



# SERVICE MANUAL

## FD/HD SERIES

### ICE CUBE MAKERS

ICE TECH FD/HD 215

ICE TECH FD/HD 415

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## 1. INTRODUCTION

Thank you for purchasing a ICE TECH FD/HD Series Ice Cube Maker. 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. Warning

The installation of this equipment should be done by a qualified technician.

The socket should always be placed on an accessible location.

Always disconnect the power supply from the machine before any cleaning or maintenance service.

Any change needed on the electrical installation for the appropriate connection of the machine, should be exclusively performed by qualified and certified professional personnel only.

Any use of the ice maker not intended to produce ice, using potable water, is considered inappropriate.

It is extremely dangerous to modify or intend to modify this machine, and will void warranty.

This machine should not be used by children or handicapped without the proper supervision and monitoring.

This machine is not intended to be used outdoors nor exposed to the rain.

It is mandatory to ground the equipment to avoid possible electric shock 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.

In order to assure the proper operation and efficiency of this equipment, it is of paramount importance to follow the recommendations of the manufacturer, especially those related to cleaning and maintenance operations, which should be performed by qualified personnel only.

**CAUTION:** The intervention of non-qualified personnel, besides of being dangerous, could result in serious malfunctioning. In case of damages, contact your distributor. We recommend always using original spare parts.

## 1.2. Reception of the machine

Inspect the outside packing. In case of damages, make the corresponding claim to the carrier. To confirm the existence of damages, unpack the machine in the presence of the carrier and state any damage on the equipment on the reception document or freight document.



Always state the machine number and model. This number is printed on three locations:

(1) Packing: On the outside, it contains a label with the serial number.



(2) Exterior of the unit: On the back panel of the unit, there is a label with the same characteristics as the previous one.

(3) Nameplate: On the back of the machine.

			SN. 0000000
Model: FD/HD			
115 Volts / 60 Hz / 1 Phase		RLA: 8 A	
air cooled	R404A – 11 oz.		
Design pressure (psig): low - 174 / high - 440			
			
Intertek		4000352	
Conforms to UL STD 563 Certified to CAN/CSA STD C22.2 NO.120			

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

- Scoop, drain hose, four legs and manual.
- Warranty and serial number.

**CAUTION:** 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.

## 2. INSTALLATION

### 2.1. Placing of the ice maker

This ice maker is not designed for outdoor operation. The icemaker should not be located next to ovens, grills or other high heat producing equipment.

The FD/HD machines are designed to operate at room temperature between 5°C (41°F) and 43°C (109.4°F). There may be some difficulties in ice slab removal under the minimum temperatures. Above the maximum temperature, the life of the compressor is shortened and the production is substantially lower.

The air cooled FD/HD ice makers take the air through the back section and drive it off through the two lateral louvers. In the case it is not possible to respect the minimum distances recommended (see the picture in point 3.3) for these machines we recommend to install a water cooled unit.

The location must allow enough clearance for water, drain and electrical connections in the rear of the ice machine. It is important that the water inlet piping does not pass near sources of heat so as not to lose ice production.

### 2.2. Levelling of the ice maker

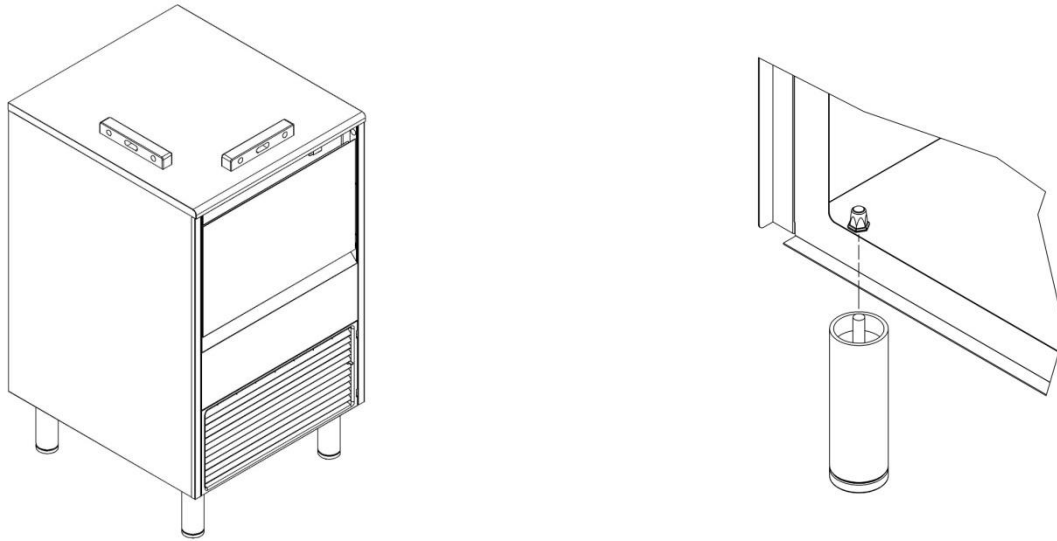
Use a level on top of ice machine in order to ensure the equipment is perfectly leveled.

Screw the leveling legs onto the bottom of the ice machine as far as possible.

Move the machine into its final position.

Use a level on top of the ice machine. Adjust each leg as necessary to level the ice machine from front to back and side to side.

**ATTENTION:** There is an optional 3 ½" (=90mm) high casters kit that can be used in substitution of the standard legs. These wheels are supplied with the corresponding installation instructions.



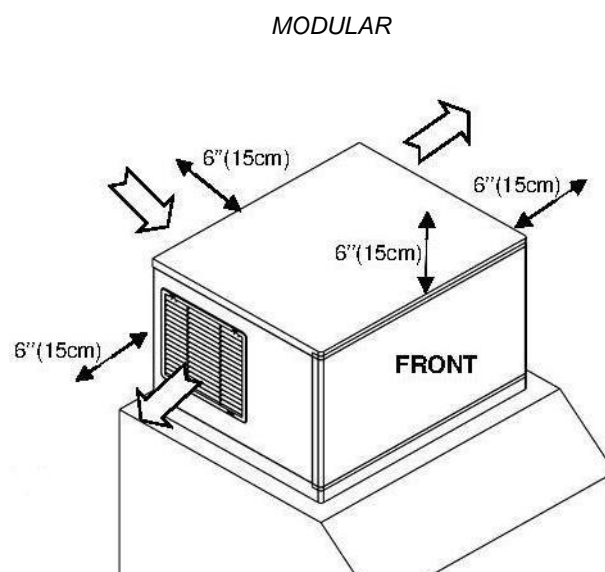
### 2.3. Installation of modular equipments on top of bins

Modular ice makers should be installed on top of bins, following the instructions contained in this manual.

