



**GRANULAR ICE GENERATOR
GIQ850 R404A/R452A/R448A/R449A**

Installation guide

General description

The ice generator must be connected to a centralized refrigeration system with R448A/R449A/R404A. The main components are:

- Evaporator made of reinforced stainless steel
- Electronic expansion valve
- Evaporation constant pressure valve
- Gear motor with adjustable velocity
- Maximum high pressure 45 bar
- Maximum low pressure 30 bar
- Liquid sight glass

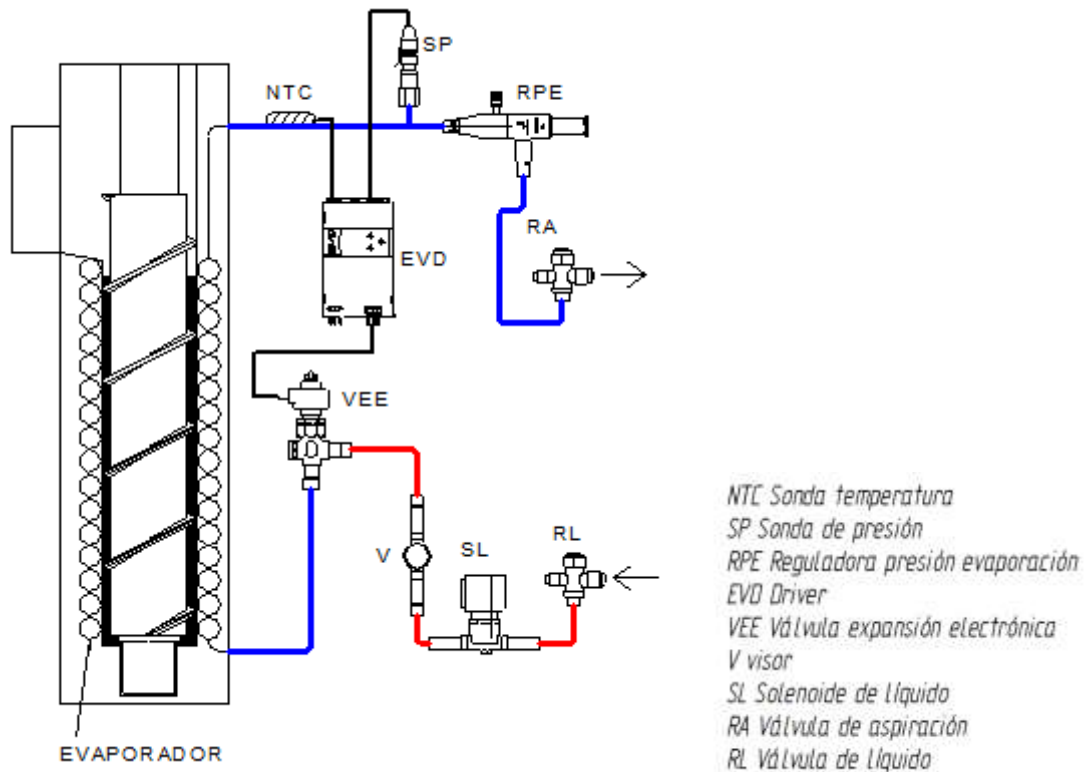
Electric connection

- Electrical connection : Single phase 220-240V / 50 Hz
- Electrical power: 600W
- Intensity: 3.5 A
- Comes with a Schuko plug

Water connection.

- ¾" flexible hose.
- 1 bar minimum water pressure.

Refrigeration connection



The refrigeration requirement is 3400 W.

The evaporating temperature should be $-24\text{ }^{\circ}\text{C}$ which is regulated by adjusting the KVP valve. Due to the minimum pressure drop in this valve, we must have a maximum pressure equivalent to $-30\text{ }^{\circ}\text{C}$ at the suction inlet of the machine. For this purpose, the working pressure of the plant and the pressure drop in the connection lines must be taken into account.

With higher suction pressures, the evaporation temperature will increase and there will be a loss in production.

Liquid line.

The expansion valve is electronic step by step. They work more stably with sub-cooled liquid. We recommend not having the liquid inlet above $25\text{ }^{\circ}\text{C}$.

For this reason, we recommend the installation of a heat exchanger between the liquid and suction lines. The following benefits are achieved:

- Elimination of bubbles in liquid
- Stability in the expansion valve regulation
- Decreases the mass flow rate and therefore the head losses
- Ensures that no liquid reaches the plant through the suction side

$T_e = -23^{\circ}\text{C}$
 $P_e = 2.68\text{ bar}$

Dimensioning (data with heat exchanger. Considered liquid at $20\text{ }^{\circ}\text{C}$)

We tabulate the losses per meter in each case.

