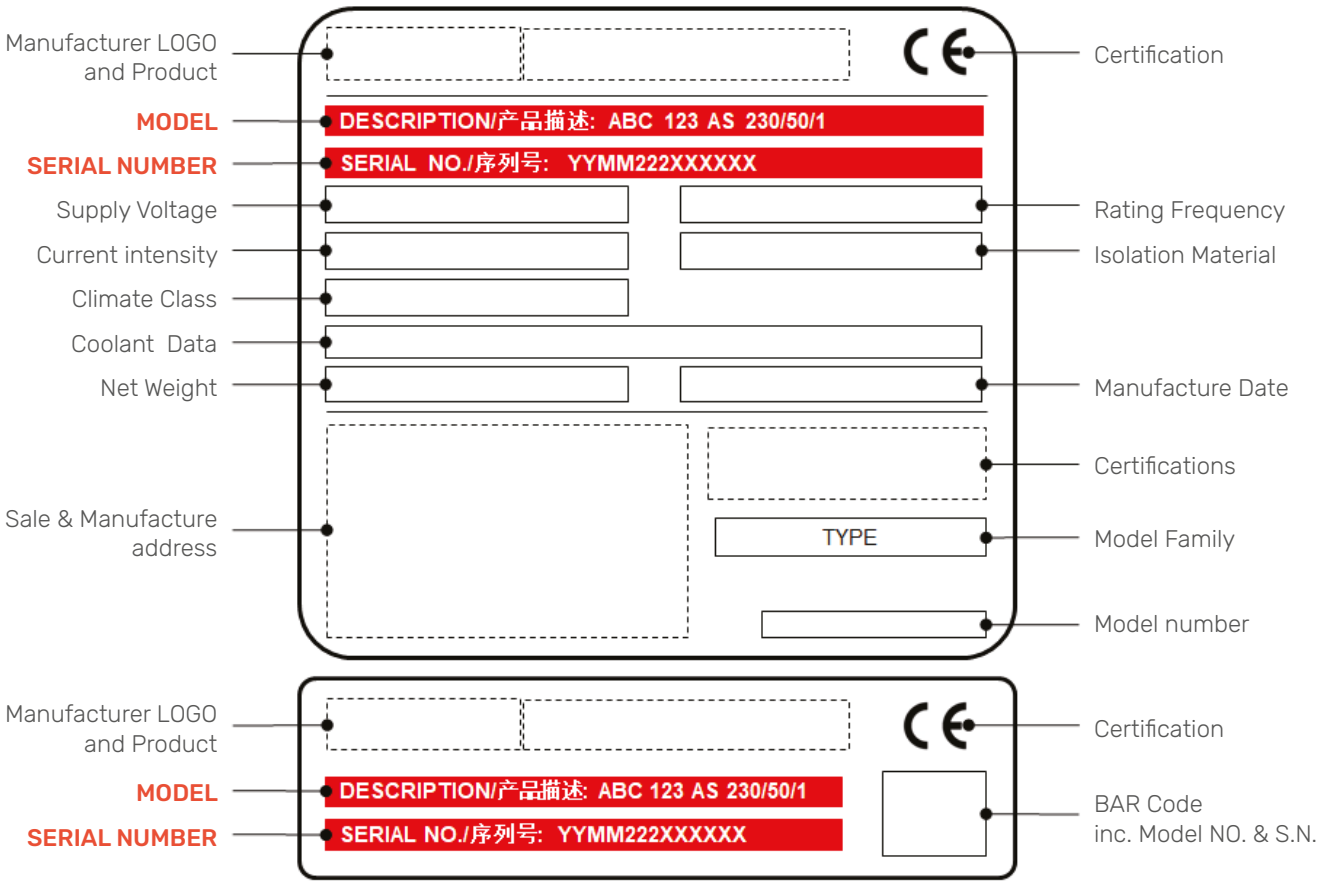


F07

Water connection

Before making any water connections, it is mandatory to carefully read the safety warnings on p **4** of this manual.
The following are supplied with the equipment:
Air models
- 1 reinforced plastic hose with female connection. 3/4"
- 1 water outlet pipe diameter 20 mm, unthreaded

Water models
- 2 or 3 reinforced plastic hoses with 3/4" female coupling;
- 1 or 2 water outlet pipes diameter 20 mm, not threaded;
- 1 'Y' connection (if present).

CONNECTION TO THE WATER MAINS

The position of the inputs is different depending on the model. Please refer to the technical data sheet of the equipment to be installed.

Air-cooled models

The equipment 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 equipment 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 potable) required for the water condenser into the machine.

In both cases, interpose a shut-off tap (not supplied) to the water outlets so that they can be isolated if necessary.

INLET WATER CHARACTERISTICS

Water is the only ingredient for making ice; therefore, the characteristics of the feed 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 mineralized water could result in the production of opaque ice cubes and considerable fouling of the internal parts of the hydraulic circuit.

The incoming water must have the following characteristics:
- be **potable** (only the water used to create the ice cubes);
- have **temperature** between 5 °C and 38 °C;
- have **conductivity** of 100µ S/cm
- have a hardness maximum of 17.8 °f (French degrees) | 10 °dH (German degrees) and a minimum 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 lime scale deposits is not recognized under warranty;
- have a value of pressure 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), higher than the indicated value, use a pressure reducer.

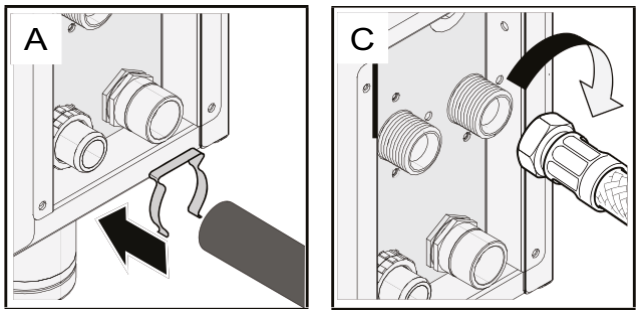
DRAIN CONNECTION

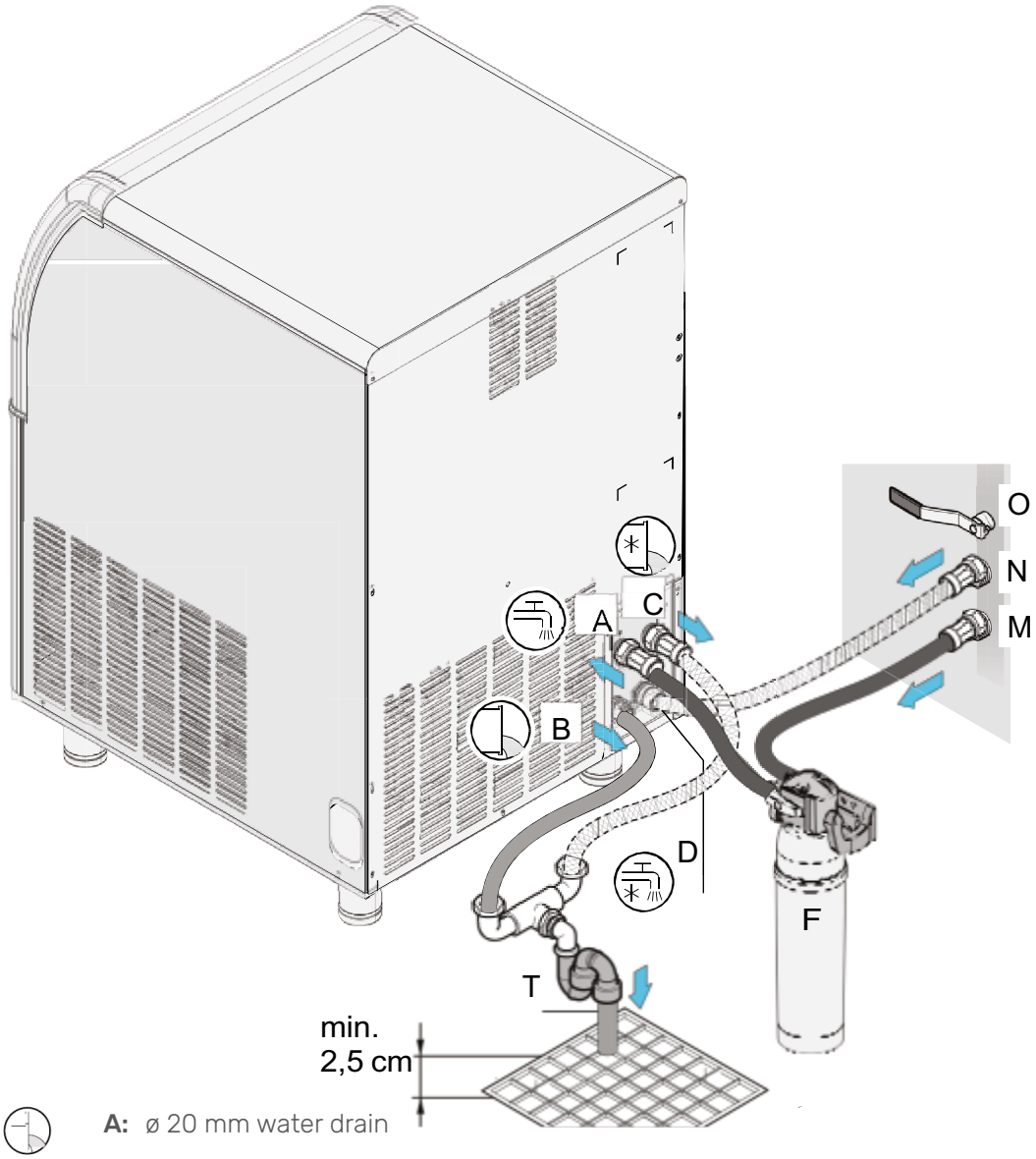
The position of the exhausts is different depending on the model. Please refer to the technical data sheet of the equipment to be installed.

F08 Connect to **ø20mm 'A' fitting at" exhaust pipe** made of rigid plastic 18mm internal diameter as an extension (tube not supplied).
The discharge of excess water takes place by gravity; to ensure a regular outflow, it is essential that the drain has a vent and goes into an open siphon. The choice of type and method of fixing is the responsibility of the installer; it is advisable to provide a slope and length to allow 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). Compliance with this regulation ensures that potentially dangerous bacteria will NOT make their way up the drain and contaminate the equipment.

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

NU Series





A: ø 20 mm water drain

B: 3/4" gas drinking water inlet

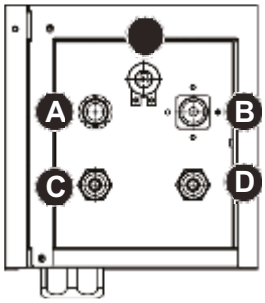
C: 3/4" gas water discharge (water-cooled models only)

D: 3/4" gas inlet (only mod. with water condensation)

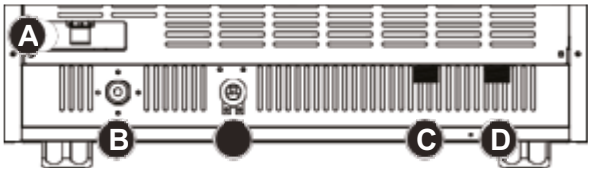
F: recommended softener filter (not supplied)
M: 3/4" potable water connection
N: 3/4" water connection (only mod. with water condensation)
O: shut-off tap

F08

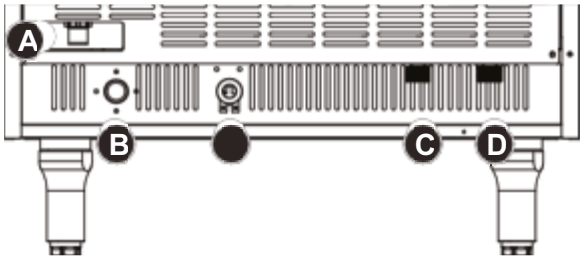
NU100 / NU150



NU220



NU300



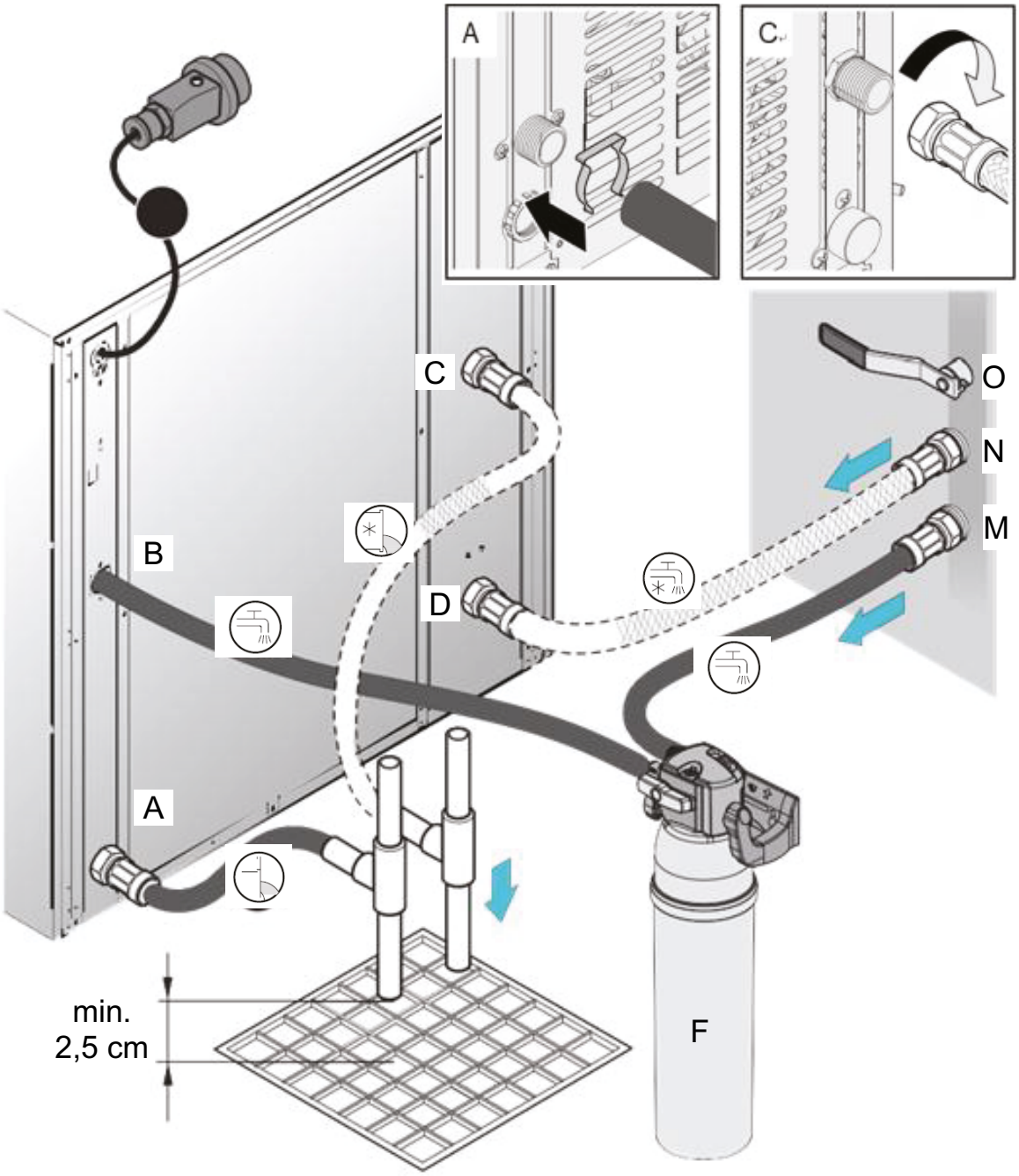
A: ø 20 mm water drain

B: 3/4" gas drinking water inlet

C: 3/4" gas water discharge (water-cooled models *only*)

D: 3/4" gas inlet (only mod. with water condensation)

NW Series



A: ø 20 mm water drain

B: 3/4" gas drinking water inlet

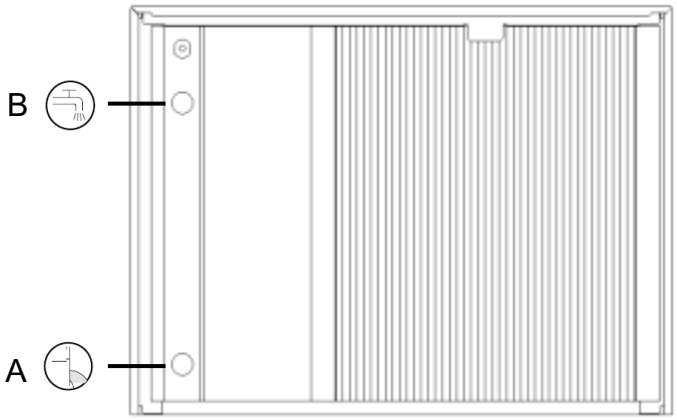
C: 3/4" gas water discharge (water-cooled models only)

D: 3/4" gas inlet (only mod. with water condensation)

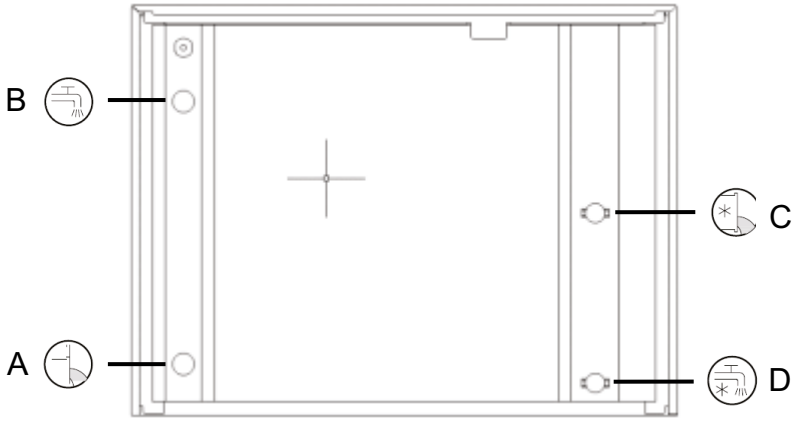
F: recommended softener filter (not supplied)
M: 3/4" potable water connection
N: 3/4" water connection (only mod. with water condensation)
O: shut-off tap

F09

NW (Air cooled)



NW (Water cooled)



A: ø 20 mm water drain

B: 3/4" gas drinking water inlet

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

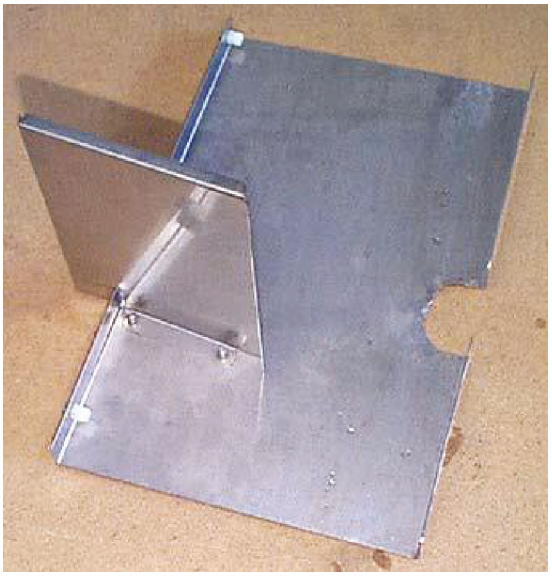
D: 3/4" gas inlet (only mod. with water condensation)

STACKING KIT

(For NW458/608/1008 ONLY)

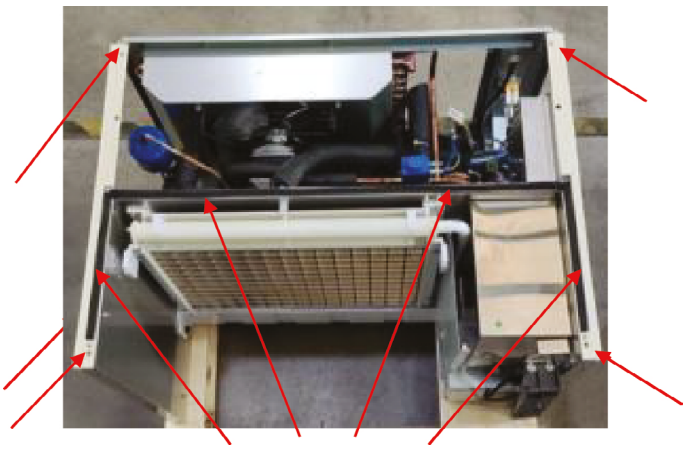
INSTALLATION INSTRUCTION

1) Assembly the Ice Chute support with 2 screws.



