TECHNICAL SERVICE MANUAL

ICE QUEEN

ICE FLAKER MACHINES

MODELS:

IQ 100C
IQ 200C
IQ 300C
IQ 300
IQ 500
IQ 900
IQ 1300
IQ 2700

CAREFULLY READ THE INSTRUCTIONS CONTAINED IN THIS MANUAL SINCE THEY PROVIDE IMPORTANT INFORMATION RELATIVE TO SAFETY DURING INSTALLATION, USE, AND MAINTENANCE.

THIS APPLIANCE SHOULD BE INSTALLED BY APPROVED TECHNICAL SERVICE PERSONNEL.

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1. INTRODUCTION

Thank you for choosing ITV's ICE QUEEN flaker.

You have purchased one of the most reliable ice-making products on the market today. Carefully read the instructions contained in this manual since they provide important information relative to safety during installation, use, and maintenance.

1.1. Warnings

This appliance should be installed by approved Technical Service Personnel.
This plug should be accessible at all times.

To reduce the risk of electrical shock, ALWAYS disconnect the machine BEFORE cleaning or maintaining the equipment. Do not attempt to install, service, or modify this machine. Improper use by other than specially trained technicians is extremely dangerous and may result in a fire or electric shock.

This machine should not be placed outdoors or exposed to rain.

Connect to drinking water mains.

This appliance is not intended for use by young children or infirm persons without supervision.

Young children should be supervised to ensure that they do not play with the appliance.

IMPORTANT!

• DO NOT ATTEMPT TO SERVICE THIS MACHINE AS IT IS DANGEROUS AND COULD CAUSE SEVERE DAMAGE TO THE UNIT.

•SERVICE SHOULD ONLY BE CARRIED OUT BY TRAINED, QUALIFIED PERSONNEL.

•WE STRONGLY RECOMMEND USING ONLY ORIGINAL REPLACEMENT PARTS AVAILABLE FROM AN AUTHORIZED DISTRIBUTOR.

•WASTE AND OTHER MATERIAL SHOULD BE DISPOSED OF ACCORDING TO LOCAL REGULATIONS AND PROCEDURES FOR WASTE DISPOSAL.

•CLEANING AND MAINTENANCE ARE NOT COVERED BY THE WARRANTY.

1.2. Description

Main Features of the Machine

- 18/8 stainless steel housing
- Powerful speed reducer (173,55 lbs*ft, 7 r.p.m.)
- Copper evaporator on precision bored tubing (HB 50)
- Durable stainless steel auger with resilient coating
- Ice drops out of the bottom of unit
- Speed reducer in top part of the unit
- Ecological refrigerant R404a

1.3. Operating principle

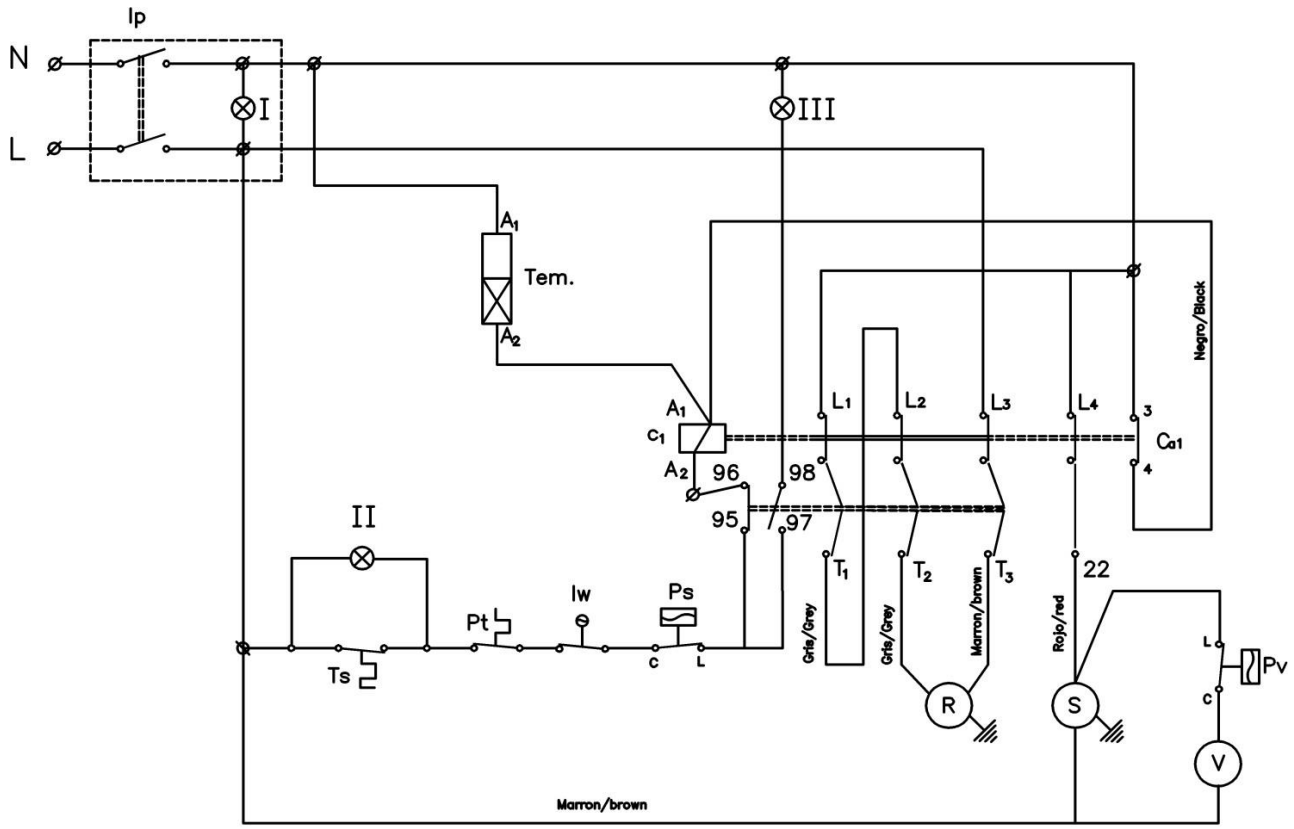
Water enters water trough via a float valve which provides a constant head of water. Through a hole in the bottom of the trough, water flows into the bottom of the evaporator and floods it to the same height as in the water trough. Water freezes upon contact with evaporator wall, and is scraped off as ice by the vertical, rotating auger. Ice is carried upward until it passes through discharge flap and falls into bin. When bin is full, automatic shut-off sensor (micro-switch on discharge flap) switches off machine.

IMPORTANT!

If unit is placed on top of a cold room, and/or ice has to fall a long distance from unit, a **MECHANICAL ICE LEVEL SENSOR** should be installed. To prevent ice from compressing in cold storage, we recommend transferring ice through a plastic tube (80-100 mm diameter) attached to its lower end the **DISPERSION CONE** which is **PROVIDED WITH THE MACHINE** in all models.

1.4. Wiring diagrams

IQ 200C SINGLE PHASE



Tem.—Start timer
C1 —Contactor
Pv. —Fan pressostat
V. —Fan
S. —Compressor
Ip. —On/off switch
Ts. —Full storage bin stop
Iw. —Water low level float switch
Ps. —High pressure safety pressostat
R. —Gearmotor
Pt. —Motor thermal protection
I — Green on
II — Yellow full
III — Thermic gearmotor

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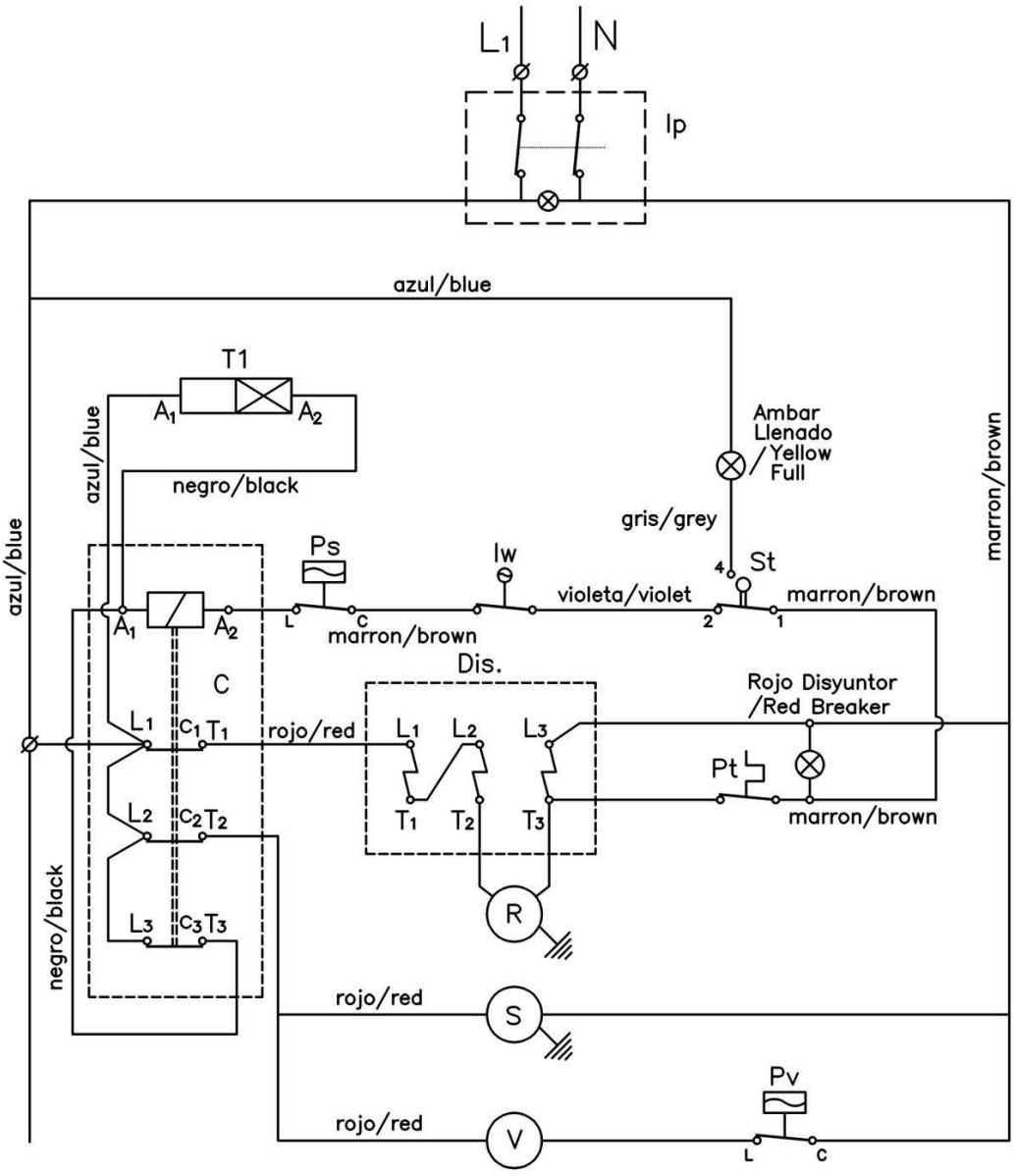
IQ SINGLE PHASE WIRING DIAGRAM