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

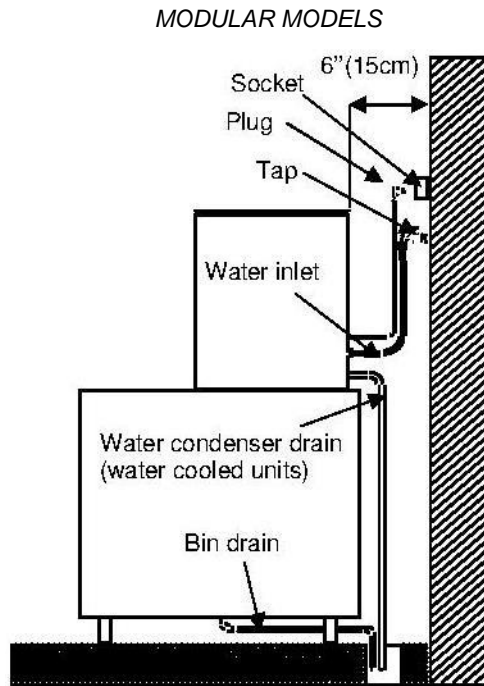
### 2.4. Minimum distance to obstacles

Please see below the recommended minimum distances for proper operation and efficient service.



## CONNECTION DIAGRAM:

The location must allow enough clearance for water drain and electrical connections in the rear of the ice machine.





## 2.5. Water supply connection

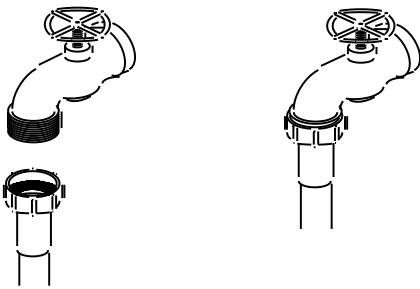
The quality of the water supplied to the ice machine will have an impact on the time between cleanings and ultimately on the life of the product (mainly in water cooled units). It also will have a remarkable influence on the appearance, hardness and flavor of the ice.

Local water conditions may require treatment of the water to inhibit scale formation, improve taste and clarity. If you are installing a water filter system, refer to the installation instructions supplied with the filter system.

Use a flexible food grade hose.

Pressure should be between 0.7 and 6 bar (10 and 85 psi ). If pressure overpasses such values, install a pressure regulator.

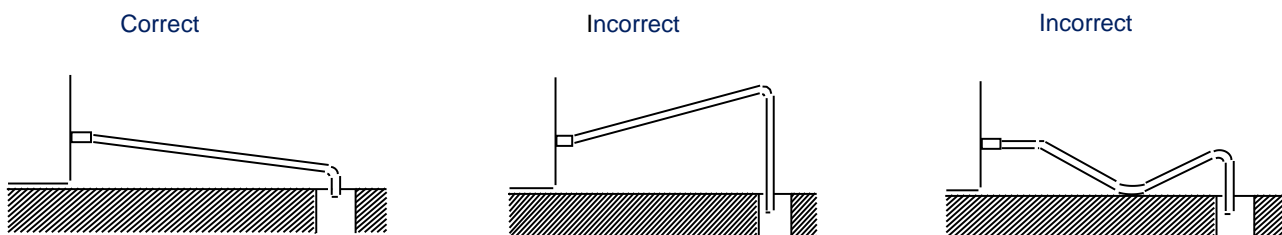
**ATTENTION:** The machine shall be plumbed (with adequate backflow protection) according to applicable Federal State and local regulations.



## 2.6. Drain connection

Drainage should be located lower to the machine level, at 150mm (5,9") minimum.

It is convenient that the drain hose is 30mm (1,18") inside diameter and with a minimum gradient of 3cm/metre (0.36" / ft), see figure.



## 2.7. Electrical connection

It is mandatory to ground the equipment. To avoid possible electric shock 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.

In case the supply cable is damaged, it should be replaced by a cable of special assembly to be furnished by the manufacturer or after-sales service. Such replacement should be performed by qualified technical service only.

The machine should be placed in such a way as to allow a minimum space between the back and the wall to allow an easy access and without risks to the cable plug.

Safeguard the socket. It is convenient to install adequate switches and fuses.

Voltage is indicated in the nameplate and on the technical specifications section of this manual. Variation on voltage above the 10% stated on the nameplate could result on damages or prevent the machine start-up.

MODELS	VOLTAGE FREQUENCY PHASE	AMPS TOTAL	FUSE	CABLE	NEMA
		(A)	(A)		
ICE TECH FD/HD 215	220 / 50 HZ / 1F	14,5	15	3AWG14	5-20P
ICE TECH FD/HD 215	220 / 50 HZ / 1F	9	15	3AWG16	6-15P
ICE TECH FD/HD 415	220 / 50 HZ / 1F	10	15	3AWG16	6-15P

### 3. PRIOR CHECKING AND START-UP

#### 3.1. Prior checking

- a) Is the machine leveled?
- b) Voltage and frequency are the same as those on the nameplate?
- c) Are the drains connected and operating?
- d) Will the ambient temperature and water temperature remain in the following range?

	ROOM	WATER
MAXIMUM	43°C (109°F)	35°C (95°F)
MINIMUM	5°C (41°F)	5°C (41°F)

- e) Is water pressure appropriate?

MINIMUM	0.7bar (10 psi)
MAXIMUM	6 bar (85 psi)

In case inlet water pressure is higher than 6bar(85psi), install a pressure regulator.

