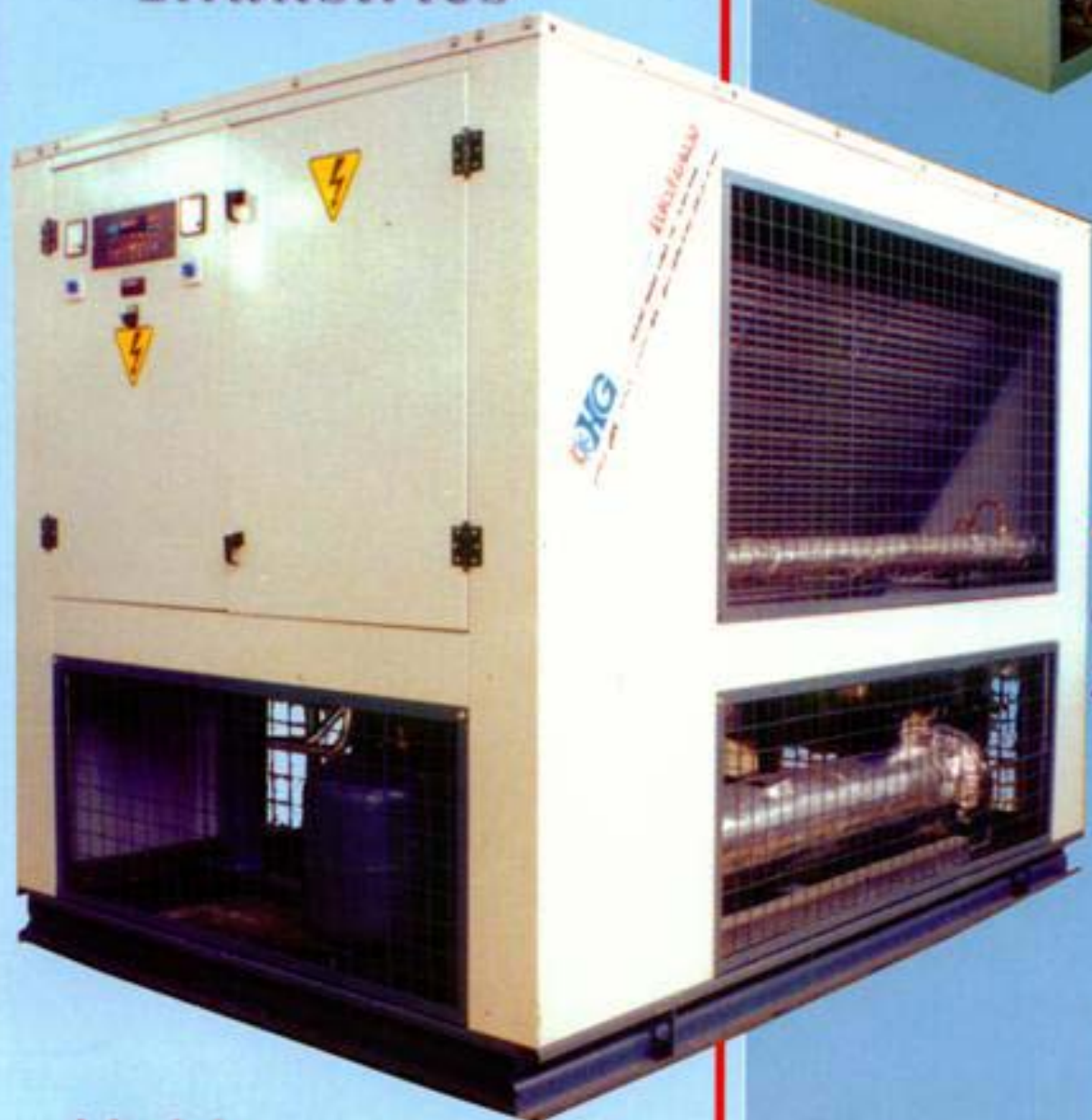




Hafez Engineering Industries



الحافظ
للصناعات
الهندسية

Model:
HIC ()
HIC () D



Application:

Air cooled water chillers series HIC () and HIC() D are units specially designed for water cooling for application in air conditioning with fancoil units, their application is specially suitable in manufacturing processes, restaurants, hotels, shops, laboratories, etc..



Description:

Air cooled water chillers, working with R22 and suitable for out door installation the units are factory tested and the regular version operates at high ambient air temperature up to 45°C.

Supporting Frame:

Enclosures of HIC () D series section are made of thick galvanized metal sheet protected by electrostatic polyster powder paint which ensures high corrosion resistance to atmospheric without requiring re-painting.