Suction line: Connection to machine $\frac{1}{2}$ "

SECTION	DP (Bar/m)	DP (K/m)
5/8	0,015	0,175
3/4	0,006	0,064

- Liquid line: Connection to machine 3//8"

SECTION	DP (Bar/m)	DP (K/m)
3/8	0,004	0,010
1/2	0,001	0,002

- Exchanger. Rated power 1.1 kW or higher. Connections not less than those of the lines. Examples:
 Parker HX1.1/2 (7/8 – 3/8)
 Packless HXR-75 (7/8 – 3/8)

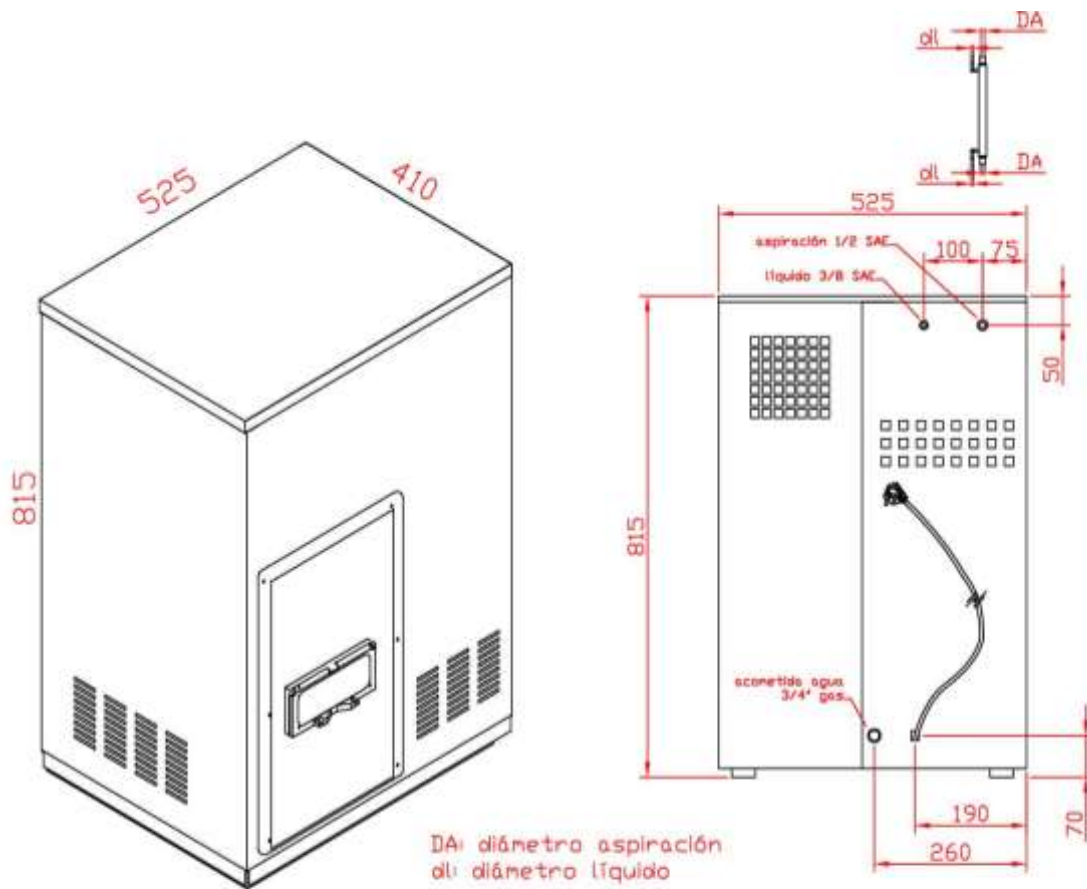
Commissioning

- Electrical, water and refrigeration connections. Keep connection valves closed
- Vacuum the lines
- Pressurize service lines
- Open service keys
- Remove electrical panel cover
- Turn on the start switch
- After 10' the gearbox will start up
- After an additional 3' the expansion valve is activated
- Set the suction KVP valve to -24 °C. T2 temperature of the IWK display
- Check stable operation and modulation of the valve
- Check production