2) Remove top, front and the two side panels of the lower icemaker and then place it on the ice bin as you can see in the User Manual

3) Install the plastic spacers (with 4 screws) and the gasket on the top of the lower ice machine.

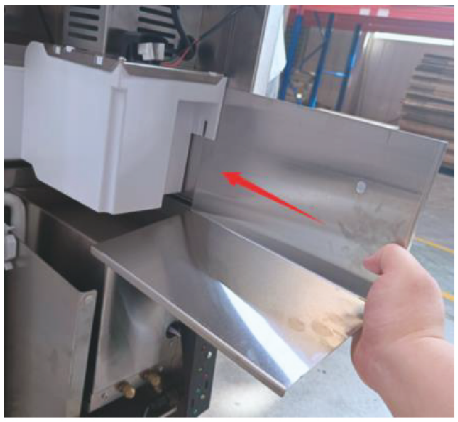


4) Remove the front and the two side panels of the upper ice machine.

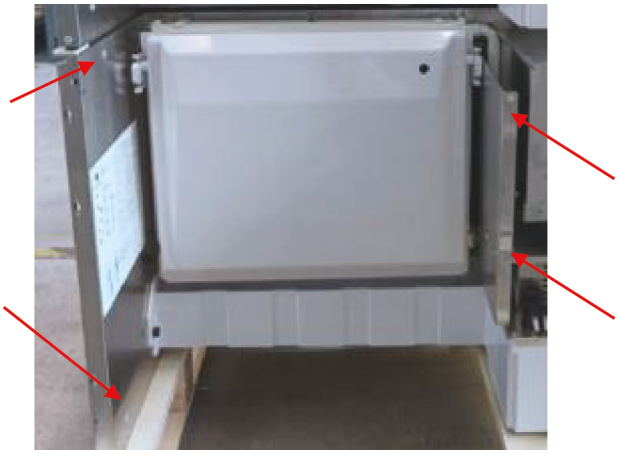
5) Place the upper icemaker on the lower one and secure it (both sides) with 2 bolts provided with the ice machine accessory.

6) Install the Ice Chute support to the lower icemaker with 2 screws.

7) Loose the upper ice machine water tank screw, insert breakwater, then tighten water tank screw.



8) Screw in the holding screws of the Ice Chute to the support and to the left side of the lower ice machine frame



9) Hook the Ice Chute to the holding screws and then tighten them.

10) Re-install the panels previously removed

Electrical connection

SAFETY WARNINGS

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

The connection to the mains power supply must comply with the regulations in force in the country where the equipment is installed and must be carried out by **qualified personnel authorized by the manufacturer**: failure to comply with these requirements may result in damage and injury, invalidates the warranty and releases the manufacturer from any liability.

Do not use adapters or power strips for connection.

It is not possible to stretch or splice the power cable in any way. **Do not roll** up the cable 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% with respect to what can be seen on the nameplate (low voltage can cause abnormal operation and can result in serious damage to protections and electrical windings);
- be provided with a correct **earth connection** using a single cable, without splices, not interrupted even by the circuit breaker. The yellow/green earth conductor must be at least 10 mm longer than the other conductors;
- have an easily accessible **ON/OFF thermal-magnetic circuit breaker**, with appropriate fuses (see rating plate) and with a contact opening distance such that complete disconnection is guaranteed under over voltage category III conditions. Disconnection devices must be incorporated into the power supply in accordance with the installation rules. This switch is necessary to cut off the power supply to the machine if it is connected directly to an electrical cabinet or if its plug is located in a place that is difficult to access.

Each piece of equipment must also be included in an effective **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 authorized technician. The cable may only be replaced with one of similar characteristics.

MAINS CONNECTION

The equipment can be supplied

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

EQUIPMENT WITH POWER CABLE AND PLUG ALREADY FITTED

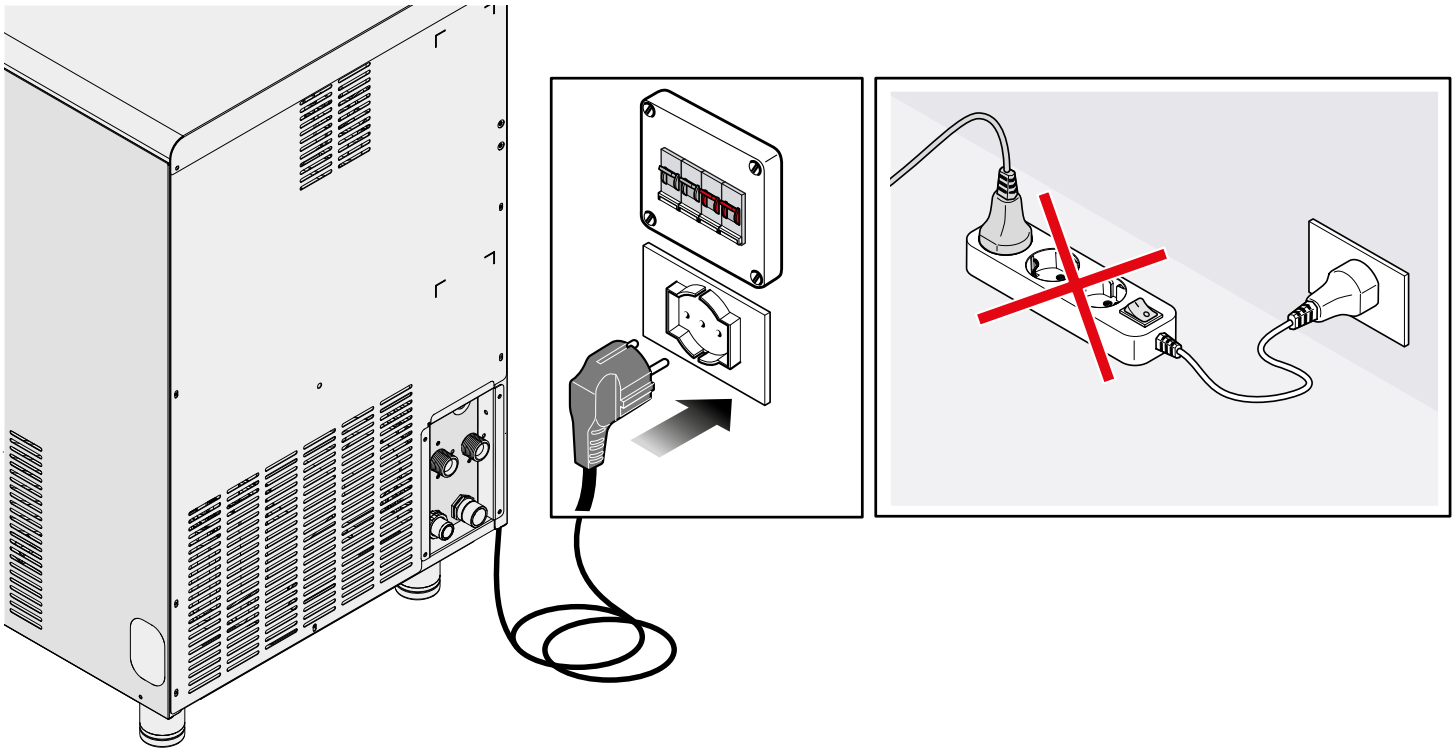
F10 To connect equipment **with** an **already fitted power cable and** plug, simply plug it into a socket of a suitable rating for the electrical characteristics of the machine, which can be seen on the rating plate.

EQUIPMENT WITHOUT PLUG FITTED

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

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

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

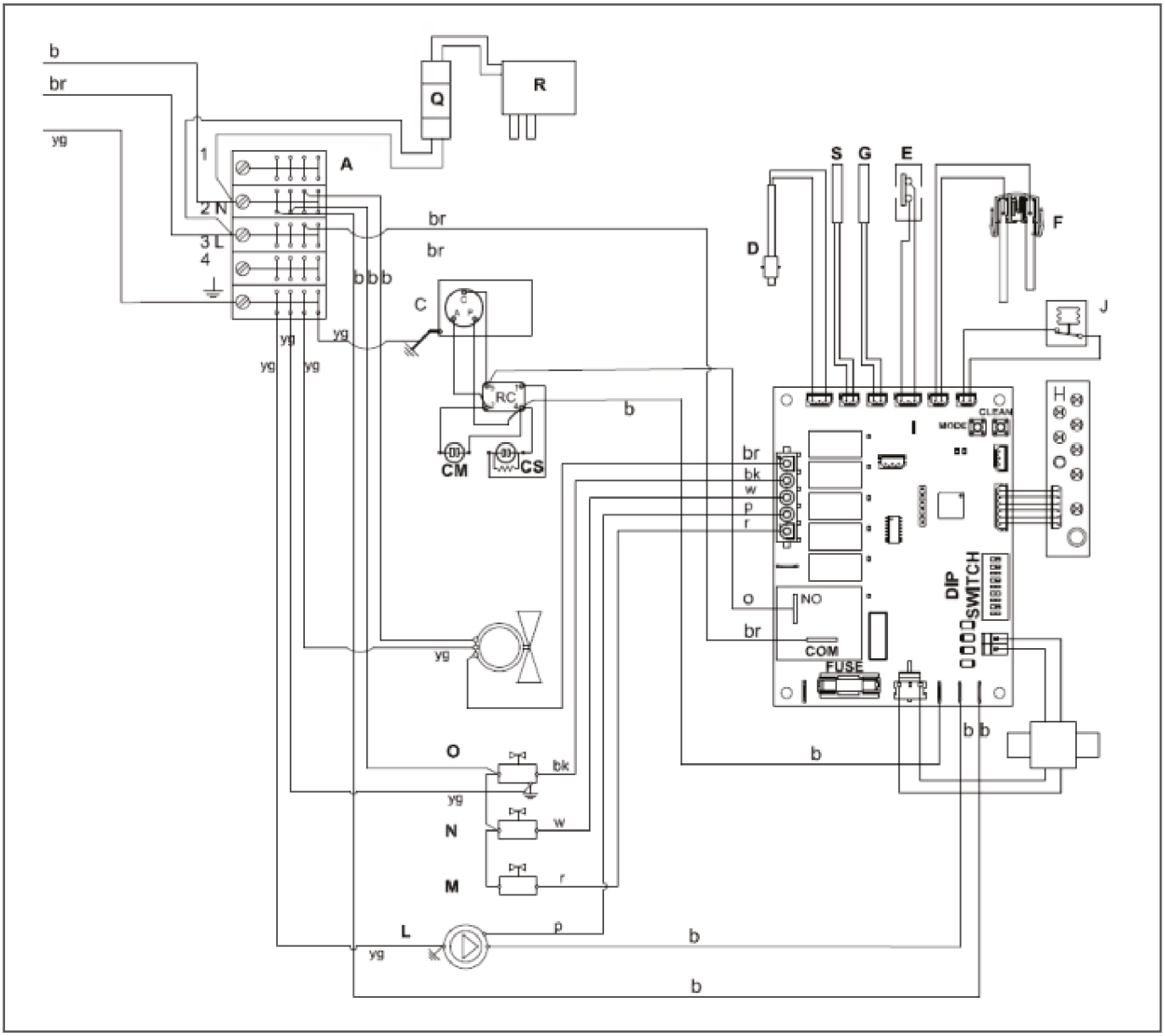


F10

WIRING DIAGRAM | NW 308

230V~ / 50HZ / 1PH & 220 V~ / 60HZ / 1PH

br	=	brown	r	=	red
b	=	blue	o	=	orange
yg	=	yellow / green	p	=	purple
w	=	white	g	=	green
bk	=	black	y	=	yellow

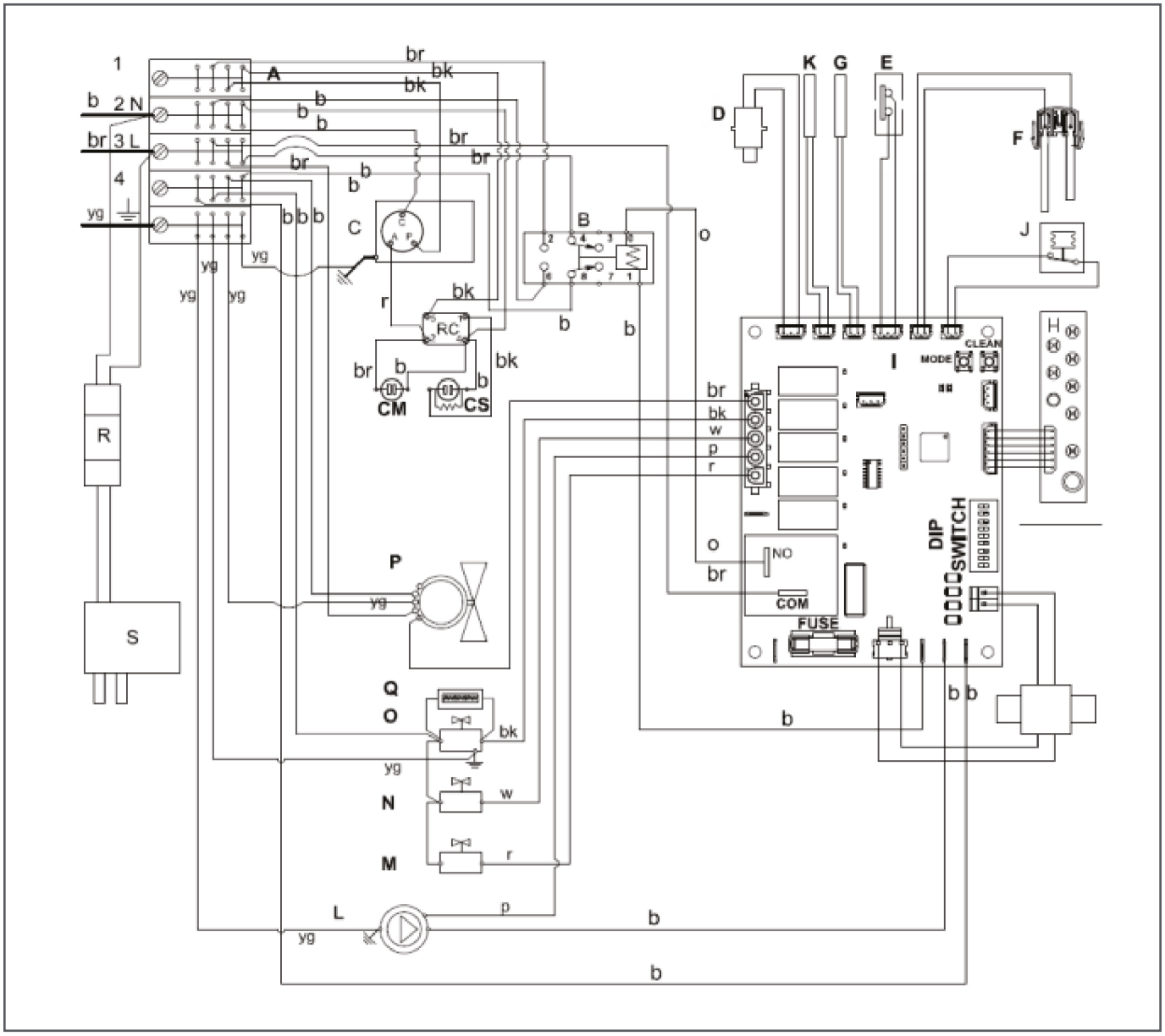


A TERMINAL BLOCK
C COMPRESSOR
D ICE THICKNESS SENSOR
E ICE FULL SENSOR
F WATER LEVEL SENSOR
G CONDENSER SENSOR
H UIM BOARD
I PC BOARD
J MAX PRESSURE SWITCH
L WATER PUMP
M WATER INLET VALVE
N WATER PURGE VALVE
O DEFROST VALVE
P FAN MOTOR (AIR COOLED ONLY)
Q X-SAFE TRANSFORMER (ONLY OX)
R X-SAFE DEVICE(ONLY OX)
S WATER TEMP. SENSOR

WIRING DIAGRAM | NW 307/507/457

230V~ / 50HZ / 1PH

br	=	brown	r	=	red
b	=	blue	o	=	orange
yg	=	yellow / green	p	=	purple
w	=	white	g	=	green
bk	=	black	y	=	yellow