Tem.–Start timer
C. –Contactor / Contactor
c_1 –Contact (gearmotor) / Contacto (motorreductor)
c_2 –Contact (Compressor) / Contacto (Compresor)
c_3 –Feedback contact / Contacto realimentación
Dis. –Circuit Breaker (motorgear) / Disyuntor (motorreductor)
Pv. –Fan pressostat (only air cooled models) / Pressostato Ventilador (solo cond. aire)
V. –Fan / Ventilador
S. –Compressor / Compresor
Ip. –On/off switch / Interruptor On/Off
T1. –Start timer / Temporizador a la conexión
St. –Full storage bin stop / Paro depósito almacén lleno
Iw. –Water level pressure switch / Interruptor nivel de agua
Ps. –High pressure safety pressostat / Presostato de seguridad
R. –Gearmotor / Motorreductor
Pt. –Motor thermal protection / Protección térmica motor

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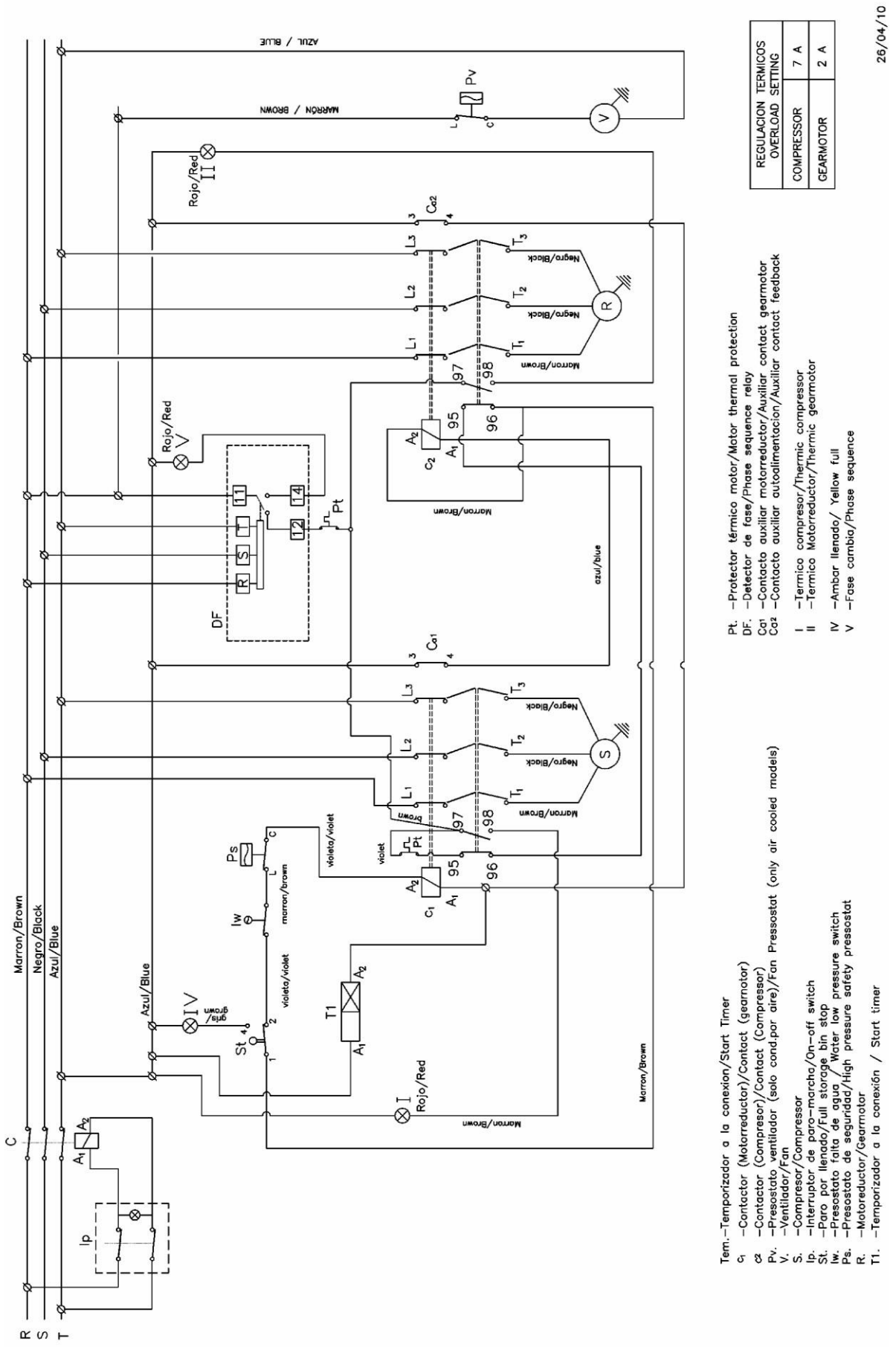
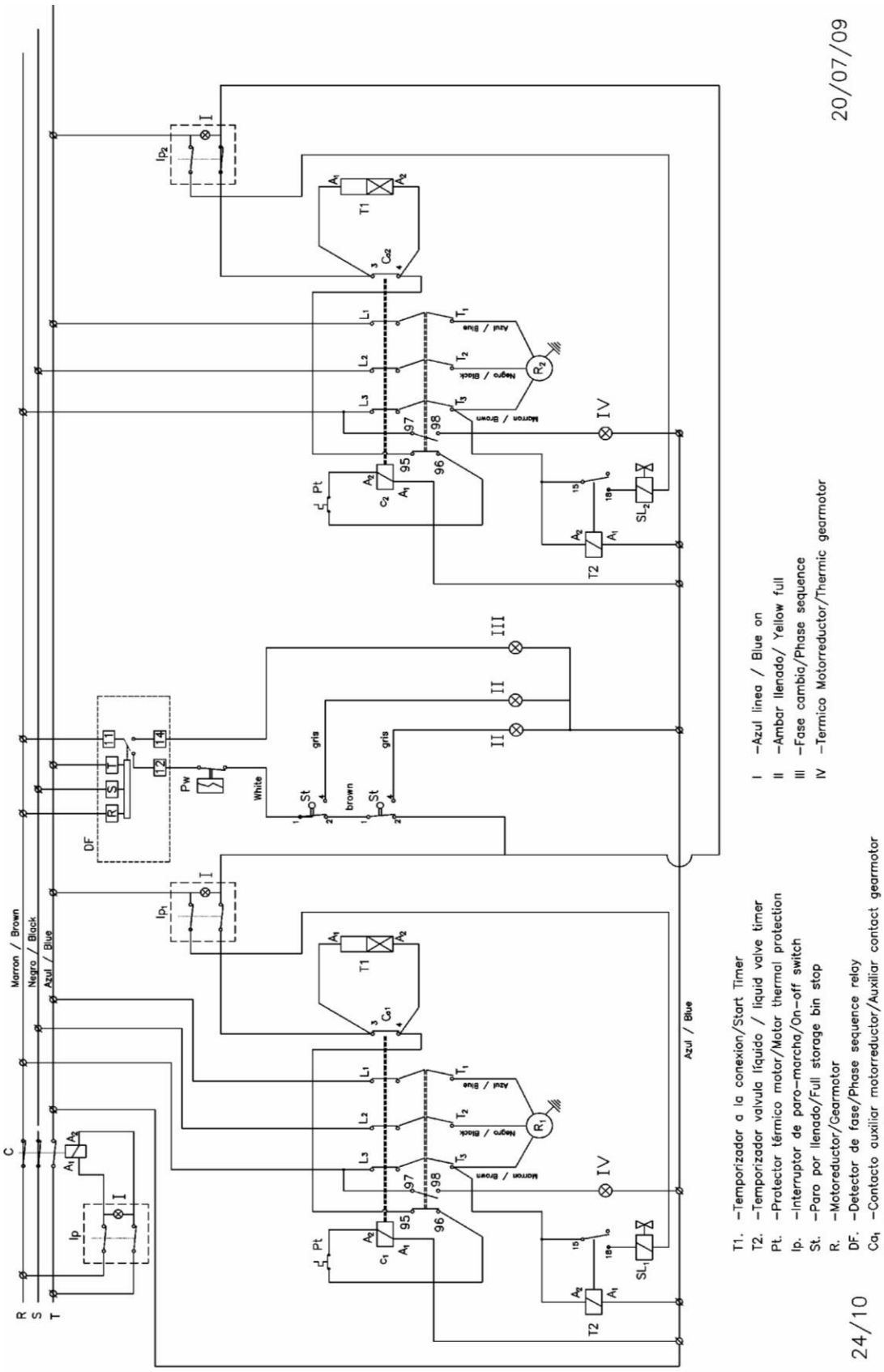
IQ - III WIRING DIAGRAM

