

QUASAR (**R404a**)

**TECHNICAL SERVICE MANUAL**

ICE CUBE MAKERS

MODELS:

QUASAR 20 C

QUASAR 30 C

QUASAR 40 C

QUASAR 40S C

QUASAR 50 C

QUASAR 60 C

QUASAR 90 C

QUASAR 130 C

QUASAR 150 C

MODULARS:

MQ 200

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

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# TABLE OF CONTENTS

## **Introduction**

Warnings .....	3
Description .....	4
Operating Principles.....	5

## **Specificacions**

Diagrams of connections and dimensions (undercounter models) .....	6
Consumption data, weights, crated dimensions and volumes (undercounter models) .....	8
Technical data (undercounter models).....	10
Production Chart.....	11

## **Delivery & Unpacking**

Packing .....	13
Rating plate and serial number.....	13

## **Installation**

Recommended placement of unit .....	14
Water and drainage .....	14
Connecting unit to water source .....	15
Connecting unit to drain .....	15
Electrical connection .....	15

## **Operation principle**

Preliminary check .....	17
Cross check .....	17

## **Adjustment**

Water level.....	18
Water pressure control valve.....	18
Pressure control .....	19
Safety pressostat .....	19

## **Maintenance and cleaning instructions**

Maintenance chart.....	20
Water condenser .....	21
Air condenser .....	21
Evaporator / water deposit.....	21
Inlet filters.....	22

## **Special advice concerning R404a Refrigerant .....**

## **Troubleshooting .....**

## INTRODUCTION

Thank you for choosing ITV's QUASAR-C ice cube makers.

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

## 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 servicing the equipment. Do not attempt to install, service or modify this machine. Inappropriate use by other than specially trained technicians is extremely dangerous and may result in a fire or electric shock.

This device 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, CERTIFIED 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.**

## DESCRIPTION

The QUASAR-C ice cube maker is the result of years of experience in this field and the development of a high technology factory.

Main Features:

- Storage bin made of polyester strengthened with glass fibre or ABS
- Stock bin made of high resistance plastic materials
- Polyurethane insulation injected "IN SITU"
- Heavy duty door (pat.) except Q20-30 and MQ200.
- Agitator motor for continuous service
- Tough cam motor (50 Kg/cm)
- Safety device and clutch for the water pan preventing its breakage during the upward cycle, (pat.)
- Machine stoppage and water pan protection during the downward cycle, (pat.)
- The stock ice is the maximum than it could be thanks to the stop machine system.
- Low noise
- High pressure safety pressostats even in air-cooled machine.
- Large condensers (work well at high ambient temperatures and reduce cooling water consumption in water-cooled machines)
- Clear cubes
- Ice Cube size can be adjusted (height and diameter).
- Easy to maintain and repair.

## HOW IT WORKS

When the machine is switched on the compressor and the agitator motor start, the water entry valve opens and allows water into the production pan up to a level where the float makes a micro-switch cut the current to the valve and so stop water entering the tray. The compressor, controlled by capillaries produces enough cold in the evaporator to gradually freeze the water around its "fingers".

When the ice so formed reaches the proper size the paddles of the agitator are stopped and its motor suspended, works the end of cycle micro-switch.

This micro-switch connects the relay that starts the cam motor. When the micro-switch has fallen, opens the hot gas valve and stops the agitator motor. The compressor continues working for

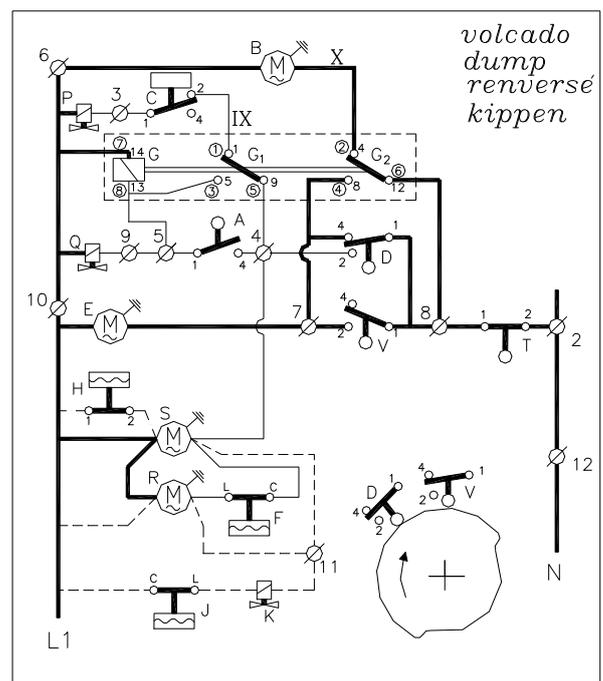
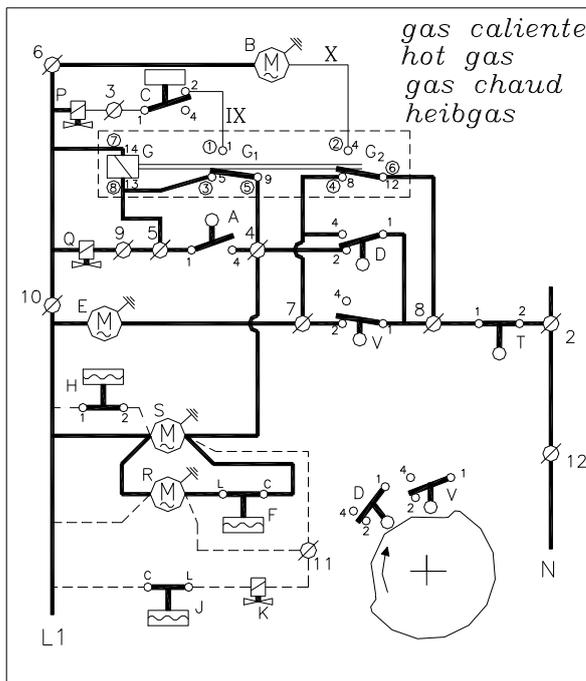
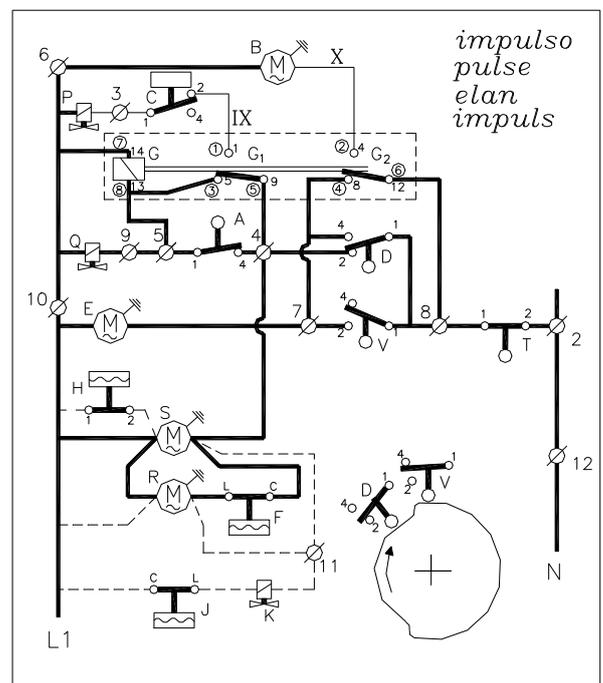
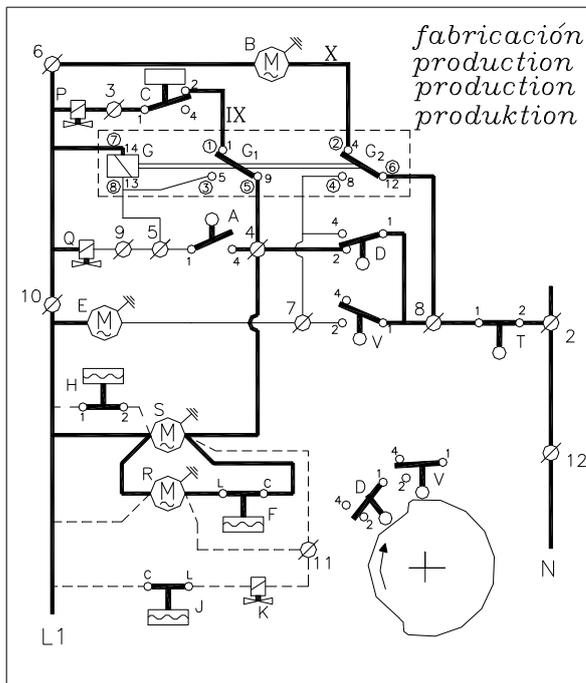
another 20", then stops and the agitator motor is connected. The cam motor starts to move downwards, making part of the surplus water flow to the drain and dropping the ice cubes, pushed by the eject plate into the storage bin.