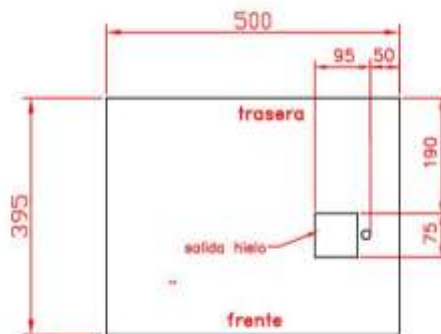
Tecnical especificacions

Generator GIQ850 R404A	
Technical specifications	
dimension:	
width	525 mm
length	410
Height (with legs)	815
Net weight	88 Kg
Electrical data:	
voltage	220-240 V
frequency	50 Hz
power	600 w
intensity	3,5 A
Electric plug with Schuko	
Gear motor:	
voltage	220-400V (220V connection)
power	0,37 Kw
velocity (50Hz)	7,5 rpm
working velocity (65 Hz)	9,8 rpm
Speed driver	
Input voltage	220-240 (single phase) V
Output voltage	220 (three phase) V
Nominal power	0,55 kW
Refrigeration data:	
refrigerant	R404A/R452A/R448A/R449A
Evaporation temp.	-24°C
Cooling requirement	3400 w
Liquid connection	3/8" SAE
Suction connection	1/2" SAE
Masimum high pressure	34 bar
Maximun low pressure	20 bar
Electronic expansion valve	
VEE pulse valve	E2VZ14
driver V800/P1	
Pressure probe	1-9.3 bar
Temperature probe	quick NTC IP-68 10K
Evaporation constant pressure valve:	
Máximum pressure	20 bar
range	0-5,5 bar
setting	-24°C (16.4 bar)
Water connection:	
Flexible hose	3/4"
Nominal production (water temp. 15°C)	
	850 Kg/24h

