



Mobile Web



Official WeChat

**The Withair System**

**[www.withair.cn](http://www.withair.cn)**

Withair offers a wide range of quality products and solutions to meet the needs of your projects



Ongoing innovation with cutting-edge products



Over 30 years of production experience



Key parts are come from international first-class brands



Guaranteed support and spare parts



Support in design



Documentation for incentives



Five-year guarantee



Free training course

## The Withair System

Withair is the premium manufacturer in sustainable energy solutions supplying HVACR products & services for heating, cooling, hot water, indoor air quality, industrial refrigeration, and heat recovery that reflect today's demand for sustainable construction, comfortable indoor climate and industrial cooling & heating process application.

Withair specialises in innovative custom highly-configurable products designed to meet the your needs. We insure products are designed for long life by using highest quality materials, for all controls, safety, and components we only use top world-wide recognized brands. All products are rigorously tested before leaving us, going through many stages of quality control before being shipped.

Withair® has highly effective professional team to service customers

Known for their professionalism and personal integrity, Withair's highly skilled engineers, technicians, electricians, stable manufacturing workers, strict quality controller, and quick-reaction & professional after-service staff utilize their multi-disciplinary expertise in the creation and production of every solution.

Close cooperation among Withair's design, production and service teams - who are located under one roof and linked by advanced computerized systems - enables the Company to supply the widest possible range of products - from single units to very large quantities - while assuring rapid delivery and competitive pricing.



Low energy consumption systems  
Use of clean energy  
Use of environmentally-friendly cooling gases  
ZERO direct CO2 emissions in the environment



# The **Withair** System

## 你的家 你的生活

Your home, your life style!





*SIMPLY THE BEST SOLUTION AND QUALITY PRODUCT*

*— HVACR SYSTEMS*

A low-angle, upward-looking photograph of several modern skyscrapers with glass facades, set against a bright blue sky with scattered white clouds. The buildings converge towards the top center of the frame, creating a sense of height and scale.

*We've a lot of solutions  
to care "Construction"*

A photograph of an operating room with a teal color overlay. The room contains a surgical table, various medical monitors, and equipment. A clock is visible on the wall to the right.

*We've a lot of solutions  
to care "Hospitals"*

A large industrial facility, possibly a refinery or chemical plant, is shown at night. The scene is illuminated by numerous lights, creating a vibrant orange and yellow glow against a dark blue sky. Several tall, cylindrical towers with ladders are prominent in the foreground. The background shows a complex network of pipes, tanks, and structures, all lit up. The overall atmosphere is one of industrial activity and energy.

*We've a lot of solutions  
to care "Industries"*



A green circular graphic containing text, overlaid on a background of industrial HVAC ductwork.

***The Withair System***

*Cooling  
Heating  
Fresh air  
Purification  
Humidification*

A green horizontal bar at the bottom of the image containing white text.

*We've a lot of solutions  
for "Air Quality"*



## HEAT PUMPS - CREATING A MORE COMFORTABLE & SUSTAINABLE BUILDING ENVIRONMENT

By installing a Withair heat pump, you can reduce your energy consumption costs by up to 86% compared to direct electricity. Here we are using the nature's free and renewable energy sources, such as: outdoor air, geothermal energy, solar energy, that minimises your CO2 emissions and pollution free. You can also enjoy an environmentally friendly, renewable and free energy source. The high level of efficiency means that an investment in a heat pump pays for itself quickly and gives you a secure supply of heat, cool and hot water, suitable for different climate all over the world.

Withair the W01R series heat pumps involve a range of 282 models, with heating and cooling capacity among 2.6kW and 3,200kW, which allow to create "customized" solution, matching the different installations requests.



## CHILLERS - MINIMIZE YOUR OPERATING COSTS

Withair chillers were developed based on decades of knowledge and rich experience, includes air-cooled chillers and water-cooled chillers, ranging in capacities from 2 to 3,000+ tons. Withair chillers are relied upon for both comfort and special process cooling applications in every corner of the world.

Withair chiller plays a critical role in creating the right environment to ensure the health, comfort and industrial production. Withair chillers not only serve HVACR systems and industry-type process cooling at factories that deliver the right temperature for the space, but they also help minimize operating costs with superior energy efficiency levels, low sound levels and with minimal environmental impact.



## AIR SIDE PRODUCTS - MAXIMIZING HVACR SYSTEM PERFORMANCE

The Withair portfolio of fan coil unit, ventilation unit and air handling unit, air cooler solutions is designed to make installations faster and easier, offers temperature and humidity control, heat recovery, deodorization, air purification, and heat treatment, and to maximize HVACR system performance. Using advanced technology, such as: EC motor, single-zone, four-pipes, these systems quietly, temperature stability, reliably and efficiently deliver the comfort your building occupants need.



Withair offers a full range of air side products and systems to meet your performance requirements. From 200CFM to the highly flexible 60,000CFM with numerous custom options, to a completely custom, energy efficient, environmentally responsible system, Withair has the optimal solution for commercial, industrial and process applications.



## INNOVATIVE PRODUCTS - THE MOST EFFICIENCY SOLUTION

Withair has developed different innovative products, e.g. Fresh Air Heat Pumps, Rooftop HVAC Unit(RTU), Make Up Air Unit(MUA), 100% Outdoor Air Unit(OAU), Clean Air Conditioning, Ultra-high Temperature Heat Pump, Hybrid Heat Pump, ..., these products meet the needs of different applications for heating & cooling and indoor air quality.

Whether you want to replace an existing air conditioning or heat pump – or reduce your energy costs with a Hybrid Heating and Cooling Solution – our products could be the creative solution you're looking for. By combining multiple types of energy into a single unit that sits outside your home, the only thing left inside is improved comfort.

Withair® devote to a variety of energy comprehensive utilization, optimize configuration of all kinds energy, complementary advantages, offer hybrid energy system integration solutions, and maximizes efficiency and energy savings.



# Air Cooled Screw Heat Pump & Water Chiller



## —— Product Description ——

Withair® offers a variety of Air-Cooled Screw Chiller for a wide range of comfort and process cooling applications and also offers complete, factory-assembled scroll liquid chillers that offer ease of installation with wiring and microprocessor controllers providing maximum operating efficiency. Our compact chillers install easily and quickly into most building layouts, making them ideal choices for retrofit or new building designs.