The pan eventually gets back to its initial position and so starts another production cycle.

Once the storage bin is full the pan stops in its downward movement as it touches the cubes, so working the safety stop micro-switch and switching off the machine. Production will start again as soon as the cubes which detained it move or are removed.

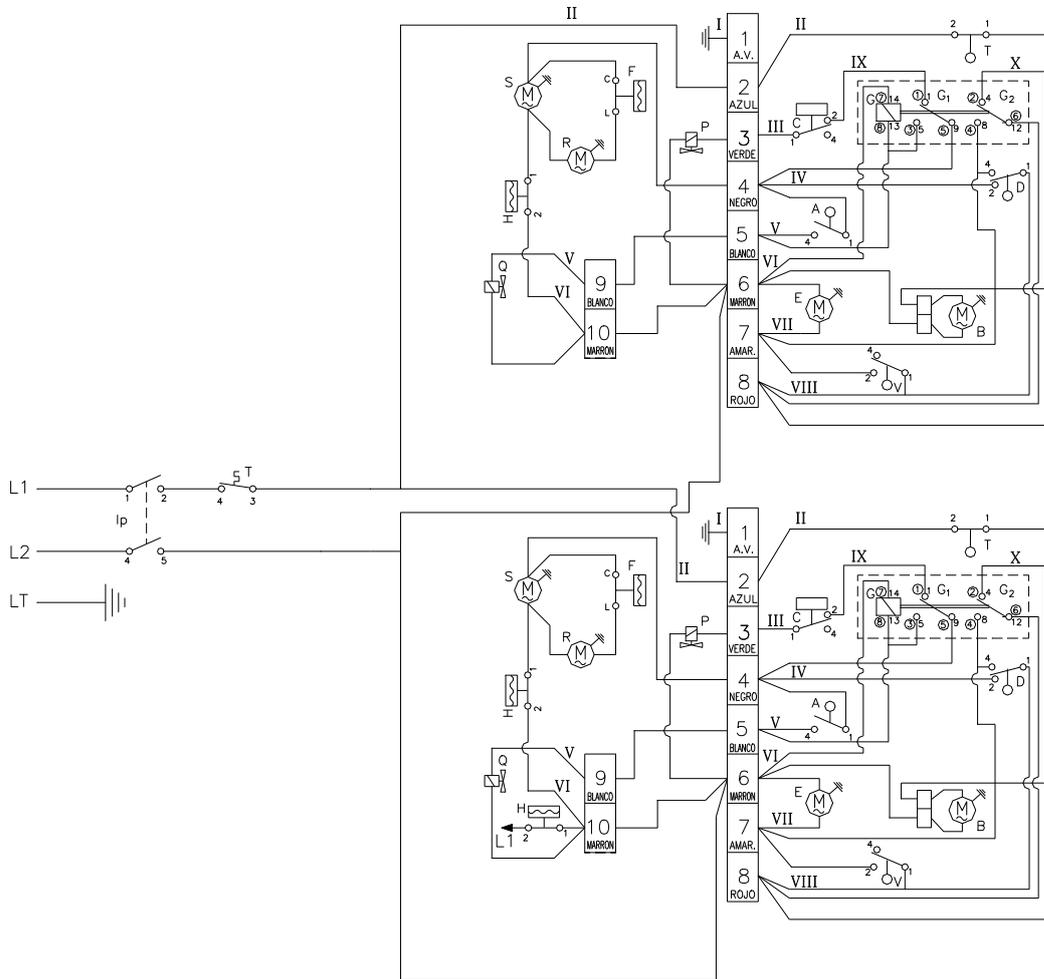
*Quasar*

fases de funcionamiento  
working stages  
phases de fonctionnement  
arbeitsspiel



# Quasar MQ200

ESQUEMAS ELECTRICOS / ELECTRIC DIAGRAM  
ELEKTRISCHER SCHALTPLAN / SCHEMAS ELECTRIQUES



COLORES

- I AMARILLO-VERDE
- II AZUL
- III VERDE
- IV NEGRO
- V BLANCO
- VI MARRON
- VII AMARILLO
- VIII ROJO
- IX GRIS
- X VIOLETA