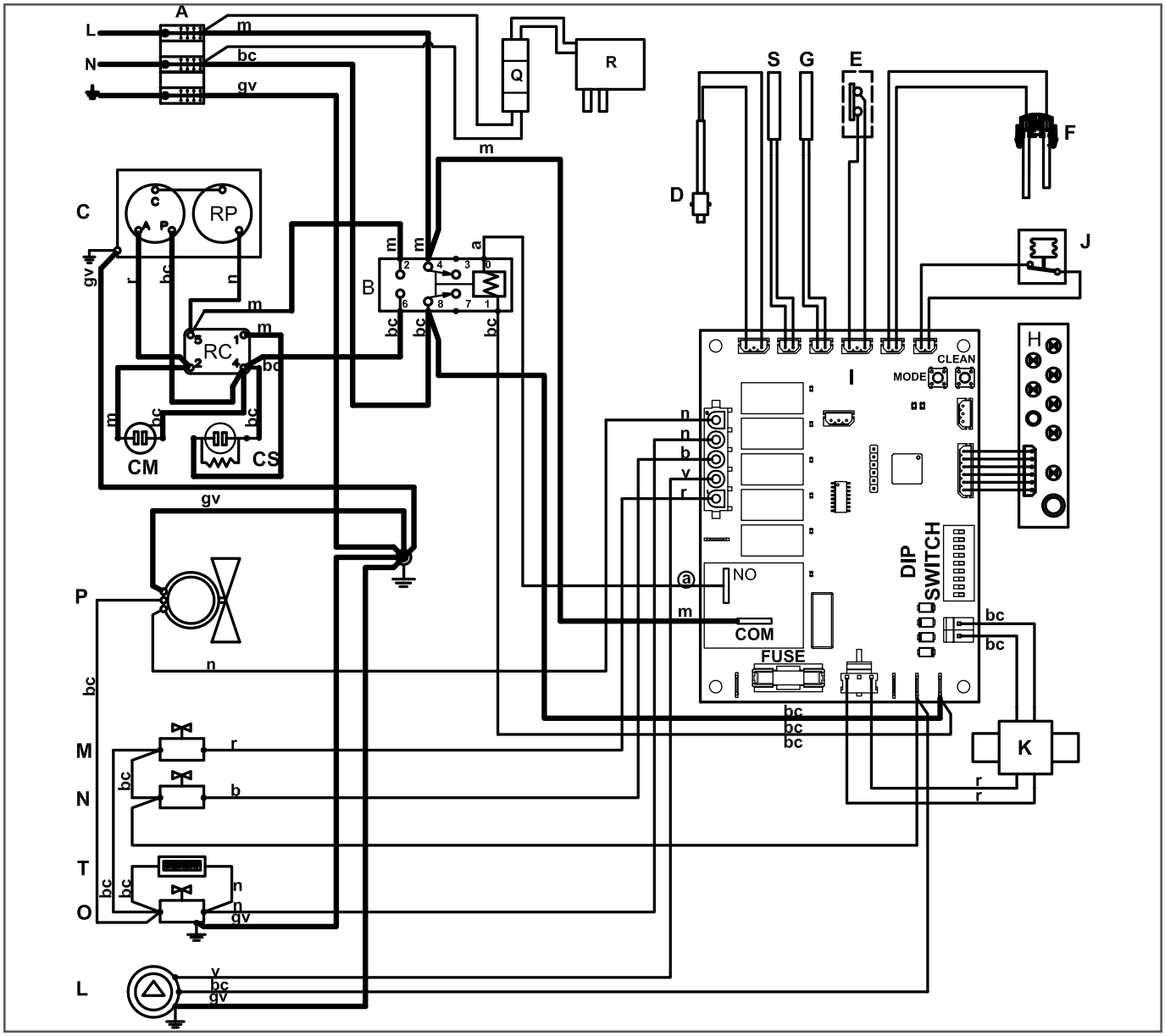


A	TERMINAL BLOCK
B	POWER RELAY
C	COMPRESSOR
D	ICE THICKNESS SENSOR
E	ICE FULL SENSOR
F	WATER LEVEL SENSOR
G	CONDENSER SENSOR
H	UIM BOARD
I	PC BOARD
J	MAX PRESSURE SWITCH
K	WATER TEMP. SENSOR
L	WATER PUMP
M	WATER INLET VALVE
N	WATER PURGE VALVE
O	DEFROST VALVE
P	FAN MOTOR (AIR COOLED ONLY)
Q	HARVEST ASSISTS
R	X-SAFE TRANSFORMER (ONLY OX)
S	X-SAFE DEVICE (ONLY OX)

WIRING DIAGRAM | NW 607

230V~ / 50HZ / 1PH

br	=	brown	r	=	red
b	=	blue	o	=	orange
yg	=	yellow / green	p	=	purple
w	=	white	g	=	green
bk	=	black	y	=	yellow

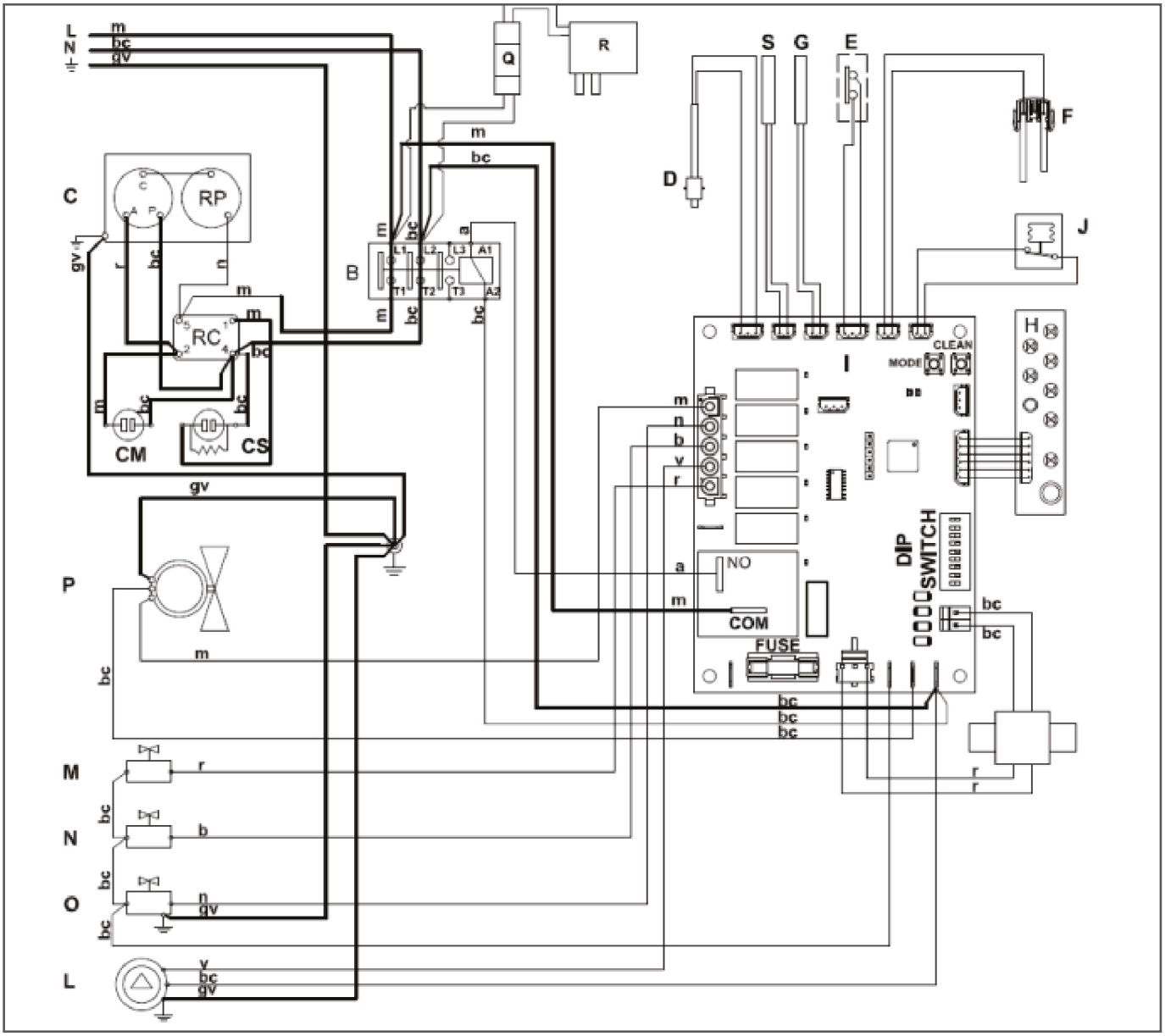


A TERMINAL BLOCK
B POWER RELAY
C COMPRESSOR
D ICE THICKNESS SENSOR
E ICE FULL SENSOR
F WATER LEVEL SENSOR
G CONDENSER SENSOR
H UIM BOARD
I PC BOARD
J MAX PRESSURE SWITCH
K WATER TEMP. SENSOR
L WATER PUMP
M WATER INLET VALVE
N WATER PURGE VALVE
O DEFROST VALVE
P FAN MOTOR (AIR COOLED ONLY)
Q HARVEST ASSISTS
R X-SAFE TRANSFORMER (ONLY OX)
S X-SAFE DEVICE (ONLY OX)

WIRING DIAGRAM | NW 508/458/608

230V~ / 50HZ / 1PH & 220 V~ / 60HZ / 1PH

m	=	brown	n	=	black
bc	=	blue	r	=	red
gv	=	yellow / green	a	=	orange
b	=	white	v	=	purple

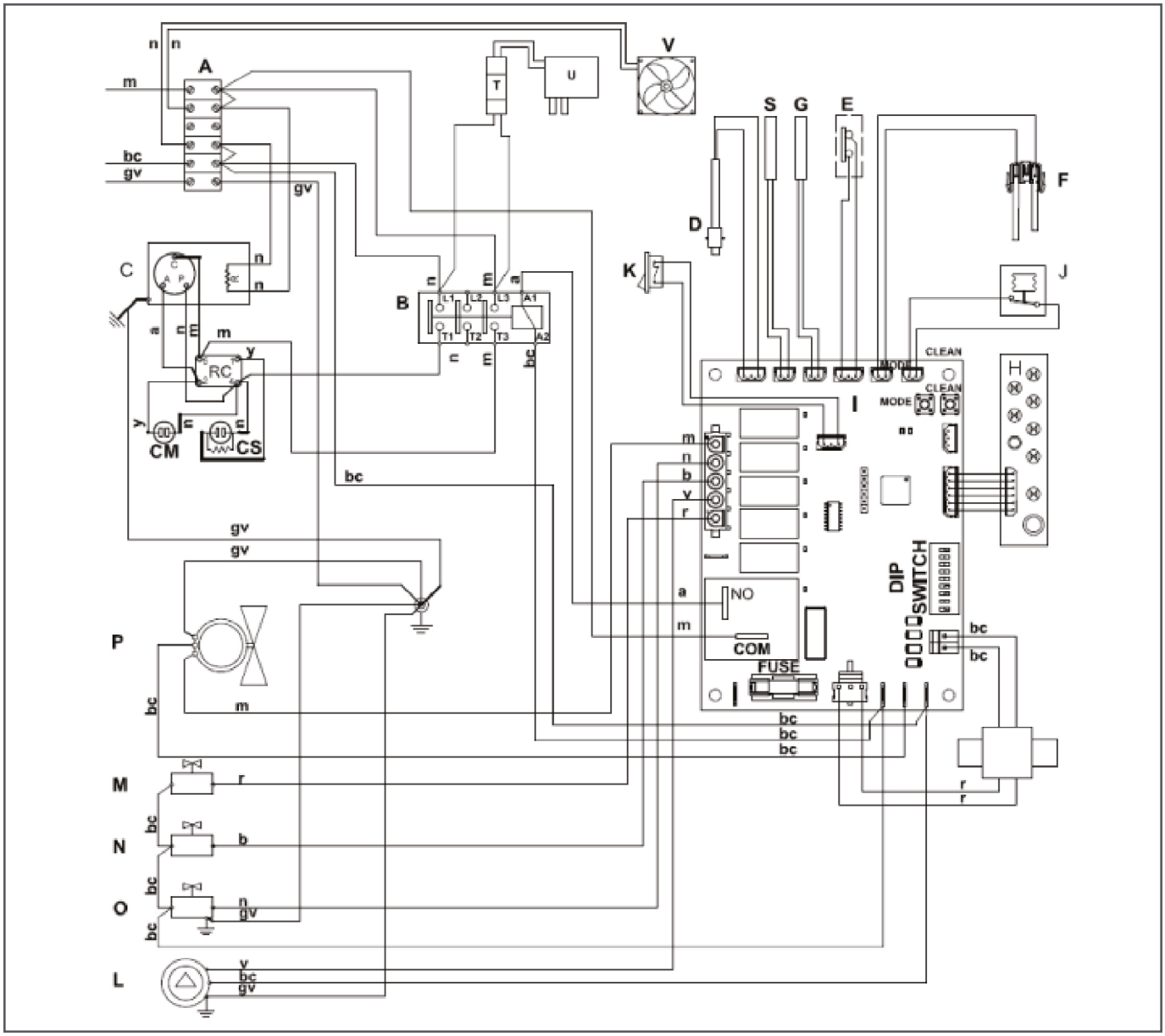


B COMPRESSOR CONTACTOR
C COMPRESSOR
D ICE THICKNESS SENSOR
E ICE FULL SENSOR
F WATER LEVEL SENSOR
G CONDENSER SENSOR
H INDICATE BOARD
I PC BOARD
J MAX PRESSURE SWITCH
L WATER PUMP
M WATER INLET VALVE
N WATER PURGE VALVE
O DEFROST VALVE
P FAN MOTOR (FOR AIR ONLY)
Q X-SAFE TRANSFORMER (OX ONLY)
R X-SAFE DEVICE (OX ONLY)
S WATER TEMP. SENSOR
RC COMPRESSOR RELAY
CS START CAPACITOR
CM RUNNING CAPACITOR

WIRING DIAGRAM | NW 1008/1408

230V~ / 50HZ / 1PH

m	=	brown	r	=	red
bc	=	blue	a	=	orange
gv	=	yellow / green	v	=	purple
b	=	white	g	=	green
n	=	black	y	=	yellow

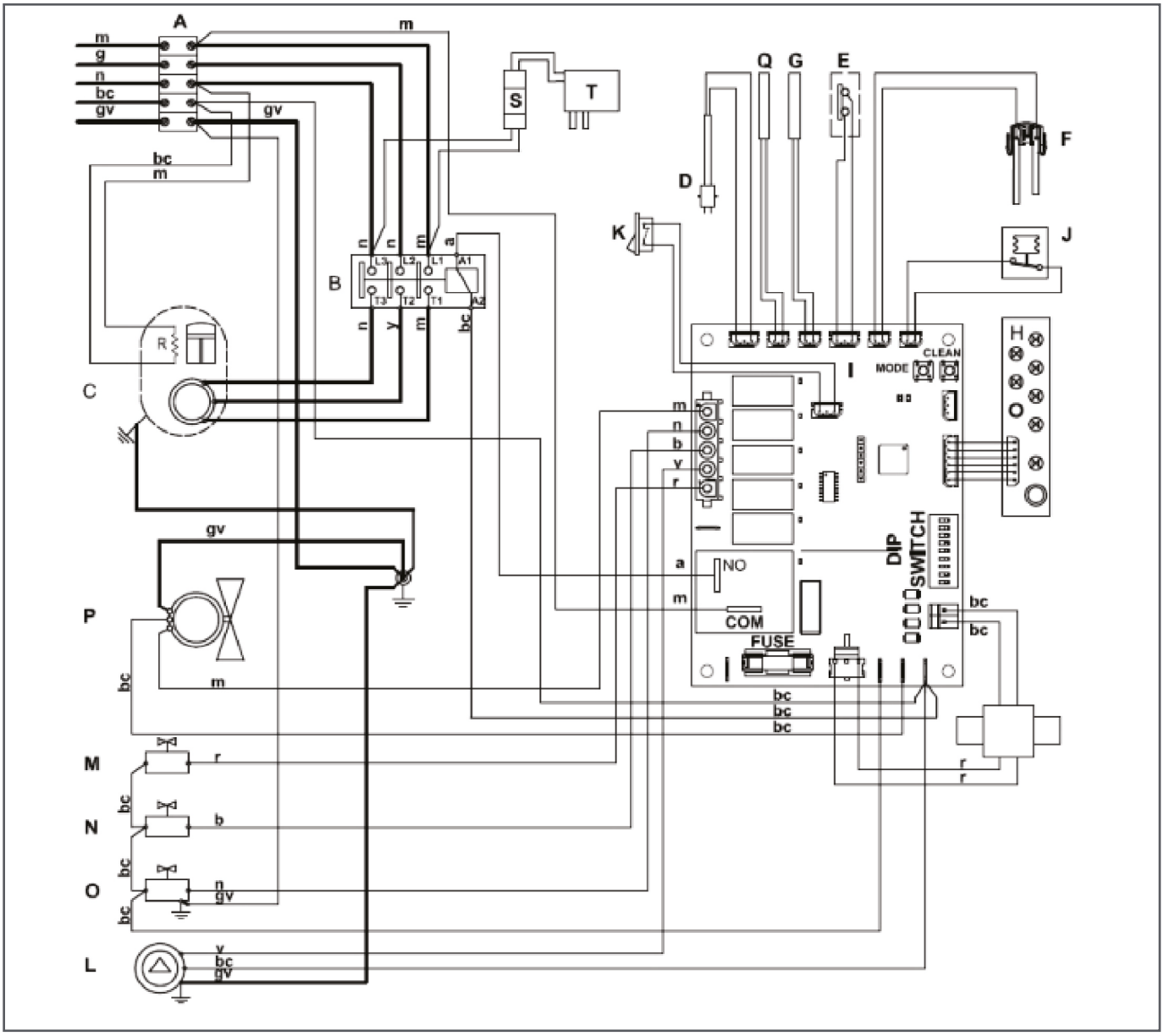


A TERMINAL BLOCK
B COMPRESSOR CONTACTOR
C COMPRESSOR
D ICE THICKNESS SENSOR
E ICE FULL SENSOR
F WATER LEVEL SENSOR
G CONDENSER SENSOR
H INDICATE BOARD
I PC BOARD
J MAX PRESSURE SWITCH
K OFF-DELAY SWTICH
L WATER PUMP
M WATER INLET VALVE
N WATER PURGE VALVE
O DEFROST VALVE
P FAN MOTOR (FOR AIR ONLY)
R CRANCKASE HEATER
S WATER TEMP. SENSOR
T X-SAFE TRANSFORMER (OX ONLY)
U X-SAFE DEVICE(OX ONLY)
V FAN (FOR 1408W ONLY)

WIRING DIAGRAM | NW 1008

380V~ / 50HZ / 3PH

m	=	brown	r	=	red
bc	=	blue	a	=	orange
gv	=	yellow / green	v	=	purple
b	=	white	g	=	green
n	=	black	y	=	yellow

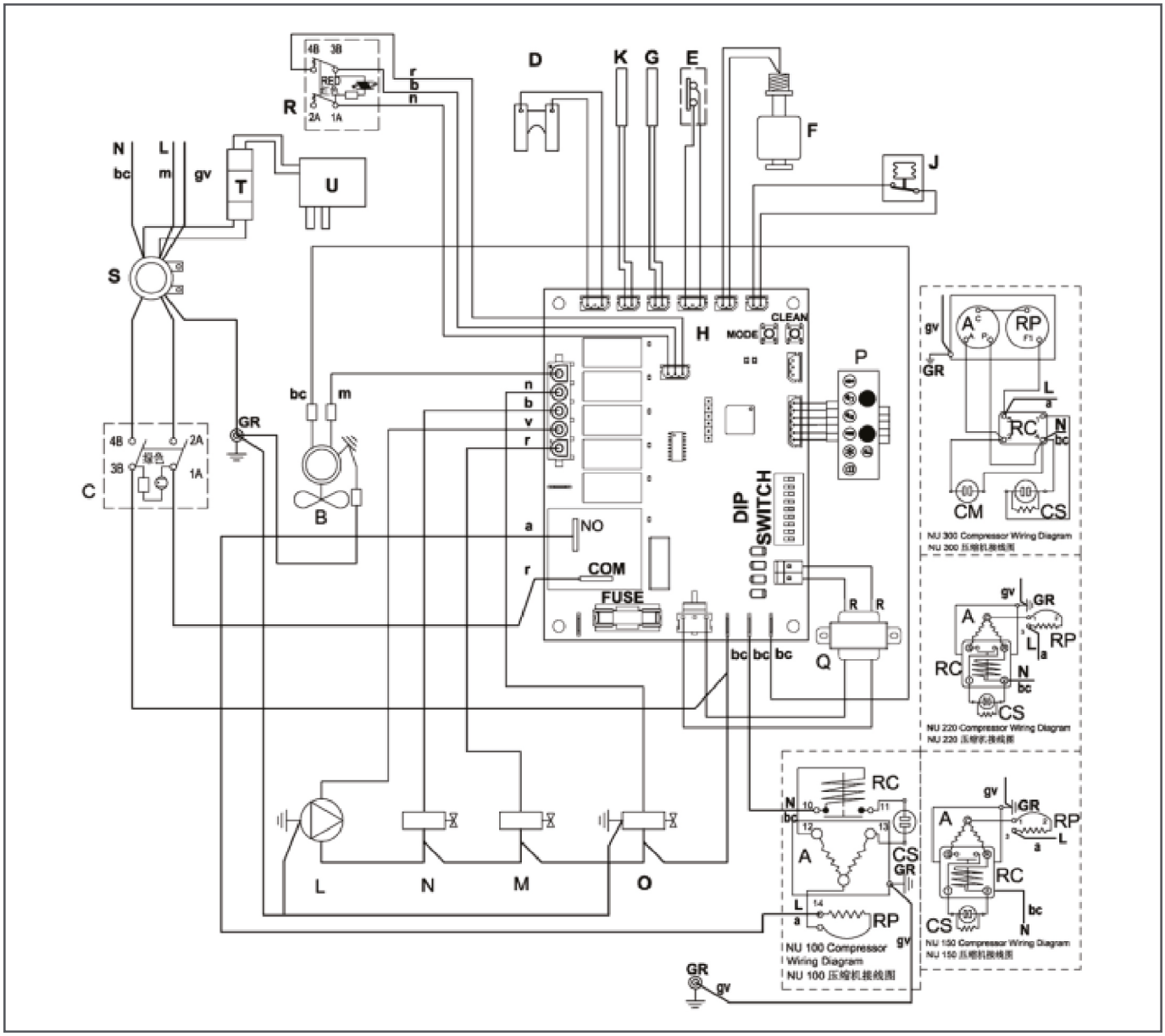


A TERMINAL BLOCK
B COMPRESSOR CONTACTOR
C COMPRESSOR
D ICE THICKNESS SENSOR
E ICE FULL SENSOR
F WATER LEVEL SENSOR
G CONDENSER SENSOR
H INDICATE BOARD
I PC BOARD
J MAX PRESSURE SWITCH
K OFF-DELAY SWTICH
L WATER PUMP
M WATER INLET VALVE
N WATER PURGE VALVE
O DEFROST VALVE
P FAN MOTOR (FOR AIR ONLY)
Q WATER TEMP. SENSOR
R CRANCKASE HEATER
S X-SAFE TRANSFORMER (OX ONLY)
T X-SAFE DEVICE (OX ONLY)