Withair® Air-cooled Screw Chiller adopts twin-screw compressor designed with the most advanced, industrial third-generation asymmetric technology of 5 gear teeth to 6 gear teeth. It has a variable capacity, and is high-efficiency and energy-saving. It has the humanistic microcomputer control system with remote control function. The 3self-protection features ensure the safe and reliable running. The unit series is complete and can be tailored to meet various needs of customers. The Air-cooled Screw Chiller features of compact size, low noise high energy-efficiency ratio and long service life, and is easy to operate and maintain. Thus they find a wide utilization in a great variety of locations, such as hotels, restaurants, office buildings, stores and hospitals. And they are also applicable to the air conditioning sites in metallurgical, chemical, mechanical, and electronic industries. Withair® Air-cooled Screw Chiller can be applied to civil construction of air conditioning projects and industrial projects, such as hotel, shopping mall, restaurant, hospital, factory, etc. It is a wise choice for areas where water is insufficient or there are strict limits on noise level and surroundings.



## — The Key Advantages Include —

- ECO friendly refrigerant R134a,R407C.
- Built-in hydraulic module for option.
- Intelligent defrost totally.
- Multi self-protection functions, such as: high & low pressure, high temperature, water flow and antifreeze protection.
- Modular networking technology, the operation of individual modules can be coordinated according demand.
- Advanced & world-famous hermetic scroll compressor high-efficiency, low-noise and low-vibration operation.
- Standalone subsystems enable maintenance of individual subsystems without affecting the continued operation of the rest.
- Hydrophilic and corrosion-resistant material ensures adaptability to poor weather.
- Uses advanced hermetic scroll compressor high-efficiency, low-noise, and low-vibration operation.
- Remote monitoring and control features enable the unit's operational schedule to be set via internet or phone.
- Using modular networking technology, the operation of individual modules can be coordinated according demand.
- Standalone subsystems enable maintenance of individual subsystems without affecting the continued operation of the rest.
- Unique heat exchanger protection technology, increases heat exchange efficiency to 30% above that of conventional heat exchangers.

Withair new Generation air-cooled screw chillers are designed to meet current and future requirements in terms of reliability, energy efficiency and intelligent control. We adopt Environment friendly refrigerants R134a; as for reliability, DX evaporator, which is no oil return problem, we have done 100% run test before the units leave the factory. we adopt Touchable screen display and PLC controls, which are user-friendly operation interface. Twin-rotor screw compressors, more energy efficiency and reliability; Low operating noise Benefit From Low-noise ,low -vibration fans and double-wall structure Hanbell compressor.

<b>Environment friendly</b>	<ul style="list-style-type: none"> <li>• HFC- R134a or R407C refrigerant</li> </ul>	
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• DX evaporator, No oil return problem</li> <li>• 100% run-tested for high reliability</li> <li>• Matured control logic, multiple security protection</li> </ul>	
<b>Energy efficiency</b>	<ul style="list-style-type: none"> <li>• Hanbell high efficiency Twin-rotor screw compressor</li> <li>• M shape high-efficiency condenser</li> </ul>	
<b>User friendly</b>	<ul style="list-style-type: none"> <li>• PLC controller by Siemens</li> <li>• Touchable screen display</li> </ul>	
<b>Low operating noise</b>	<ul style="list-style-type: none"> <li>• Double-wall structure of Hanbell compressor</li> <li>• Low-noise and low-vibration fans</li> </ul>	
<b>Modular design</b>	<ul style="list-style-type: none"> <li>• Max 12 units can be assembled together</li> <li>• Low initial investment and maintenance cost</li> </ul>	
<b>Easy and fast installation</b>	<ul style="list-style-type: none"> <li>• Unit can be placed in service after being connected with power supply and water supply at the jobsite</li> <li>• No need cooling towers, cooling pumps</li> </ul>	

## —— Main Components ——

The main components of Withair products are all selected famous brand products with excellent performance, so that the performance and reliability of the whole units are strongly guaranteed.

Some main components is as follows:

### 1. Compressors

Strong cooperation and creating high quality



### 2. Refrigerant accessories

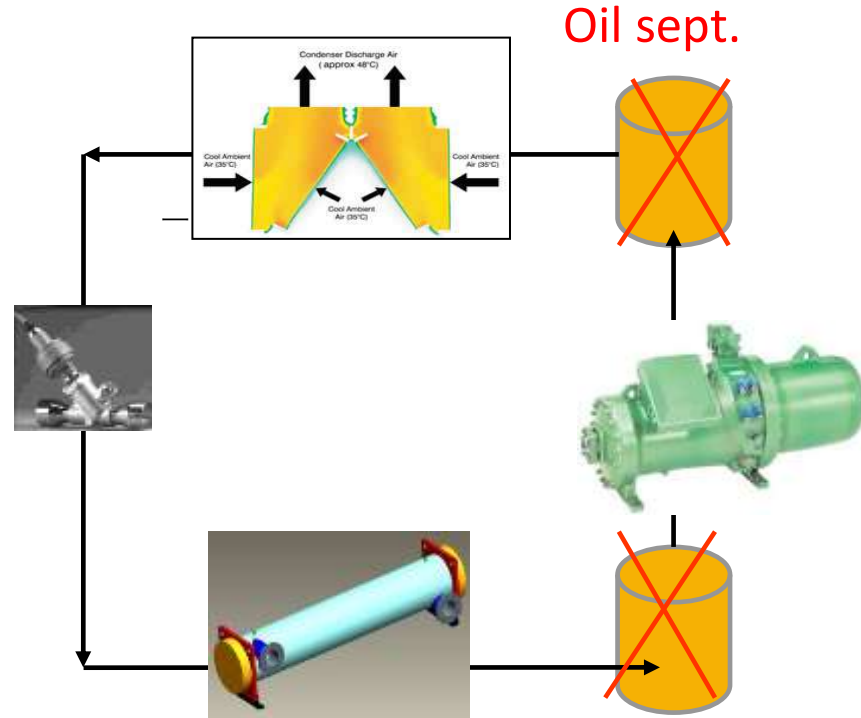


### 3. Electric parts

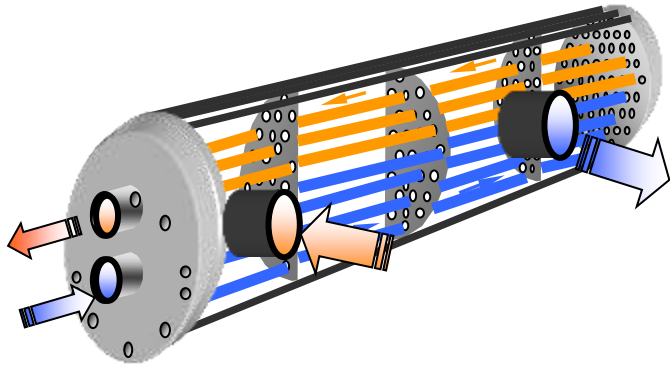


## Simple & efficiency system

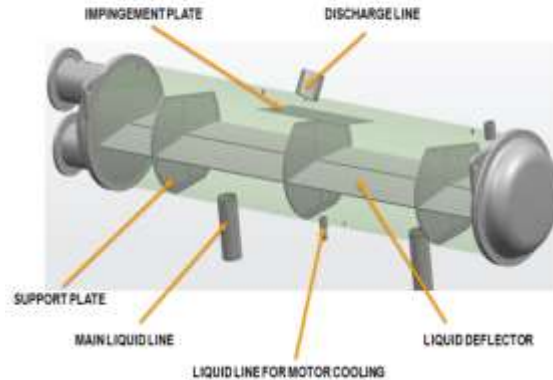
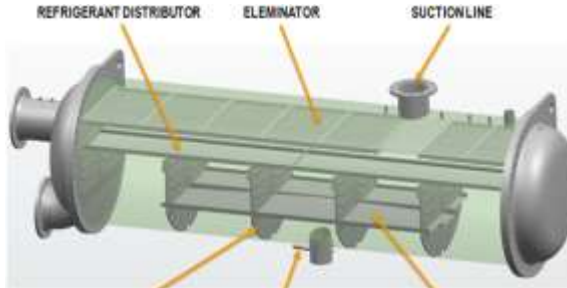
- *Eliminate two tanks:*
  - *External oil separator*
  - *Vapor separator*
- *Advantages:*
  - *Less complicate system*
  - *Improve reliability*
  - *Less pressure drop*
  - *Clean product design*



# Water side heat exchanger



- Shell and tube type, copper tube
- DX without any oil return problem
- Internally-finned copper tubes
- 20 mm insulation cotton



PATENT LICENCE OF  
FALLING-FILM EVAPORATOR



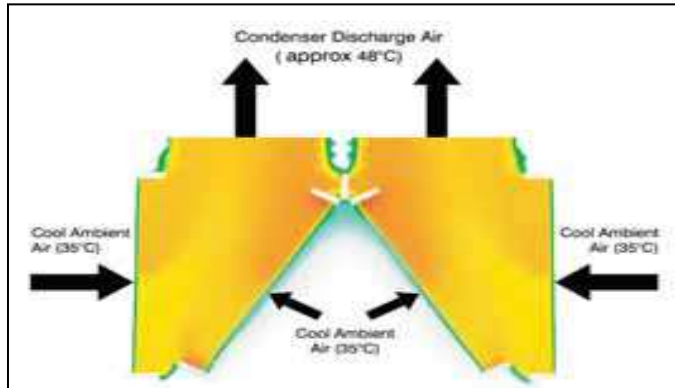
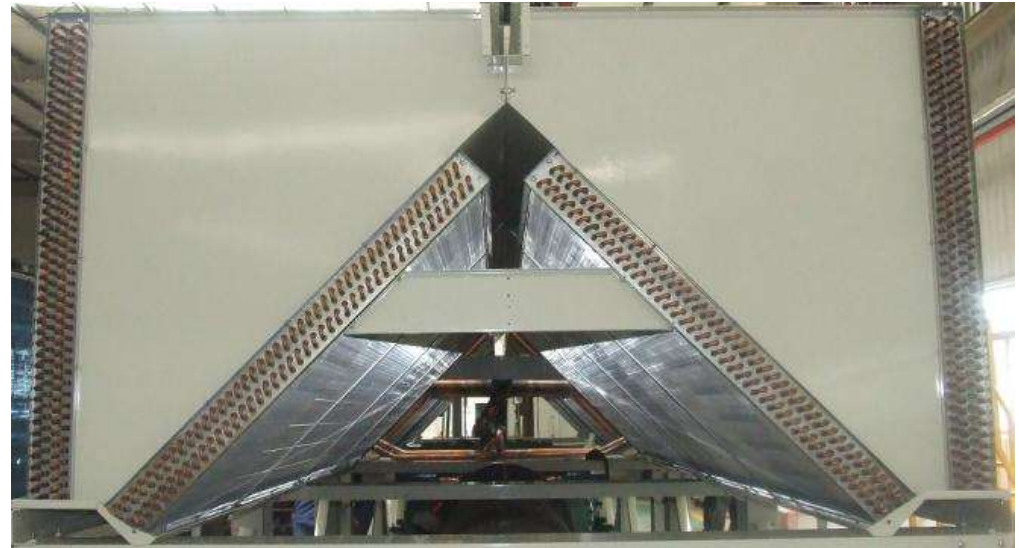
### CONDENSER

SPECIAL DESIGNED LIQUID DEFLECTOR CAN LEAD THE REFRIGERANT LIQUID TO THE SHELL SIDES OF THE CONDENSER WHICH CAN EFFECTIVELY REDUCE THE CONDENSING TEMPERATURE BY 0.5 °C TO 1 °C.