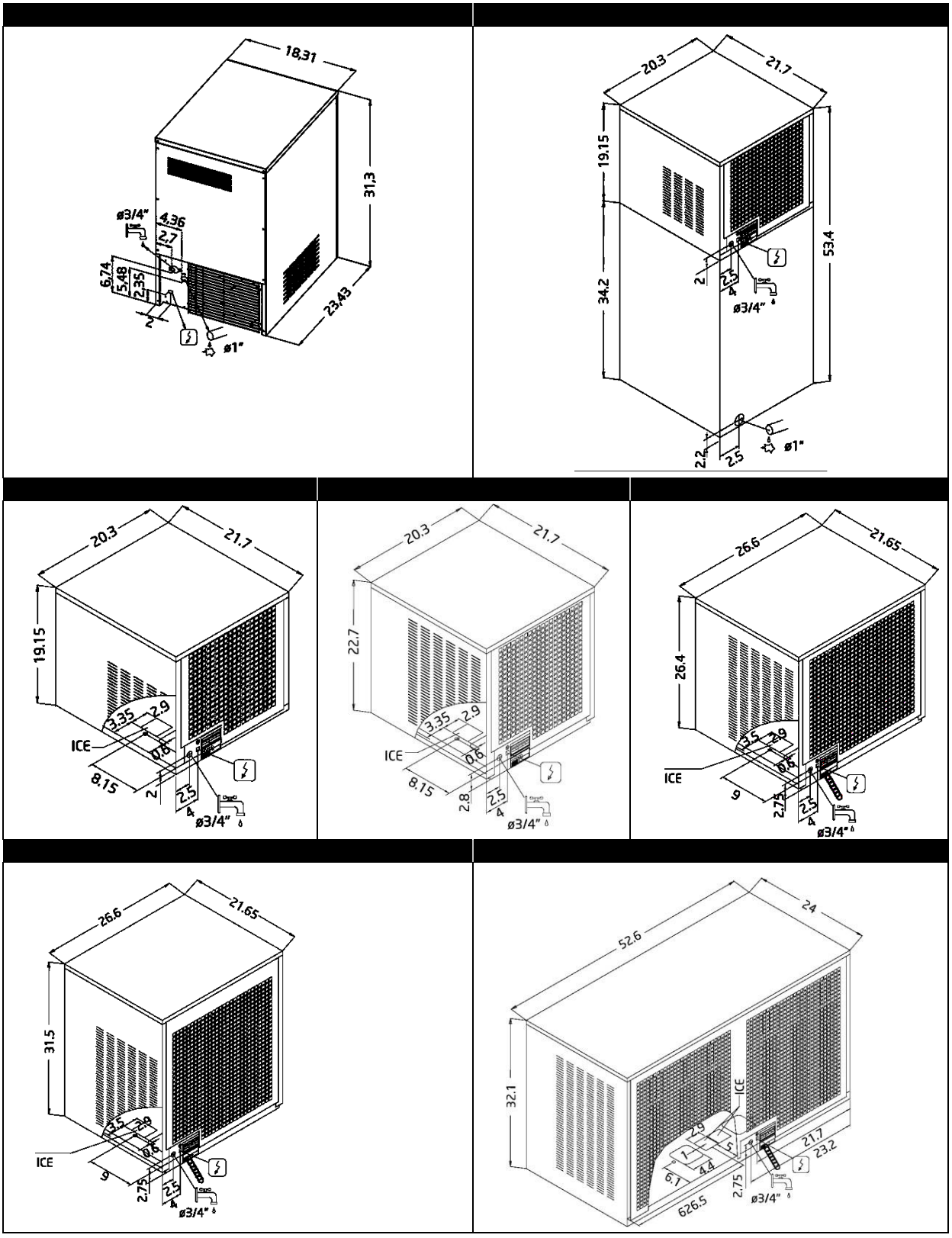


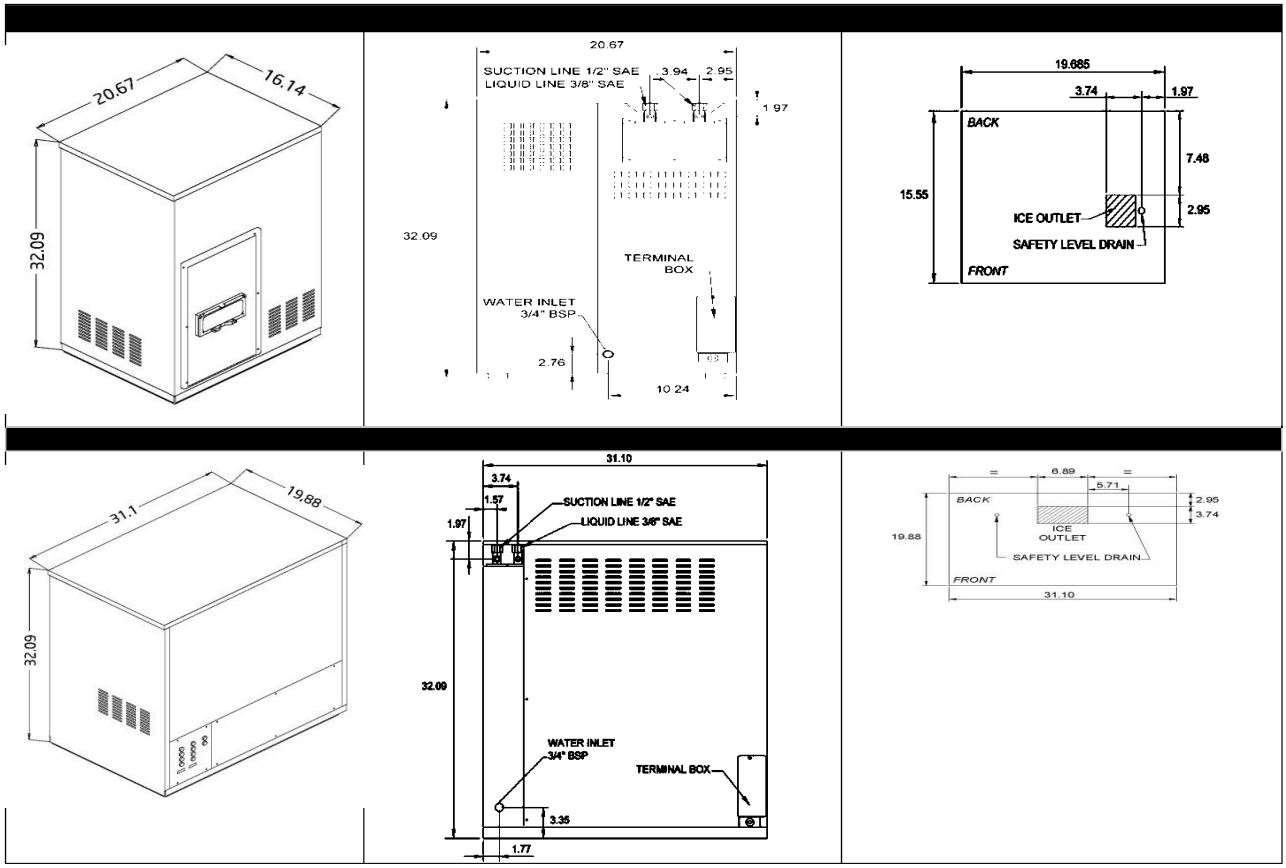
IQ - 2700 WIRING DIAGRAM



2. SPECIFICATIONS

2.1. Dimensions





2.2. Technical Data

MODEL (*)	VOLTAGE	PRODUCTION		BIN		WATER USAGE						R404A		RLA	FUSE	POWER	
		(**)				ice	cool	total	ice	cool	total					INPUT	
	volt/frec/phase	lbs/24h	kg/24h	lbs	kg	gal/h			l/h			oz	gr	A	A	W	btu/h
IQ 200C Air	115V /60HZ/1	205	93	44	20	1,0	-	1,0	3,9	-	3,9	10,1	285	5,5	10	533	1819
IQ 200C Water		210	95	44	20	1,0	7,1	8,2	4,0	27,0	31,0	7,8	220	5			
IQ 300C Air		325	147	132	60	1,6	-	1,6	6,1	-	6,1	12,3	350	7	10	640	2184
IQ 300C Water		325	147	132	60	1,6	10,6	12,2	6,1	40,0	46,1	13,4	380	6,5			
IQ 300 Air		335	152	-	-	1,7	-	1,7	6,3	-	6,3	12,3	350	7		650	2218
IQ 300 Water		340	154	-	-	1,7	10,6	12,3	6,4	40,0	46,4	13,4	380	6,5			
IQ 500 Air		530	240	-	-	2,6	-	2,6	10,0	-	10,0	15,9	450	9		780	2661
IQ 500 Water		530	240	-	-	2,6	10,6	13,2	10,0	40,0	50,0	15,5	440	8,5			
IQ 900 Air	208-230V /60HZ/1	945	429	-	-	4,7	-	4,7	17,9	-	17,9	56,4	1600	9,5		1300	4436
IQ 900 Water		945	429	-	-	4,7	15,9	20,6	17,9	60,0	77,9	52,9	1500	9			
IQ 900 Air - III	208-230V /60HZ/3	945	429	-	-	4,7	-	4,7	17,9	-	17,9	56,4	1600	6			
IQ 900 Water - III		945	429	-	-	4,7	30,1	34,8	17,9	114,0	131,9	52,9	1500	5,5			
IQ 1300 Air	208-230V /60HZ/1	1355	615	-	-	6,8	-	6,8	25,6	-	25,6	56,4	1600	12,5	15	1700	5801
IQ 1300 Water		1355	615	-	-	6,8	46,8	53,5	25,6	177,0	202,6	52,9	1500	11,5			
IQ 1300 Air - III	208-230V /60HZ/3	1355	615	-	-	6,8	-	6,8	25,6	-	25,6	56,4	1600	7,5	10		
IQ 1300 Water - III		1355	615	-	-	6,8	46,8	53,5	25,6	177,0	202,6	52,9	1500	7			
IQ 2700 Air		2715	1232	-	-	13,6	-	13,6	51,3	-	51,3	2X56,4	2x1600	15	20	3400	11601
IQ 2700 Water		2715	1232	-	-	13,6	93,5	107,1	51,3	354,0	405,3	2X52.9	2x1500	14			
IQ 1300 Remote		1355	615	-	-	6,8	-	6,8	25,6	-	25,6	-	-	2,5	10	600	2047
IQ 2700 Remote		2715	1232	-	-	13,6	-	13,6	51,3	-	51,3	-	-	5		1200	4095

