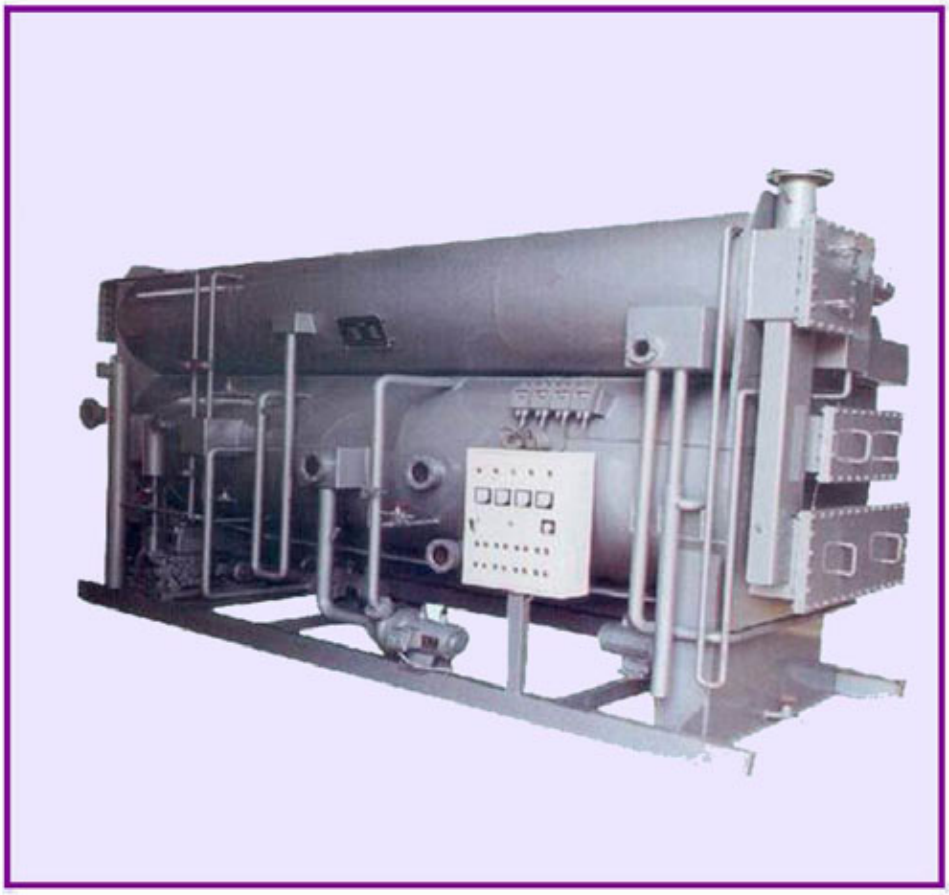
CLIMASOL

Solar Hot Water Absorption Chiller



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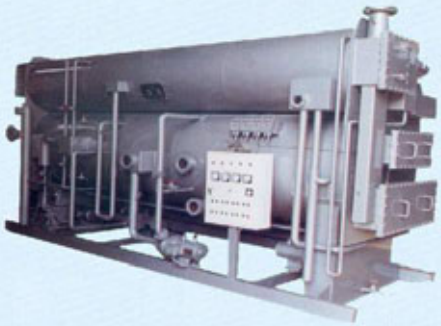
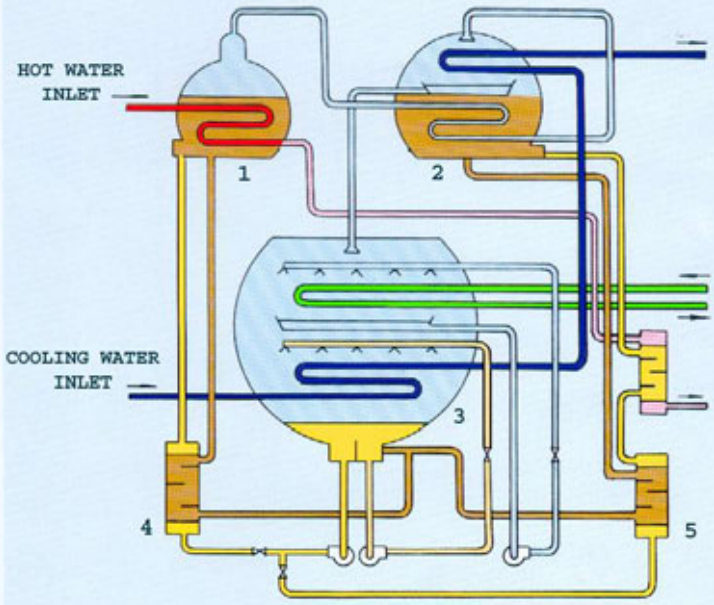
CLIMASOL

TECHNICAL DATA SHEET

SOLAR HOT WATER ABSORPTION CHILLER



SCHEMATIC DIAGRAM



1. GENERATOR
2. CONDENSER
3. EVAPORATOR-ABSORBER
4. HEAT EXCHANGER
5. HEAT EXCHANGER

SOLAR HOT WATER ABSORPTION CHILLER

FEATURES

1. New advanced technology.

   Climasol solar chiller is an absorption chiller developed to produce refrigeration with hot water at low temperatures as primary energy. This two-stage unique absorption chiller operates at nominal capacity with hot water at 75° C. Operation of chiller at lower or at higher temperatures is absolutely possible. Lower temperature reduces the capacity and higher temperature increases the capacity up to 40% of nominal.