Dimensions

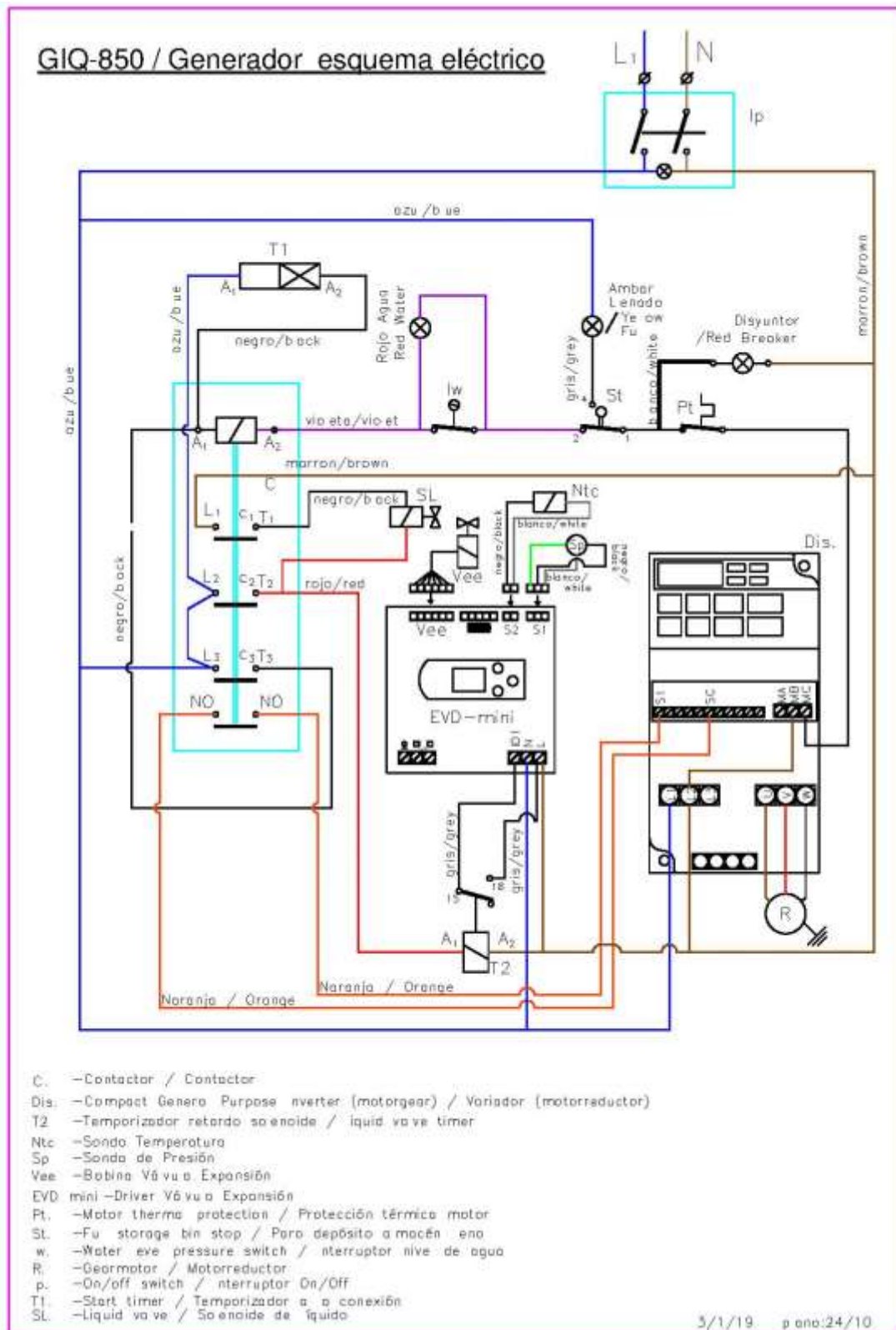


POSICIÓN SALIDA DE HIELO



la abertura en la cubierta del silo debe sobrepasar al menos 30mm por parte a la zona acotada

Electrical diagram



Settings

Omron speed driver JZAB0P4BAA

Nominal power 0.55 kW

Nominal I 3A

Setting	Factory setting	SPLIT	Description
		R404A	
A1-01	2	0	Setting change not available
b1-01	1	0	working frequency by keyboard (d1-01)
b1-02	1	1	run by contact sc-s1
b1-03	0	1	instantaneous stop
b1-04	0	1	turning direction not available
b1-17	0	1	turns on when the start up contact is closed while giving power to the unit
C1-01	10	5	acceleration seconds
C6-02		6	15 khz noise reduction
d1-01	0	65	working frequency
d2-01	100	100	upper frequency limit %100 de E1-04
d2-02	0	65	lower frequency limit % de E1-04
E1-04	50	80	maximum frequency
H2-01	E	E	exit relay NO-NC
L6-01	0	4	over torque, alarm and stops. Detection during start up and working
L6-02	150	80	intensity limit % over variator nominal
L6-03	0,1	10	seconds to give over intensity alarm
o2-02	1	0	keyboard blocked
o3-01	0	2	Data copied from keycard

Instrumento: Driver Carel EVD-Mini							
Código de producto: EVDM011N00							
Referencia: ITV GIQ-850							
Fecha: 08/01/2019							
Parámetros de ajuste driver válvula de expansión							
Etiqueta	Descripción	UM	Valor por Defecto	Min	Máx	R404	448/449
Ajuste principal (tecla SET 2")							
GAS Type	Tipo de gas	-	3	1	2	3	33/34
SH_set	Temperatura de sobrecalentamiento (Superheat set point)	°K	11	Valor C1	55	5,5	5,5
Mode	Modo de operación					0	0
Parámetros de servicio (flechas up/down 5")							
CP	PID ganancia proporcional (PID proportional gain)	-	15	0	800	25	25
ti	PID tiempo integral (PID integral time)	s	150	0	999	100	100
C1	Límite inferior sobrecalentamiento (Low SH protection: threshold)	°K	5	-5	Valor SH_set	3	3
C4	LOP protection: integral time	s	0	0	800	15	15
C5	MOP protection: threshold	°C	50	Valor C3	200	-10	-10
C6	MOP protection: integral time	s	0	0	800	2	2
C7	MOP protection: disabling threshold	°C	30	-85	200	30	30
C8	Low suction temperature: alarm threshold	°C	-50	-85	200	-50	-50
S1	Prove type	-	3	1	11	3 (-1...9,3 barg)	3 (-1...9,3 barg)
U4	Apertura inicial de la válvula (Valve opening at start-up)	%	50	0	100	50	50
INFORMACION (acceso junto a los de servicio)							
P1	Presion sonda (bar)						
P2	temperatura sonda						
Ts	p2 (sin uso)						
Te	temperatura evaporación por presión						
Po	%apertura de válvula						
EQUIPO							
	driver válvula expansión						EVDM011N00
	válvula						E2V14Z
	sonda de presión						(-1...9,3 barg)
	sonda temperatura						NTC 4x40 rápida
Ajuste válvula reguladora de presión de evaporación (°C/bar)						-24 / 1,6	-24 / 1,08