## Condenser

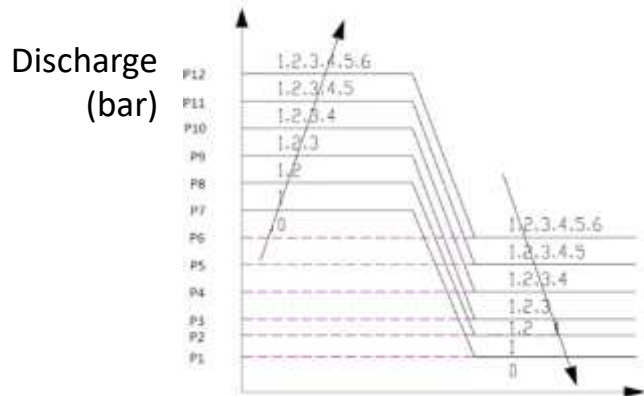
- *Reversed M shape condenser increase the heat exchange as well as improve the serviceability .*
- *High-efficiency Seamless inner groove copper tube*
- *Mechanically expanded onto the die formed aluminum fin.*



## Fan motor

- *Static and dynamic balanced fan with low noise and vibration.*
- *Big airflow and static pressure*
- *High efficiency fan motor. Direct drive type ,6-pole, 3-phase, Class-“F” insulation and IP54 protection.*

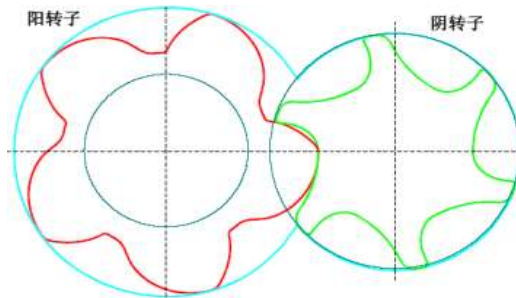
## Fan control



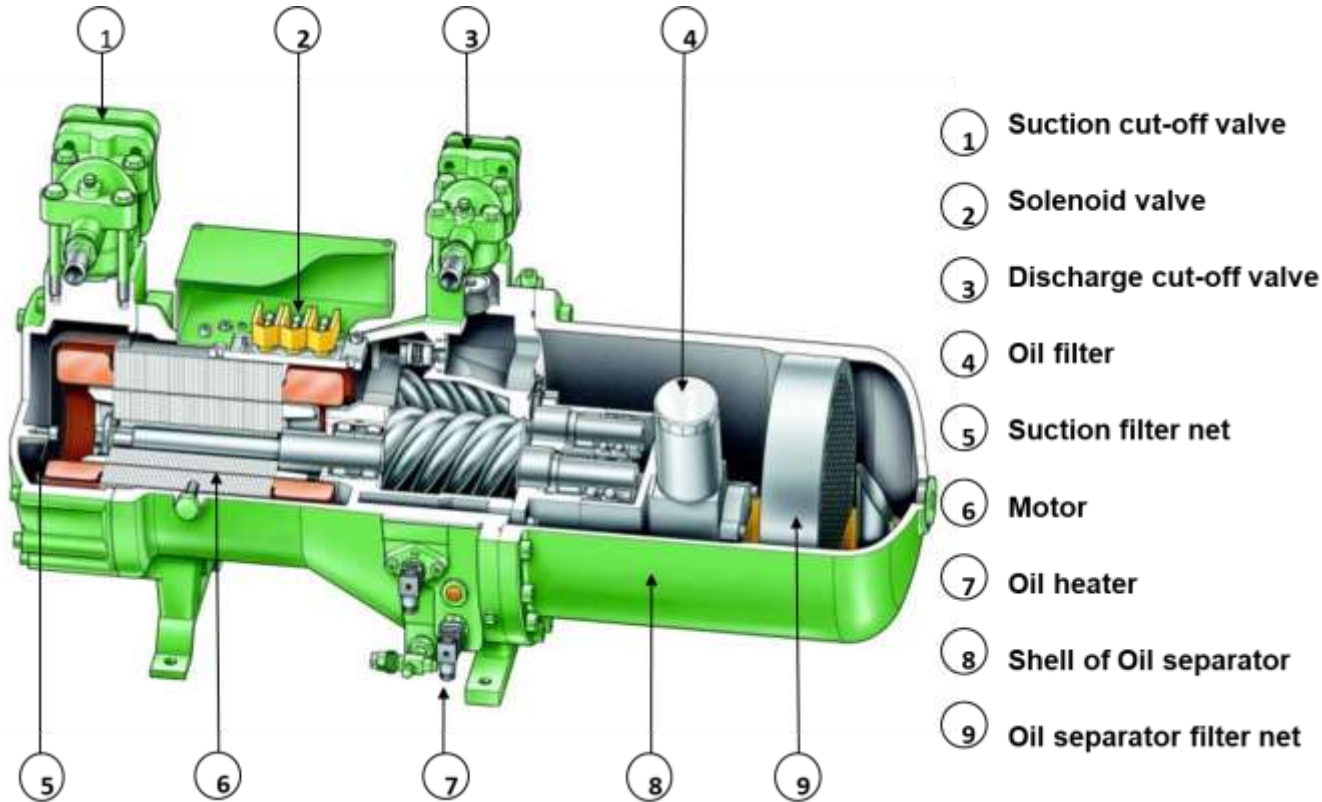
# High reliability compressor

High efficiency Semi-Hermetic twin screw compressor

Twins screw- 5-6 asymmetry dentiform rotors







Withair air-cooled screw chiller uses semi-hermetic screw compressor, which adopts the latest and advanced 5 to 6 Patented Profile design. Each unit is carefully manufactured and inspected by high precision THREAD SCREW ROTOR GRINDING MACHINE, CNC MACHINING CENTER, and 3-D COORDINATE MEASURING MACHINE. Each compressor follows the ISO 9001 certification quality system. This certification assures that each compressor is controlled under severe quality procedures and provides good service to all customers.

We adopt Famous brand Danfoss electronic expansion valve, which is controlled by drive module controller. The drive module controller controls the valve open degree according to evaporator suction superheat temperature, which is Real PID modulation.