#### 3.2. Start-Up

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

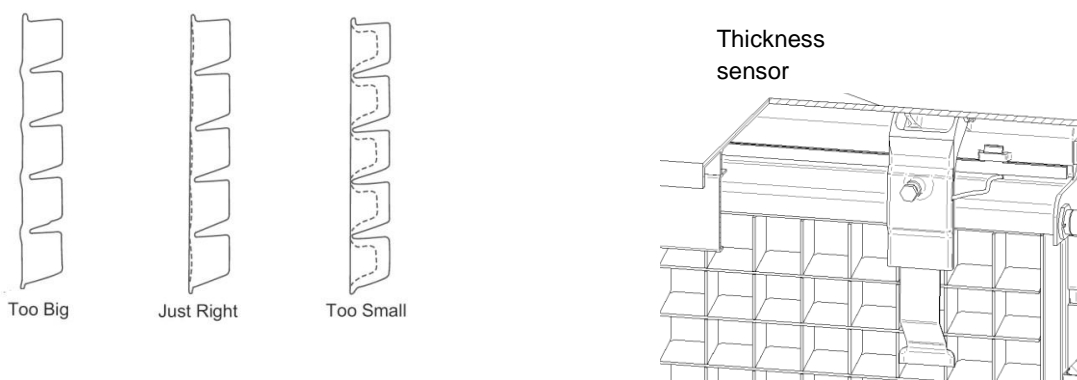
- 1.- Open the water inlet. Verify the no existence of leakages.
- 2.- Remove the two locking screws on top of machine, take off the front panel and remove protection elements on the shield and also on the thickness sensor.
- 3.- Verify also the thickness sensor moves freely.
- 4.- Connect the machine to the power supply.
- 5.- Push the blue switch found on the back of the machine and then set the ice-wash switch to the position I.
- 6.- Verify that there are no vibrations or frictions on the elements.

7.- Verify that the water fall to the evaporator is occurring uniformly and all ice cubes are properly watered.

8.- Replace the front panel in its place.

9.- Verify that after the final cycle, the frost on the aspiration pipe is at 20 mm (0.78 in) of the compressor.

10.- Verify the ice slab with the pictures below. In case the thickness sensor needs to be regulated, rotate the thickness adjustment screw CW to increase bridge thickness. Rotate CCW to decrease bridge thickness.



Damages due to the lack of maintenance and cleaning operations are not included on the warranty.

#### 4. SEQUENCE OF OPERATION

**Initial Start-up:** The pump and the drain electrovalve are energized during 30 seconds to empty the water tray preventing the scale build-up in water. Then the pump and the drain electrovalve are de-energized, and the water inlet valve is energized filling the water tray until the water level sensor detects the water reaches the appropriate level. Then the freeze sequence starts.

**Freeze sequence:** The compressor is energized and the water pump is energized after 30 seconds. The water inlet valve is also energized at the same time that the water pump to replenish water level and then de-energized. The compressor and water pump will continue energized until the thickness sensor detects the thickness of the ice slab is the appropriate. Then the harvest sequence starts.

**Harvest sequence:** The compressor will continue energized. The hot gas valve is energized throughout the harvest phase to divert hot refrigerant gas into the evaporator. The water pump and the drain electrovalve are energized during 45 seconds to empty the water tray and remove mineral deposits. After this (water pump and drain electrovalve de-energized) the water inlet valve is energized filling the water tray until the water level sensor detects water reaches the level. The ice slab slides off the evaporator and into the bin. The momentary opening and re-closing of the shield indicates the harvest sequence has finished and goes to the freeze sequence.

#### 4.1. Initial Start-up

It is carried out at machine work start in following cases (being all outputs switched off):

- when machine is connected to power supply.
- when the switch is turned to the ICE position
- after a stop due to full storage

During start-up time  $t_4$  the pump (B) and the drain valve (EP) are activated. Subsequently, B and EP are closed and the water inlet valve (EW) is opened until the level sensor (NW) indicates that the storage reservoir is filled with water. At this point, the production phase starts.

**Please note:** If at this stage the curtain (MC) is open, the indicated machine status is switched to full storage (full).

#### Production

Following outputs are activated:

- Compressor (C).
- Pump (B). It is activated with delay time  $t_{11}$ .
- Water inlet valve (EW). It is kept active during time  $t_8$ , beginning with the start of B.

This phase is maintained until the thickness detection sensor gives a signal (which is maintained during time  $t_2$ ). At this stage, the operation launching phase starts.

**Please note:** during this time the opening of the curtain (MC) has no consequences.

#### Operation launching

## Outputs:

- Compressor (C). It is still in operation.
- Hot gas valve (GC). It is active during the whole operation launching time.
- Pump (B) and wast water valve (EP) are active during time t6
- Water inlet valve (EW) is activated when time t6 is over (when the pump is stopped)

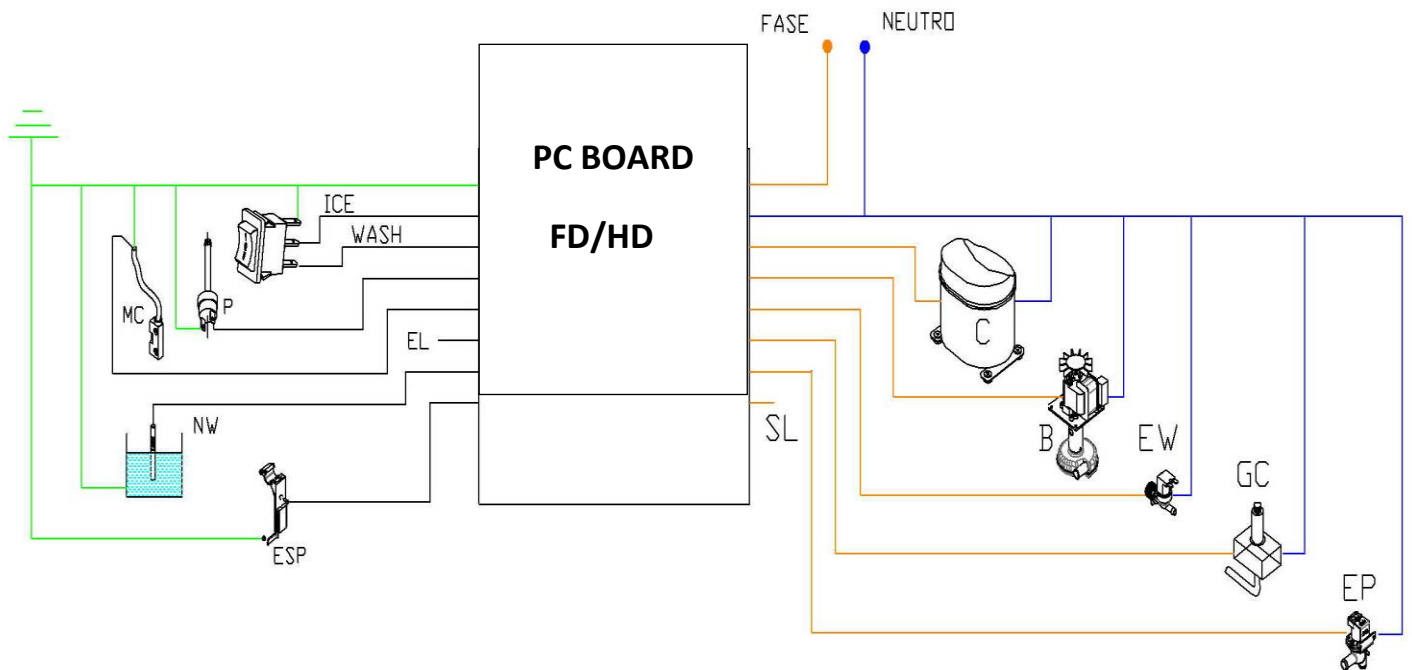
The operation launching ends when the ice sheet falls down and the curtain micro contact (MC) is activated.