WIRING DIAGRAM | NU100/150/220/300

230V~ / 50HZ / 1PH & 220 V~ / 60HZ / 1PH

m	=	brown	a	=	orange
bc	=	blue	v	=	purple
gv	=	yellow / green	g	=	green
b	=	white	y	=	yellow
n	=	black			

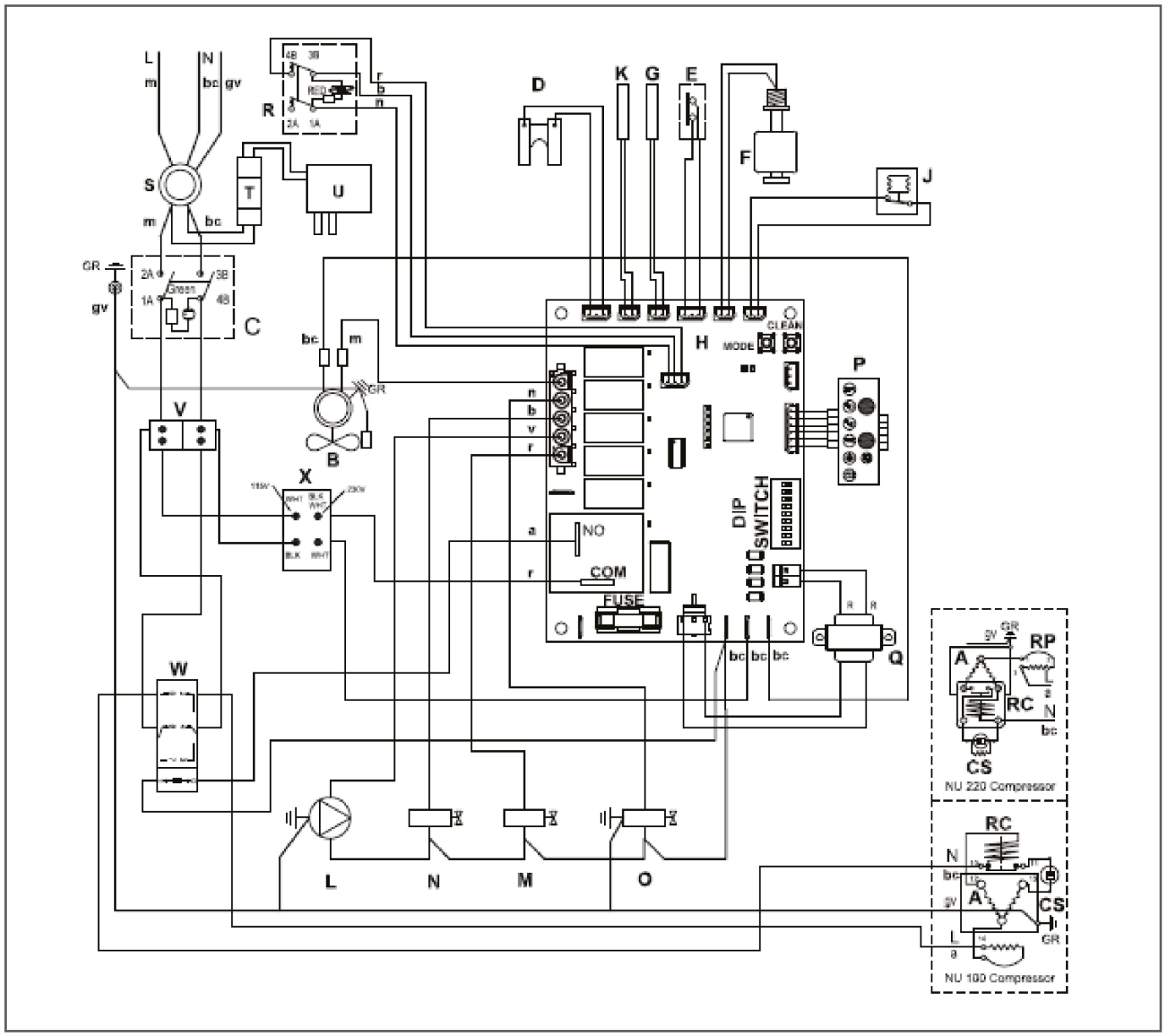


A COMPRESSOR
B FAN MOTOR (FOR AIR ONLY)
C POWER SWITCH BUTTON (GREEN)
D ICE THICKNESS SENSOR
E ICE FULL SENSOR
F WATER LEVEL SENSOR
G CONDENSER SENSOR
H PC BOARD
J MAX PRESSURE SWITCH
K TEMPERATURE SENSOR
L WATER PUMP
M WATER INLET VALVE
N WATER PURGE VALVE
O DEFROST VALVE
P INDICATE BOARD
Q TRANSFORMER
R CLEAN SWITCH BUTTON (RED)
S POWER CLAMP
T X-SAFETRANSFORMER (OX ONLY)
U X-SAFE DEVICE (OX ONLY)
RC COMPRESSOR STARTER RELAY
RP COMPRESSOR PROTECTOR
CS COMPRESSOR STARTING CAPACITOR
CM COMPRESSOR RUNNING CAPACITOR

WIRING DIAGRAM | NU100/220

115V~ / 60HZ / 1PH

m	=	brown	a	=	orange
bc	=	blue	v	=	purple
gv	=	yellow / green	g	=	green
b	=	white	y	=	yellow
n	=	black			



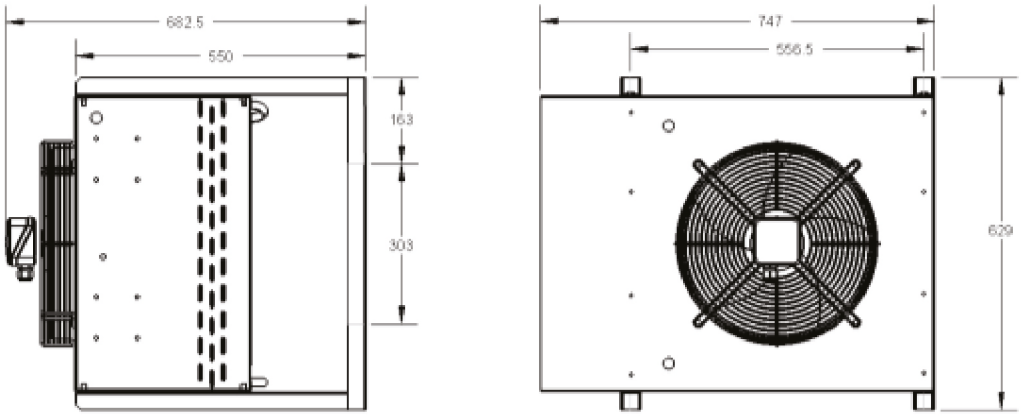
A COMPRESSOR
B FAN MOTOR (FOR AIR ONLY)
C POWER SWITCH BUTTON (GREEN)
D ICE THICKNESS SENSOR
E ICE FULL SENSOR
F WATER LEVEL SENSOR
G CONDENSER SENSOR
H PC BOARD
J MAX PRESSURE SWITCH
K TEMPERATURE SENSOR
L WATER PUMP
M WATER INLET VALVE
N WATER PURGE VALVE
O DEFROST VALVE
P INDICATE BOARD
Q TRANSFORMER
R CLEAN SWITCH BUTTON (RED)
S POWER CLAMP
T X-SAFE TRANSFORMER(ONLY OX)
U X -SAFE DEVICE (ONLY OX)
V TERMINAL BLOCK
W COMPRESSOR RELAY
X POWER TRANSFORMER
RC COMPRESSOR STARTER RELAY
RP COMPRESSOR PROTECTOR
CS COMPRESSOR STARTING CAPACITOR
CM COMPRESSOR RUNNING CAPACITOR

Refrigeration connections

Appliances with integrated cooling units, whether air or water, do not require any connection.
If, on the other hand, the refrigeration unit is remote, connections between it and the machine must be made by a technician authorized and qualified to do so.

Remote condenser install

VERTICAL INSTALLATION (ONLY)



Refrigerant charge R452A | R404A

Portion	Model	QTY
Ice machine	NW1008 RC	2650 g
	NW1408 RC	4500 g
Remote condenser	NW1008 RC	200 g
	NW1408 RC	300 g
Connection copper tube (10 meters)	NW1008 RC NW1408 RC	600 g (In. Air & Liquid tube)

WEATHER PROOF AIR COOLED REMOTE CONDENSER

The remote condenser version of Cubers is similar to the air cooled standard versions with the only difference of the remote condenser.

Technical specifications

1. Remote air cooled condenser fit on proper brackets for vertical installation.
   Cooling capacity with ΔT 15K is **7.2 KW** on **NW1008**, **10.4 KW** on NW1408.
2. Fan motor/s 220-240/50-60/1 - 180 Watt - 0,9 Amps with IP 44 protection (against liquids and solids) and flow rate of 2500 m³/hr for NW1008 and 2100 m³/hr for **NW1408**.
3. **NW1008**, Fan Controlled by an Electronic pressure controller in ice machine which set to cut out 17 bars and cut in 15 bars. **NW1408**, FAN is keep running, the pressure control by a head master bypass valve, the air cooled condenser keeping the high pressure constantly at 220 Psi (15.2 bars).
4. Standard pre-charged refrigerant lines of 10 meters length equipped with quick connections.
5. Hi pressure safety control (manual reset type) set to 32 bars.
6. Hi pressure control warning light.

Installation of the remote air cooled condenser and pre-charged refrigerant lines

A. Location considerations

Select the best available place protected from dirt/dust. The weatherproof remote air cooled condenser can be installed indoor as well as outdoor and can operate under the most different conditions (rain, wing, snow, etc.) Use the following formula for planning the location of the condenser and ice machine.
Location Limits – Condenser location must not exceed ANY of the following limits

Maximum vertical drop dd of 1 meter between the icemaker and the remote condenser.

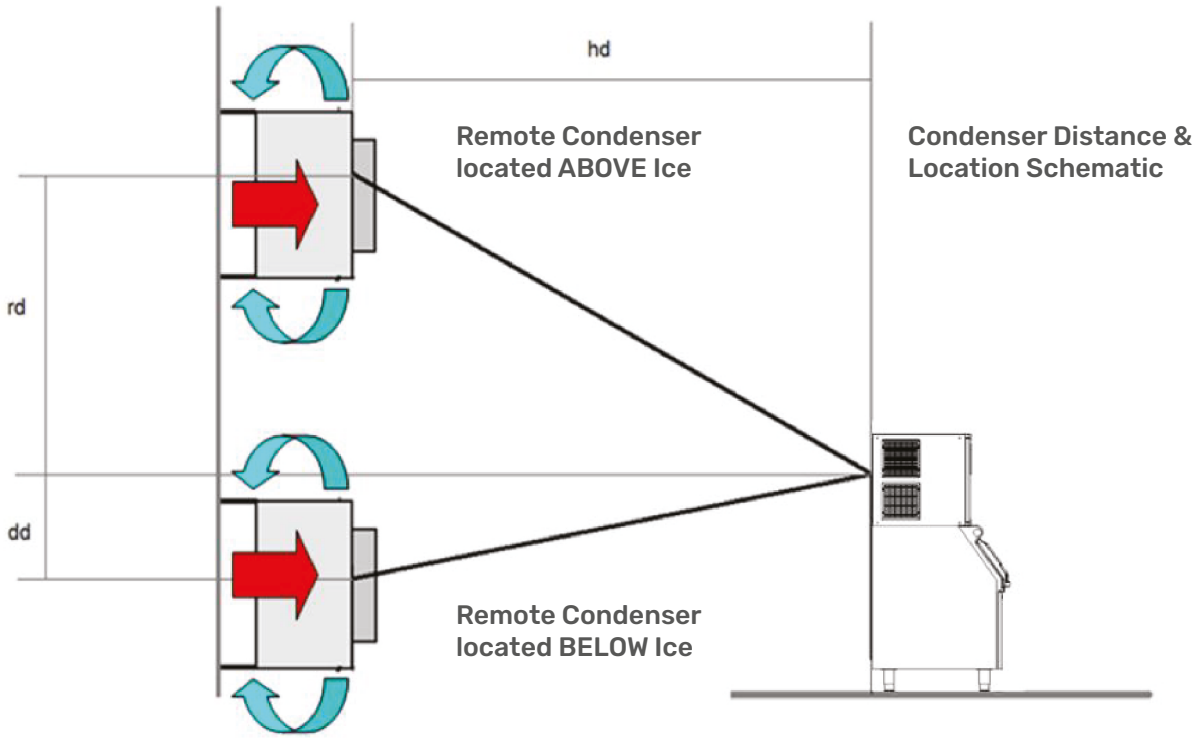
Maximum vertical rise rd of 3 meters.
Physical line set maximum length between icemaker and remote condenser is 10 meters.

Limit to max. one rise and one drop.

Limit the calculated distance (CD) as per the Calculation formula to 36 meters.

A = Drop = dd x 6.6
B = Rise = rd x 1.7
C = Horizontal run = hd x 1

CD = A + B + C



B. Unpacking and Inspection
Visually inspect the exterior of the shipping container. Report any severe damage to the delivery carrier.
Uncrate the remote condenser and pre-charged refrigerant lines, then inspect them for any concealed damage. If concealed damage is found, notify the carrier.
Ensure that the pre-charged refrigerant lines are intact and not kinked.

C. Remote Condenser Installation and Electrical Connections
Install and secure the remote condenser to the floor or the wall of the building using methods and practices that comply with local building regulations.
Remove the control box cover from the remote condenser and connect the electrical power line from the unit as shown in the following picture.

NOTE. *Cable connecting the unit to the remote condenser is at 230 Volt so it is* ***imperative*** *to have the cable properly protected inside a plastic or metal tube according to the local electrical code/standard.*

D. Pre-Charged Refrigerant Lines
The set of pre-charged refrigerant lines consists of a 14 mm O.D. self-sealing gas line and a 12 mm O.D. self-sealing liquid line, both equipped with quick connections.

If the pre-charged refrigerant lines are longer than the distance between the ice maker and the remote condenser,
keep the excess portion indoors, shaped as a vertical spiral to prevent refrigerant trapping.

CAUTION. Each coupling on the pre-charged refrigerant lines is self-sealed and should be tightened 1/4 turn more than snug tight.

ALWAYS USE TWO WRANCHES WHEN TIGHTENING THESE FITTINGS, ONE AS BACKUP WRENCH TO PREVENT TWISTING OF TUBING AND POSSIBLE KINKING OR LINE RUPTURE.

Connect the gas line coupling to the remote condenser refrigerant fitting (labeled GAS) and to the refrigerant fitting on the rear side of the ice machine.
Connect the liquid line coupling to the remote condenser refrigerant fitting (labeled LIQUID) and to the refrigerant fitting on the rear side of the ice machine.

ATTENTION. The inlet of the remote air cooled condenser (gas) must be always located above the outlet (liquid) for vertical installations.

Operating instructions
The remote air-cooled condenser versions of cube ice machines operate in the same way as the standard machine.
The only difference is the operation of the fan motor in the remote condenser versions: it is no longer possible to use the condenser sensor to control its ON-OFF operation.

Instead of a condenser pressure controller, an electronic fan controller has been installed (preset to 16 bar via its adjusting screw) for the NW1008. For the NW1408, the fan remains continuously running, with pressure controlled by a head master bypass valve. The air-cooled condenser maintains the condenser pressure at a constant 220 psi (15.2 bar).

The high-pressure controller is used only as a safety device to switch off the machine in case of fan motor failure.

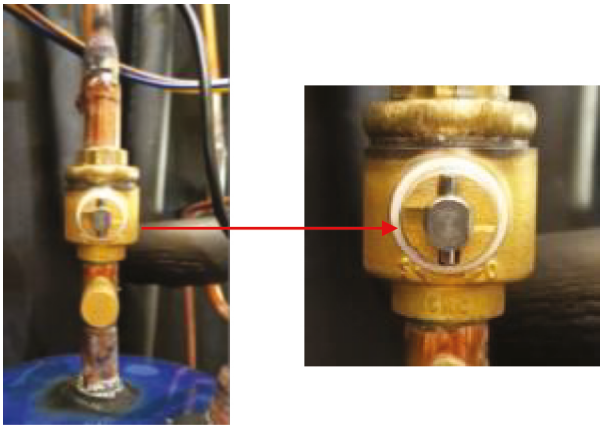
NW1408 first running Warning

Before connecting the ice maker to the power supply, the globe valve must be opened first; otherwise, the ice maker may be damaged.
The steps to open the globe valve are as follows:

1. Loose screw, and take out rear panel

2. Open the globe valve safety cap

3. Turn the rotary knob counterclockwise 90 degree to vertical direction to indicate that the valve is opening.

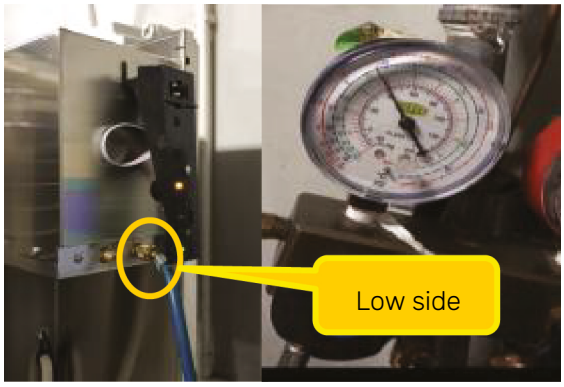


4. Connect ice machine power.

NW1408 CHANGE REMOTE CONDENSER

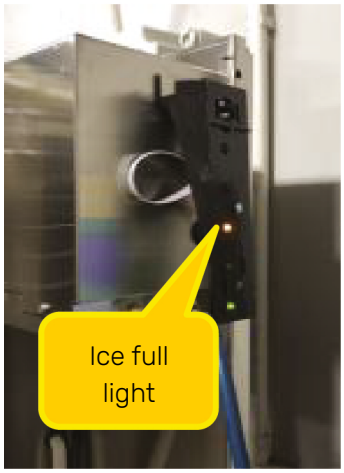
NW1408 unit needs refrigerant recovery from remote condenser to ice machine before change remote condenser.