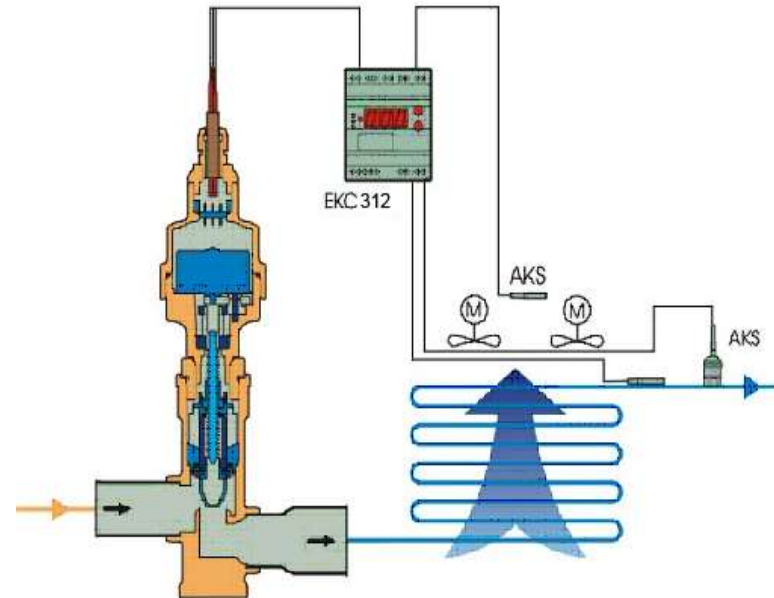
➤ *Danfoss brand*

➤ *Electronic-expansion valve*

➤ *High precise control*

➤ *Real PID modulation*

*(PID Means Proportion Integration Differentiation)*

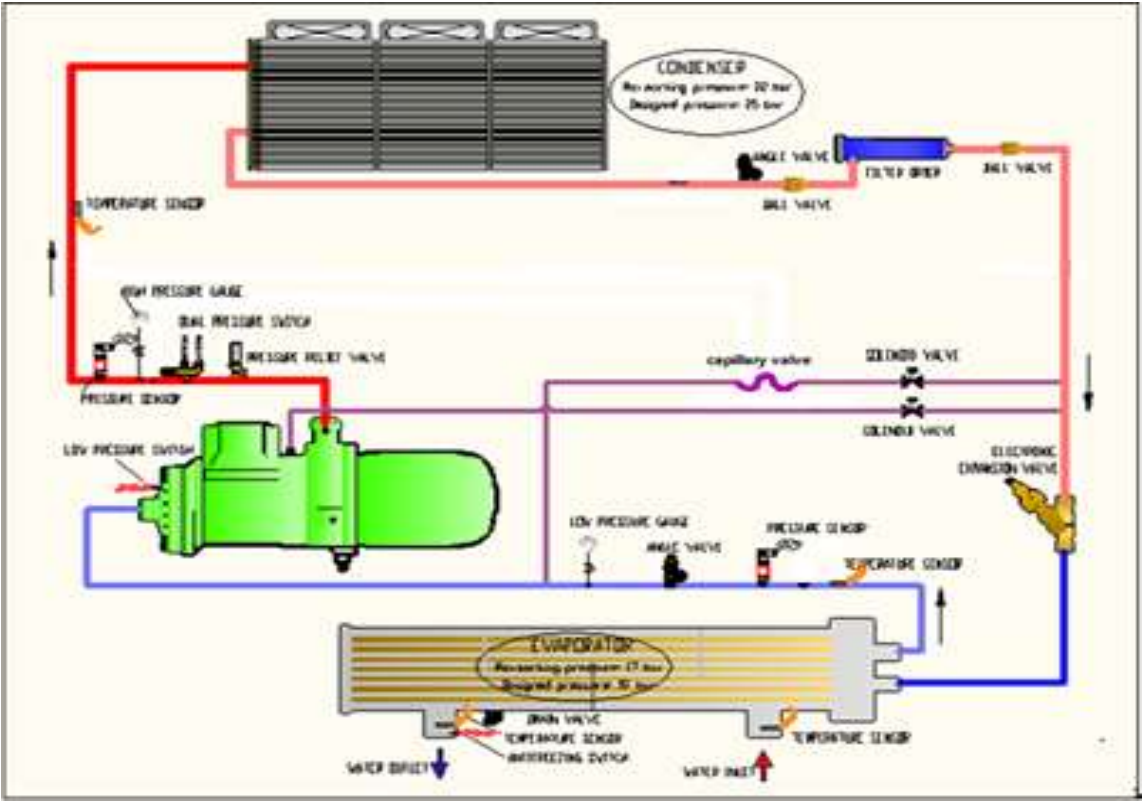


## Control system

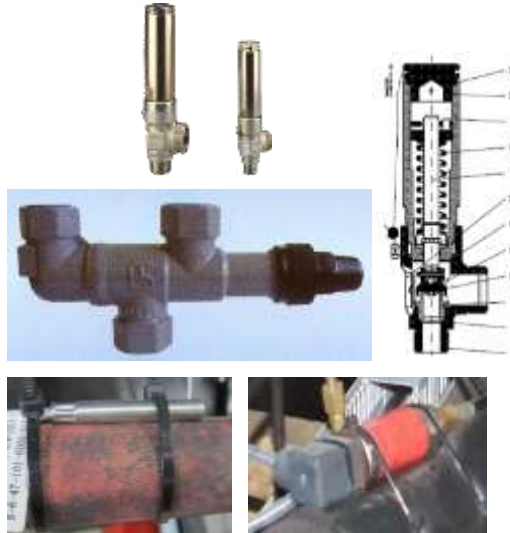
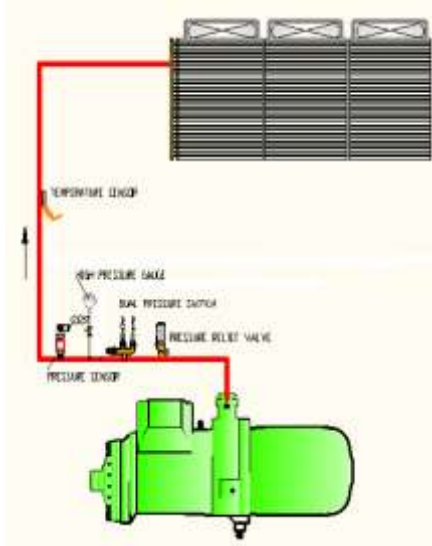
- *Touchable screen*
- *Powerful control function*
- *PCB control ,simple and reliable*  
*PLC control ,Siemens brand as option*
- *Remote control is available (option)*
- *Connecting with monitor PC is available (reserved RS485 port )*  
*(Withair air cooled screw chiller adopts PLC controller ,the PLC controller reserved RS485 port which can be communicate with BAS (Building Automation system) though the Modbus communication protocol,The remote monitoring and control of the chiller is available).*