MODEL (*)	NET WEIGHT		MACHINE DIMENSIONS (***)						GROSS WEIGHT		PACKAGING DIMENSIONS						VOL.	
			width	depth	height	width	depth	height			width	depth	height	width	depth	height		
	lbs	kg	inch			mm			Lbs	Kg	inch			mm			ft3	m3
IQ 200C Air	128	58	18,31	23,43	31,30	465	595	795	141	64	21,3	25,6	36,2	540	650	920	11,4	0,3
IQ 200C Water																		
IQ 300C Air	165	75	20,30	21,70	53,40	516	551	1356	187	85	25,2	26,0	56,7	640	660	1440	21,5	0,6
IQ 300C Water																		
IQ 300 Air	108	49			19,15			486	121	55	23,8	24,8	24,4	605	630	620	8,3	0,2
IQ 300 Water																		
IQ 500 Air	115	52			22,70			577	132	60			27,4			695	9,8	0,3
IQ 500 Water																		
IQ 900 Air	181	82	26,60		26,40	676		671	251	114	29,9	26,4	31,1	760	670	790	14,2	0,4
IQ 900 Water																		
IQ 900 Air - III																		
IQ 900 Water - III																		
IQ 1300 Air	231	105			31,50			800	287	130			37,2			945	16,7	0,5
IQ 1300 Water																		
IQ 1300 Air - III																		
IQ 1300 Water - III																		
IQ 2700 Air	463	210	52,60	24,00	32,10	1336	610	815	573	260	55,1	27,0	35,0	1400	685	890	30,1	0,9
IQ 2700 Water																		
IQ 1300 Remote	154	70	20,67	16,14		525	410		141	64	23,8	24,8	38,8	605	630	985	13,3	0,4
IQ 2700 Remote	308	140	31,10	19,88		790	505		408	185	35,0	24,4	38,4	890	620	975	19,0	0,5

(*) Air = Air cooled / Water = Water cooled

(**) Air 70F-21,1°C / Water 50F-10°C

(***) With legs increases height 95-165 mm / 3.8-6.5 in.

Design pressure: low – 174 psig / high – 440 psig

2.3. About Ice Production

IMPORTANT: Production figures have been obtained under the following conditions:

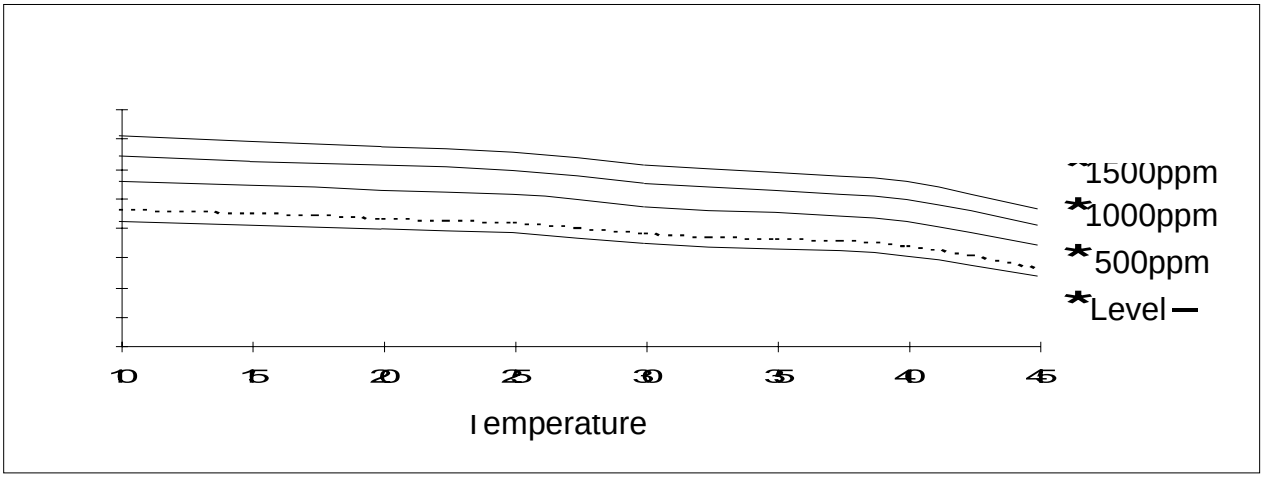
- Water Quality: 550 ppm. total solids
- Water Temperature: 59°F
- Ambient Temperature: 68°F

Ice production and quality is heavily dependent on the following:

- Ambient temperature
- Water temperature
- Water quality
- Level of water in evaporator

The following graph illustrates variations in production according to these factors. As shown,

Production Variations According to Water Quality
When Water Temperature is Maintained at 15°C. production decreases as water temperature increases.



IT IS IMPORTANT THAT WATER INTAKE TUBE IS NOT CLOSE TO ANY HEAT SOURCE. THIS WILL AFFECT ICE PRODUCTION AND QUALITY.

• Ambient temperature should be taken 1.5 inches away from the center of the front grille.

• Water temperature should be taken inside the water trough. Check that water line and filter do not receive hot air from condenser + fan. If so, then re-direct water inlet line + filter to avoid hot air current.

• Ice quality can be improved by lowering the position of the water trough. The trough is attached to a panel with two screws. This panel has several slots, so that the trough can be moved up or down as required.

• The trough may be lowered up to 80mm (IQ 550/1100). This will result in decrease of production (see dotted line in graph below), but harder, drier ice.

• Water content in ice (obtained by straining ice) may be as much as 10%

• Ice production also decreases with improved water quality. (See graph for approximate production variations).

3. DELIVERY AND UNPACKING

Upon receipt, thoroughly inspect the packing container. If there appears to be damage to the container contact the shipper immediately. Unpack unit in the presence of delivery personnel noting any damage on the waybill.

ITV packing bears the “Green Point” on all models according to the European Directives on management of Packaging and Waste Disposal.

Be sure to include model name and serial number on all claims. Serial number is located in the following three places:

(1) Packing

There is a label stuck onto the cardboard packing bearing this serial number (1).

(2) User Manual and (3) Electrical switchboard cover:

With the same characteristics as the previous one (1).

(4) Nameplate:

Located at the back of the machine.

Check that in interior of the machine the installation kit is complete and comprises:

- Ice scraper and manual (and discharge hose only for self-contained models).
- Dispersion cone assembly (not for self-contained models)
- Warranty and serial number

WARNING: ALL PACKING ELEMENTS (plastic bags, carton boxes and wood pallets) SHOULD BE KEPT OUTSIDE THE REACH OF CHILDREN, AS THEY ARE A SOURCE OF POTENTIAL HAZARD.

4. INSTALLATION

4.1. Recommended Placement of Unit

THIS ICE MAKER IS NOT DESIGNED FOR OUTDOOR OPERATION.

An incorrect installation of the equipment may cause damages to individuals, animals or other materials, being the manufacturer not responsible for such damages.

CAUTION: The machines are designed to operate at room temperature between 5ºC (41ºF) and 43ºC (110ºF), with inlet water temperature between 5ºC (41ºF) and 35ºC (95ºF).

The gear motor is excessively forced if operated under the minimum temperatures. Above the maximum temperature, the life of the compressor is shortened, and the production is substantially less.

Do not place anything over the maker or facing the front louver.

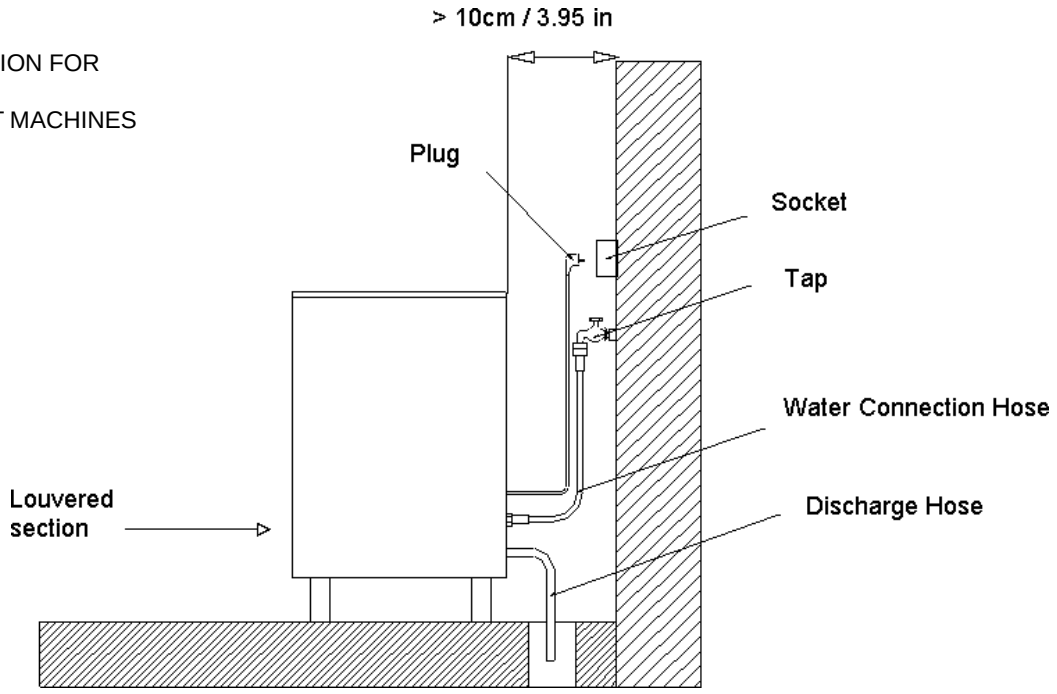
In case the front air louver is not enough, the exit is either total or partially obstructed or due to its placement, it will receive hot air from another device, we strongly recommend, in case it isnot possible to change the location of the machine.