COLOURS

- I YELLOW-GREEN
- II BLUE
- III GREEN
- IV BLACK
- V WHITE
- VI BROWN
- VII YELLOW
- VIII RED
- IX GREY
- X VIOLET

FARBE

- I GELB-GRUN
- II BLAU
- III GRUN
- IV SCHWARZ
- V WEIß
- VI BRAUN
- VII GELB
- VIII ROT
- IX GRAU
- X VEILCHEN

COULEURS

- I JAUNE-VERT
- II BLEU
- III VERT
- IV NOIR
- V BLANC
- VI MARRON
- VII JAUNE
- VIII ROUGE
- IX GRIS
- X VIOLET

COMPONENTES

- A MICRO IMPULSO
- B MOTOR AGITADOR
- C MICRO FLOTADOR
- D MICRO VOLTEADOR BANDEJA
- E MOTOR VOLTEADOR BANDEJA
- F PRESOSTATO VENTILADOR(SOLO AIRE)
- G RELE
- P ELECTROVALVULA AGUA
- Q ELECTROVALVULA GAS CALIENTE
- R MOTOR VENTILADOR
- S COMPRESOR
- T MICRO PARADA MAQUINA
- V MICRO SEGURIDAD VOLTEADOR
- H PRESOSTATO DE SEGURIDAD(SOLO AGUA)
- J PRESOSTATO CONDENSACION(Q20=34 AGUA)
- K ELECTROV.CONDENSACION(Q20=34 AGUA)
- L COND.FILTRO

COMPONENTS

- A DRIVE MICRO-SWITCH
- B PADDLE MOTOR
- C FLOAT MICRO-SWITCH
- D PAN CAM MICRO-SWITCH
- E PAN CAM MOTOR
- F FAN PRESOSTAT (AIR)
- G RELAY
- P WATER ELECTROVALVE
- Q HOT GAS ELECTROVALVE
- R FAN MOTOR
- S COMPRESSOR
- T MACHINE STOP MICRO-SWITCH
- V CAM SAFETY MICRO-SWITCH
- H SAFETY PRESOSTAT (WATER)
- J CONSENSATION PRESOSTAT(Q20=34 WATER)
- K CONDENSATION ELECTROVALVE(Q20=34 WATER)
- L RADIO DISTURB.CONDENSER

EINZELTEILE

- A IMPULS SCHALTER
- B VIBRATIONSMOTOR
- C SCHWIMMER-SCHALTER
- D UMDREHER-SCHALTER
- E UMDREHER-MOTOR
- F DRUCKSCHALTER FUR KONDENSATORLUFTER(LUFT)
- G RELAIS
- P WASSER VENTIL
- Q GAS VENTIL
- R VENTILATORMOTOR
- S KOMPRESSOR
- T AUS-SCHALTER
- V SICHERHEITSSCHALTER-UMDREHER
- H SICHERHEITS-PRESOSTAT(WASSER)
- J PRESOSTAT-KONDENSATOR(Q20=34 WASSER)
- K DREIWEGEVENTIL(Q20=34 WASSER)
- L FUNK-INTERFERENZ KONDENSATOR

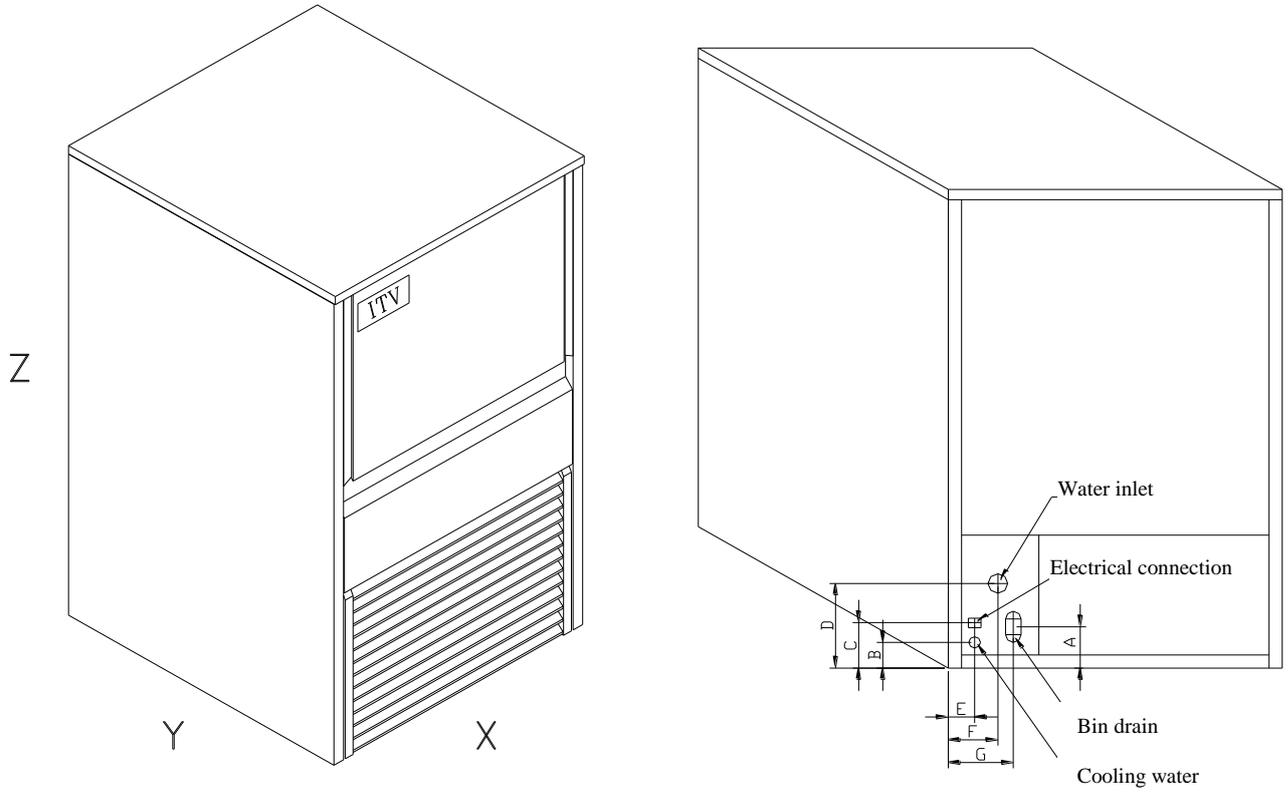
COMPOSANTS

- A MICRO-D'IMPULSION
- B MOTEUR AGITATEUR
- C MICRO-FLOTTEUR
- D MICRO-COMMANDE BASCULE
- E MOTEUR BASCULEUR
- F PRESOSTAT VENTILATION (AIR)
- G RELAIS
- P ELECTROVANNE EAU
- Q ELECTROVANNE GAS CHAUD
- R MOTEUR VENTILATEUR
- S COMPRESSEUR
- T MICRO-ARRET
- V MICRO-SECURITE
- H PRESOSTAT DE SECURITE (EAU)
- J PRESOSTAT CONDENSATION(Q20-34 EAU)
- K ELECTROWANNE CONDESATION(Q20-34 EAU)
- L CONDENSATEUR ANTI-INTERFER.