Compressor

Semi hermetic reciprocating compressors, crank-case heater, lubricant circuit pump and electronic over heating protection with centralized manual reset, complete with discharge and suction line shut-off valve, compressor motors with part-winding start-up and over load protection by means of thermistors embedded in the winding.



Condenser Coils

corrugated aluminum plate type fin and copper tubes in staggered rows. the coils are complete with integral subcooling circuit, with fan rotation speed control as an aid to noise reduction.



Condenser Fans

Depending on the model each system is fitted with combinations of compact central rotor motor high efficiency, high volume, low pressure axial fans to provide exceptional low noise performance. Fans are speed regulated to optimise power consumption and performance, complete with thermal protection. alternative fan assemblies are fitted for plant room and air Louver applications.



Evaporator

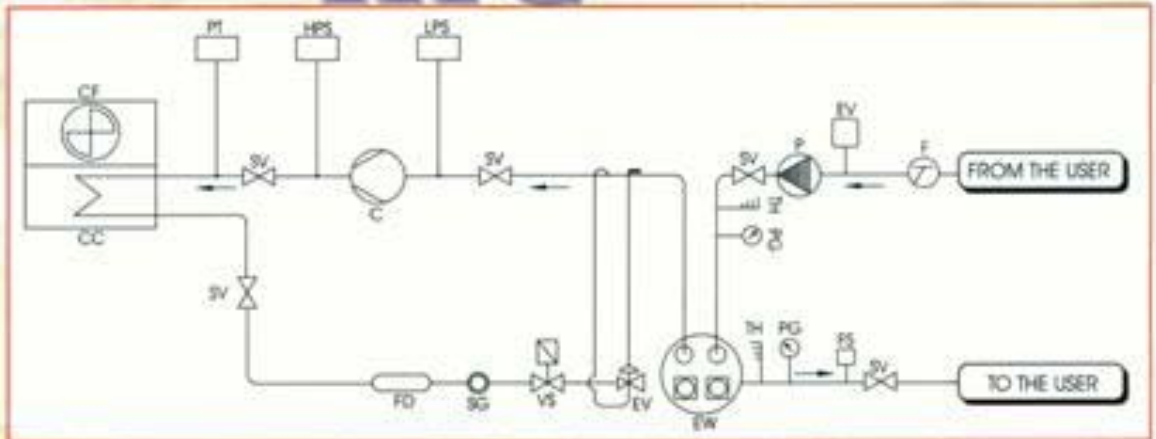
The evaporator is of the shell and tube type offering maximum exchange between refrigerant and cooling medium, the outside is totally insulated with a closed cell, anti-condensate foam.



REFRIGERANT CIRCUIT

HIC

- C Compressor
- HPS High Pressure Switch
- LPS Low Pressure Switch
- PT Pressure Transducer
- CF Condenser Fan
- CC Condenser coil
- SV Shut-Off Valve
- TH Thermometer
- PG Pressure Gauge
- FD Filter Drier
- SG Sight Glass
- VS Solenoid Valve
- EV Expansion
- EW Evaporator
- FS Flow Switch
- WE Expansion Vessel
- P Electrical pump
- F Water Filter



Electrical Power And Control Panel

Electrical power are built in complete with mains isolator, contactors and overload protection for the compressors and fans.

Mechanical Control

Microprocessor Controller (Main Controller): Option

Microprocessor controller is engineered to meet the most demanding requirements of all control and data monitoring application it could be activated to perform different function for cooling and heat pump applications while using the microprocessor for chiller control, it communicates digitally with standard conventional control such as high, low pressure, oil failure, fbw switch, ...etc.



OPERATION

- Water/air input temperature control
- Condensation fan speed control
- Management of defrost cycles
- Full alarm diagnostics
- Optional keyboard for remote control
- Maximum flexibility in system configuration
- Electric heater regulation

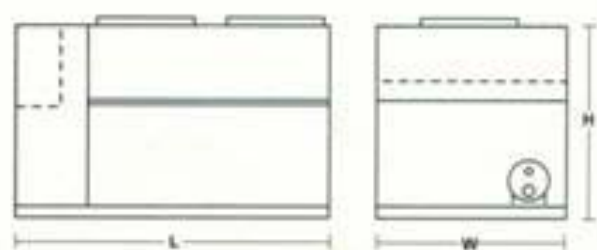
PLUS

- Reduced size (32x74x70)
- Rapid connections
- IP65 protection grade on front panel
- Configurable inputs and outputs
- 4... 20 mA analogue input for outdoor coil pressure control