To install a water condenser, it is important that the water piping do not pass by or near sources of heat so as not to lose ice production.

Thread the support legs to the base of the machine on the housing set to such end, in case of machines having this feature, and regulate the height as to have the equipment perfectly leveled.

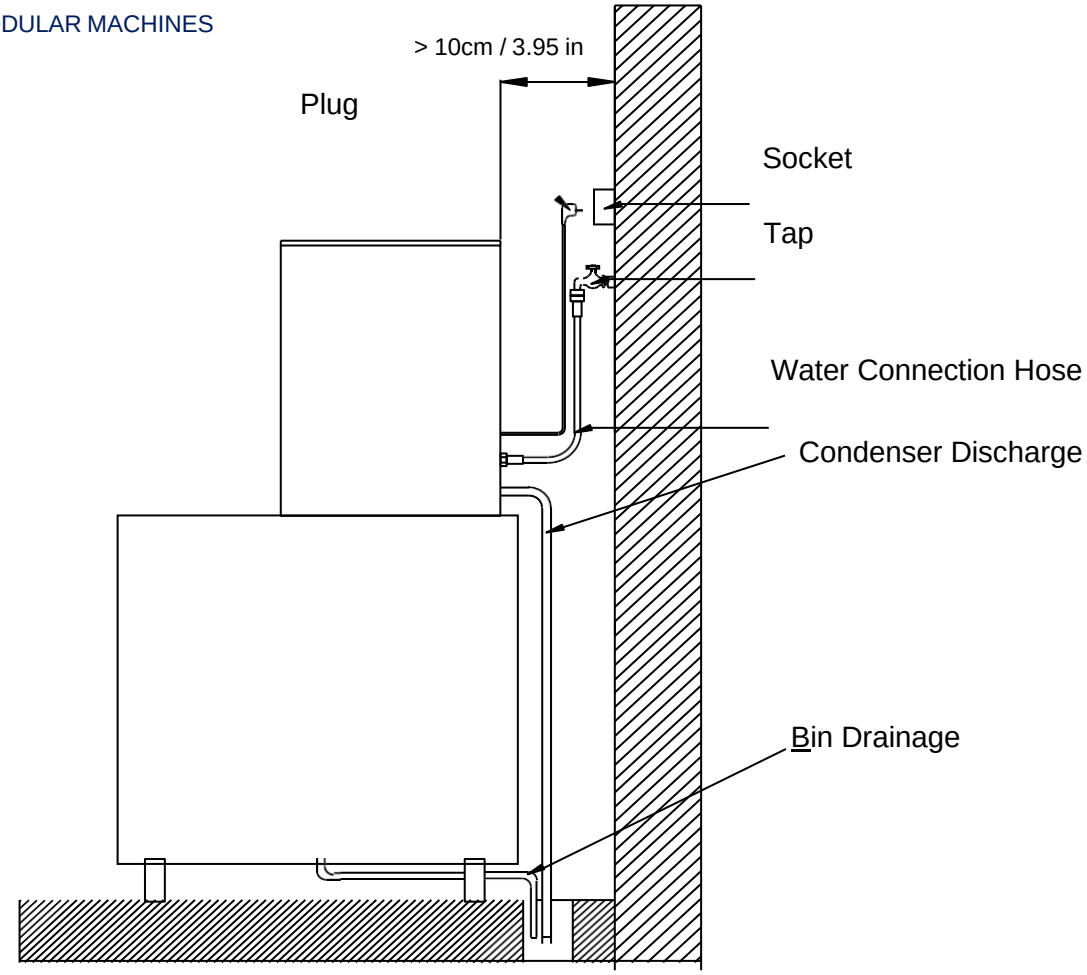
INSTALATION FOR

COMPACT MACHINES



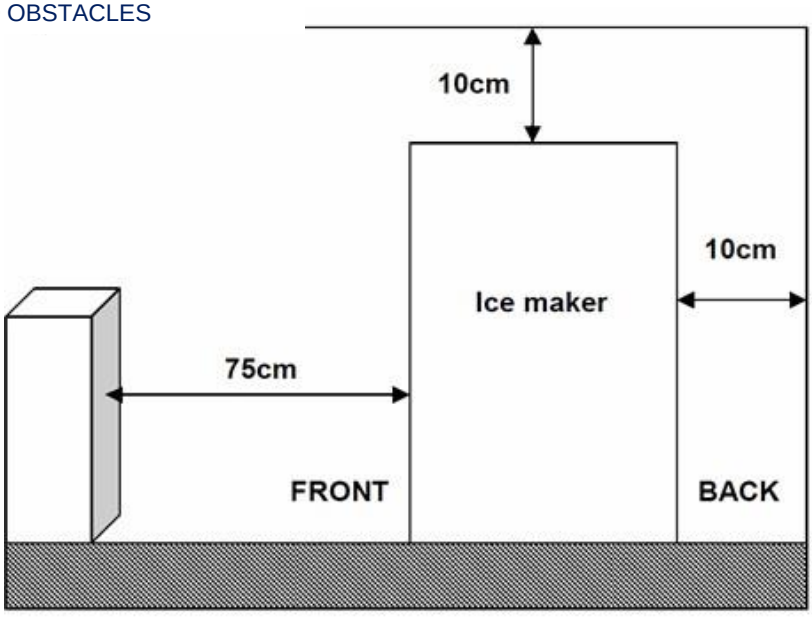
INSTALATION FOR

MODULAR MACHINES



MINIMUM DISTANCE

TO OBSTACLES



* There's no minimum distance to obstacles in the sides of the machine

4.2. Water and drainage

Water quality influences ice hardness, flavor, and quality as well as condenser life.
Keep in mind the following points:
a) WATER IMPURITIES: Major impurities are eliminated by the two small wire mesh filters provided and installed on either end of the water inlet hose. Filters should be cleaned/replaced regularly depending on purity of water. For minor impurities we recommend installing a 5-micron filter such as the one provided with the unit: Part # ITV 207499. This filter will need to be replaced only when machine stops due to insufficient water flow (filter is obstructed withimpurities).

b) WATER WITH MORE THAN 500 PPM: Ice will be less hard and tend to adhere. Lime deposits may impede proper function. In water-cooled models, condenser obstruction is likely. Installation of a high-quality water softener is recommended.

c) CHLORINATED WATER: In most cases the filter which is included in the machine should be sufficient. However, if mains water smells or tastes of bleach, this indicates an excess of chlorine, which may eventually corrode the stainless-steel auger. A carbon filter will removechlorine in water (average filter life: 6 months), not included with machine. (Part # ITV 207509). **(NOTE: You may encounter water with <u>ALL</u> aforementioned properties.)**

d) PURIFIED WATER: A 10% reduction in overall production may occur.

Connecting Unit To Water Source (water cooled units)

Use a flexible food grade pipe.

Pressure should be established between 0.7 and 6 bar (10 / 85 psi.)

If pressures overpass such values, install the necessary corrective devices.

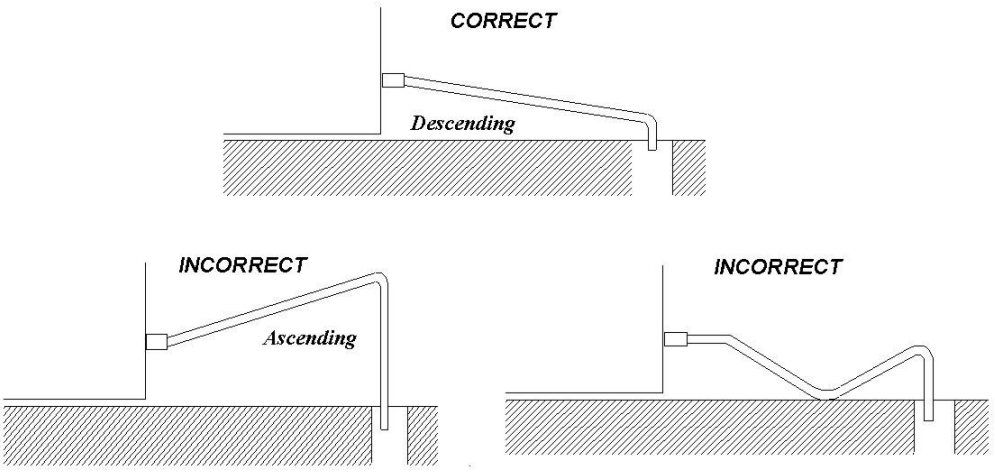
We recommend installing particle filter.

ATTENTION: The machine shall be plumbed according to applicable Federal State and local regulations.

Connect to drainage (self contained)

Drainage should be located lower to the machine level, at 150 mm (5.91 inches) minimum.

It is convenient that the drainage pipe is of 30 mm (1.18 in) of interior diameter and with a minimum gradient of 3 cm (1.18 in) per meter (see figure).



4.3. Electrical connection

IT IS MANDATORY **TO GROUND THE EQUIPMENT:** To avoid possible discharges on individuals or damages to the equipment, the machine should be grounded pursuant local and/or national regulations as the case may be.

The manufacturer shall be held harmless in case of damages arising due to the lack of the ground installation.