VALIDO DESDE 11-07-2003

**SPECIFICATIONS**

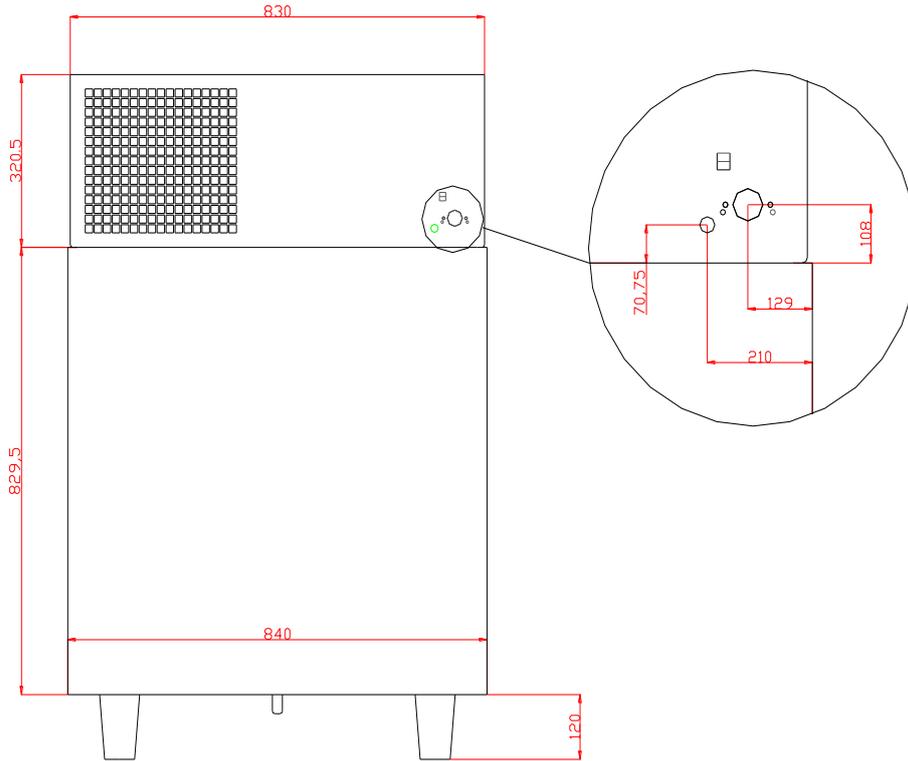
**Model: QUASAR 20/30/40/40S/50/60/90/130**



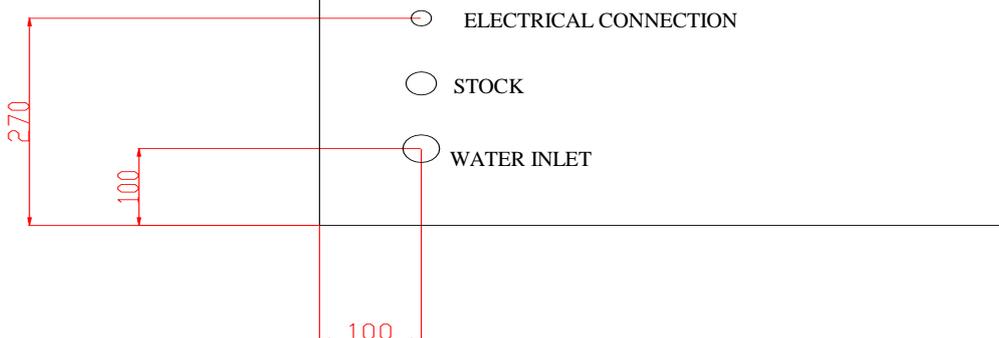
\* HEIGHT Z REPRESENTS MINIMUM MACHINE HEIGHT. IF LEGS ARE PLACED UNDER MACHINE, IT INCREASES 80 MM.\*

MODEL	X	Y	Z	A	B	C	D	E	F	G
QUASAR 20 C	405	510	690	60	35	65	123	45	65	105
QUASAR 30 C	405	510	745	60	35	65	123	45	65	105
QUASAR 40 C	405	510	870	60	35	65	123	45	65	105
QUASAR 40S/50 C	515	555	870	60	42	74	123	65	75	105
QUASAR 60 C	595	555	995	60	42	74	123	65	75	105
QUASAR 90 C	675	555	995	60	42	74	123	65	75	105
QUASAR 130 C	845	555	995	60	42	74	123	65	75	105

QUASAR 150 AND MODULAR QUASAR 200



MODULAR QUASAR 200  
BACK



## TECHNICAL DATA

MODEL	COOLING WATER USAGE L/HOUR (1)	ICE PRODUCTION WATER USAGE L/HOUR (1)	TOTAL WATER USAGE L/HOUR (1)	NET WEIGHT (KG)	DIMENSIONS CRATED X*Y*Z	GROSS WEIGHT	VOLUME
						(KG)	(M <sup>3</sup> )
QUASAR 20C A		4	4	36	490x595x765	41	0.22
QUASAR 20C W	15	4	19	36	490x595x765	41	0.22
QUASAR 30C A		4	4	39	490x595x830	44	0.24
QUASAR 30C W	15	4	19	39	490x595x830	44	0.24
QUASAR 40C A		5	5	42	490x595x960	46	0.28
QUASAR 40C W	25	5	30	42	490x595x960	46	0.28
QUASAR 40SC A		5	5	48	610x640x960	56	0.37
QUASAR 40SC W	25	5	30	48	610x640x960	56	0.37
QUASAR 50C A		7	7	48	610x640x960	56	0.37
QUASAR 50C W	33	7	40	48	610x640x960	56	0.37
QUASAR 60C A		6	6	55	690x640x1080	66	0.47
QUASAR 60C W	35	6	41	55	690x640x1080	66	0.47
QUASAR 90C A		11	11	60	770x640x1080	74	0.53
QUASAR 90C W	45	11	68	60	770x640x1080	74	0.53
QUASAR 130C A		11	11	80	940x640x1080	95	0.65
QUASAR 130C W	53	11	64	80	940x640x1080	95	0.65
QUASAR 150C A		11	11		930x640x1295	151	0.96
QUASAR 150C W	57	11	68		930x800x1295	151	0.96
MQ 200 C A		11	11	98	900*650*1200	113	0.702
MQ 200 C W	70	11	81	98	900*650*1200	113	0.702