1. Connect pressure gauge to Low side as follow picture

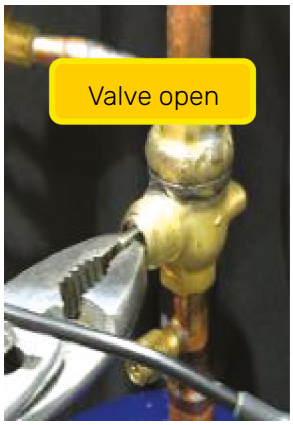


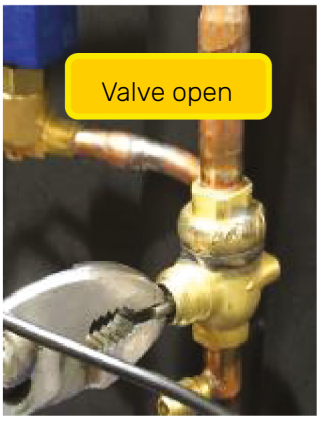
2. Open the globe valve cup.

3. Start the ice machine. When the ice machine enters the frost cycle, the yellow frost light will turn on. Then, remove the deflector in front of the evaporator. About 30 seconds later, the yellow ice full light will turn on. At this point, the ice machine will enter the refrigerant recovery phase. The solenoid valve on the copper tube will close, preventing the refrigerant from flowing to the remote condenser.



4. Check the pressure gauge. Use pliers to turn the globe valve clockwise halfway to close it.
When the pressure gauge reads below 1 bar, the compressor will stop automatically. Then, turn off the unit.





IMPORTANT:
GLOBE VALVE MUST CLOSE BEFORE COMPRESSOR STOP.

5. After turning off the ice machine, the remote condenser can be replaced.

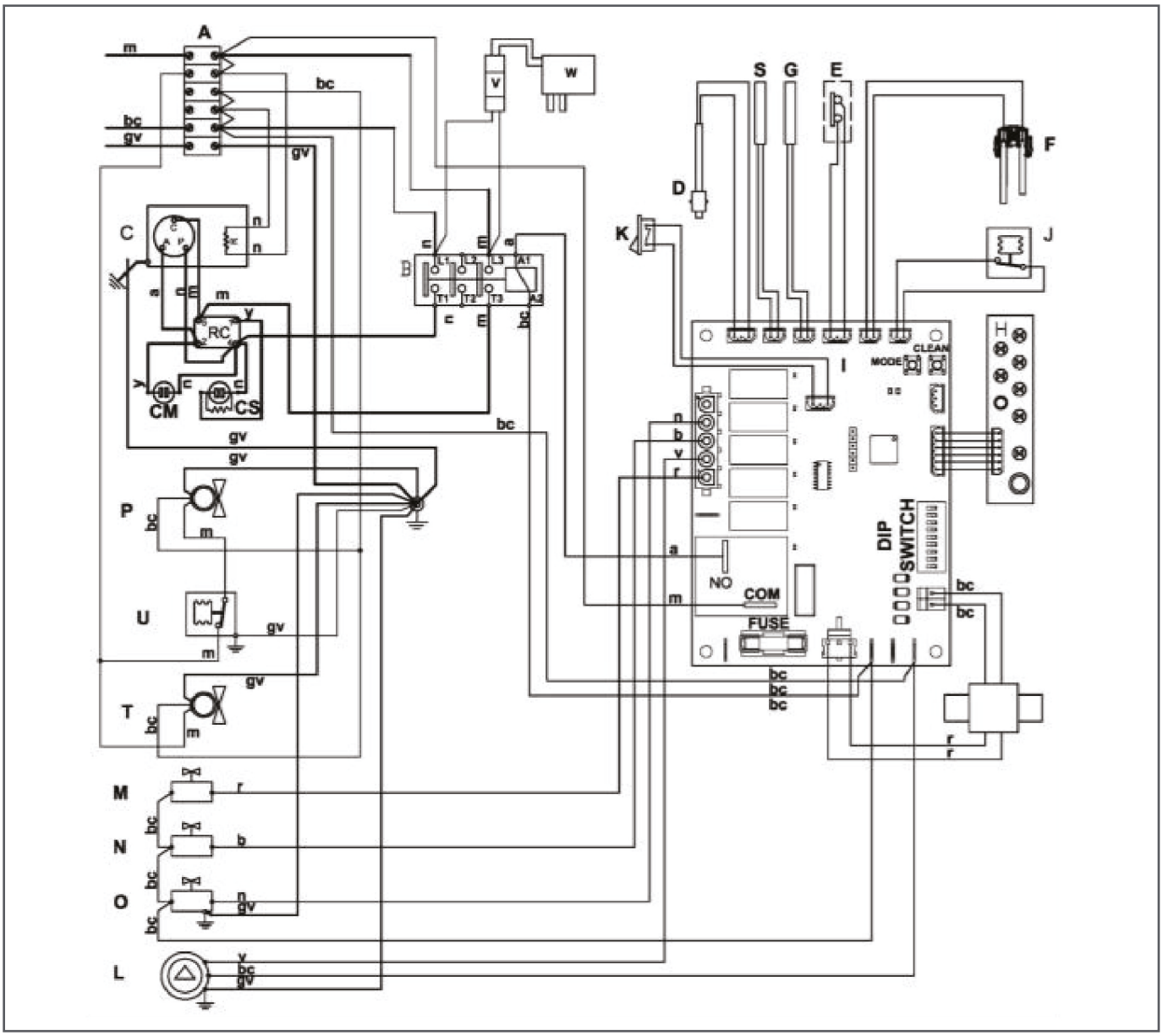
6. After replacing the remote condenser, open the globe valve first before turning on the ice machine.

WARNING:
BEFORE TURNING ON THE ICE MACHINE, THE GLOBE VALVE MUST BE OPENED FIRST; OTHERWISE, IT MAY CAUSE DAMAGE TO THE ICE MACHINE.

NW 1008 ASR-RC - WIRING DIAGRAM

230V~ / 50HZ / 1PH & 220 V~ / 60HZ / 1PH

m	=	brown	r	=	red
bc	=	blue	a	=	orange
gv	=	yellow / green	v	=	purple
b	=	white	g	=	green
n	=	black	y	=	yellow

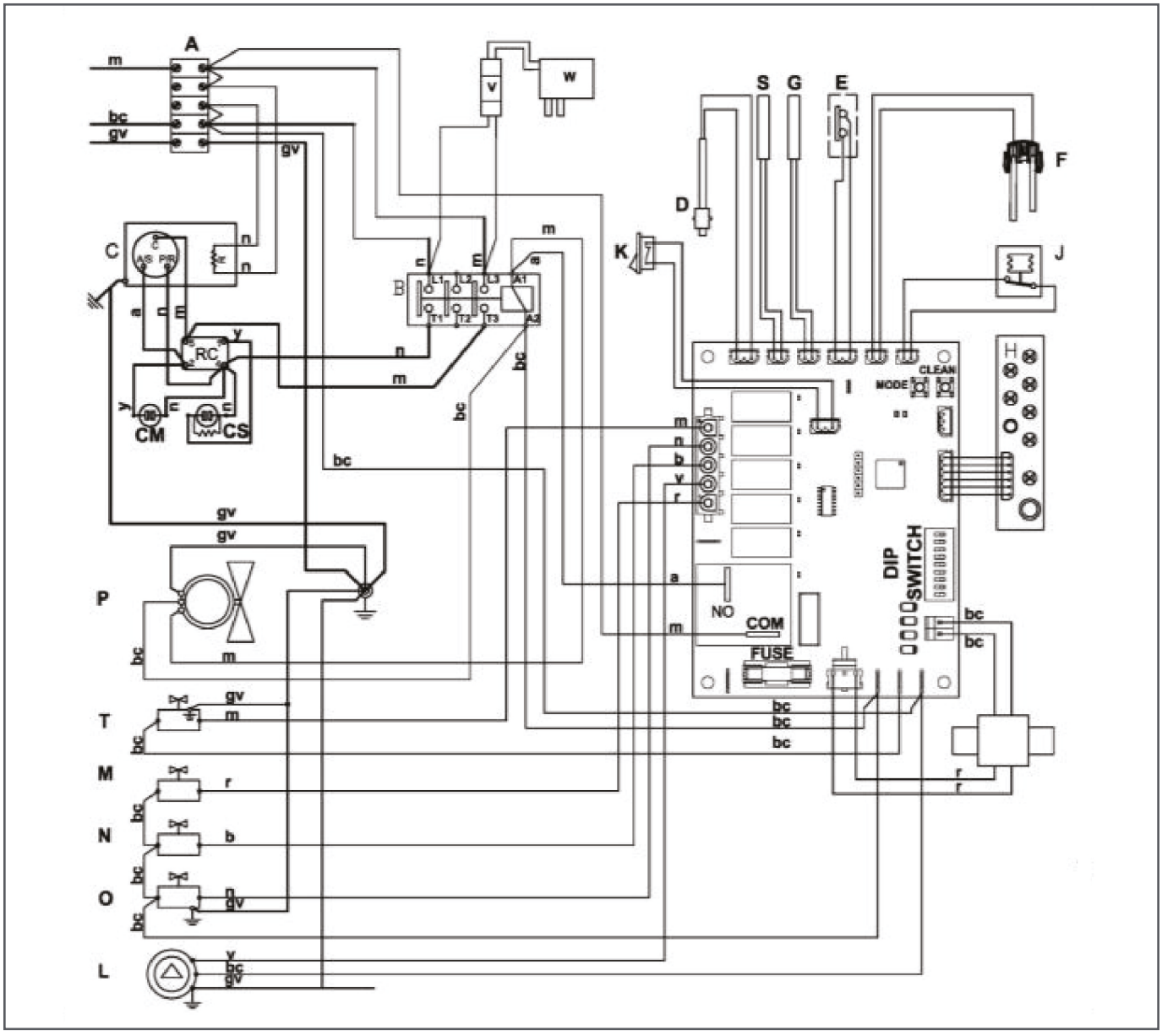


A TERMINAL BLOCK
B COMPRESSOR CONTACTOR
C COMPRESSOR
D ICE THICKNESS SENSOR
E ICE FULL SENSOR
F WATER LEVEL SENSOR
G CONDENSER SENSOR
H INDICATE BOARD
I PC BOARD
J MAX PRESSURE SWITCH
K OFF-DELAY SWTICH
L WATER PUMP
M WATER INLET VALVE
N WATER PURGE VALVE
O DEFROST VALVE
P REMOTE FAN
R CRANCKASE HEATER
S WATER TEMP. SENSOR
T COOLING FAN
U CONDENSING PRESSURE CONTROLLER
V X-SAFE TRANSFORMER (ONLY OX)
W X-SAFE DEVICE (ONLY OX)
RC COMPRESSOR RELAY
CS START CAPACITOR
CM RUNNING CAPACITOR

NW 1408 ASR-RC - WIRING DIAGRAM

230V~ / 50HZ / 1PH & 220 V~ / 60HZ / 1PH

m	=	brown	r	=	red
bc	=	blue	a	=	orange
gv	=	yellow / green	v	=	purple
b	=	white	g	=	green
n	=	black	y	=	yellow



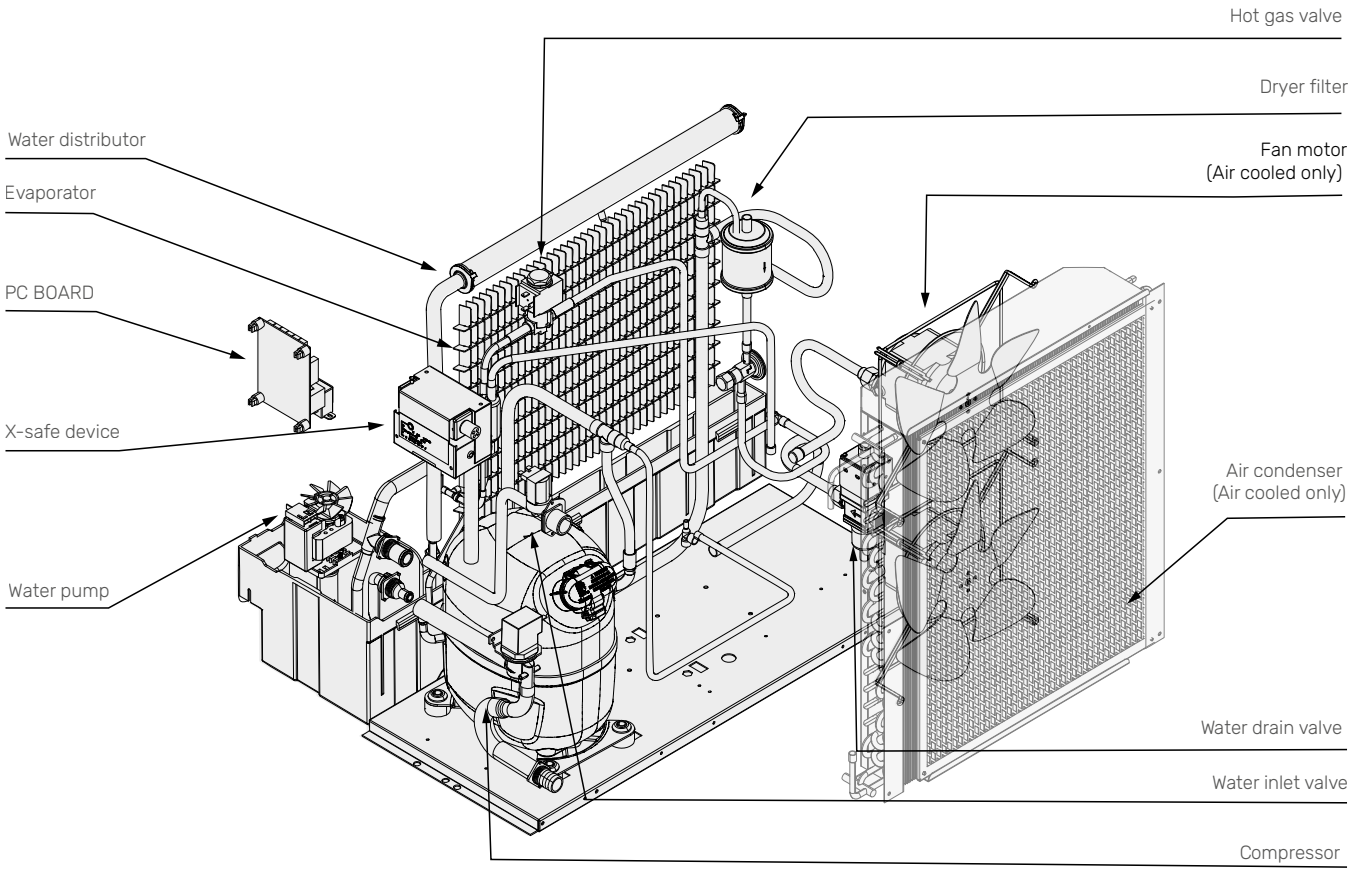
A TERMINAL BLOCK
B COMPRESSOR CONTACTOR
C COMPRESSOR
D ICE THICKNESS SENSOR
E ICE FULL SENSOR
F WATER LEVEL SENSOR
G CONDENSER SENSOR
H INDICATE BOARD
I PC BOARD
J MAX PRESSURE SWITCH
K OFF-DELAY SWTICH
L WATER PUMP
M WATER INLET VALVE
N WATER PURGE VALVE
O DEFROST VALVE
P FAN MOTOR (FOR AIR ONLY)
R CRANCKASE HEATER
S WATER TEMP. SENSOR
T RECYCLE SOLIENOID VALVE
V X-SAFE TRANSFORMER (ONLY OX)
W X-SAFE DEVICE (ONLY OX)
RC COMPRESSOR RELAY
CS START CAPACITOR
CM RUNNING CAPACITOR

TESTING

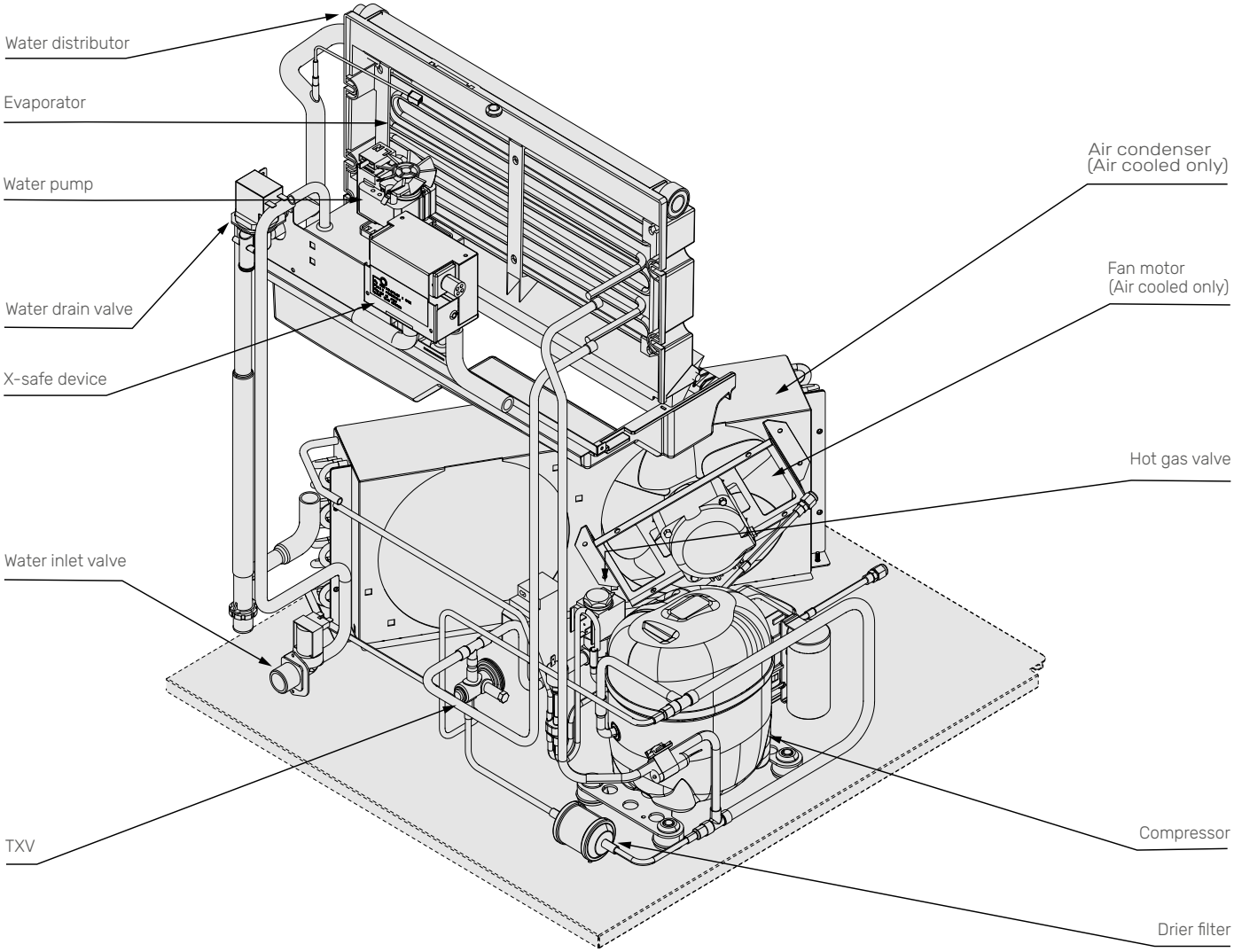
After positioning and connecting the device, check that

	it is well leveled and that all specified clearances have been respected	p. **15**
	room temperatures never fall below 10 °C, even during the winter months	p. **15**
	all required electrical and plumbing connections have been made	p. **18**
	the water shut-off tap(s) is/are in the ON - Open position	p. **19**
	the inlet pressure of the hydraulic circuit is at least 1 Bar	p. **19**
	the refrigerant circuit and hydraulic circuit piping do not emit vibrations	p. **19**
	the voltage of the power supply line is the same as that specified on the rating plate	p. **26**
	the inside walls of the ice container have been cleaned and disinfected	user manual enclosed with the device
	the compressor anchor bolts allow the compressor to swing on the supports	
	all documentation relating to the appliance and the references of the authorized service center have been handed over to the	

NW series



NU series


Water distributor
Evaporator
Water pump
Water drain valve
X-safe device
Water inlet valve
TXV
Air condenser
(Air cooled only)
Fan motor
(Air cooled only)
Hot gas valve
Compressor
Drier filter

COMPONENTS DESCRIPTION

UV lamp and ozone (mod. XSafe only)

This natural **UV lamp-based** sanitizing system is integrated inside the machine and guarantees absolute purity and hygiene.
The XSafe system provides quarterly or annual maintenance.