# Refrigerant cycle

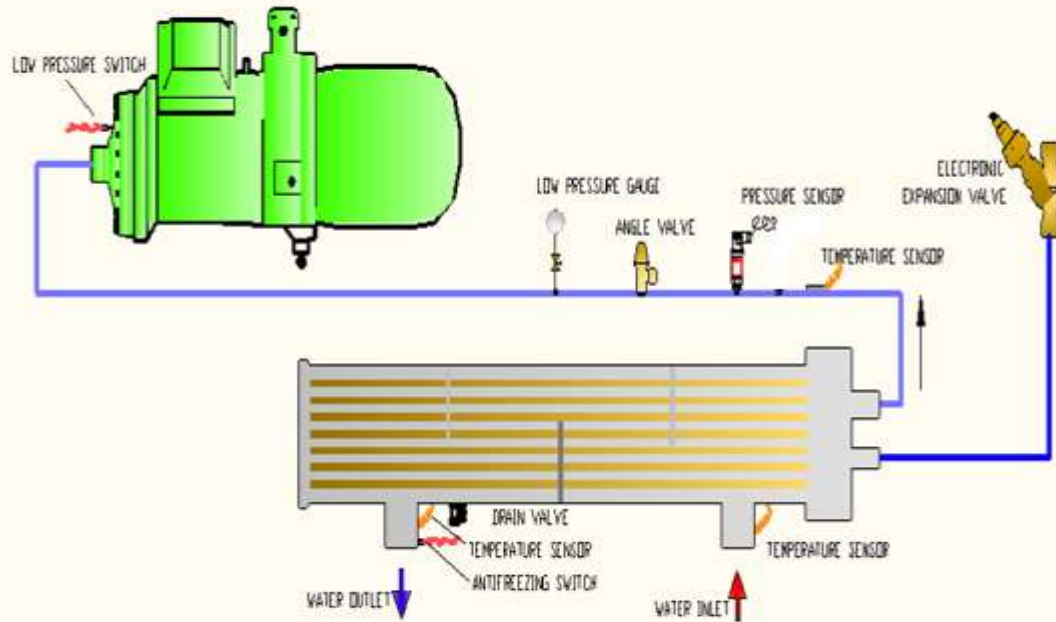


# High pressure pipeline



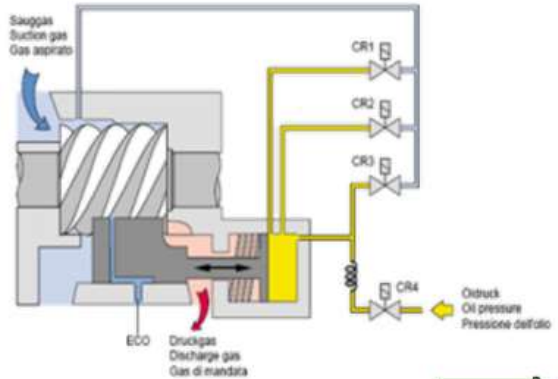
COMPONENTS	EFFECT	CONTROL
PRESSURE SENSOR	Feel the discharge pressure ,PLC	$P > 2.0$ , High discharge pressure protection; $P < 1.1$ , exit
HIGH PRESSURE GAUGE	Detect the discharge pressure	\
DUAL PRESSURE SWITCH	Mechanical switch ; 1.7/2.1 1.8/2.2; manual reset;	High pressure protection
SAFETY RELIEF VALVE	SFV25- Set Pressure:2 .5MPa;	\
DISCHARGE TEMPERATURE SENSOR	Feel the discharge temperature , PLC	$T > 110^{\circ}\text{C}$ , High discharge temp. protection $T < 65^{\circ}\text{C}$ , exit

## Low pressure pipeline

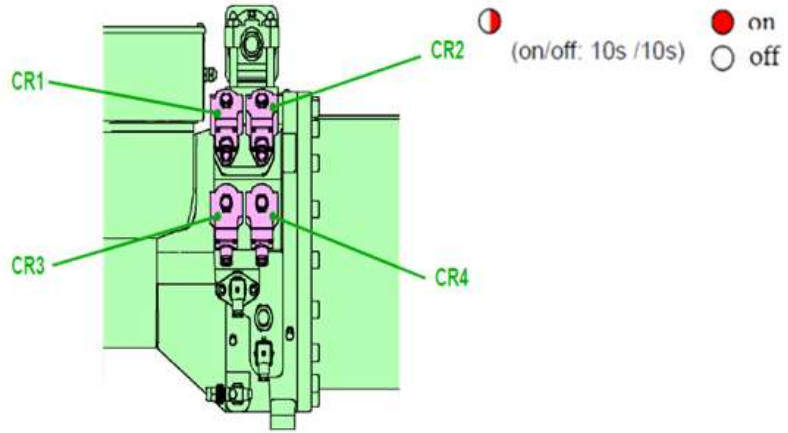


COMPONENTS	EFFECT	REMARKS
PRESSURE SENSOR AKS33	Feel the pressure, EXV control model	\
LOW PRESSURE SWITCH	Mechanical switch ; 0.03/0.1 ; automatic reset;	Low pressure protection
LOW PRESSURE GAUGE	Detect the suction pressure	\
SUCTION TEMPERATURE SENSOR	Feel the suction temperature ,EXV control model	\
ANGLE VALVE	Refrigerant charge	\
LEAVING WATER TEMPERATURE SENSOR	Feel the outlet water temperature , PLC	T<4°C, Leaving water temp. protection T>12°C, exit
ENTERING WATER TEMPERATURE SENSOR	Feel the inlet water temperature , PLC	\