MODEL	HIGH PRESSURE				LOW PRESSURE		TOTAL INTENS (2) (A)	FUSES (A)	COMPRESSOR OUTPUT (1) (W)	TOTAL OUTPUT (2) (W)
	MINIMUM		MAXIMUM		AVERAGE					
	Kg/cm <sup>2</sup>	Psi	Kg/cm <sup>2</sup>	Psi	Kg/cm <sup>2</sup>	Psi				
QUASAR 20C A	16	228	17	240	2.5	38	1.5	10	175	220
QUASAR 20C W	16	228	17	240	2.5	38	1.5	10	175	220
QUASAR 30C A	16	228	17	240	2.5	38	1.5	10	190	220
QUASAR 30C W	16	228	17	240	2.5	38	1.5	10	190	220
QUASAR 40C A	16	228	17	240	2.5	38	1.7	10	190	270
QUASAR 40C W	16	228	17	240	2.5	38	1.7	10	190	270
QUASAR 40SC A	16	228	17	240	2.5	38	1.7	10	190	270
QUASAR 40SC W	16	228	17	240	2.5	38	1.7	10	190	270
QUASAR 50C A	16	228	17	240	2.5	38	2	10	210	300
QUASAR 50C W	16	228	17	240	2.5	38	2	10	210	300
QUASAR 60C A	16	228	17	240	2.5	38	2.2	10	210	310
QUASAR 60C W	16	228	17	240	2.5	38	2.2	10	210	310
QUASAR 90C A	16	228	17	240	2.5	38	2.8	10	365	450
QUASAR 90C W	16	228	17	240	2.5	38	2.8	10	365	450
QUASAR 130C A	16	228	17	240	2.5	38	3	10	440	500
QUASAR 130C W	16	228	17	240	2.5	38	3	10	440	500
QUASAR 150C A	16	228	17	240	2.5	38	4.5	10	900	980
QUASAR 150C W	16	228	17	240	2.5	38	4.5	10	900	980
MQ 200 C A	16	228	17	240	2.5	38	6	10	440	1000
MQ 200 C W	16	228	17	240	2.5	38	6	10	440	1000

(1) Data obtained at 20° C room temperature and 15°C water temperature (water quality = 500 ppm)

(2) Maximum consumption obtained at 43°C room temperature, according to UNE climate classification Class T (Tropicalised)

NOTE: Expansion controlled by capillary.



**QUASAR 90 C**

<b>45</b>	24 71	26 66	28 61	29 59	30 57	31 55	32 53
<b>40</b>	23 74	24 71	26 66	28 61	29 59	30 57	31 55
<b>35</b>	22 77	23 74	24 71	26 66	28 61	29 59	30 57
<b>30</b>	21 83	22 77	23 74	24 71	26 66	28 61	29 59
<b>25</b>	20 85	21 83	22 77	23 74	24 71	26 66	28 61
<b>20</b>	19 90	20 85	21 83	22 77	23 74	24 71	26 66
<b>15</b>	18 95	19 90	20 85	21 83	22 77	23 74	23 71
<b>10</b>	17.5 97	18 95	19 90	20 85	21 83	22 77	22.3 74
	<b>5</b>	<b>10</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>35</b>

**QUASAR 130 C**

24 99	26 92	28 85	29 81	30 79	31 77	32 74	
23 103	24 99	26 92	28 85	29 81	30 79	31 77	
22 108	23 103	24 99	26 92	28 85	29 81	30 79	
21 114	22 108	23 103	24 99	26 92	28 85	29 81	
20 119	21 114	22 108	23 103	24 99	26 92	28 85	
19 125	20 119	21 114	22 108	23 103	24 99	26 92	
18 132	19 125	20 119	21 114	22 108	23 103	24 99	
17 136	18 132	19 125	20 119	21 114	22 108	23 103	
	<b>5</b>	<b>10</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>35</b>

Min/cycle
Kg/day

**QUASAR 150 C**

<b>45</b>	24 99	26 92	28 85	29 81	30 79	31 77	32 74
<b>40</b>	23 103	24 99	26 92	28 85	29 81	30 79	31 77
<b>35</b>	22 108	23 103	24 99	26 92	28 85	29 81	30 79
<b>30</b>	21 114	22 108	23 103	24 99	26 92	28 85	29 81
<b>25</b>	20 119	21 114	22 108	23 103	24 99	26 92	28 85
<b>20</b>	19 125	20 119	21 114	22 108	23 103	24 99	26 92
<b>15</b>	18 132	19 125	20 119	21 114	22 108	23 103	24 99
<b>10</b>	17 136	18 132	19 125	20 119	21 114	22 108	23 103
	<b>5</b>	<b>10</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>35</b>

**QUASAR 200 C**

19.5 151	20 143	21 138	23 126	26 110	27.5 99	28.5 92	
18.5 160	19.5 151	20 143	21 138	23 126	26 110	27.5 99	
16.5 174	18.5 160	19 151	19.5 145	21.5 131	23 125	26 110	
15.5 187	16.5 174	18.5 160	19 150	20 143	21.5 133	23 125	
14.5 193	15.5 187	16.5 174	17 168	19 151	20 140	21.5 133	
14 208	14.5 193	15.5 187	16 180	18.5 160	19 152	20 140	
13.5 209	14 208	14.5 193	15.5 185	16.5 174	18.5 158	19 152	
12.5 210	13.5 210	14 204	15 191	15.5 187	16 176	18.5 158	
	<b>5</b>	<b>10</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>35</b>

Min/cycle
Kg/day

**WATER TEMPERATURE (°C)**  
**500 ppm water quality (240 Micromh/cm)**

## DELIVERY & 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:

### *Packing*

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

### *Machine body*

On the machine’s rear panel (1).

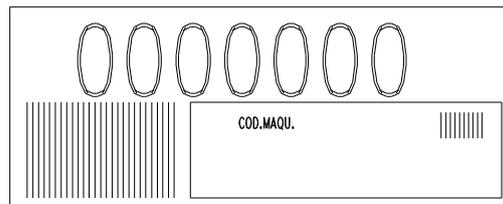
### *Placa de características*

Located at the rear side of the machine.

Water cooled machines: check that the drainage hose at the back of the machine is in good condition.

Verify that the installation kit is inside the bin ,and has the following pieces:scoop, 3/4” water hose, two small filters and user manual.

ITV		N:0000000		
MODELO:				
V.	Hz.	A.	⇒ A.	W.
220-240 V	50	3.5	16	300 W
REF. R22 450 gr.		CONDENSACION-CONDENSATION-KONDENSATION AIRE-AIR-LUFT		



**WARNING: DO NOT LEAVE PACKING MATERIALS (PLASTIC BAGS, CARDBOARD BOXES, ETC..) WITHIN REACH OF CHILDREN.**

## INSTALLATION

The ice cube maker is delivered on a small wooden pallet and is protected with a cardboard box and packaging. Loosen the cardboard box by cutting the straps, then lift vertically.

After having removed the packaging, make sure the machine is complete. If in doubt do not use it and go to the distributor who sold it to you.

This operation has to be performed with the wooden base structure firmly placed on the ground. All packaging elements (plastic bags, cartons, etc..) must not be left at children's reach, since they are a potential source of danger.

Place the machine where it is to be installed and verify, using a level control, that the machine is in a horizontal position.