QUARTERLY MAINTENANCE | UV LAMP CLEANING

If the XSafe is in a dusty environment, check **every three months** that the lamp is cleaned, this will considerably prolong its life. If it needs to be cleaned, **wear gloves** and remove it as indicated below.
Attention! 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.

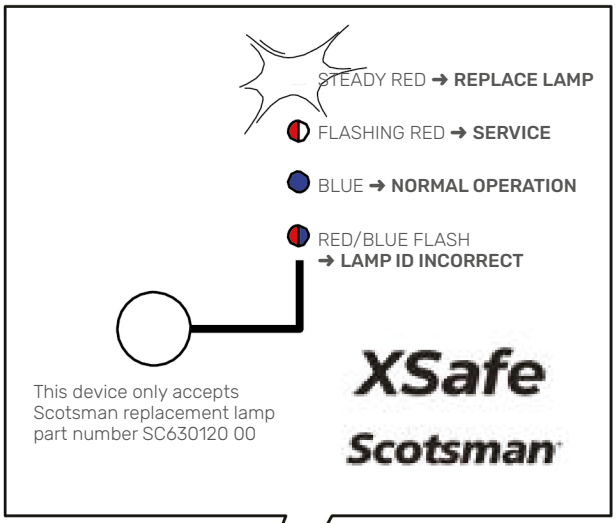
Once removed, clean it with a very soft cloth freshly soaked in a specific detergent compatible with quartz glass (e.g. denatured alcohol). Wait until the lamp is perfectly dry and reassemble it.

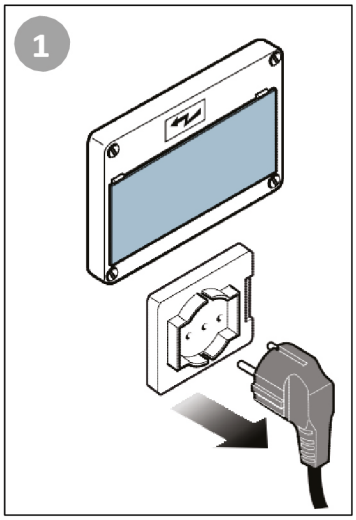
ANNUAL MAINTENANCE | UV LAMP REPLACEMENT

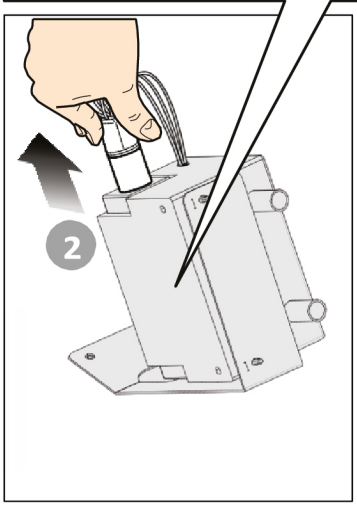
When the **RED LED lights up**, this indicates that the UV lamp needs to be replaced, but regardless of whether the LED lights up, it must be changed every twelve months to ensure maximum functionality and efficiency.

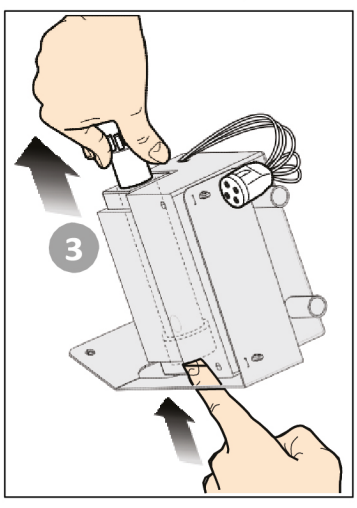
Meaning of the LEDs:

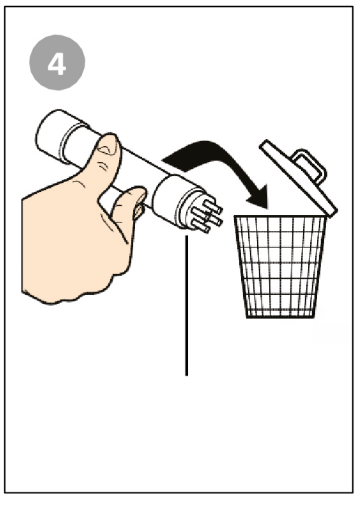
- UV lamp to be replaced
- Operating fault
- Normal operation
- Incorrect Lamp ID











F13 HOW TO EXTRACT THE UV LAMP

- **1. Disconnect the power supply from the ice machine**, remove its covers and access panels until the XSafe device is accessible (see fig **F11 and F12** on the previous pages for positioning inside the machine).
- **2. Make sure that the entire XSafe device is cold. Wear protective gloves.**
- Disconnect the bulb holder from the lamp by pulling it gently. Important: Do not detach the lamp holder by pulling it by the connecting wires, this will damage it and may cause danger of electrocution when reconnecting. 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 a UV lamp SC630102 00 SCOTS- MAN, the use of a different type of lamp invalidates the warranty.
  Attention! 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 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 based on the 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 container clean, reduces mold, viruses and other micro-organisms;
- 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 molds, viruses and other micro-organisms.

Is XSafe dangerous to humans?
The XSafe device is designed to produce O_3 below legal limits when properly installed, operated 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.

Is it possible to install xsafe ON any Scotsman machine?
Yes, the XSafe XR-30 kit can also be installed externally on all SCOTSMAN NW series 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 there is ice it could change the taste and appearance.

Is any operation required on the part of the operator?
The XSafe system requires no operation by the operator. 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 on influenza A virus (avian influenza virus), which is a similar type of virus to Covid-19 (they belong to the same family).The result was an inactivation efficiency of 99.99%.A specific test on Covid-19 is 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 it is not drinkable, it must be purified and filtered by other suitable means before being used.

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 the ice machine uses water with high hardness, it will certainly need a water filter.

Does XSafe also reduce the frequency of machine descaling?
No, XSafe only affects organic micro-organisms, not inorganic materials such as limestone, salts, sand, etc.

Is XSafe noisy?
No, XSafe does not produce noise.

With XSafe fitted, is it still necessary to empty and clean the ice machine?
Yes. Periodically, however, it is necessary to switch off and empty the ice machine to prevent physical contaminants and dirt from entering the machine.

How can it be verified that XSafe is working properly?
On the XSafe there are LEDs that indicate the status of the machine, the lighting of the BLUE LED indicates normal operation.

How often should the internal UV bulb be replaced?
The UV lamp should only be replaced every year with an original SCOTSMAN lamp by the Technical Service Department, this guarantees the perfect effectiveness of the system. If the lamp is not replaced every year, in addition to the loss of efficacy, the manufacturer's guarantee lapses.

Can the UV bulb be replaced by the end user?
Replacement of the UV lamp must NOT be carried out by the user, contact a specialist technician.

Personal notes

COMPONENT DESCRIPTION

Condenser temperature sensor

The condenser temperature sensor probe (located in contact with the condenser tube coil) detects temperature variations and transmits signals by supplying low-voltage current to the P.C. BOARD.

In air-cooled versions, based on the received current, the P.C. BOARD microprocessor supplies high-voltage power to the fan motor through a TRIAC, allowing the fan to cool the condenser and reduce its temperature.

If the condenser temperature rises to 70°C (158°F), the current reaching the microprocessor will trigger an immediate shutdown of the machine, indicated by a blinking Red LED. The machine will attempt an automatic restart twice. However, if high temperature occurs a third time, the machine will shut down completely. Pressing the MODE button will initiate the startup cycle.

Water temperature sensor

The water temperature sensor, located in the water pipes between the water pump and the ice plate, detects the temperature of the circulating water in real time and sends signals to the P.C. BOARD, which controls the operation of the pump during the ice freezing cycle

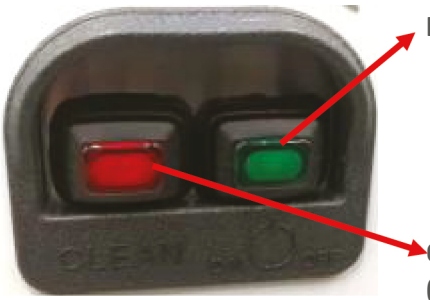
ICE full sensor and magnet

The Ice Full Sensor, located on the side of the evaporator, and the magnet, positioned on the side of the ice deflector (ON NW) or slide board (NU), are used to detect whether the ice deflector or slide returns to its original position after the harvest cycle.
If the storage bin is full, the ice blocks the deflector or slide board from returning to its original position. As a result, the unit will stop and restart automatically once the ice is removed. The Bin Full Yellow LED will indicate this status.
When ice is removed or shifted in the storage bin, the ice deflector resets. The magnetic sensor detects the magnetism, clearing the Bin Full status, and the unit enters the freezing cycle.

Note:
If the "Ice Bin Full" status is cleared within 3 minutes, the OPER light will flash quickly. After 3 minutes, the ice machine will automatically enter the freezing cycle. If the "Ice Bin Full" status is cleared after more than 3 minutes, the ice machine will enter the freezing cycle only when it is manually restarted.

Condenser temperature sensor (For NU series ONLY)

There are two buttons on NU front panel: the right green switch is the power switch, the red switch is the cleaning switch.



Clean button function
Turn on the power switch, then press and hold the Clean button for 5 seconds to initiate the cleaning and rinsing procedure. The Cleaning RED light will blink rapidly.
The entire cleaning and rinsing process takes approximately 40 minutes. Once the procedure is complete, the Cleaning RED light will blink slowly.
Press the Clean button again to restart the ice machine.

Compressor Contactor or Relay (For NW508-1408 & NW307/507/457)

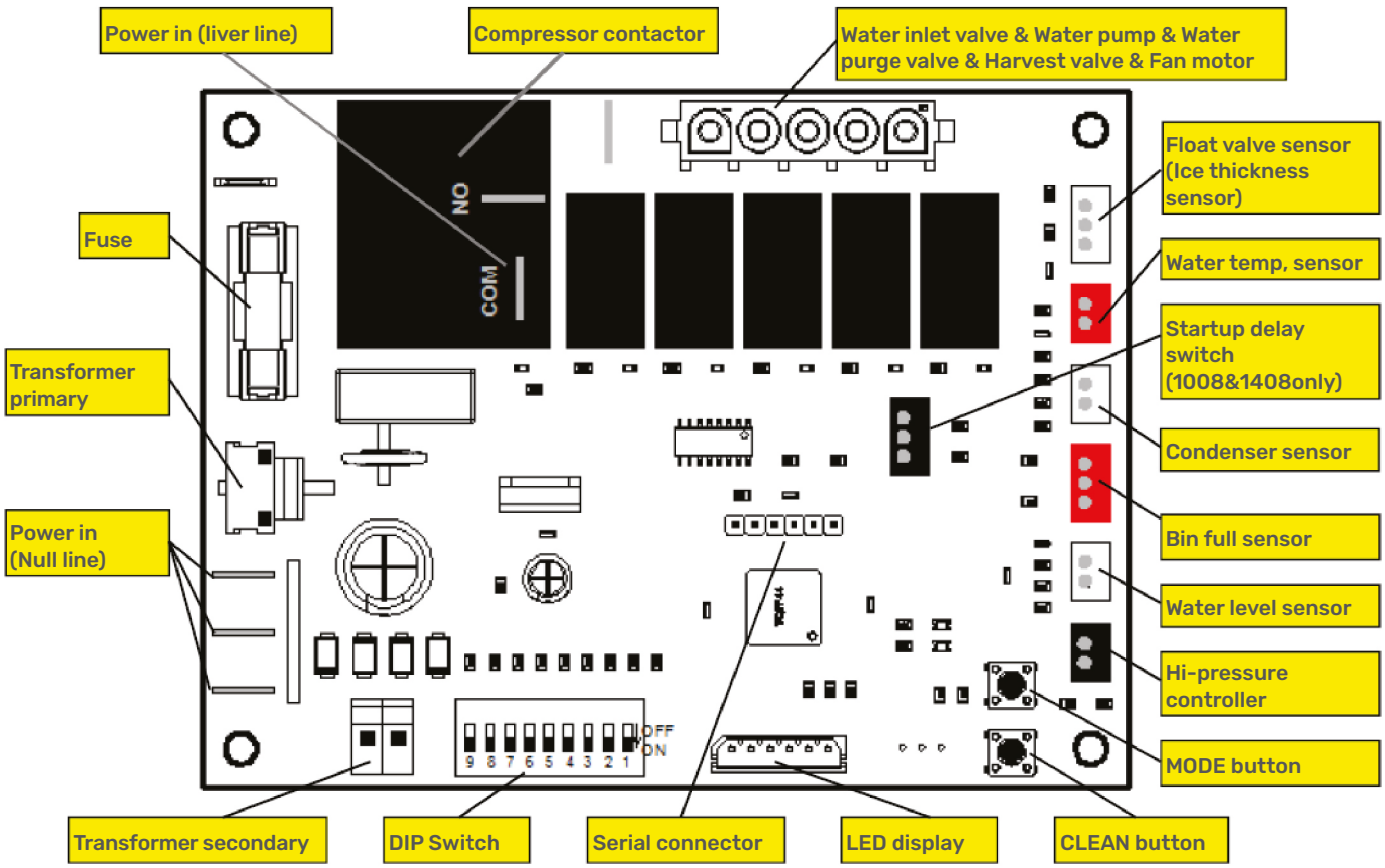
Located in the control box or compressor accessory box, the compressor contactor or relay functions to carry the compressor line current. The contactor or relay is wired to receive power from the P.C. BOARD.
For the NW308 and NU series (except 115V/60Hz models), the compressor is wired directly to the P.C. BOARD relay.

PC board

The P.C. BOARD, housed in its box, is located at the bottom left front of the NU series and at the top right of the NW series unit. It consists of:

- A high-voltage power-in transformer
- A P.C. BOARD with both high and low voltage
- A display panel connected to the P.C. BOARD

The P.C. BOARD is the brain of the ice machine.
It receives signals from four sensors through its microprocessor and controls the operation of various electrical components, including the compressor, fan, defrosting valve, water inlet valve, drain valve, and water pump.

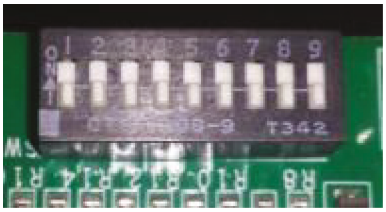


DIP SWITCHES ON PC BOARD

The electronic control device that regulates the operation of the ice maker is equipped with a DIP SWITCH (numeric switch) featuring 9 switching keys. These keys allow the microprocessor program to be configured, adjusting the duration of the freezing and defrosting cycles according to the different models and versions of the appliance.

A. Table

DIP SWITCH POSITION SET AT THE FACTORY



#1 OFF For NW series
ON For NU series

#2 OFF No time delay
ON Have 90'delay
(For NW1008 & 1408 only)

#3 OFF 3.5' longest harvest time
ON 6' longest harvest time

#4 OFF 3.5' longest water fills time
ON 6' longest water fills time

#5 OFF Fill water in first 4' in freezing cycle
ON
#9 OFF Fill water 2 or 3 times, in 4-5' after first time water full in freezing cycle, according air temperature.
#9 ON Fill water 2 times, after water pump to turn on 40'' in freezing cycle, according water level.

#6&#7 Water purge control
#6-OFF/**#7**-OFF Water pump work 30"
#6-ON /**#7**-OFF Water pump work 6" and 30" every sixth cycle.
#6-OFF/**#7**-ON Water pump work 30" every three cycles.
#6-ON /**#7**-ON Water pump work 30" every six cycles

#8 OFF No water temperature sensor
ON Have water temperature sensor

#9 OFF Machine will stop after clean procedure, need to press clean button to restart
ON
#5 OFF Machine will restart after clean procedure
#5 ON Machine will stop after clean procedure, need to press clean button to re start

DIP SWITCH FACTORY SETTING COMBINATIONS PER MODEL									
Model	**Series**	**Per-heat**	**Harvest Cycle Time**	**Water Filling Time**	**Water Filling control**	**Water Purge Control**		**Water Temp. Sensor**	**Clean Setting**
DIP SWITCH #	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
NU	**ON**	OFF	OFF	OFF	OFF	OFF	OFF	**ON**	OFF
NW307/308 NW507/508 NW457/458 NW608	OFF	OFF	OFF	OFF	**ON**	OFF	OFF	**ON**	**ON**
NW1008	OFF	**ON**	OFF	OFF	**ON**	OFF	OFF	**ON**	**ON**
NW1408	OFF	**ON**	OFF	OFF	**ON**	OFF	OFF	**ON**	**ON**
NW1408ASR	OFF	**ON**	OFF	OFF	OFF	OFF	OFF	**ON**	OFF

LED display

NW series

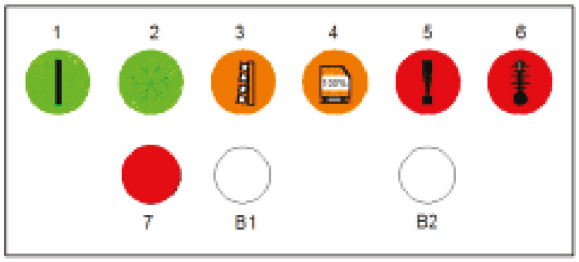
Located in the upper and right side of the machine when remove the front panel.