## Two possibilities:

- 1) MC is active during a time less than t3 □ when the MC signal stops, the production phase will start.
- 2) MC is active during a time more than t3 □ machine will be stopped due to full storage (all outputs are switched off / LED LE3 continuously switched on). When the curtain (MC) is closed again, the initial start-up phase will be re-initiated.

time	description	time
t1	Continuous signal time for water level	5"
t2	Continuous signal time for ice thickness	10"
t3	Open curtain time to activate full storage indication	30"
t4	Start-up timing time	30"
t5	Operation launching maximum time	3.5'
t6	Draining time during operation launching	45"
t7	Production minimum time	5"
t8	Water inlet valve e/w time during production	30"
t9	Water inlet valve e/w timeout	120"
t10	Production maximum timeout	60'
t11	Pump start-up delay time	30"
t12	Draining time at cleaning cycle	60"
t13	Retry time due to water inlet valve e/w timeout	60'

### 4.2. Control Board



#### Digital outputs

#### Digital inputs

Symbol	Description	
ICE	Ice position switch	Switch for 3 positions: Ice – 0 - wash
WASH	Wash position switch	
P	Safety pressure switch / NC contact	
MC	Curtain micro relay contact NC	
EL	Free	
<b>jumpers</b>		
J1	Pressure reset jumper	

J2	Time alarm valuation jumper
J3	Curtain micro relay contact jumper NC/NO
J4	Water inlet valve e/w timeout
J5	Free Jumper

### Analogical inputs

Symbol	Description
ESP	Thickness detection sensor
NW	Water level in reservoir

### Connector for double layer stacking of 2 machines

Symbol	Description
CO1	Connector + jumper for indication of the lower machine

### LED signalling

Symbol	Description
LO 1-6	6 orange LEDs for each output
LI 1- 7	7 green LEDs for each input
LE 1-4	4 red LEDs for status/alarm (flashing) stand by – ice – full - wash

### 4.3. Alarms

They detect operational malfunctions. They are indicated with the flashing status LEDs LE1-4. During some alarms a second operation retry attempt is carried out and if repeated again, the



machine will stop. Signalling should be indicated since the first failure occurs. If the second retry attempt is ok, the signalling must be switched off.

In case that a machine stop has been caused by alarm, the resetting is done by disconnecting or by switching over to position 0. If the jumper J2 is closed, time alarms are not to be followed.

#### **4.4. Safety pressure**

When the pressure contact (P) is open, instantly, all outputs switch over to off position.

When it is closed again, there are two possibilities:

- Jumper J1 open. Manual reset. The machine remains stopped until reset → Initial start-up.
- Jumper J1 close. Automatic reset. The machine will continue at the position where it was.

\* Signalling: Flashing in the four LEDs.

#### **4.5. Long operation**

If the operation launching time is longer than  $t_5$  time without activation of the curtain micro contact (MC), the launching is interrupted, switching over to the production cycle. If the same thing happens again at the next launching, the machine will stop.

\* Signalling: Flashing in LE0.

#### **4.6. Cycle timeout**

If the production cycle time is more than  $t_{10}$  time without receiving any thickness detector signal (ESP), the next launching phase will be started. If the same thing happens again at the next launching, the machine will stop. \* Signalling: Flashing in LE1.

#### **4.7. Short production cycle**

If during two consecutive cycles the production cycle time is less than  $t_7$  time, the machine will stop. \* Signalling: Flashing in LE2.

## 4.8. Water filling timeout

When it occurs, the water valve (EW) must be activated, the level sensor (NW) will not be active during a maximum time t9.

Two possibilities:

- Jumper J4 open → Machine stops until reset.
- Jumper J4 closed → Machine stops and once time t13 has passed, the startup is re-initiated. .
- \* Signalling: Flashing in LE3.

## 4.9. Machine Stacking

It is possible to install two modular machines stacked one above the other with the ITV MS stacking kit (part number 6586).

The switchboard must have a connector permitting to connect the boards of both machines with a single cable and also a jumper with the indication:

- Closed jumper → upper machine
- Open jumper → lower machine

The lower machine works in the same way as if operating alone.

The upper machine operates normally except when the lower machine is stopped due to full storage (full), at this moment, the upper machine will also stop and pass over to the same status (full).

When the curtain of the lower machine is closed again, it re-initiates the start-up sequence, likewise the upper machine, but with a 1' delay.

## 5. MAINTENANCE AND CLEANING PROCEDURES

It is the User's responsibility to keep the ice machine and ice storage bin in a sanitary condition. Ice machines also require occasional cleaning of their water systems with a specifically designed chemical. This chemical dissolves mineral build up that forms during the ice making process.

Sanitize the ice storage bin as frequently as local health codes require, and every time the ice machine is cleaned and sanitized.

The ice machine's water system should be cleaned and sanitized at least twice a year.