### CAUTION:

If the space between the back of the machine and the wall of the room/counter is not sufficient or if it is going to receive hot air from another device, we strongly advise, in case another location is not possible, to **INSTALL A WATER-COOLED MACHINE.**

IT IS IMPORTANT THAT THE WATER INLET TUBE DOES NOT PASS BY OR NEAR HEAT AREAS IN ORDER NOT TO LOSE PRODUCTION OF ICE.

Take into consideration the previous remarks if the premises where the machine is placed are very dusty or smoky.

We advise against installing the machines in KITCHENS, specially the air-cooled version.

To facilitate a easy Access to condenser and/or water pressure valve, allow sufficient space at front of the machine. Be sure that floor is firm and even.

### *Water and Drainage*

Water quality influences ice hardness, flavour and quality as well as condenser life.

Keep in mind the following points:

- a) **WATER IMPURITIES:** Major impurities are eliminated by filters provided. Filters should be cleaned regularly depending on purity of water. For minor impurities we recommend installing a 5-micron filter. (Provided with the unit: Part # ITV 207499).
- 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. (Code ITV 207500).
- c) **CHLORINATED WATER:** Chlorine taste can be avoided by installing a carbon filter (Code ITV 207509).

**(NOTE: You may encounter water with all aforementioned properties)**

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

***Connecting Unit To Water Source***

- Use 1.3 m flexible tube with the two filters provided with the unit. We advise the use of a single faucet fixture.
- Water pressure should be between 0.7 and 6 kgs (cm<sup>2</sup>. (10/85 Psi).
- If water pressure exceeds these values, installation of appropriate corrective units will be necessary.
- It is important that water tubing does not come close to or in contact with any heat sources or heat generated by unit as this could decrease production.

***Connecting Unit To Drain (Water Cooled Models)***

Drain must be located at least 150 mm. Below machine level. Drain tube must have an inner 30 mm diameter, with a minimum 3 cm gradient per metre.

***Electrical Connection***

The Unit is provided with a 1.5m Cord and Schucko socket.

It is recommended to install a switch and adequate fuses. Nominal voltage and intensity are indicated on rating plate as well as on this manual. Voltage fluctuations greater than 10% can cause problems or prevent machine from starting.

Line to base of plug must have a minimum 12/10 section in the small models and 25/10 in the big ones.

Ensure that voltage indicated on rating plate corresponds to that of mains supply.

**IMPORTANT!**

Supply socket must be properly earthed. Be sure to check standards and legislation currently in force for the country of installation.

**WE RECOMMEND:*****Levelling***

Place machine where it is required and level it ONCE all four legs have been fixed.

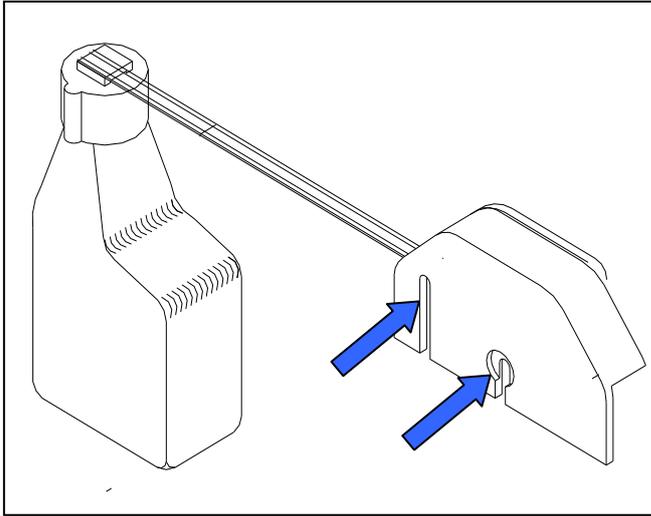
***Space requirements***

There should be a 150 mm gap on sides and top of the machine so as to allow air to circulate and prevent heat build-up.

***Float valve level***

This valve is factory set, but may need to be adjusted if mains water pressure is very high or very low. To do so, loosen the two small screws which connect the micro-switch to the steel support. Move micro-switch as required and tighten screws. Water level must be about 5 mm below the evaporator coil to, otherwise there may be difficulty in releasing cubes in winter.

Note that if mains pressure is subject to large fluctuations, it will be difficult to maintain a constant water level, in this case it may be advisable to install a pressure regulator on the water mains line.



**OPERATION**

*Preliminary Check*

- a) Is machine levelled?
- b) Are voltaje and frequency of main supply the same as indicated on rating plate?
- c) Is drainage system functioning?
- d) Is air circulation and room temperature adequate? (Air-cooled models)

	<b>ROOM TEMPERATURE</b>	<b>WATER TEMPERATURE</b>
<b>MAXIMUM</b>	43 C	35°C
<b>MINIMUM</b>	5º C	5°C

- e) Is water pressure adequate?

<b>MINIMUM</b>	0,7 kg./cm2
<b>MAXIMUM</b>	6 kg./cm2

**ATTENTION:** Check that voltage and mains frequency are the same as in the rating plate.

***Starting up***

Once preliminary check has been completed (ventilation, connections, temperature, etc..) proceed as follows:

- 1) Open water faucet. Check for leaks
- 2) Plug machine into electricity mains supply
- 3) Ensure that there are no strange vibrations or scraping sounds
- 4) Check that the water curtain moves freely
- 5) At the cycle's end, there should be frost formed on the compressor inlet tube except for the last 50 mm.

**ATTENTION:**

**ADVISE THE FINAL USER ON MAINTENANCE PROCEDURES WHICH ARE NOT INCLUDED IN WARRANTY, AS WELL AS THOSE BREAKDOWNS CAUSED BY NEGLIGENCE OF PROPER MAINTENANCE PROCEDURES.**

**ADJUSTMENTS*****Condenser water valve pressostat***

WATER COOLED MACHINES

(UP TO Q40SC WATER COOLED)

This pressostat controls high pressure by opening and closing the condenser water valve. Differential is a fixed 1 kg/cm<sup>2</sup> (14 Psi). The valve closes at 16 Kg/cm<sup>2</sup> (228 Psi.) which is equivalent to a water exit temperature of 38°C below this pressure it will be difficult to unstuck the cubes at the defrosting stage.

Above this pressure, compressor life and ice production are both reduced. Pressure can be increased by turning the small screw clockwise. A full turn is equivalent to about 1.5 kg/cm<sup>2</sup>.