1 -- Power light (Green)
2 -- Freezing light (Green)
3 -- Bin full light (Yellow)
4 -- Alarm light (Red)
5 -- High pressure alarm light(Red)
6 -- Clean light (Red)
7 -- Harvest light (Yellow)

B1 -- Mode button
B2 -- CLEAN button

NU series

Located left bottom of front side of machine when remove the front panel



1 -- Power light (Green)
2 -- Freezing light (Green)
3 – Harvest light (Yellow)
4 -- Bin full light (Yellow)
5 -- Alarm light (Red)
6 -- High pressure alarm light(Red)
7 -- Clean light (Red)

B1 -- Mode button
B2 -- CLEAN button

LED display

These LEDs protruding from the LED display indicate:

LED		STATUS	SIGNIFICANCE
NW	NU		
1	1	Fixed	Power ON
2	2	Fixed	Freezing cycle
3	4	Fixed	Bin full
6	7	Blinking fast	Cleaning machine
		Blinking slow	Cleaning machine finish, wait to go freezing
7	3	Fixed	Harvest cycle
4+5	5+6	Fixed	Condenser sensor failure
		Blinking slow	Water error
		Blinking fast	Water error recovery

LED display

LED		STATUS	SIGNIFICANCE
NW	NU		
4	5	Fixed	3 times too long Harvest Cycle time
		Blinking slow	Too Hi condensing temperature error
5	6	Fixed	Too High discharge pressure
3+4	4+5	Blinking fast	Ice thickness sensor fault
2+4	2+5	Blinking fast	5 times too long Freeze Cycle time
B1	B1	Mode button	1. Press the button once to advanceThe machine will cycle through the following stages: (Power on - Cleaning – Pressure balance – Freezing - Defrosting - Ice Bin Full Detecting) 2. Press the button can reset the alarm.
B2	B2	Clean button	Press “clean button” and hold for 5 seconds after turn on the power switch, let the machine go to the Cleaning and rinsing procedure

Warning:
Only authorized maintenance people are allowed to press the MODE button.

Condenser air filter

(Air-cooled version only)

The condenser air filter is located in front of the air condenser on the NU series and at the back of the unit on the NW series. It can be easily removed for cleaning or replacement by simply pulling it out.

A small plastic guide installed inside the machine helps ensure the correct sliding and positioning of the air filter on the NU series.

To maintain the ice machine’s efficiency, it is recommended to clean the air filter monthly. If the filter becomes damaged due to aging, contact a Scotsman service agent for replacement.
Water distributor

Water distributor

The water distributor is located on the evaporator and evenly distributes water across the entire upper frame, ensuring a more uniform and complete ice formation.

Water pump

The water pump operates continuously throughout the freezing cycle, ensuring a steady flow of water through the ice molds of the evaporator to produce ice cubes.
The water pump remains off for the first 40 seconds of the freezing cycle to prevent cavitation issues. It then runs according to the DIP switch #6 & #7 settings.
It is recommended to check the water pump at least every 3 months.

Water inlet solenoid valve

- 3/4” Male Fitting

The water inlet solenoid valve is energized via the P.C. BOARD during the first 5 minutes of the loading phase (when the appliance starts up) and during the defrost cycle. When energized, it is controlled by both the P.C. BOARD and the Water Level Sensor.

The water inlet solenoid valve is also activated at the beginning of the freezing cycle until the water reaches the maximum level in the sump, as detected by the Water Level Sensor.

After 3 minutes from the start of the freezing cycle, the Water Inlet Valve is reactivated for a short period to refill the sump up to the maximum level again. This process helps minimize the risk of slush ice formation.

Hot gas solenoid valve

The hot gas solenoid valve consists of two main components: the body and the coil.

Located on the compressor discharge line, it is activated by the electronic board during the defrosting (and charging) cycle, allowing hot gas, pumped by the compressor, to flow directly into the evaporator coil. This process helps detach the ice cubes from the cells.

Water drain solenoid valve

The water drain solenoid valve is electrically connected in parallel to the water inlet solenoid valve and the hot gas solenoid valve, remaining energized throughout the harvest cycle.
Together with the pump, which operates at the start of the defrosting cycle (controlled by the P.C. BOARD and ice level sensor), it allows all residual water—rich in limescale and minerals deposited during the previous cycle—to drain from the pump tray.
This ensures that the machine uses clean water for each new cycle, preventing the accumulation of impurities and limescale, which could eventually cause partial or total blockage of the machine's water circuit.

Fan motor

(Air cooled models)

The fan motor, electrically connected to the relay on the P.C. BOARD, operates during the freezing cycle, circulating air through the condenser fins.

Normally, the fan operates intermittently to maintain the temperature and, consequently, the condensing pressure within two pre-set values.

Compressor

he hermetic compressor is the heart of the system, responsible for circulating refrigerant throughout the entire system.

It draws in refrigerant as a low-pressure, low-temperature vapor, then compresses it, increasing both its pressure and temperature. As it passes through the exhaust valve into the circuit, it transforms into high-pressure, high-temperature vapor.

Water Regulating Valve

(Water cooled models)

The Water Regulating Valve maintains a constant compressor head pressure by controlling the incoming water flow through the water condenser on water-cooled models.
The valve operates based on the high-side refrigerant pressure. By rotating the adjusting screw located on top of the valve, the water flow through the water-cooled condenser can be increased or decreased, which in turn will decrease or increase the compressor operating head pressure.

Float Valve Sensor

(For NW series models)

Located to the right of the evaporator and above the water sump, the float valve sensor consists of a reed switch and a float ball. The float ball, made of magnetic material, is equipped with a magnet and is adjusted via a setting screw to change the sensor bracket level, ensuring the ice bridge remains approximately 3–5 mm thick.

Once ice forms in each mold and the water level in the water sump drops, the Float Valve Sensor sends a signal to the P.C. BOARD, indicating that the ice is thick enough.

After receiving the signal, the P.C. BOARD initiates a 10-second delay before starting the harvest cycle.

Ice thickness sensor

(For NU series models)

The ice thickness sensor is located at the top of the evaporator plate.
During the freezing cycle, when the sensor detects ice, it converts the reading into an electronic signal, which is then transmitted to the P.C. BOARD. The P.C. BOARD controls the freezing cycle duration based on the ice thickness signal.
The freezing cycle time depends on both the ambient temperature and the ice thickness setting:
Higher ambient temperatures and thicker ice settings result in a longer freezing cycle.

Note :

Ice thickness sensor is inoperative with non-conductible water.

High Pressure Control switch

The High-Pressure Control Switch is installed in the ice machine. When a failure occurs and the high pressure exceeds 32.6 bar (462 psi), the switch cuts off the electricity supply to protect the machine.

The ALARM HI PRESS indicator light will remain on continuously until the high pressure decreases to 23 bar (322 psi), at which point the ice machine can be restarted.

Water level sensor

The water level sensor is located at the top of the water tank. When the water level reaches a certain point during filling, the magnetic sensor of the water level float sensor (on NU series) or the two-foot sensor (on NW series) detects the magnetism and sends a signal to the P.C. BOARD.
Once the P.C. BOARD receives the signal, it powers off the water inlet valve, stopping the water filling process. On the NU series, the water level sensor is installed on a support bracket and can be adjusted.

Note:

If the water level in the water tank is too high and overflows during filling, it means that the water level sensor is not controlling the water inlet valve properly. In this case, the sensor position should be adjusted lower.

If lowering the water level sensor on the NU series and ensuring the water level bracket is correctly installed does not solve the issue, it indicates a failure in either the water level sensor or the P.C. BOARD, and the faulty component should be replaced.

Startup delay by-pass switch

(For NW1008 & 1408 only)

The Startup Delay Bypass Switch, located on the back side of the machine, allows the bypass of the delay time controlled by the P.C. BOARD, which is managed by DIP switch #2.

WARNING: It is IMPERATIVE to bypass the delay time only when certain that the compressor has been properly warmed up.

Harvest assist

(For NW307/507/457 only)

The Harvest Assist operates during the Harvest Cycle, pushing the ice cube block out. This process reduces the Harvest Cycle time and increases production.

Thermostatic Expansion Valve

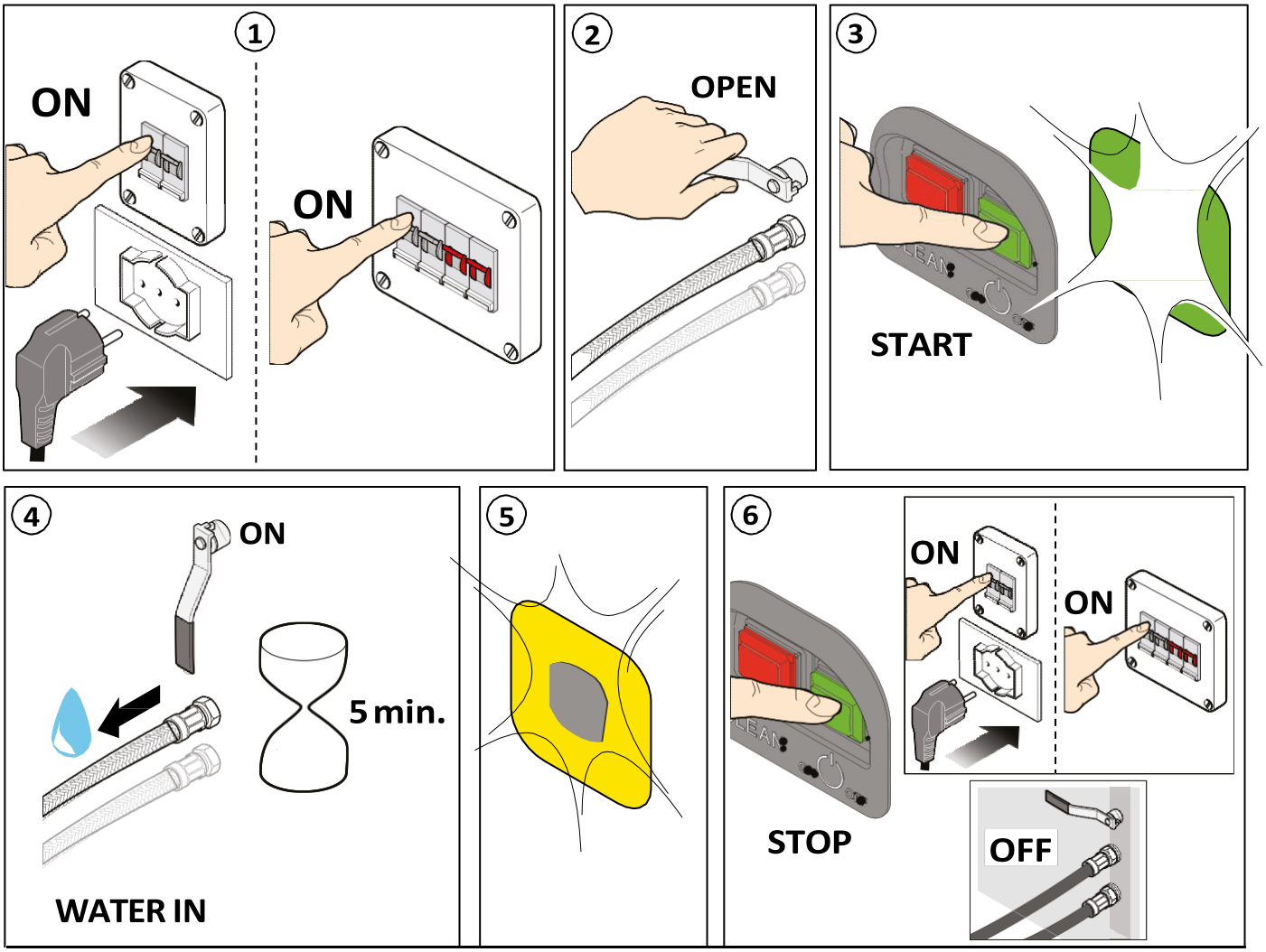
(Capillary tube for NU100/150 only)

The thermostatic expansion valve (or capillary tube) regulates the refrigerant flow to the evaporator and reduces the liquid refrigerant pressure from the condensing pressure to the evaporating pressure.

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 up:

1. **Power the machine** by plugging it into a socket with a suitable capacity or by connecting it to a disconnect box.
2. Open **the water supply** tap to allow the machine to fill with water.
3. **Switch ON the main switch** on the dedicated switchboard. The machine is now powered on.
4. **Press the green ON/OFF button** (NU series only): the green "machine powered" light will turn on. For models NW307, NW308, NW507, NW508, NW457, NW458, and NW608, the machine enters the Startup



F15

Cycle, with the P.C. BOARD energized.and NW1008/1408 will enter in 90 minutes delay time controlled by PC Board.

NOTE:

Models NW1008 and NW1408 are equipped with a crankcase heater in the compressor.

When the main power to the machine is switched ON, a 90-minute time delay is activated, during which only the compressor heater is energized, and the Green ICE Making LED blinks slowly.

However, if the ambient temperature is higher than 25°C (77°F), the P.C. BOARD will automatically bypass this delay. This time delay can also be manually bypassed by pressing the bypass switch located at the back of the machine.

5 The appliance automatically starts charging water.

During the loading or filling phase, observe the water flowing through the water tube as it fills the water sump.

Ensure that the water filling process stops correctly, controlled by the P.C. BOARD and the water level (float) sensor.

During the water filling and cleaning phase, the **ICE MAKING** and **BIN FULL** LEDs are energized, blinking slowly for 3 minutes.

The components in operation are:

- water inlet solenoid valve
- water pump
- water drain solenoid valve.

If the water tank is not full after the 3-minute filling time, check that

- the water pressure is at least 1 bar (max. 5 bar);
- any filtration devices installed on the water mains must not reduce the water pressure below 1 bar (maximum 5 bar).
- ensure that there are no obstructions in the appliance's hydraulic circuit, including the mesh filter inside the water inlet valve, the flow control, and other components.

During the **pressure balance**, the components in operation are:

- hot gas solenoid valve
- Compressor (It will start in 5 second)

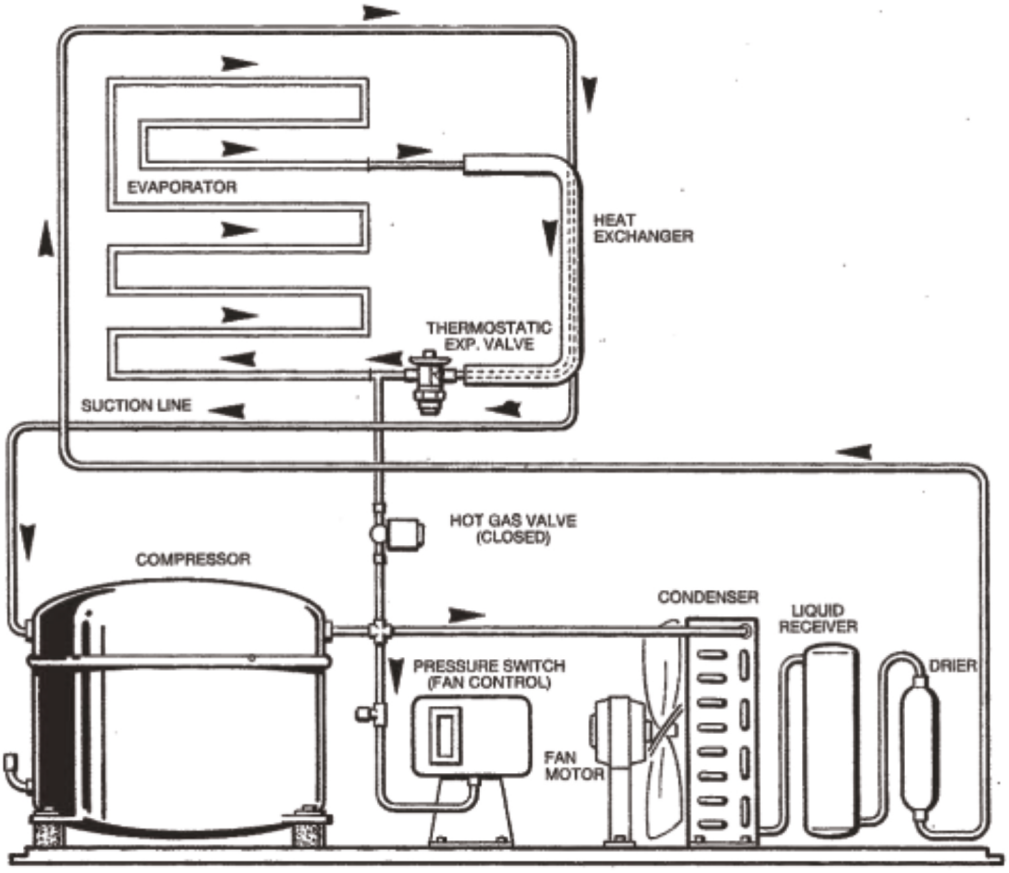
PRODUCTION PHASE (FREEZING CYCLE)

After about **5 minutes**, loading is complete, the green 'Freezing' light comes on and the ice cube production cycle begins.

How the process happens | refrigerant state changes

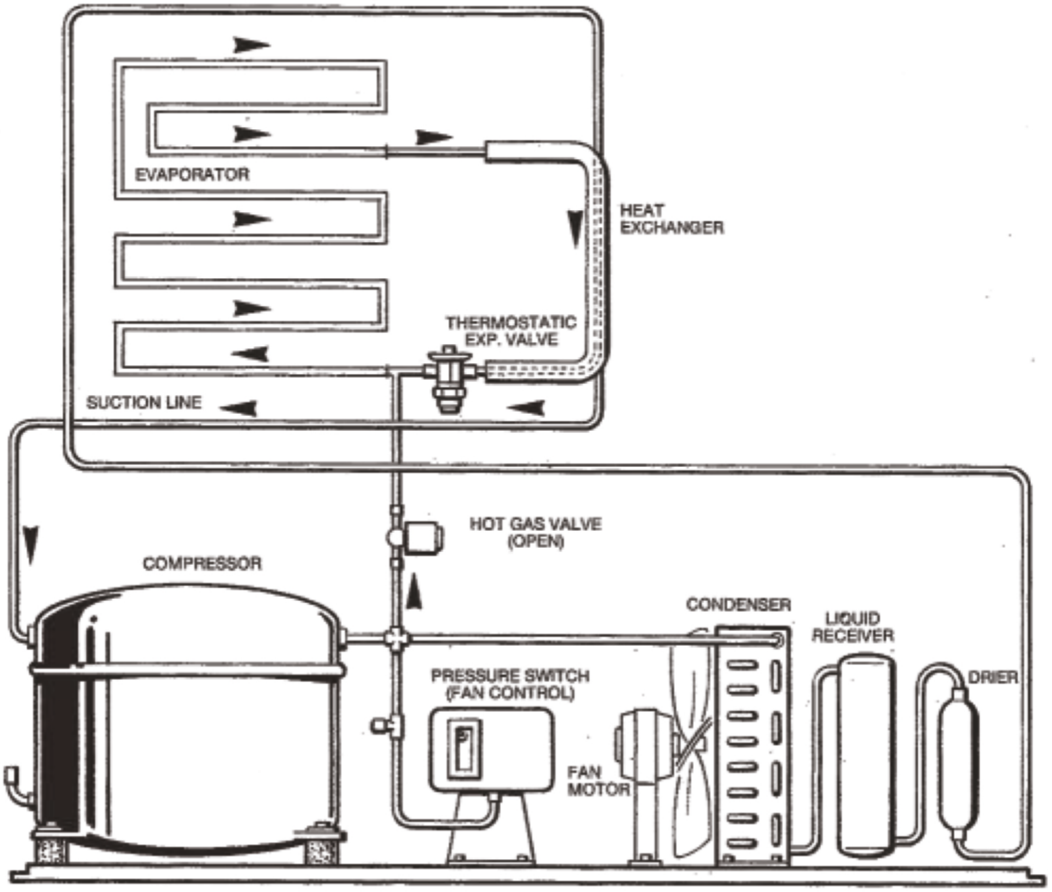
F16 Refrigerant in its gaseous, high-temperature state is pumped by the compressor and, as it passes through the condenser, it is transformed into liquid refrigerant. The liquid line allows the refrigerant to flow from the condenser to the TXV or capillary tube (NU100/150) through the filter drier. As it passes through the TXV or capillary tube, the liquid refrigerant gradually loses pressure and, consequently, temperature. Water, sprayed into the water distributor tube by the water pump, transfers heat to the refrigerant circulating inside the coil, causing it to evaporate and change its physical state from liquid to vapor.
The vaporized refrigerant, after passing through the accumulator, is then sucked back into the compressor via the suction line.