# Capacity adjustment



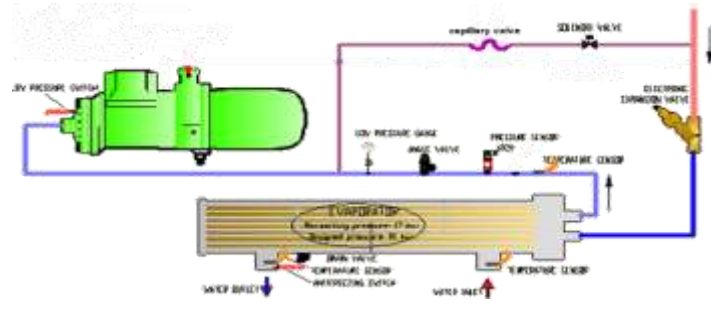
CR	1	2	3	4
SU	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
25%*	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
50%*	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
75%*	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
100%	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>



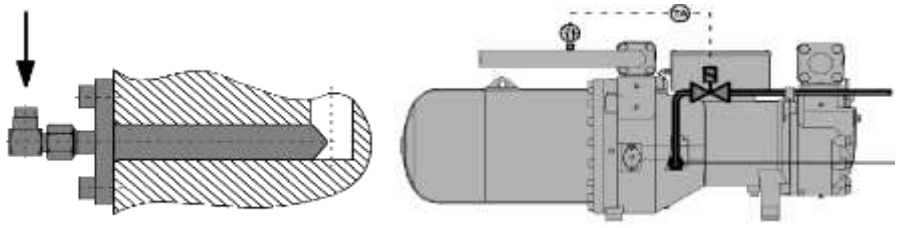
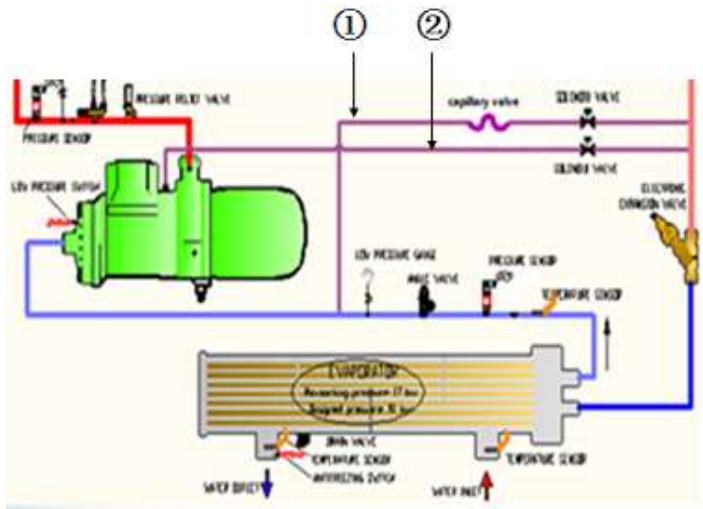
# Direct liquid injection

NO.	FUCTION
①	cooling the motor
②	cooling twins screw

NO.	COMPONENTS	EFFECT	REMARKS
①	SOLENOID VALVES	Electronic switch; T the discharge > 100 °C, ON; T the discharge < 90 °C, OFF	A
	CAPILLARY	Throttle part ; Control the refrigerant flow	B



NO.	COMPONENTS	EFFECT	REMARKS
②	SOLENOID VALVES	Electronic switch; T the discharge > 95 °C, ON; T the discharge < 85 °C, OFF	





*Electrical system (single head)*



Control box  
low voltage side



Starter high  
voltage side

*Electrical system (dual heads)*



Control box  
low voltage side



Starter high  
voltage side

## Air switch

### Function :

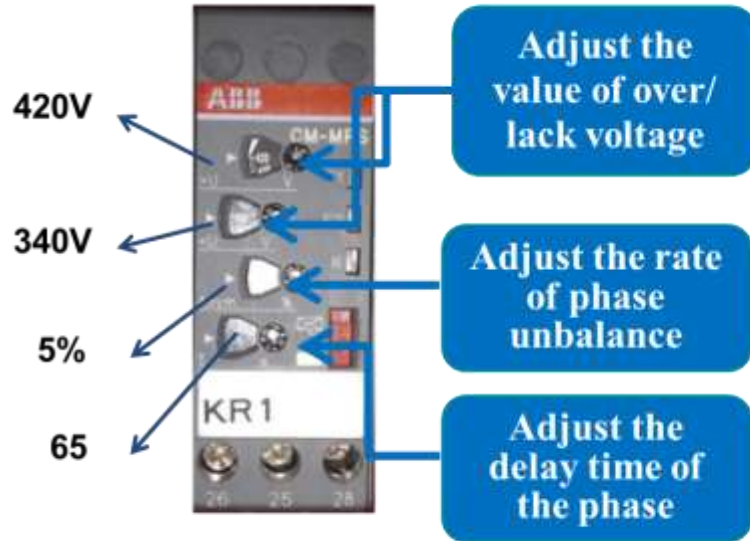
*QF1 is used to cut off the control circuit; QF2 is used to control ON/OFF state of ventilation fan. It is convenient for doing maintenance or changing some electrical elements of control circuit.*



## Power protection module

### Function:

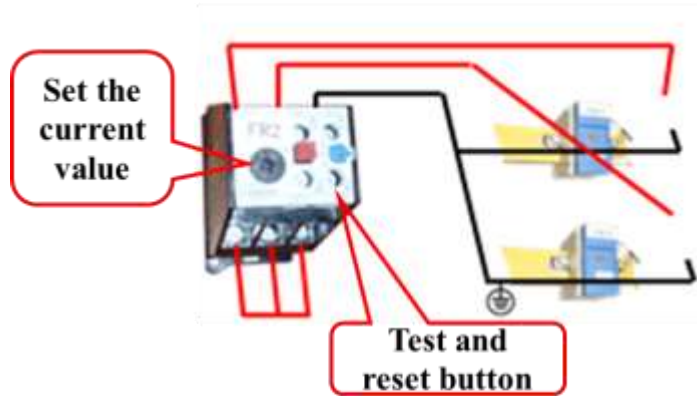
Check the outside supply power, including the voltage range (90%-110% of rated value), phase sequence, lack phase and so on. In order to protect electric components.