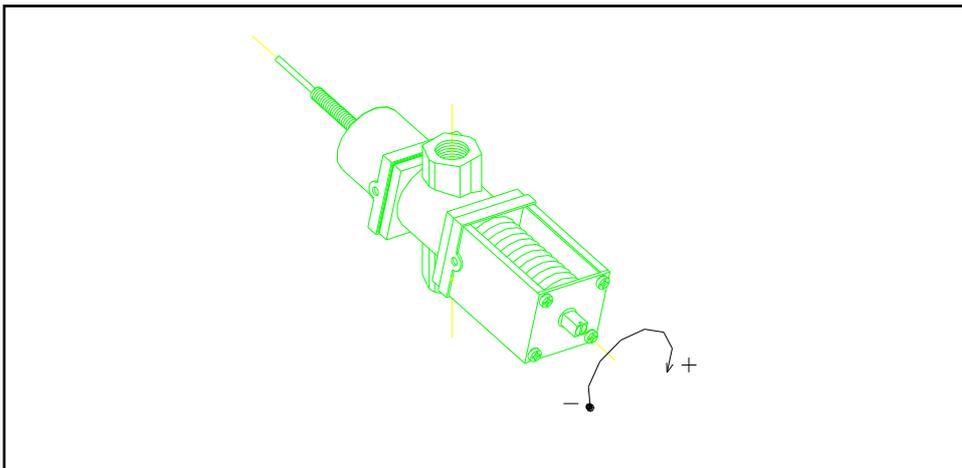
***Water Pressure Control Valve***

(FROM Q50C WATER COOLED)

High pressure should be maintained at 16-17 bar (228-240 Psi) must be maintained which corresponds to a water temperature of 40°C (exit temperature).

When temperature exceeds 32°C, pressure and temperature of water at exit increases.

**ADJUSTMENT:** Water pressure and temperature can be decreased by regulating screw clockwise.



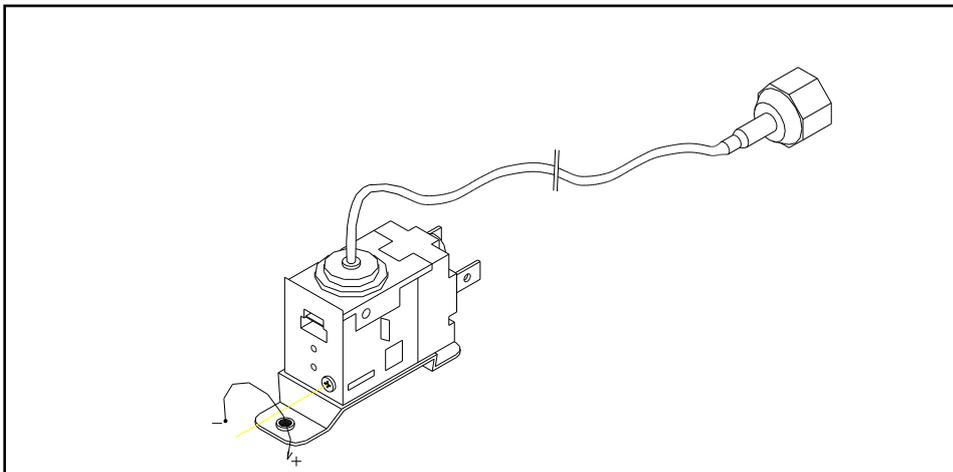
**Pressostats**

**AIR COOLED MACHINES**

**Fan pressostat (air condensing)**

Pressure control operates on high pressure by starting and/stopping fan. Differential is fixed (1Kg/cm<sup>2</sup> or 14 Psi). Cut-off pressure must be 16 kg/cm<sup>2</sup> (228 Psi) . Low pressure values may cause gearbox malfunction. Pressure values higher than 16 kg/cm<sup>2</sup> may shorten compressor life and diminish ice production.

Pressure can be regulated by rotating screw on Pressure Control Valve (clockwise to increase pressure). One rotation equals 1.5 Kg/cm<sup>2</sup>.



**Safety Pressostat**

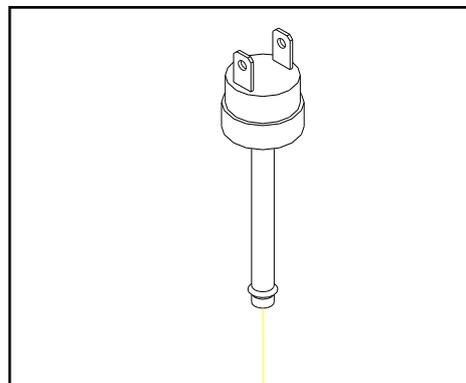
ALL MACHINES

This Security device trips when discharge pressure is too high. Pressure might exceed the limit when:

- a) Dirty condenser, bad air circulation or too high room temperature (air cooled models)
- b) Lack of water or too high water temperature (water cooled models).

**HIGH PRESSURE REGULATION (fixed)**

30-22 kg./cm<sup>2</sup> (420-308 Psi.)



## 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 function of unit. Frequency depends on water quality and characteristics of room where unit is installed.

### IMPORTANT:

\*\*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.

## MAINTENANCE CHART

PROCEDURE	MONTHLY	QUARTERLY	HALF YEARLY	YEARLY	BIENNIAL	DURATION
Limpieza condensador aire	0000	0000	****	****	****	30 minutos
Limpieza condensador agua				####.	****	90 minutos
Limpieza circuito agua fabricación		####	####	****	****	45 minutos
Limpieza sanitaria		####	####	****	****	30 minutos
Limpieza/cambio filtros de agua	####	####	****	****	****	30 minutos
Limpieza cuba stock.	&&&	&&&	&&&	&&&	&&&	--
Limpieza exterior	&&&	&&&	&&&	&&&	&&&	--

0000 Depending on room characteristics.

#### Depending on water quality.

&&& TO BE 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.

**MAINTENANCE AND CLEANING PROCEDURES.**

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

***Water Condenser***

- 1) Disconnect the machine.
- 2) Close water faucet.
- 3) Disconnect water entry/exit from condenser.
- 4) Prepare a solution of 50% phosphoric acid in distilled water.
- 5) Distribute solution through condenser. (Solution is more effective at 35°C – 40°C).

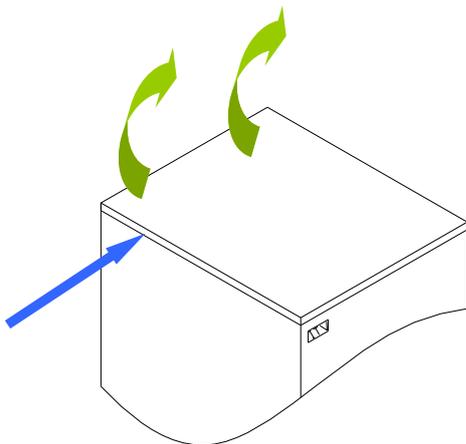
**DO NOT USE HYDROCHLORIC ACID.**

***Air Condenser***

- 1) Disconnect machine.
- 2) Close water faucet.
- 3) Clean condenser using a vacuum cleaner, brush or low pressure air..

***Removing scale (lime) from ice production mechanism***

- 1) Close the water inlet faucet.
- 2) Remove lid from top lid from top of machine by pulling upwards from the rear part of the lid. Some force is required for this it may be better to prise it open with a flat screwdriver.