**CAUTION:** Do not mix Ice Machine Cleaner and Sanitizer solutions together.

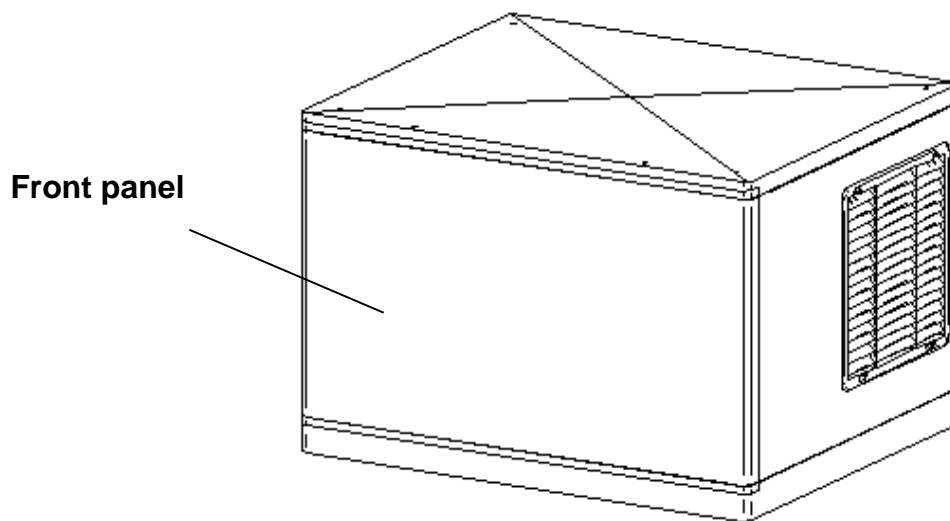
**WARNING:** Wear rubber gloves and safety goggles when handling Ice Machine Cleaner or Sanitizer.

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

### 5.1. Cleaning water distribution system

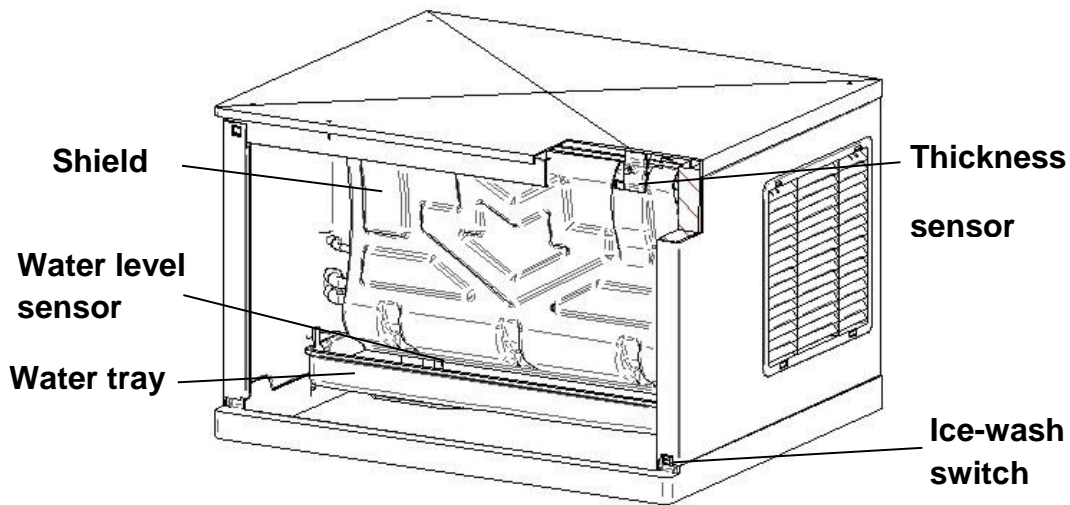
- 1) Remove the front panel.
- 2) Set Ice-wash switch to the OFF position (position 0) after ice falls from the evaporator at the end of a harvest cycle, or set the ice-wash switch to the OFF position and allow the ice to melt off the evaporator.

**CAUTION:** Never use anything to force ice from the evaporator. Damage may result.

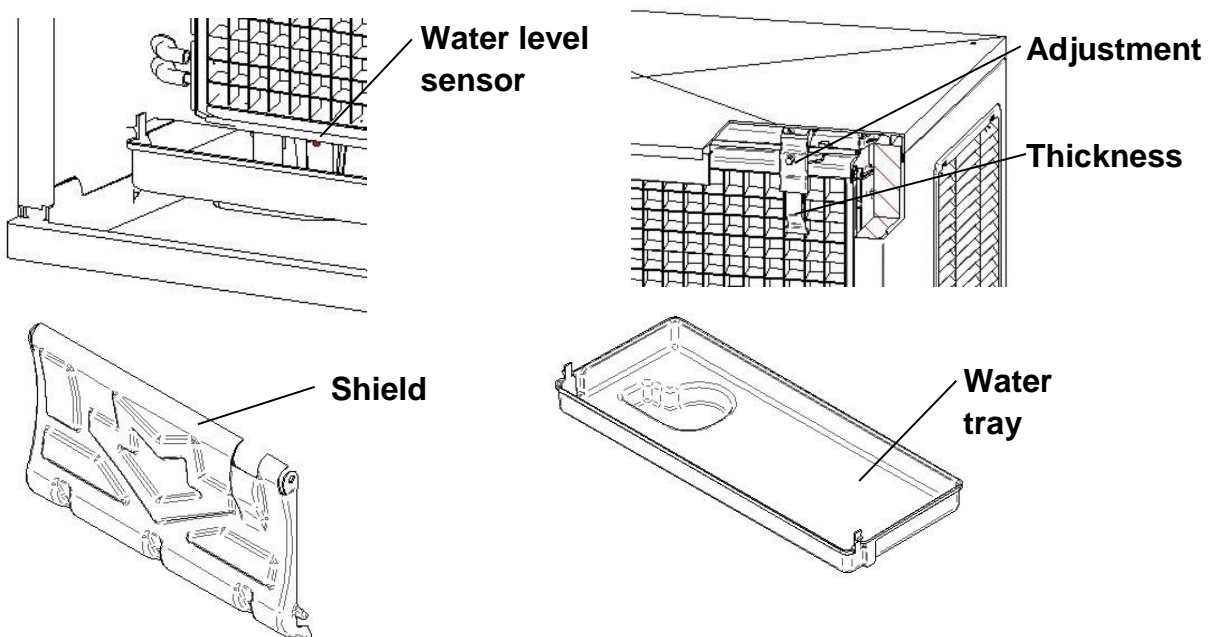


- 3) Prepare a solution of an appropriate product for the cleaning of ice machines (lime). Do not use hydrochloric acid. We recommend the use of any NSF approved scale removal product. In modular machines the water bucket is filled automatically so we recommend to prepare a previous solution (for example 1,89 liters(0,15 Gal)) according to the manufacturer's instructions with the total quantity of product needed for the water tray (3 liters (0,8 gal) for FD/HD 215 and 6 liters (1,6 gal) for FD/HD 415).