2. Wide range of operation

   The chiller is operating over a wide range of hot water inlet temperatures – extending from 45° C to 95° C – and cooling water temperatures – extending from 19° C to 35° C. The result is that chiller is always at optimum operation cycle at any conditions within above limits.

3. Fully automatic operation

   When the chiller is set to the automatic operation it will start when hot water temperature is higher than setting (e.g. 48° C) and will stop when hot water temperature is lower. Other operation mode available.

4. Digital display

   Digital display of IN-OUT temp for hot cooling and chilled water is standard. Operating, stop or alarm mode is displayed with different colors. Optional extra Telemonitoring system, which is recommended for large commercial systems.

5. Safety controls

   The chiller is equipped with the following standard safety controls:
   - Chilled water freezing protection function
   - Chilled water flow switch
   - Extreme low temperature of cooling water
   - Cooling water flow switch
   - Motor protection controls
   - Low hot water temperature protection

SOLAR HOT WATER ABSORPTION CHILLER

FEATURES

6. Low energy consumption.

   When the chiller is connected to a suitable solar collectors field or industrial waste hot water, the only energy consumed is for the operation of the solar or waste, cooling water, refrigerant, vacuum and absorbent pumps. The total energy consumption is between 8-14% (depending on the size) of the nominal output of the chiller. The lower consumption is for the large units and the higher for the small units. Overall C.O.P. 7.1-12.5.

7. Factory tested

   The chiller comes as a complete package factory tested system. The package includes the evaporator, absorber, generator, condenser, heat exchangers, pumps, safety devices, control panel, absorbent and refrigerant.

8. Low noise

   Due to the absence of compressors, noise is only produced by the operation of the pumps.

9. No vibration

   Since there are no moving parts there is not any vibration.

10. Electricity

    The chiller is suitable to work at 3-phase 380V/50HZ.

11. Installation place

    The chiller should be installed indoor with ambient temperature:
    5 to 40^{o} C.
    Relative humidity: Below 90%.

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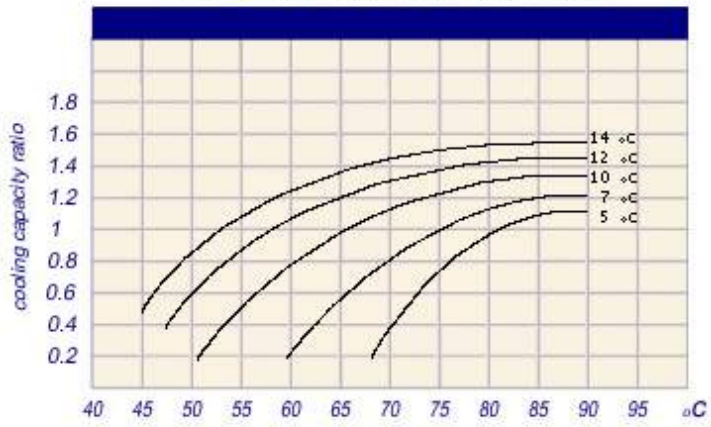
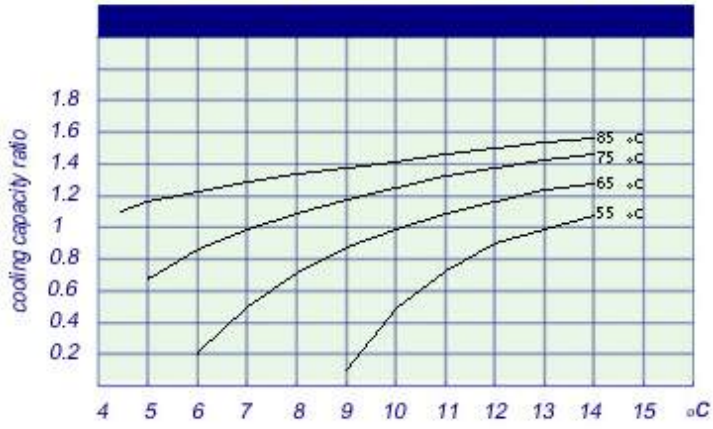
SOLAR HOT WATER ABSORPTION CHILLER

cooling capacity vs temperature variations of cooling water

cooling capacity vs hot water inlet temperature



cooling capacity vs chilled water outlet temperature



TECHNICAL DATA SHEET

SOLAR HOT WATER ABSORPTION CHILLER (SMALL CAPACITY RANGE)