The machine is supplied with a 6 feet cable of length (according to NEMA standards). In case the supply cable is damaged, it should be replaced by a cable or special assembly to be furnished by the manufacturer or post-sale service. Such replacement should be performed by qualified technical service only.

Be sure voltage indicated on rating plate corresponds to that of mains supply.A switch and adequate fuses should be installed. Nominal voltage and intensity are indicated on rating plate as well as on this manual's technical pages. Voltage fluctuations greater than 10% can cause problems or prevent machine from starting.

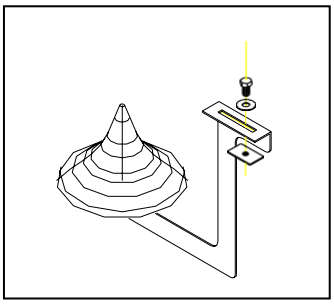
The line up to the plug should have a minimum section of AWG16.

5. *INSTALLATION OF MODULAR EQUIPMENTS OVER BINS OR BINS (modular models)*

Modular makers should be installed over deposits or bins,following the bin manufacturer instructions.

The resistance and stability of the container-machine/s assembly should be verified, as well as the fastening elements.

5.1. Assembling the dispersion cone

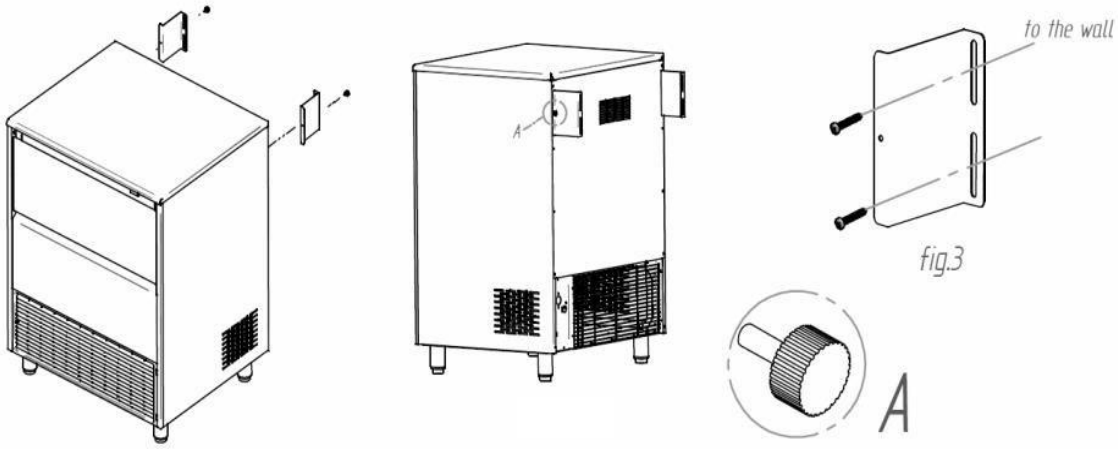


This device distributes the ice in the bins, and avoids ice compression under the exit pipe. Changing its position, the ice could be directed to any direction.

5.2. Safety brackets (for self contained models)

- Level the machine with adjustable feet.
- Assembly the two brackets symmetrically using the milled screws (A) fig 1,2, tighten by hand.
- Fit the brackets to the wall with two screws for each one.

For cleaning or maintenance purposes just remove by hand the two milled screws to release machine from brackets. Remember to secure machine again after operation.



6. OPERATION

6.1. Preliminary Checks

a) Is machine levelled?

b) Are voltage and frequency of mains supply the same as indicated on rating plate?

c) Is drainage system working properly?

d) Is air circulation and room temperature adequate? (Air-cooled models)

	ROOM	WATER
MAXIMUM	43º C / 109º F	35ºC / 95º F
MINIMUM	5º C / 41º F	5ºC / 41º F

e) Is water pressure adequate?

MINIMUM	0.7 Bar (10 psig)
MAXIMUM	6 Bar (85 psig)

ATENTION: In case input water pressure is higher than 6 Bar (85 psig), install a pressure regulator.

6.2. Starting up

Once the installation instructions are followed (ventilation, site conditions, temperatures, water quality, etc.), proceed as follows:

1) In the case of modular modules, remove the cover to access the installation kit (filters, connection hoses, dispersion cones, etc.).
2) In case of compact models, open the deposit door to access the installation kit.
3) Open the water inlet. Verify the no existence of leakages.
4) Connect the machine to the electrical network, and switch on the main switch.
5) For three-phase machine if sequence is no correct, red pilot will light and is necessary to change connection sequence.
6) **After 10 min. timer delay machine will start**. (this delay will happen after every machine stop)
7) Verify that there are no vibrations or frictions on the elements.

8) After a few minutes, verify that the ice production has started.
9) In the case of modular models (mainly in three-phase equipments), having the cover removed, verify that the motor is rotating in the correct direction.

IMPORTANT! Be sure voltage and frequency of mains supply is as indicated on rating plate.

CAUTION: instruct the user about maintenance, informing that maintenance and cleaning operation as well as damages due to the lack of such operations: are not included on the warranty. The technical installer shall invoice traveling costs, hours and materials used on such operations.

6.3. Inspection and Adjustment of Water Level in the Trough

1. Make sure water level in trough does not go down completely as this will set off "WATER LOW" sensor while machine is operating. Should this happen with a pressure higher than 1Kg/cm2 and filters in good condition, INCREASE LEVEL by bending the float arm upwards.
2. Turn machine off and wait for flotation valve to close before water escapes through maximum level drain. If that happens and pressure is lower than 6kg./cm2, slowly bend and lower the float's arm until you have achieved an adequate flow.

IMPORTANT!
If water pressure exceeds 85 lbf/in2, a pressure reduction unit should be installed to maintain pressure at 60 lbf/in^2.

6.4. Cross Check

a) Shut off water faucet. Water level will recede until automatic shut-off occurs.
b) Open water faucet. Water level will rise and machine operations will commence in 10minutes' time.

IMPORTANT!
Please instruct end user as to the correct maintenance procedures as described above. The manufacturer declines all responsibility for damage caused by failure to properly maintain the equipment.

7. ADJUSTMENTS

7.1. Expansion valve

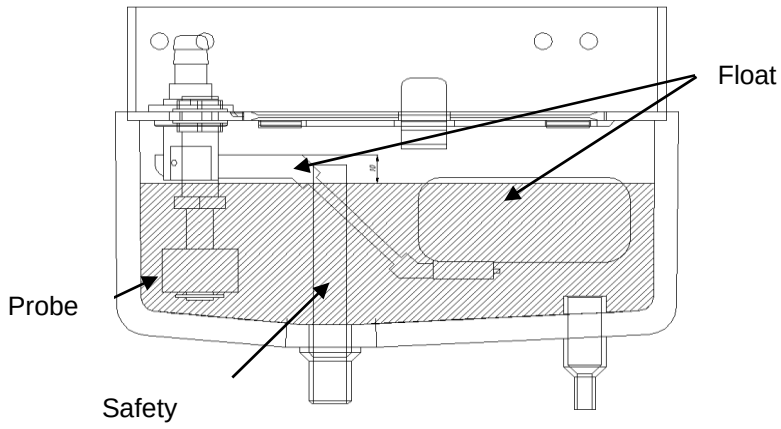
DO NOT TOUCH THE EXPANSION VALVE.

7.2. Water level

The function of the water level is to maintain the necessary flow on the evaporator, and using the magnetic micro device incorporated, stop the operation of the machine until the water reaches again the container.

The optimum level is located on the horizontal indicated in the figure, and its regulation is made following the indications appearing below.

REGULATION OF THE IQ FLOAT VALVE



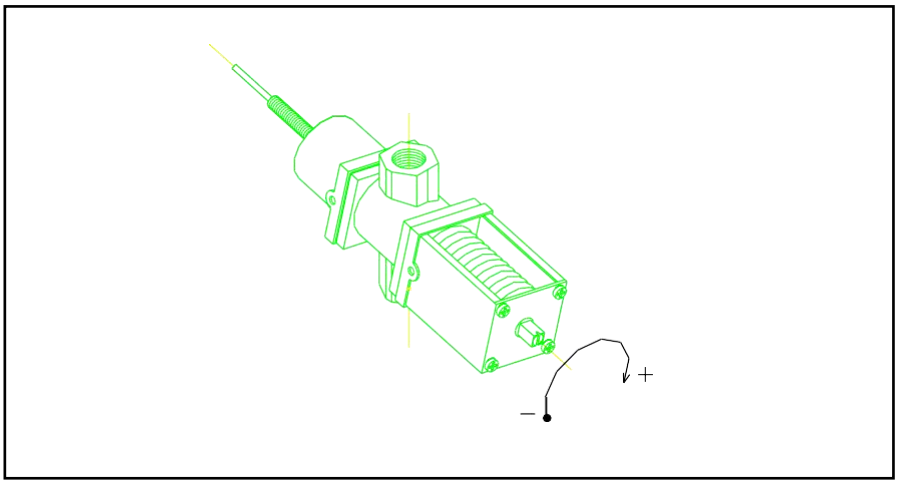
Turn upwards to increase the level, and downwards to decrease it. (Grab from themetallic arm, NEVER FROM THE FLOAT).

7.3. Pressure-controlled Valve on cooling water circuit

• The purpose of this valve is to control cooling water flow to the condenser, so as to maintain the high pressure at 232-240 Psi, which corresponds to water temperature of 113°F (exit temperature).