To start a cleaning cycle, move the ice-wash switch to the WASH position (position II). The machine will drain the reservoir and refill it. Pour the scale remover solution into the reserve.



- 4) Allow the solution to circulate in the water system for 30-40 minutes and then set the ice-wash switch to the OFF position.
- 5) To purge out the ice machine scale remover and residue move the ice-wash switch to the WASH (the machine will drain the reservoir and refill it) and then set the ice-wash switch to the OFF position.
- 6) Disconnect power and close water supply.
- 7) Mix a cleaning solution.
- 8) Remove shield and water tray.
- 9) Clean the metal surfaces of the thickness sensor, water level sensor, the adjustment screw, the shield and the water tray with the cleaner solution using a brush (not a wire brush) or cloth.

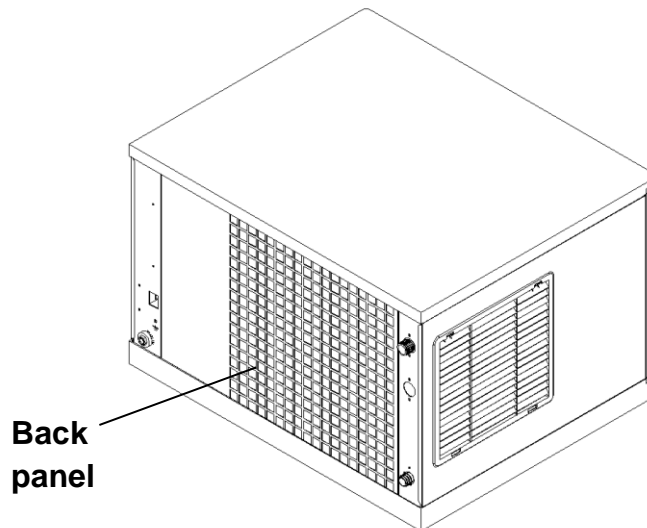


- 10) Clean the interior surfaces of the freezing compartment (including walls, plastic parts of the evaporator, distributor...) and the front panel with the cleaner solution using a brush or cloth.
- 11) Mix a solution of sanitizer using approved sodium hypochlorite food equipment sanitizer to form a solution with 100 t 200 ppm free chlorine yield. Below an example to calculate the proper quantity of sanitizer to add to the water, for household bleach 12,5%:  
$$\text{bleach to add} \Rightarrow \frac{15}{\%dis} = \frac{15}{12.5} = 1.2 \text{ gr/L} \rightarrow *0.133 = 0.16 \text{ oz/gal}$$
- 12) Sanitize all surfaces of the ice thickness sensor, water level sensor, shield and water tray applying liberally the sanitizer solution using a cloth or sponge.
- 13) Sanitize the interior surfaces of the freezing compartment (including walls, plastic parts of the evaporator, distributor...) and the front panel applying liberally the sanitizer solution using a cloth or sponge.
- 14) Return the water tray and shield to their normal positions.
- 15) Connect power and water supplies.
- 16) To start a sanitation cleaning cycle, move the ice-wash switch to the WASH position. The machine will drain the reservoir and refill it. Pour the sanitizer into the water reservoir to get a solution as in the point 12 (the volume in the water tray is approximately 3 liters(0.8 gal) for MS 440) and 6 liters (1.6 gal) for MS 880).
- 17) Allow the solution to circulate in the water system for 20 minutes and then set the ice-wash switch to the OFF position.
- 18) To purge out the sanitizer solution and residue move the ice-wash switch to the WASH position (drain and refill) and allow the water to circulate for 5 minutes and then move the switch to the OFF position (drain). Repeat this operation two more times to rinse thoroughly.
- 19) Return the panel to their position.
- 20) Set the ice-wash switch to the ON position (position I) and discard the first two harvests.

## 5.2. Cleaning the condenser

### AIR CONDENSER

- 1) Disconnect machine and close water faucet.
- 2) Remove the back panel (see figure).



- 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.

### WATER CONDENSER

The water condenser may require cleaning due to scale build-up. The cleaning procedures require special pumps and cleaning solutions. They must be performed by qualified maintenance or service personnel.

## 5.3. External cleaning of the machine

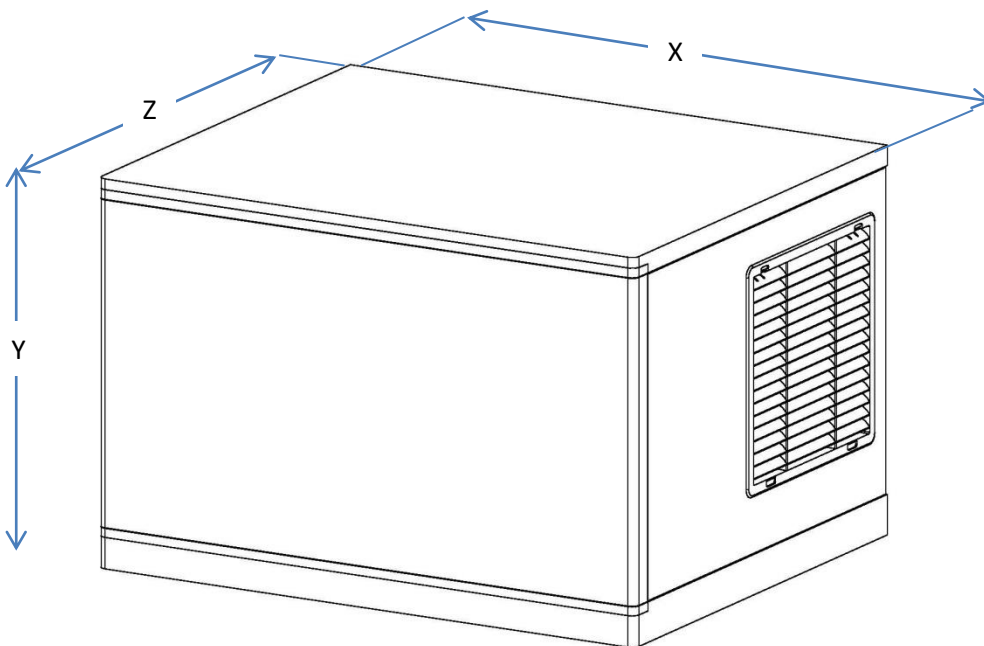
Clean the area around the ice machine as often as necessary to maintain cleanliness. Sponge any dust and dirt off the outside of the ice machine with mild soap and water. Wipe dry with a clean soft cloth. A commercial grade stainless steel cleaner/polish can be used as necessary.