FREEZING PHASE



F16

HARVEST PHASE



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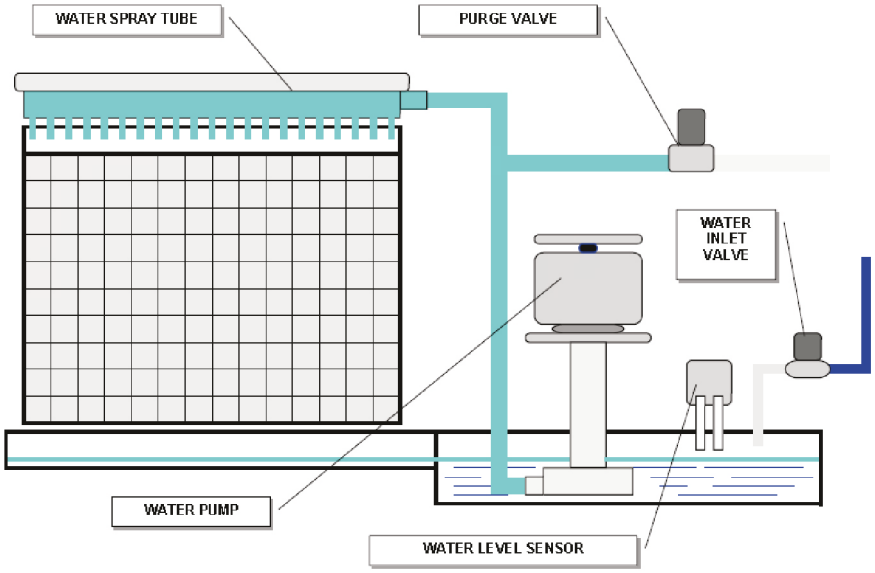


F18

Freezing phase

(Controlled by the magnet sensor and float valve sensor)
During the freezing process, water is continuously sprayed into the water distributor tube, while the evaporator temperature gradually drops.

When the water level reaches the bottom limiter of the float valve sensor (on NW series) and the ice comes into contact with the ice thickness sensor (on NU series), the P.C. BOARD takes control of the freezing cycle until its completion, indicated by the lighting of the Green LED.

During the Freezing Phase, the following components are in operation

- Compressor (air-cooled models)
- Water pump
- Fan motor (air-cooled models), controlled by the condenser temperature sensor located between the condenser fins

CONDENSATION TEMPERATURE CONTROL

In air-cooled appliances, when the condenser temperature exceeds a certain threshold, the condenser temperature probe changes its electrical potential, transmitting a low-voltage current to the P.C. BOARD microprocessor. The microprocessor then processes the received signal and activates the fan motor via a relay at the P.C. BOARD output.

As a result, the condenser temperature decreases. Once the temperature probe detects that the temperature has returned to its initial value, it restores its electrical potential, reducing the current flow to the P.C. BOARD and stopping the fan motor.

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);*
- *blown or blocked fan (air-cooled appliances);*
- *room temperature above 40 °C;*

The condenser temperature probe immediately stops the operation of the device to prevent prolonged operation under abnormal conditions, while simultaneously activating the red warning lamp.

To restart the device, it is necessary to:

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

The appliance will restart with a new freezing cycle, first passing through the 5-minute water loading phase.

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

F10 Install service pressure gauges on both the high and low valves to check the condensation and suction pressures. In air-cooled models, the condensing pressure is kept constant within the values indicated on page 8, regulated by the probe/sensor located between the condenser fins.

F10 Observe that the water flows correctly through the holes of the distributor tube and that it evenly covers the evaporator cells.Check that the plastic curtain is properly positioned to prevent water from escaping.The following table shows which contacts and components are energized or not during the various stages of the freezing cycle. Refer to the circuit diagram for reference.

FREEZING CYCLE		
Powered electrical components	**ON**	**OFF**
Compressor		
Fan Motor		
Hot gas valve		
Water inlet valve		
Water drain valve		
Water pump		
Sensors and electrical controls	**ON**	**OFF**
Condenser temperature sensor		
Water temperature sensor		
Float valve control (NW) Ice thickness control (NU)		
Bin full sensor		
Water level control		

HARVEST CYCLE

As soon as the ice thickness sensor feet touch the ice **(for NU series)** or the float valve sensor reaches the bottom position **(for NW series)**, the appliance enters the defrosting cycle.

During the **harvest cycle**, the components in operation are:

- compressor;
- water inlet valve;
- hot gas valve;
- water drain valve;
- water pump.

The inflowing water passes through the water inlet solenoid valve and the flow control, which is located inside the valve (for models with an ice collector) or in the internal water supply line (for modular cube models), before reaching the water sump.
The water level in the tank is regulated by the water level sensor control.

The refrigerant, in its gaseous state, is pumped by the compressor and diverted from the open hot gas valve directly to the evaporator coil, following the most direct path—bypassing the condenser.

The hot gas circulating inside the evaporator coil raises the temperature of the cells, causing the ice cubes to detach. The detached cubes then fall by gravity into the ice container.

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

HARVEST CYCLE (Water discharge phase)		
Powered electrical components	**ON**	**OFF**
Compressor		
Fan Motor		
Hot gas valve		
Water inlet valve		
Water drain valve		
Water pump		
Sensors and electrical controls	**ON**	**OFF**
Condenser temperature sensor		
Water temperature sensor		
Float valve control (NW) Ice thickness control (NU)		
Bin full sensor		
Water level control		

HARVEST CYCLE (Water loading phase)		
Powered electrical components	**ON**	**OFF**
Compressor		
Fan Motor		
Hot gas valve		
Water inlet valve		
Water drain valve		
Water pump		
Sensors and electrical controls	**ON**	**OFF**
Condenser temperature sensor		
Water temperature sensor		
Float valve control (NW) Ice thickness control (NU)		
Bin full sensor		
Water level control		

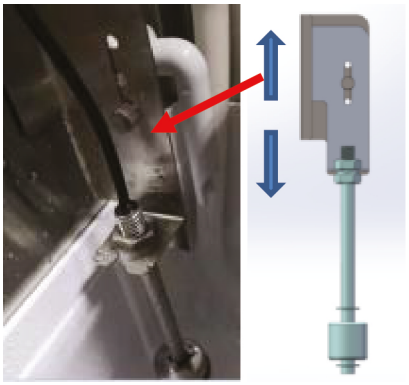
Checks during the harvest phase

Observe the ice cubes produced.

SIZE:Check that the ice bridge is the correct size, approximately 3–5 mm.

If necessary, after the second ice production cycle, an adjustment is required. Loosen or tighten the screw as shown in the illustration below.

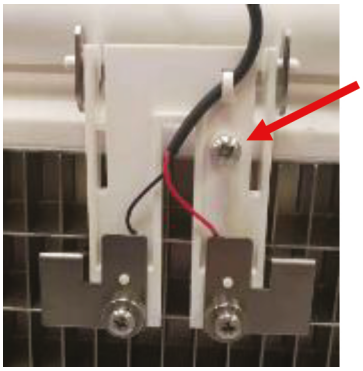
ON NW



Move upward, the ice thins.

Move downward, the ice thickens.

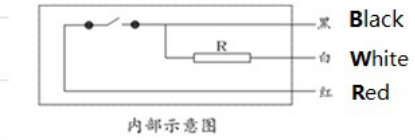
ON NU



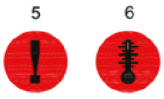
Turn the adjustable screw,
Turn left for ice thickens.
Turn right for ice thins.

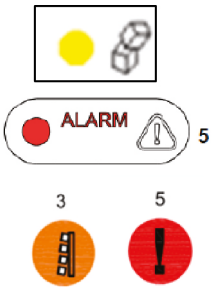
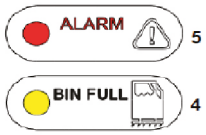
Note: Ice thickness sensor is inoperative with non conductible water

NOTE: A cube ice machine produces an "ICE PLATE" that breaks apart when it falls into the storage bin. Adjusting the float valve sensor or ice thickness sensor to produce individual ice cubes may cause machine malfunctions.



R (Ohm)	R_{WR}	R_{RB}	R_{BW}
OPEN	∞	∞	9. 79K
CLOSE	9. 79K	0. 8	9. 79K

SYMPTOMS	ISSUE	RECCOMENDED ACTIONS
Unit does not work		
• **No LED on**	• Blown PC board input fuse • Main switch off electronic board not functioning • Disconnected electrical cables	• Replace the fuse and search for the cause of the blown fuse • Set the switch to on • Replace Electronic Board • Check wiring
• **Red alarm light on** NW  NU 	• the unit is close to another very hot one (e.g. oven) or ambient temperatures exceed 43°C • Air filter is clogged on air cooled unit. • Less water or clogged on water condenser water inlet.	• Relocation unit • if necessary clean it. • Check the water pressure between 1-5 Bar.
• **Red alarm light on** NW  NU 	• the unit is close to another very hot one (e.g. oven) or ambient temperatures exceed 43°C • Air filter is clogged on air cooled unit. • Less water or clogged on water condenser water inlet.	• Relocation unit • if necessary clean it. • Check the water pressure between 1-5 Bar.
• **Red alarm light on**  NW  NU 	• BOTH ON: Condenser sensor failure • BOTH FLASHING slow: Less or no water income BOTH FLASHING fast: Water error recovery	• Replace condenser sensor • Check inlet water pressure between 1-5 Bar Check the water inlet valve and water system clogged or not, if yes, replace and clean.
• **Red alarm light on**  NW  NU 	• BOTH FLASHING fast: 5 times too long Freeze Cycle time	• Press MODE button can go to start up cycle, If the problem persists, contact Technical Service

SYMPTOMS	POSSIBLE CAUSE	SUGGESTED REMEDIES
Unit does not work		
• **Red and yellow LED on** NW  NU	• BOTH FLASHING fast: Water temperature sensor fault	• Replace
• **Red and yellow LED on** NW  NU 	• BOTH FLASHING fast: Ice thickness sensor or water level sensor fault	• Replace

SYMPTOMS	ISSUE	SUGGESTED ACTIONS
The compressor cycles intermittently	• Low voltage	• Check. the circuit for overload • Check. the supply voltage • If low contact an electrician
	• Non-condensable gases in the system	• Discharge, Evacuate, and Recharge
	• Partially disconnected	• Check the various terminals
	• Mechanical problems	• Replacing the compressor
Opaque cubes	• Water shortage	• See remedies for lack of water
	• Dirty water	• Using a water filter or purifier
	• Built up impurities	• Use SCOTSMAN descaling cleaner as instructed
Cubes too small or over size	• Freezing cycle too short or long	• Adjust float valve sensor (NW) or ice thickness sensor
	• Moisture in the system	• As above
	• Lack of water	• See remedies for lack of water
	• Lack of refrigerant	• Check for leaks
	• Evaporator sensor not functioning	• Replace sensor
Lack of water	• Water sprays through the curtain	• Check and replace curtain
	• Water inlet valve does not open	• Replace valve
	• Water leakage from tank	• Locating and repairing it
	• Water level sensor not function	• Replace water level sensorr
	• Leakage through drain valve	• Replace it
Irregular and Opaque Ice Cubes	• Partly clogged distributor tube hole	• Remove and clean
	• Lack of water	• See remedies for water shortage
	• Unbalanced luminaire	• Levelling as required

SYMPTOMS	ISSUE	SUGGESTED ACTIONS
Decline in production	• Inefficient compressor	• Replace
	• Water inlet valve leakage	• Repair or replace
	• Non-condensable gases in the system	• Discharge, Evacuate, and Recharge
	• Too little air circulation or room temperature too high	• Changing the Place of Installation
	• Refrigerant overload	• Adjust discharge charge slowly
	• Partially clogged capillary tube	• Drain, replace dehumidifier filter vacuum and recharge
	• Hot gas valve leakage	• Replace
	• Lack of refrigerant	• Recharge as per nameplate
	• Excessive discharge pressure	• See wrong discharge pressure
Inefficient defrosting	• Defrosting time too short	• Check and adjust DIP SWITCH 5-6-7-8
	• Room sensor inoperative	• Replace sensor
	• Water inlet pipe plugging	• Check filter and flow control. If necessary, widen the orifice
	• Water inlet valve does not open	• Replace coil or valve
	• Hot gas valve does not open	• Replace valve assembly
	• Clogged cup holes	• Cleaning the holes
	• Delivery pressure too low	• See wrong discharge pressure
Harvest not occuring	• Electronic board not functioning	• Replace PC board
	• Hot gas valve does not open	• Blown coil, replace
	• Water inlet valve does not open	• Blown coil, replace
Incorrect delivery pressure	• Capacitor sensor not functioning	• Replace capacitor
	• PC board not functioning	• Replace electronic board
Excess Water on the Machine Base	• Leakage from pipes	• Check, tighten or replace pipes

GENERAL

A SCOTSMAN Ice System represents a significant investment of time and money in any company's business. To ensure the best return on investment, it must receive periodic maintenance.
It is the USER'S RESPONSIBILITY to ensure that the machine is properly maintained, as this is preferable and less costly in the long run. Preventive maintenance helps avoid downtime by keeping the machine clean, adjusted as needed, and by replacing worn parts before they cause failures.Below is a list of recommended maintenance tasks that will help keep your machine running efficiently with minimal issues.The frequency and procedures for maintenance and cleaning can be adjusted based on operating conditions.Cleaning, in particular, depends on local water quality, ambient conditions, and the volume of ice produced. Each ice machine must be maintained individually, in accordance with the specific requirements of its location.

Note:
Cleaning should be adjusted according to the local water quality and the operating conditions of each ice machine.
Frequently check the cleanliness of the ice cubes and the components of the water system both before and after cleaning to determine the necessary cleaning frequency and procedures.

Icemaker maintenance

The following maintenance on the ice machine should be scheduled at least two times per year:

1. Unplug the power plug at the end of the harvest cycle.
2. Check and clean the water inlet strainer.
3. Check that the ice machine is leveled in side to side and in front to rear directions.
4. Use SCOTSMAN ice machine cleaning / Sanitizing liquid to clean and sanitize water system, evaporator and ice storage bin. And scoop out ice cubes store into bin to prevent them contaminated with solution.

Note:
Cleaning and sanitizing requirements vary depending on local water conditions and individual user operations.Regularly check the clarity of the ice cubes and visually inspect the water system components, evaporator plates, and sump assembly both before and after cleaning. This will help determine the appropriate cleaning frequency and procedure for specific locations.

5. When air cooled icemaker stops, can remove the air filter.
6. Check for water leaks and tighten drain pipe. Pour water into storage bin to verify whether the drain pipe is smooth and clean.
7. Check for refrigerant leaks. Check size, condition and quality of ice cubes Perform adjustment of cube size control as required.

Ice storage bin maintenance

- The interior liner of the bin comes into direct contact with food products, specifically ice, and must be cleaned and sanitized regularly.
- **Sanitize it once a week** using a commercial food-grade sanitizer, following the manufacturer's recommended dilution.

Cabinet exterior

- Wipe the exterior of the unit and bin cabinet using a clean cloth or disposable paper wipers, soaked in warm water with a mild detergent solution.

Water System Cleaning and Sanitizing

Cleaning

1. Prepare SCOTSMAN cleaning solution for the ice machine in a plastic container.

- NU	200 ml in to 2 liter water
- NW307/308	185 ml
- NW507/508	210 ml
- NW 457/458-608	250 ml
- NW1008/1408	350 ml

Warning:
Before opening the cleaning solution, carefully read the instructions to avoid damage.

Note:
The cleaning solution for the ice machine is corrosive. If it splashes into your mouth, it can cause burns. Avoid splashing at all times.If the cleaning solution comes into contact with your mouth or eyes, immediately rinse thoroughly with plenty of water or milk and seek medical attention immediately.When cleaning the external surface, keep children away. The cleaning solution should always be stored out of reach of children.

2. Scoop out all the ice cubes stored into the bin to prevent them from being contaminated with the cleaning solution.
3. Remove front panel, and evaporator deflector on NW series.
4. Use a brush to apply the cleaning solution, dissolving impurities on the ice module of the evaporator and removing scale deposits.
5. Pour the cleaning solution into the water sump of the ice machine.
6. Turn on the power switch, press "**clean button**" and hold for 5 seconds, let the machine go to the Cleaning and rinsing procedure (Cleaning RED light will blink fast), **all cleaning and rinsing time is about 40 minutes**.

- After the cleaning and rinsing procedure is completed the machine will operate according the DIP 9 set up:
- #**9 OFF** The machine stops operation, and the red CLEAN LED blinks slowly. Press the CLEAN button when the machine stops to restart it in the freezing cycle

#9 ON The machine will enter the freezing cycle directly (not recommended).

7. Remove the water distributor pipe and the water sump and all water tube to wash them separately.
8. Turn off the power switch after the cleaning and rinsing process is completed. Turn on the power switch again; the ice machine will start the freezing cycle normally.

Sanitizing

1. Prepare sanitizing solution for the ice machine in a plastic container

Warning:
Before opening the cleaning solution, carefully read the instructions to avoid damage.

Note:
The sanitizing solution for the ice machine is corrosive. If it splashes into your mouth, it can cause burns. Avoid splashing at all times.If the sanitizing solution comes into contact with your mouth or eyes, immediately rinse thoroughly with plenty of water or milk and seek medical attention immediately.When cleaning the external surface, keep children away.The sanitizing solution should always be stored safely and out of reach of children.

2. Follow the same procedure as cleaning to sanitize the ice machine and ice bin

After the cleaning or sanitizing procedure is completed, reinstall all parts that were previously removed. Turn on the power switch and check the next batch of ice cubes to ensure that all solution residues are gone and that there is no odor or taste.

Winter Maintenance Procedures

Important!
Whenever the ice machine is taken out of operation during the winter months, the following procedure must be performed.Failure to do so may result in serious damage and void all warranties.

Check the ice machine. If ice is being made, initiate the harvest cycle or wait for the freezing cycle to end.At the beginning of the harvest cycle, cut off the water supply to the ice machine.At the end of the harvest cycle, turn off the power switch and drain the water from the system completely, as much as possible.Remove all ice from the storage bin and discard it.

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