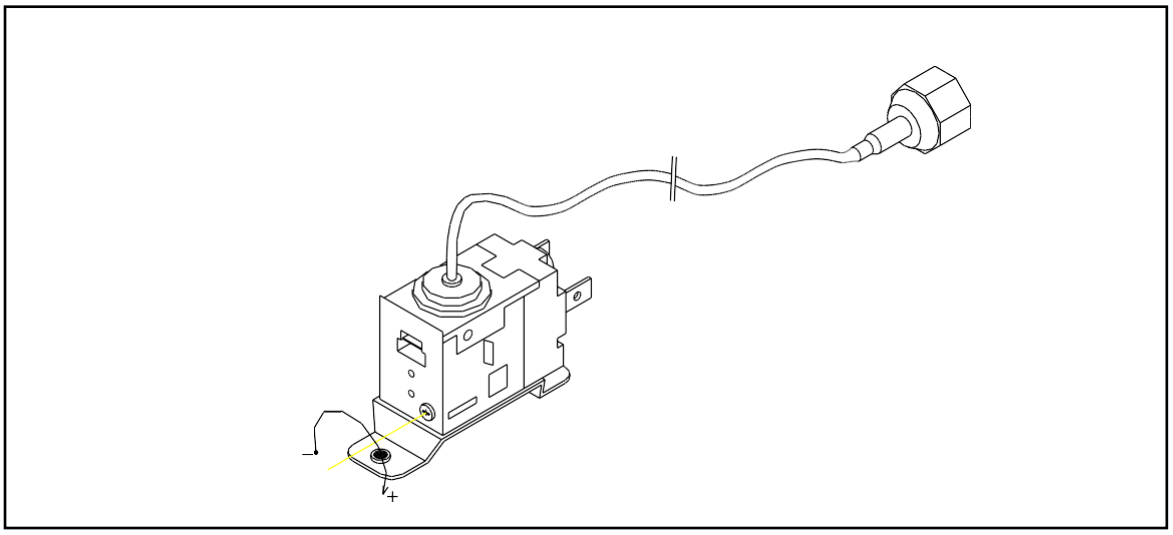
• If mains water temperature exceeds 89.6°F, the above values of high pressure and water temperature at exit will be higher.

ADJUSTMENT: High pressure (and water temperature) can be decreased by opening valve (turn screw clockwise).



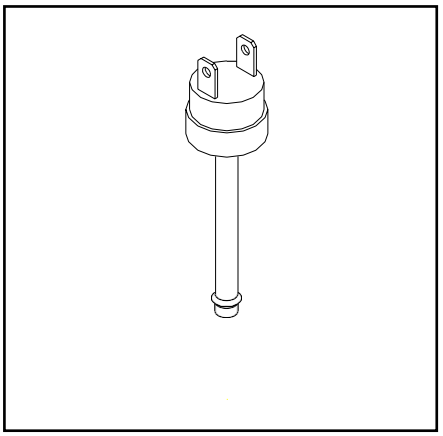
7.4. Fan pressostat (air–cooled models)

High pressure is controlled by starting and stopping fan, which provides airflow through condenser. Differential is fixed. (21 Psi.) Cut-off pressure should be 228 Psi. Low pressure values in circuit may cause gearbox malfunction due to excessive ice production. Pressure values higher than 260 Psi will diminish ice production and may shorten compressor life. Pressure can be regulated by rotating screw on Pressure Control Valve (clockwise to increase pressure). One full turn is equivalent to about 22 Psi.



Safety pressostat

This safety device trips when pressure is too high. Pressure might reachthe set limit of 440 Psi when:



a) Air circulation is not sufficient, room temperature is too high, condensis dirty or fan motor is broken. (air-cooled models)

b) Insufficient water in the cooling circuit, inlet water temperature is too hor fan motor is broken (water -cooled models).

The safety pressostat will switch off the machine completely until pressurdrops again to its lower set point value 296 Psi.

HIGH PRESSURE SET POINTS (non-adjustable):

440-296 Psi

7.5. Start up Timer

This timer delays start up for 10 minutes after machine is switched on. This delay allows ice formed on evaporator to partially melt. When the machine restarts ice will be wet and loose in evaporator, and hence gearbox/auger breakage risk is reduced.

THIS TIMER ONLY WORKS WHEN MACHINE IS WARM.

7.6. Safety Devices

- Overload protection device: will trip if maximum current intensity (A) is exceeded, hence preventing the motor from overheating due to current peaks. When overload trips, a red light will switch on in the front panel. The overload must be reset manually, to do so the front grille and overload cover must be removed.
- Thermal protection device: will trip if temperature in motor exceeds set point. When this device trips, the same red light will switch on in the front panel. In this case, however, resetis automatic.
- Low water level sensor: a magnetically activated sensor (buoy) located inside the water trough will switch off the machine should the level of water fall below the set minimum. A redlight will switch on in the front panel labelled “low water level”. Reset is automatic.
- Bin full of ice: a micro-switch located at the top of the evaporator will stop the machine when the bin (and the ice discharge tube leading to the bin) is full of ice. An orange light will switch on in the front panel labelled “bin full”. Reset is automatic.

8. INSPECTION AND REPLACEMENT PROCEDURES

8.1. Lower bearing

Materials needed:

- PHILLIPS N°2 Screwdriver
- M8 Screws (*)
- 5 mm Allen key
- Nylon head hammer
- No. 12-13 wrench

Procedure:

1) Disconnect unit.
2) Close faucet.
3) Remove square black plastic lower lid on machine base.
4) Remove drain plug on lower bearing.
5) Remove side screw that holds bearing with a 5 mm Allen key.
6) Introduce M8x50 mm screw in drain plug hole. Bearing will come out as you tighten screw.
7) Check for wear inside bearing and replace if more than 0.25 mm.
8) Replace o-rings, add silicone and grease, clean evaporator and reassemble.

IMPORTANT!

Side hole must be aligned with the one in evaporator, otherwise you will not be able to insert Allen screw in place.

9) Re-connecto hose, open water faucet and check for leaks.
10) Assemble unit and connect to power source.
11) **IMPORTANT:** DISCARD ICE PRODUCED DURING FIRST 15 MINUTES.

8.2. Speed Reducer (Gearbox)

Materials needed:

- No.12-13 monkey wrench (2)
- No.8-9 monkey wrench
- 6/10 mm Allen key

Procedure:

1) Remove top screw on gearbox.

2) Remove the four screws that hold flange.

3) Remover gearbox (if necessary using extractor)

Assembly:

1) Lubricate motor axle with grease.

2) Place gearbox .

WARNING: Do not hammer.

4) Place flange screws.

5) Place top washer and screw, tighten until spindle is flush with gearbox axle.

IMPORTANT: If motor wires are re-connected ,check rotation direction

8.3. Upper Flange

Materials needed:

- PHILLIPS N°2 Screwdriver
- M8 Screws (110 mm)
- No.12-13 monkey wrench (2)
- 4, 5 and 6 mm Allen key

Procedure:

1) Disassemble gearbox (see previous section)

2) Remove all four screws holding brackets.

3) Remove all three screws that keep plate and evaporator together.

4) Remove gearbox by hand or using extractor.

Assembly:

1) Clean lodging and neck plate.

2) Mount plate.

IMPORTANT: End of ice discharge flap must be to the right of evaporator's window.

IMPORTANT: Carefully lubricate seal lips (depending on model), avoid damaging them.

1) Replace the three evaporator/plate screws.

2) Replace brackets.

3) Reassemble gearbox. (see previous section)

8.4. Upper bearing (depending on the model)

Materials needed:

- Extractor

- PHILLIPS N°2 Screwdriver
- M8 Screws (110 mm)
- No.12-13 monkey wrench (2)
- No.8-9 monkey wrench
- 4, 5 and 6 mm Allen key
- M8 nuts (2)

1) Disassemble gearbox (see previous sections)
2) Disassemble plate/flange (see previous section)
3) Remove top seals.
4) Place and fix extracting ring.
5) Strike chisel placed over extracting ring using nylon head hammer.

Assembly:

1) Install new seals and lubricate (SHELL MULTIFAK EP2 TE code ITV420).
2) Secure bearing.
3) Mount plate.

IMPORTANT: Be careful not to damage seals. Lubricate seal lips with grease.

9. MAINTENANCE AND CLEANING INSTRUCTIONS

IMPORTANT!

**Maintenance and cleaning procedures as well as problems derived from failing to carry them out are not covered by the warranty.

Proper maintenance is essential to obtain favourable ice quality and optimum functioning of unit. Frequency depends on water quality and characteristics of room where unit is installed.

** Maintenance/cleaning procedures should take place at least once every six months. If concentration of air pollutants is high, complete procedures on a monthly basis.

MAINNANCE TABLE

PROCEDURE	MONTHLY	QUARTERLY	BIANNUAL	YEARLY	BIENNIAL	DURATION
Air condenser cleaning	✦✦✦	✦✦✦	■ ■ ■	■ ■ ■	■ ■ ■	30 minutes
Water condenser cleaning				▪▪▪	■ ■ ■	90 minutes
Lower bearing check			▪▪▪	■ ■ ■	■ ■ ■	60 minutes
Upper bearing check					■ ■ ■	90 minutes
Water circuit cleaning		▪▪▪	▪▪▪	■ ■ ■	■ ■ ■	45 minutes
Sanitary cleaning		▪▪▪	▪▪▪	■ ■ ■	■ ■ ■	30 minutes
Motor reducer (gearbox) cleaning	✦✦✦	✦✦✦	■ ■ ■	■ ■ ■	■ ■ ■	30 minutes
Motor reducer (gearbox) oil level				■ ■ ■	■ ■ ■	60 minutes
Water filter cleaning/replacement	✦✦✦	✦✦✦	■ ■ ■	■ ■ ■	■ ■ ■	30 minutes
Upper bearing lubrication					■ ■ ■	30 minutes
Gearbox oil change					■ ■ ■	60 minutes
General unit cleaning	◈◈◈	◈◈◈	◈◈◈	◈◈◈	◈◈◈	--

Operations must be carried out by a certified professional in order to honor the warranty.

