Refrigeracion Verde

Industrial Refrigeration , Air Conditioning and Ventilation

Design and Manufacture of Engineered Equipment

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Solar and Engine Natural Gas Generator - Driven Block Ice Maker

Equipment required for **Artisanal Fishing** operations in areas where the electrical grid does not reach or the cost of electricity is high .The ice machine can operate day and night , producing **10 kg Ice Blocks** that form over a 12-hour period in a brine (calcium chloride) tank kept at - 6°C
The refrigeration system features a piston **Compressor** directly coupled to an electric motor via a coupling and alignment housing , an **Evaporator** , and an air-cooled **Condenser** ; in addition to cooling the brine tank , it also cools a **Cold Room** where Ice Blocks are stored
Electrical power is supplied by a generator powered by a **Natural Gas or Biomethane** internal combustion Engine , driving the compressor's electric motor and the auxiliary equipment . During the day , **Solar Panels** provide backup power to operate only the **Auxiliary Equipment** (Agitator, condenser Fans, and Cold Room Evaporator)

Operating Conditions :

Compressor at 1750 RPM , **Refrigerant 507A** , **Evaporation** Temperature (SST) **-12°C** , Suction Superheat (SH) 10K , **Condensing** Temperature (SDT) **45°C** , Liquid Subcooling (at the Condenser) (SC) 5K , Condenser Air Inlet Temperature **30°C**
Production of 10 kg Ice Blocks , 10 cm thick , in approximately **12 hours** , when molds are filled with water at **20°C** and the average brine temperature is **- 6°C** with forced flow through the evaporator .
The Ice Production indicated in the following table is based on an Overall System **Thermal Efficiency of 90%**

Refrigeration Condensing Unit :



Air-cooled condensing unit equipped with an **Open-type Bitzer Compressor** , ensuring high reliability ; the refrigeration circuit remains free from contamination in the event of a motor burnout , as the motor can be repaired or replaced

- Electrical Motor WEG W22 , IE3 Premium , 4-Poles (60 Hz) , IP 55
- Coupling and Coupling Housing for the aligned of the Motor
- Cooled Shaft Seal by means of pressure oil
- Air Cooled Condenser Coil with Sub-cooling circuit
- Oil Separator , Liquid Receiver , Suction Liquid Separator
- Suction and Discharge Valves , Crankcase Heater,
- Oil Pressure Switch , Discharge Gas Temperature Sensor
- Optional Variable speed Motor

SOLAR AND NG-POWERED SYSTEM ICE MAKER , 10 KG BLOCK @ 12 HOURS															
NIGHT OPERATION @ 12 HOURS										DAYTIME OPERATION @ 12 HOURS					
MODEL	**COMPRESSOR AT 1750 RPM** SST - 12°C , SH 10K / SDT 45°C , SC 5K , AIR ENTERING AT 30°C					**- 6°C ICE PROD**	**- 6°C COLD ROOM + AUX EQP**		**NG ENGINE GENSET**	**- 6°C ICE PROD**	**- 6°C COLD ROOM + AUX EQP**		**DAY TIME ENGY**	**SOLAR PANEL 550 W_P**	
KW_RH xxx	**BITZER MODEL**	**KW_R** 100%	**KW_M**	**ELECTRIC MOTOR KW / SIZE**	**ENGY STOR KW_RH**	**KG @ 92%**	**KW_R @ 8%**	**KW_E AUX EQP**	**KW_E @ 1800 RPM**	**KG @ 90%**	**KW_R @ 10%**	**KW_E AUX EQP**	**KW_EH**	**5.5 HR SOL KW**	**QTY**
135	2T.2Y	11.26	5.03	7.5 / 132S	135.12	935.7	0.90	2.25	11.4	915.7	1.13	2.25	27.0	4.91	9
193	2N.2Y	16.06	7.20	9.2 / 132M/L	192.72	1335	1.28	3.21	14.6	1306	1.61	3.21	38.5	7.00	13
270	4T.2Y	22.5	10.32	15 / 160M	270.0	1870	1.80	4.50	22.8	1830	2.25	4.50	54.0	9.82	18
322	4P.2Y	26.8	12.35	15 / 160M	321.6	2227	2.14	5.36	24.0	2179	2.68	5.36	64.3	11.7	22
385	4N.2Y	32.1	14.39	18.5 / 160L	385.2	2668	2.57	6.42	29.4	2611	3.21	6.42	77.0	14.0	26
493	4H.2 Y	41.1	19.23	30 / 200M	493.2	3416	3.29	8.22	44.4	3342	4.11	8.22	98.6	17.0	33
574	4G.2Y	47.8	22.1	30 / 200M	573.6	3972	3.82	9.56	45.6	3887	4.78	9.56	115	20.9	38
740	6H.2Y	61.7	28.8	37 / 200L	740.4	5127	4.94	12.3	56.4	5018	6.17	12.3	148	26.8	49
859	6G.2Y	71.6	33.0	45 / 225S/M	859.2	5950	5.73	14.3	68.4	5823	7.16	14.3	172	31.2	57
1036	6F.2Y	86.3	40.1	55 / 225S/M	1035.6	7172	6.90	17.3	82.8	7018	8,63	17.3	208	37.7	69