SPECIFICATIONS

HOT WATER INLET TEMP		°C	75				
CLIMASOL TYPE		XZR	35	50	70	105	175
COOLING CAPACITY (NOMINAL)		KW	35	50	70	105	175
		RT	10	15	20	30	50
CHILLED WATER	TEMP. OUT	°C	7	7	7	7	7
	FLOW	m^3/hr	6	9	13	18	30
	PRESSURE DROP	mH_2O	2.5	3.0	3.0	4.5	4.5
COOLING WATER	TEMP. IN	°C	32	32	32	32	32
	FLOW	m^3/hr	25	35	44	75	121
	PRESSURE DROP	mH_2O	3.0	3.5	3.5	4.1	4.8
HOT WATER	TEMP. IN	°C	75	75	75	75	75
	FLOW	m^3/hr	10	14	20	30	50
	PRESSURE DROP	mH_2O	1.5	1.6	1.8	2.0	2.2
THERMAL COEFFICIENT OF PERFORMANCE		COP	0.60	0.60	0.60	0.63	0.65

-Max. working pressure -chilled,hot,cooling- water system : 8 bar
-Max. cooling water temp. : 35 ₀c
-Min. cooling water temp. : 19 ₀c
-Max.hot water temp. : 95 ₀c
-Min hot water temp. : 45 ₀c

TECHNICAL DATA SHEET

SOLAR HOT WATER ABSORPTION CHILLER (LARGE CAPACITY RANGE)

SPECIFICATIONS

HOT WATER INLET TEMP °C			75							65						
CLIMASOL TYPE		XZR	70/250	100/350	140/500	200/700	330/1150	500/1750	670/2350	70/250	100/350	140/500	200/700	330/1150	500/1750	670/2350
COOLING CAPACITY		kw	250	350	500	700	1150	1750	2350	250	350	500	700	1150	1750	2350
		RT	70	100	140	200	330	500	670	70	100	140	200	330	500	670
CHILLED WATER	TEMP. OUT	°C	7	7	7	7	7	7	7	10	10	10	10	10	10	10
	FLOW	m^3/hr	40	60	86	120	200	300	400	40	60	86	120	200	300	400
	PRESSURE DROP	mH_2O	5	5	10	10	10	10	10	5	5	10	10	10	10	10
	CONNECTIONS	mm	80	100	125	150	150	200	250	80	100	125	150	150	200	250
COOLING WATER	TEMP. IN	°C	32	32	32	32	32	32	32	32	32	32	32	32	32	32
	FLOW	m^3/hr	120	160	250	360	600	900	1100	120	160	250	360	600	900	1100
	PRESSURE DROP	mH_2O	10	10	12	12	12	12	12	10	10	12	12	12	12	12
	CONNECTIONS	mm	100	125	150	200	200	250	300	100	125	150	200	200	250	300
HOT WATER	MIN. FLOW	m^3/hr	28	42	70	112	140	210	280	28	42	70	112	140	210	280
	CONNECTIONS	mm	80	80	100	150	150	200	250	80	80	100	150	150	200	250
	PRESSURE DROP	mH_2O	12	12	12	14	14	14	14	12	12	12	14	14	14	14
PUMPS	VACUUM	kw	1.1	1.1	1.1	2.2	2.2	2.2	2.2	1.1	1.1	1.1	2.2	2.2	2.2	2.2
	REFRIGERANT	kw	1.1	1.1	2.2	2.2	2.2	5.5	5.5	1.1	1.1	2.2	2.2	2.2	5.5	5.5
	ABSORBENT PRIMARY	kw	1.1	1.1	1.1	1.1	2.2	2.2	2.2	1.1	1.1	1.1	1.1	2.2	2.2	2.2
	ABSORBENT SECONDARY	kw	1.1	1.1	1.1	2.2	2.2	2.2	2.2	1.1	1.1	1.1	2.2	2.2	2.2	2.2
CHILLER WEIGHT		10^3 kg	5.6	6.5	10.4	14	16.5	20	23	5.6	6.5	10.4	14	16.5	20	23
SHIPPING WEIGHT		10^3 kg	7	8.5	13	17.5	20.5	25	29	7	8.5	13	17.5	20.5	25	29
ABSORBENT WEIGHT		10^3 kg	1	1.2	1.8	2.7	3.2	3.8	4.4	1	1.2	1.8	2.7	3.2	3.8	4.4

-Max. working pressure -chilled,hot,cooling- water system : 8 bar
-Max. cooling water temp. : 35 ₀c
-Min. cooling water temp. : 19 ₀c
-Max.hot water temp. : 95 ₀c
-Min hot water temp. : 45 ₀c