✦✦✦ Depending on room characteristics
▪▪▪ Depending on water quality.
◈◈◈ Carried out by owner
■ ■ ■ Essential

Maintenance and cleaning procedures as well as problems derived from failing to carry them out **ARE NOT COVERED BY THE WARRANTY**. Service personnel will invoice you for travel expenses, time invested and materials required for maintenance and cleaning of unit.

10. MAINTENANCE AND CLEANING PROCEDURES

WARNING: Unit should always be disconnected during maintenance/cleaning procedures.

10.1. Water condenser

1. Disconnect machine and close water faucet.
2. Remove the front grid.
3. Disconnect water entry/exit from condenser.
4. Prepare a solution of 50% phosphoric acid in distilled water.
5. Distribute solution through condenser and make it circulate. Solution is more effective at 35°-40°C (95ºF-104ºF).

WARNING: DO NOT USE HYDROCHLORIC ACID

10.2. Air condenser

1. Disconnect machine and close water faucet.
2. Remove front grid.
3. Clean condenser using a vacuum cleaner, soft brush or low-pressure air. Clean from top to bottom, not side to side. Be careful not to bend the condenser fins.
4. Carefully wipe off the fan blades and motor with a soft cloth. Do not bend the fan blades.

10.3. Cleaning the Ice Bin

1. Disconnect machine, close water faucet and empty storage bin of ice.
2. Wipe with a kitchen cloth soaked in bleach and detergent.
3. If white lime stains do not vanish, rub with some lemon or vinegar, wait for a few minutes and wipe with the cloth again.
4. Rinse with plenty of water, dry, and run the machine.

10.4. Evaporator / Water Through

1. Disconnect machine.
2. Remove water hose situated in lower bearing of evaporator. Use a container to collect water.
3. Allow water to flow for 2 to 3 minutes.
4. Close water faucet and replace hose in evaporator.
5. Prepare a solution of an appropriate product for the cleaning of ice machines (lime). Do not

use hydrochloric acid. We recommend the use of Scale-Kleen (Everpure) prepared according to the manufacturer's instructions. Slowly pour solution into water trough. (Solution is more effective at 35°-40°C / 95ºF-104ºF).

6. Allow solution to stand for 20 minutes.
7. Remove lower hose and empty trough. Replace hose.
8. Fill trough with solution to maximum capacity. Connect machine and wait for unit to automatically shut off for lack of water.

WARNING: Discard ice produced during cleaning procedure.

9. Disconnect machine, remove bearing hose and let water run.

***At this point sanitary cleaning starts*

10. Replace bearing hose. Faucet must remain closed.
11. Prepare a solution of sanitizer (5-7 liters / 1.3-1.85 gal) using approved (EPA/FDA) sodium hypochlorite food equipment sanitizer to form a solution with 100 t 200 ppm free chlorine yield. Household bleach 12.5% can be used _
12. Fill trough with solution. Connect machine and slowly add solution maintaining level in order to allow machine to work for at least 15 minutes.
13. Empty trough and evaporator removing hose.
14. Replace hose. Open water faucet and allow machine run for 15 minutes.

WARNING: Discard ice produced during all cleaning procedure.

15. Disconnect unit, place cover and check for water leaks.
16. Replace filters if necessary. (Machines provided with 5mm wire gauze filters).
17. Reconnect machine.

10.5. Cleaning the outside of the machine

1. Disconnect machine and close water faucet.
2. Wipe with a kitchen cloth soaked in bleach and detergent
3. If white lime stains do not vanish, rub with some lemon or vinegar, wait for a few minutes and wipe with the cloth again.
4. Wipe with a damp cloth and then dry.

10.6. Cleaning the water inlet filters

They are easily obstructed during the first days of operation, mainly with new piping installations. Loose the hose and clean it under water.

10.7. Cleaning for water leaks

This must be done whenever maintenance is carried out on the machine: check all water connections, braces, tubes and hoses in order to eliminate leaks and prevent breakages and flooding. Check that the valve closes tightly on models with an automatic cleaning system.

NOTE: You will observe that after a certain period of functioning (the running-in period), low-pressure pressostats may need to be adjusted. This second adjustment will be final.

SAFETY TRIP (CIRCUIT-BREAKER) IN NEW MACHINES WILL SWITCH OFF THE MACHINE DUE TO ONE OF THE FOLLOWING:

- Ambient temperature is below 41ºF
- Water temperature is below 41ºF
- Evaporation temperature is below -4ºF
- Cooling temperature below +86ºF
- Refrigerant charge slightly low

In the first three cases, so long as temperatures do not drop below 37.4ºF (machine limit), re-adjust fan pressostat to 107.6ºF.

If the machine is over 2 years old, also inspect the auger, bearings, and grease on bearings.

In case of excess current consumption, you can verify that the problem is in the gear-box by either physically detaching gearbox and motor from auger and checking current consumption, orby removing only the brown wire which provides current to the compressor.

In order to avoid damage to the gear-box, the safety trip is very sensitively adjusted and may trip easily. You may teach the end user to re-connect the machine (by inserting a pen/screwdriver through the front grille blades). This is best done after a one hour pause.

Should the machine trip on a regular basis (more than once a week), the end user must get in touch with the service department.

11. SPECIAL ADVICE CONCERNING R-404 REFRIGERANT

- R-404 is a mixture of 3 liquid-phase gases. On evaporating, the 3 component gases separate
- Always use the liquid phase valve (at the end of condenser or accumulator) for refills and purges.
- When replacing a compressor, wash inside of circuit with a suitable solvent + pump, dry with nitrogen gas, REPLACE THE DRIER WITH ONE SUITABLE FOR R-404, which must also have ANTI-ACID properties.
- If you need to add oil, use one which is specific for R-404 (POE). If you are in doubt, contact the machine manufacturer.
- If there is a leak anywhere in the circuit where R-404 in the GAS phase, and a refill of over 10% is required, then ALL THE GAS IN THE CIRCUIT MUST BE PURGED AND THEN REFILL AS DESCRIBED PREVIOUSLY (LIQUID PHASE VALVE)
- When charging via low-pressure valve, do not start compressor immediately, allow about one hour for liquid to gasify.

12. TROUBLESHOOTING

PROBLEMS	POSSIBLE CAUSES	SOLUTION
None of the electrical systems work. Front display off	No power.	Check power supply and connection
	Switch OFF	Power on
	Display connector loosened	Check. Insert
Safety pressure switch	Dirty condenser	Clean the condenser
	Poorly positioned machine	Change location.
	Defective ventilator	Check. Replace
	Water machine: water valve broken	Check. Replace
	Defective safety pressure switch	Check. Replace
Lack of water consumption	Poor cooling system performance	Check/replace
	Stop mike doesn't switch on	Adjust or replace the microphone
	Timer faulty	Replace
	Evaporator water inlet clogging	Check/clean
Low water level	Lack of water supply	Check power supply Check filter gasket
	Evaporator inlet tube loose	Adjust pipe
	Stop mike doesn't switch on	Adjust or replace the microphone
	Timer faulty	Replace
Gear motor shutdown due to temperature	Condenser deterioration	Check. Replace
	Incorrect switch configuration	Check and change
	Internal probe failure	Check. Replace
Gear motor shutdown due to low current	No voltage to motor	Check wiring and plate output
	Motor with open winding	Replace geared motor
Gear motor stop due to high current	Over-stressing/blocking of the gear unit	Check evaporator (condition and cleanliness)
	Deterioration of condenser	Check. Replace
	Defective geared motor	Check. Replace
Compressor does not run, but voltage is supplied	Compressor/electrical equipment defective	Check/replace
Compressor runs, but does not cool	Refrigeration system not working properly	Check load and components
Plate is energized, but does not turn on	Internal board fuse open	Replace (0.5 A)
Shutdown due to full store, but no ice	Modular: stop rocker stays up.	Check that it moves freely.
	Condition of full container without ice. Thermostat defective or incorrectly set	Adjust or replace
	Modular: faulty micro	Substitute
Low ice production	Condenser blocked or air access to the condenser	Check/replace
	Hot gas valve defective, does not close completely	Clean condenser, improve air circulation
	Refrigeration system underperforming	Substitute

PROBLEMS	POSSIBLE CAUSES	SOLUTION
Ice storage is flooded	Check if valve is blocked	Clean or replace it
	Pump is broken	Replace pump
Everything works, but it doesn't make ice	Refrigerant leakage.	Locate leak, repair and refrigerant recharge
	Defective compressor.	Replace compressor
	Expansion valve closed or clogged or capillary clogged.	Open valve passage or replace valve (change capillary and filter drier)
	Water/moisture in refrigeration system. system.	Change compressor oil, change capillary and dehydrator (fit an antacid one), carry out vacuum of the system, slightly heating all components and charge refrigerant.
The machine works intermittently	Water mains pressure less than 0.7 bar	This problem is exacerbated by the size of the machines. In the case of small machines, it is sometimes possible to solve this problem by regulating the float in the water tank. IF IT IS NOT POSSIBLE TO INSTALL A BOOSTER SET IN THIS WAY
	Normal water mains pressure (0.7 to 6.5 bar)	Regulating the water level in the water tank.
Very wet ice	Very high ambient temperature (> 35º C)	Change the location of the machine, if possible.
	Very high water temperature (> 30º C	Check the piping and filter in case condensation air or other heat source heats up the water in the pipes.
	Low water quality (> 1500	Lower the position of the water tank. Install water treatment equipment.
	Dirty condenser	Clean
	Pressure-tight valve too closed or too closed or defective.	Adjust or replace
	Lack of compressor cooling	Substitute
	Refrigerant leakage	Refill and in case of leakage, repair.
	Low water level in the tank, the water consumption is higher water consumption is higher than the water entering through the float valve.	Check the pressures in the water system. Check that the filters or float valve are not clogged. Adjust the water level.

13. Technical Data

For more technical information scan the following QR code or click the link:

- Specification sheets
- User manual
- Exploded views
- CAD / REVIT drawings
- Technical videos

https://itvice.com/cd/index2.php