- 3) Hold agitator paddles so that water pan releases water.
- 4) Once the water pan returns to its horizontal position again, switch off the machine. Pour 3 litres of water and one half of di-caloid (ITV cleaner) into water pan.

- 5) Allow the solution to work for 20 or 30 minutes, occasionally turning the paddles by hand so that they are also cleaned.
- 6) Turn on the machine and hold paddles so that pan releases water.
- 7) Open the water inlet faucet and allow the water pan to fill with water.
- 8) Dissolve a spoonful of sodium bicarbonate in a glass of water, then pour solution into water tray. Wait 5 minutes.
- 9) Repeat (6) several times until water pan has been thoroughly rinsed.

**WARNING: \*\* Discard ice produced during cleaning procedure.**

#### ***Cleaning the ice bin.***

- 1) Unplug the machine, turn off water supply 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.

#### ***Cleaning the outside of the machine***

Follow the same procedure as for the ice bin.

#### ***Cleaning the water inlet filters***

These round wire gasket filters placed on either end of the water hose to mains, often become blocked in the first few days of use, especially when the plumbing installation is new. Clean them under a jet of water.

#### ***Checking for water leaks***

This must be done whenever maintenance is carried out on the machine: check all water connection, 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.

**SPECIAL ADVICE CONCERNING R-404 REFRIGERANT.**

- Refills and drains should be carried out at the liquid parts (end of condenser or accumulator)
- When replacing a compressor, wash inside of circuit with a suitable solvent + pump, dry with nitrogen, REPLACE THE DRIER WITH ONE SUITABLE FOR R404a, which must also have ANTI-ACID properties.
- If you need to add oil in the circuit, use one specific for R404a (POE) . If you are in doubt, consult always the manufacturer.
- If there is a leak in the circuit where the R404a is in gas state and the amount to refill is above a 10% of the total load, ALL THE GAS OF THE CIRCUIT SHOULD BE PURGED AND PROCEED AGAIN WITH REFILL (ALWAYS LIQUID).
- If refilled through the low pressure valve, wait at least 1 hour tom ove the compressor, in order to allow the liquid to pass to gas state.

## TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSES	SOLUTION
1) None of the electrics work.	A) The machine is not plugged in.	A) Plug the machine.
	B) The line fuse has blown.	B) Replace fuse.
	C) The current line is wrongly connected in the junction box.	C) Check connections.
	D) The cut off micro-switch is faulty or wrongly adjusted.	D) Check and adjust or replace.
2) All the electrics work except compressor	A) Loose wire.	A) Check connections.
	B) Dirty condenser.	B) Clean condenser.
	C) Faulty klixon.	C) Replace Klixon.
	D) Faulty compressor.	D) Replace compressor.
3) All the electrics work but the compressor "klixons" (cycles intermittently).	A) Voltage too low.	A) Check connections.
	B) Dirty condenser.	B) Clean condenser.
	C) Obstruction in air circulation	C) Move machine
	D) Broken Fan.	D) Replace compressor
	E) Faulty electrolytic condenser of compressor.	E) Replace.
	F) Fan pressostat faulty or wrongly adjusted.	F) Adjust or replace pressostat.
	G) Broken security pressostat	G) Replace
	H) Water PRESSOSTAT Valve wrongly adjusted or faulty.	H) Adjust or replace.
	I) Water condenser pressostat wrongly adjusted or faulty.	I) Adjust or replace.
	J) Faulty water inlet valve.	J) Replace.
K) No condensable gases in the system.	K) Purge system and charge refrigerant.	
4) Everything appears to be running correctly but no ice made in the evaporator.	A) Inefficient cooling system . (Dirty condenser, faulty pressostat or condensing water inlet valve or wrongly adjusted or lack of refrigerant)	A) Check system and components.
	B) Faulty hot gas valve (outlet pipe temperature could be an indication)	B) Replace hot gas valve.
5) Ice cube form correctly but do not unstick.	A) Hot gas valve does not open.	A) Check valve.
	B) The lower cam micro-switch is faulty or wrongly connected..	B) Replace micro or connect it correctly.
	C) Only in water condensed machines) Faulty pressostat or it opens too much	C) Regulate water pressostat to 40°C-43°C.
	D) Faulty pressostat.	D) Check or adjust pressostat.

PROBLEM	POSSIBLE CAUSES	SOLUTION
6) Low ice production.	A) Too high or too low water level in water pan.	A) Check water level. Observe the position of the float.
	B) Blocked condenser.	B) Clean condenser.
	C) Faulty fan pressostat or condensing water inlet valve or adjusted too low .	C) Adjust or replace.
	D) Excessive or poor refrigerant load.	D) Adjust the load of refrigerant.
	E) Water inlet valve does not close and drips.	E) Check and replace if necessary.
	F) Humidity in the system.	F) Replace the drier, purge and refill.
	G) Inefficient Compressor.	G) Replace the compressor.
	H) Faulty water pan.	H) Check the water pan and replace if necessary.
7) A block of ice is formed in the tray	A) Faulty micro-switch of agitator motor.	A) Check micro-switch.
	B) Faulty agitator motor.	B) Check agitator motor.
	C) Loose unión bush pins.	C) Tighten pins.
	D) Cut flexible cable.	D) Replace.
8) The machine does not stop though the bin is full of cubes.	A) Faulty connecting rod micro-switch or in wrong position.	A) Check micro-switch. Position it correctly.
	B) Wrong pressure on this micro-switch spring.	B) Check spring pressure.
	C) In MQ 200 model, faulty thermostat	C) Replace thermostat.
9) Cubes are formed normally for some cycles and then the evaporator stops cooling.	A) Humidity in the system.	A) Purge the installation heating the compressor and drier. Load the correct refrigerant.
	B) Foreign body blocking intermittently the capillar.	B) Remove the dehydrator, unblock capillary and replace with new dehydrator. Proceed again with purge and refill.
10) The tray remains in stop position although cubes after harvest cycle.	A) faulty connecting rod or in wrong position.	A) Replace or change position of micro-switch.
11) Water tray does not deliver ice cubes or remains in a middle position.	A) Cam motor disconnected or in bad condition.	A) Replace or connect cam motor.
	B) Flexible pin or broken cam wheel	B) ALWAYS change pin and wheel
12) Water tray goes up and down constantly.	A) Faulty or wrongly connected agitator motor micro-switch.	A) Connect or replace micro-switch.
	B) Faulty or wrongly connected security micro.	B) Connect or replace micro-switch.
	C) Faulty relais.	C) Replace relais.
13) The evaporator cools. There is no water in the water tray.	A) Water supply is closed.	A) Open water supply
	B) Blocked water supply.	B) Clean water entry filters
	C) Float wrongly positioned.	C) Adjust float
	D) Broken float micro-switch	D) Replace micro.
	E) Broken water inlet electrovalve.	E) Replace electrovalve.