#### 5.4. Water leakage checking

This must be done whenever maintenance is carried out on the machine: check all water connexions, braces, tubes and hoses in order to eliminate leaks and prevent breakages and flooding.

## 6. TECHNICAL SPECIFICATIONS

### FD/HD MODULAR



## 6.1. Dimensions, voltaje

FD/HD MODULAR								
	MODELS	COOLING	MACHINE DIMENSIONS			PACKAGING DIMENSIONS		
			cm			cm		
			Width X	Depth Z	Height Y	Width X	Depth Z	Height Y
ICE TECH FD/HD 215	ICE TECH FD/HD 215-A1F	Air	762	620	500	330	635	625
	ICE TECH FD/HD 215-A1H	Air	762	620	500	330	635	625
	ICE TECH FD/HD 215-W1F	Water	762	620	500	330	635	625
	ICE TECH FD/HD 215-W1H	Water	762	620	500	330	635	625
	ICE TECH FD/HD 215-A2F	Air	762	620	500	330	635	625
	ICE TECH FD/HD 215-A2H	Air	762	620	500	330	635	625
	ICE TECH FD/HD 215-W2F	Water	762	620	500	330	635	625
	ICE TECH FD/HD 215-W2H	Water	762	620	500	330	635	625
ICE TECHFD/HD 415	ICE TECH FD/HD 415-A2F	Air	762	620	500	330	635	625
	ICE TECH FD/HD 415-A2H	Air	762	620	500	330	635	625
	ICE TECH FD/HD 415-W2F	Water	762	620	500	330	635	625
	ICE TECH FD/HD 415-W2H	Water	762	620	500	330	635	625



FD/HD								
	MODELS  (USA)	VOLTAGE  FREQUENCY  PHASE	CUBE	POWER  INPUT	RLA	FUSE	R404A	
							cubic inch	W
FD/HD 215	FD/HD 215-A1F	220V / 50Hz / 1Ph	1	840	14,5	15	25	700
	FD/HD 215-A1H	220V / 50Hz / 1Ph	1/2	840	14,5	15	25	700
	FD/HD 215-W1F	220V / 50Hz / 1Ph	1	840	14,5	15	25	700
	FD/HD 215-W1H	220V / 50Hz / 1Ph	1/2	840	14,5	15	25	700
	FD/HD 215-A2F	220V / 50Hz / 1Ph	1	840	9	15	25	700
	FD/HD 215-A2H	220V / 50Hz / 1Ph	1/2	840	9	15	25	700
	FD/HD 215-W2F	220V / 50Hz / 1Ph	1	840	9	15	25	700
	FD/HD 215-W2H	220V / 50Hz / 1Ph	1/2	840	9	15	25	700
FD/HD 415	FD/HD 415-A2F	220V / 50Hz / 1Ph	1	1540	10	15	51	1450
	FD/HD 415-A2H	220V / 50Hz / 1Ph	1/2	1540	10	15	51	1450
	FD/HD 415-W2F	380V / 50Hz / 3Ph	1	1540	10	15	51	1450
	FD/HD 415-W2H	380V / 50Hz / 3Ph	1/2	1540	10	15	51	1450

**Note:** The refrigerant charge chart is only for guidance; information about the exact charge installed at day of manufacture is provided on the name plate of each machine.