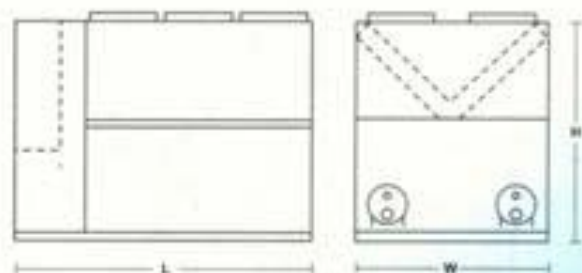
GENERAL TECHNICAL DATA

* Performance data are for Ambient temperature (35°C / 46°C)
and water inlet / outlet 12/7°C

Model Specification	HIC 15	HIC 20	HIC 25	HIC 30	HIC 35	HIC 40
Cooling capacity kw ambient 35 C ambient 46 C	39.6 37.7	48.8 46.3	60.9 57.9	71.8 66.2	86.92 82.5	104 98.8
Capacity step	0-100	0-100	0-100	0-100	0-100	0-100
No of compressor	1	1	1	1	1	1
Nominal power input	11.51	13.23	17.0	20.5	26.17	31.0
Starting current amp.	129	164	196	218	292	337
Nominal air flow m ³ /hr	16000	16000	16000	24000	24000	32000
Nominal water flow l/hr	7000	8600	10750	12600	15300	18300
Power supply	380-415 V 3/50 HZ					



H Cm	170	148	148	148	148	148
L Cm	100	273	273	293	293	293
W Cm	137	147	147	137	137	137



Model Specification	HIC 50	HIC 60	HIC 50D	HIC 60D	HIC 70D	HIC 80D	HIC 100D	HIC 120D
Cooling capacity kw ambient 35 C ambient 46 C	127.2 120.8	152.1 144.5	121.8 115.8	143.6 136.4	173.8 165	208 197.6	254.3 241.6	304.2 289
Step	0-100	0-100	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100
No of compressor	1	1	2	2	2	2	2	2
power input kw	36.0	43.9	34	41	52.34	62	73.4	87.8
Starting current amp.	440	543	196	218	292	337	440	543
Air flow m ³ /hr	48000	48000	32000	48000	48000	94000	96000	96000
water flow l/hr	22400	2670	21.48	25.2	30.6	36.6	44.8	45.0
Power supply	380-415 V 3/50 HZ							

H Cm	170	170	181	181	181	181	181	181
L Cm	293	293	293	293	293	293	293	293
W Cm	137	147	147	163	163	163	163	163

*Design and specification are subject to change without prior notice.

GENERAL INFORMATION

ANTIFREEZE SOLUTION

One of the most common method to avoid freezing in the heat exchangers is to add an antifreeze solution to the circulating water.

For operation with evaporator outlet water temperature in the range of standard chiller, the use of such solution causes a reduction of the unit performance, according to the correction factors reported in Table 1.

Anti-freeze solutions are always used for the operation of brine chiller with evaporator outlet temperature below 4 °C and down to -7°C. In such cases the data reported in the performance tables already takes into account the minimum glycol solution for safe brine chiller application. For additional glycol concentration, the correction factors reported in Table 2 shall be used.

Table 2

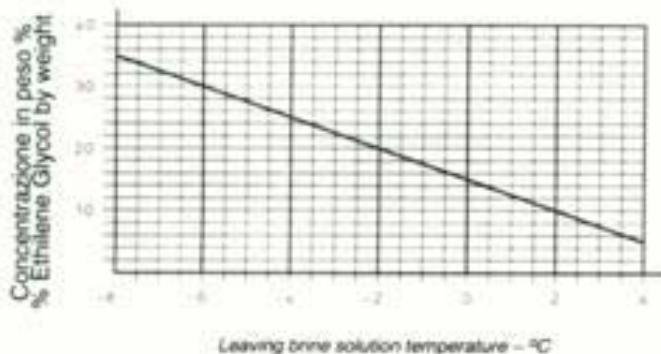


Table 1

%	5	10	15	20	25	30	35	40
Ff	0.995	0.990	0.985	0.981	0.977	0.974	0.971	0.968
Fe	0.997	0.993	0.990	0.988	0.986	0.984	0.982	0.981
Fp	1.003	1.010	1.020	1.033	1.050	1.072	1.095	1.124
Fdp	1.029	1.060	1.090	1.118	1.149	1.182	1.211	1.243

CORRECTION FACTORS

Ff = Cooling capacity

Fe = Compressor input power

FP = Evaporator glycol solution flow

Fdp = Evaporator pressure drop



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