## 6.2. Production Charts

FD/HD 215 A1F Lb/24h

	AGUA °C			
AIRE °C	10	15	20	25
10	210	200	190	180
20	197	185	130	165
32	165	150	140	130
37	150	130	121	110

FD/HD 215 A1H Lb/24h

	AGUA °C			
AIRE °C	10	15	20	25
10	204	200	190	180
20	190	185	174	165
32	158	150	141	130
37	135	124	112	100

FD/HD 415 A2F Lb/24h

	AGUA °C			
AIRE °C	10	15	20	25
10	448	435	420	395
20	432	420	404	375
32	385	360	330	300
37	330	300	270	238

FD/HD 415 A2H Lb/24h

	AGUA °C			
AIRE °C	10	15	20	25
10	448	435	420	395
20	439	425	408	380
32	385	360	330	300
37	330	300	360	225

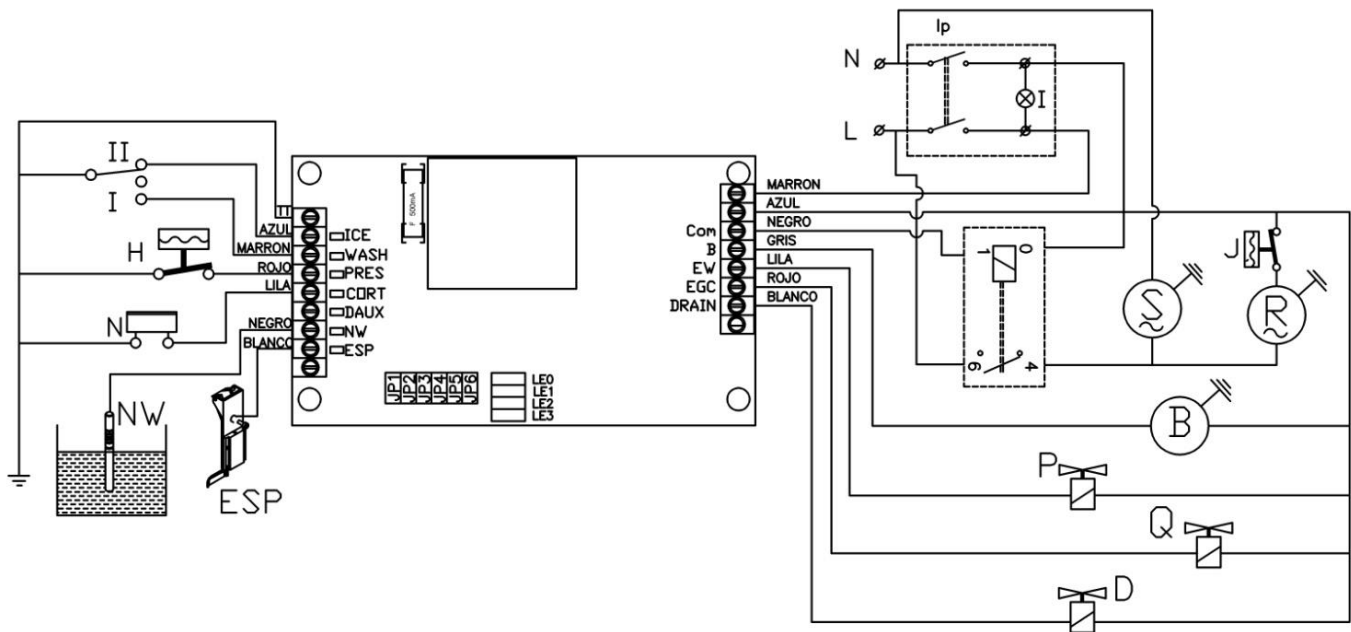
## 7. USER TROUBLESHOOTING GUIDE

### 7.1. Modular models

PROBLEM	PROBABLE CAUSE	SOLUTION
None of the electrical parts work.	The machine is unplugged.	Plug in the machine and verify socket power
	Rear switch OFF	Switch ON
	Front switch position 0	Move to ICE (behind front panel)
All the electrical parts work but not compressor. (water doesn't freeze)	Front switch position WASH.	Move to ICE (behind front panel)
No water in tray	Not incoming water	Check water supply
	Inlet strain at water valve blocked	Check and clean
Not enough water to end cycle	Water level probe too low	Move up (steel rod beside pump)
	Defective drain valve (check drain leak during ice stage)	Disassemble and clean
	Shield splash leaks	Check shield position
Water overflows tray	Level probe too high or scaled	Adjust / clean
Ice slab empty or too thick	Desadjusted/scaled thickness probe	Adjust / clean
Difficult to release ice slab at harvest	Unit bad leveled (tilted to back)	Level; down front
Not uniform flow pattern at evaporator	Dirty or scaled distributor	Perform descaling procedure. Remove and clean distributor (pull from two clips at distributor sides)
Low production	Dirty condenser	Clean (check also incoming water/air temperature)
Unit stops after few time running	Safety presostat opens	Clean air condenser (back)
For further problems call aftersales service		

## 8. WIRING DIAGRAMS

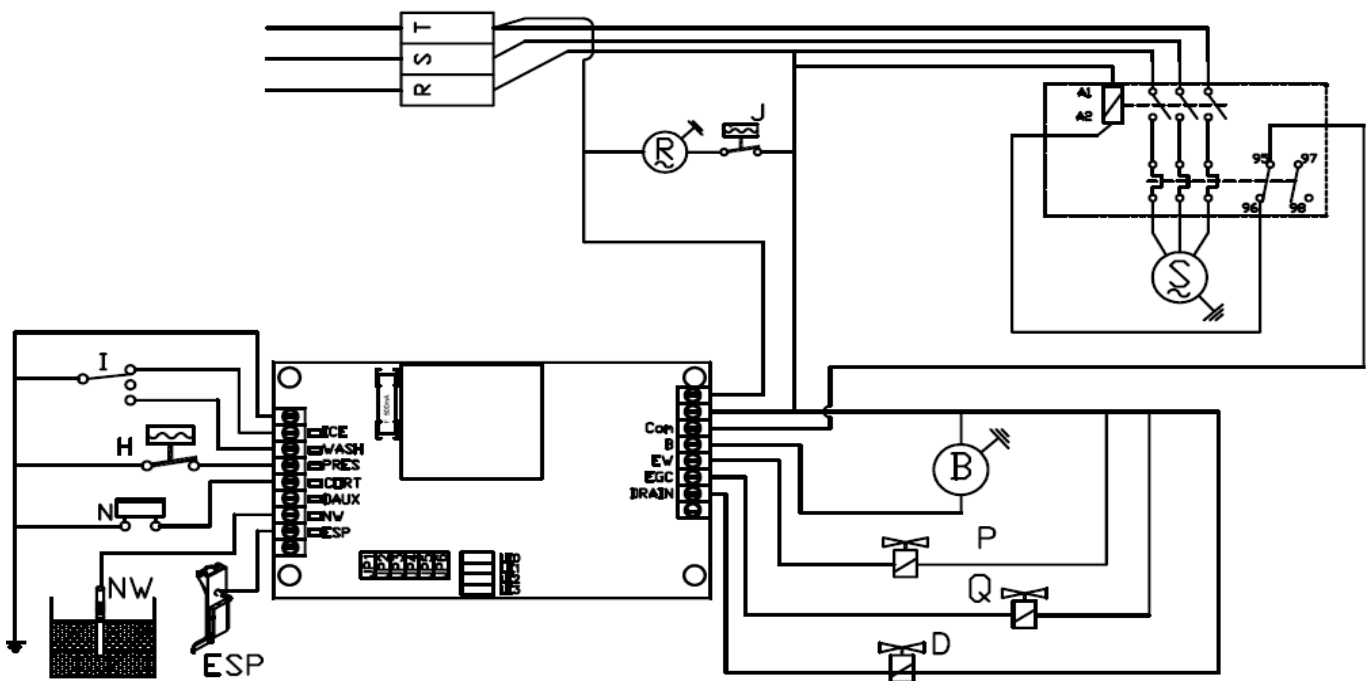
### 8.1. FD/HD single-phase



#### COMPONENTS

- H Safety pressostat
- N Curtain sensor
- I Ice - Wash (3 positions)
- S Compressor.
- R Fan motor
- J Condensation pressostat (water condenser)
- B Pump
- P Water valve
- Q Hot gas valve.
- D Drain valve
- NW Water level sensor
- ESP Thickness detector
- Ip ON/OFF switch

### 8.2. FD/HD three-phase



#### COMPONENTS

- H Safety pressostat
- N Curtain sensor
- I Ice - Wash (3 positions)
- S Compressor.
- R Fan motor
- J Condensation pressostat (only air)
- B Pump
- P Water valve
- Q Hot gas valve
- D Drain valve
- NW Water level sensor
- ESP Thickness detector