## Thermal overload relay

### Function:

Limit the compressor maximal current. Current transformer transforms compressor current to 0-5A, and the current will be checked by thermal overload relay.



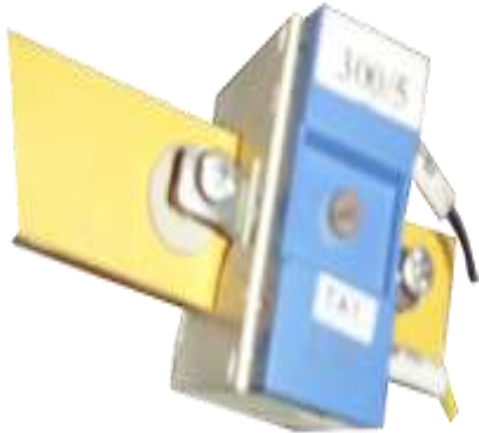
*Reset button: If thermal overload relay tripped, press it to reset.*



## Current conductor

### Function:

Transfer 0-5A AC signal of start cabinet to standard 4-20mA DC current signal. Convert the temperature and pressure signals to standard signals for easy collection.



△—KM11/KM12 ON

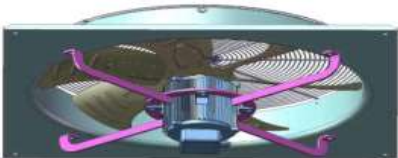
Y—KM11/KM13 ON

## Intermediate relay

**Function:** To control the start-up and stop of compressor. The current is very heavy of the main contactor when it closes, so the auxiliary relay can isolate PLC or PCB and contactor to prevent PLC from getting burnt.



*Fan contractor*





## Isolation transformer

### Function:

Transform user power supply to AC 220V to supply a stable power to the PLC controller;  
and work as a filter which makes the PLC much more accurate.

Input: AC220v



Output: AC220v



## *PLC controller*

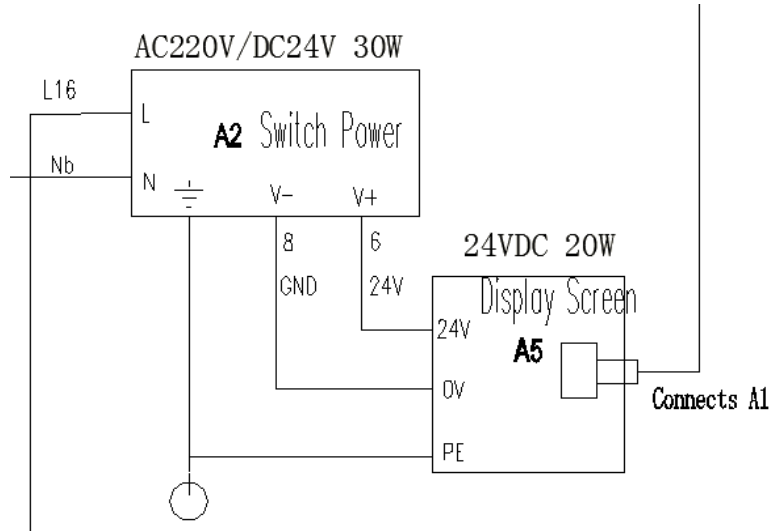
### **Function:**

*The core component of the whole control system, PLC controls the chiller by checking those analog signals such as the outer protection input , temperature , pressure, control signal of the touch screen.*

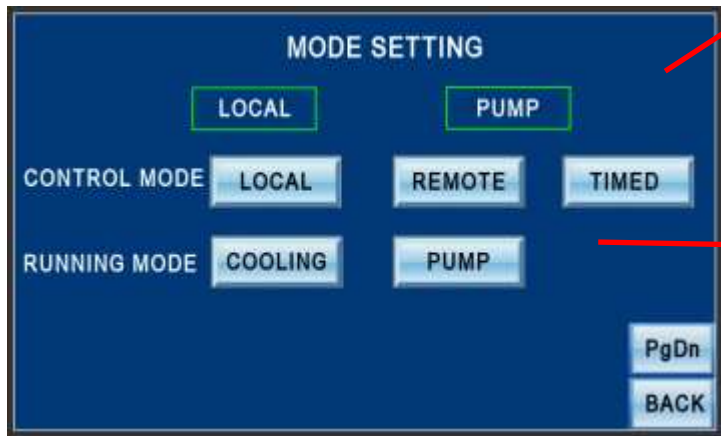


# Electric hardware

**Function:** To transform AC220V to DC24V and supply for the HMI(touch screen)

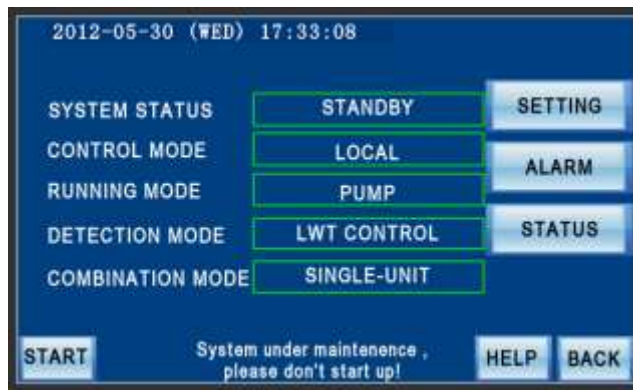
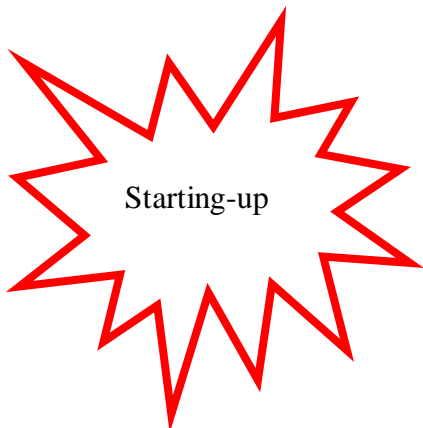


*Touchable screen*

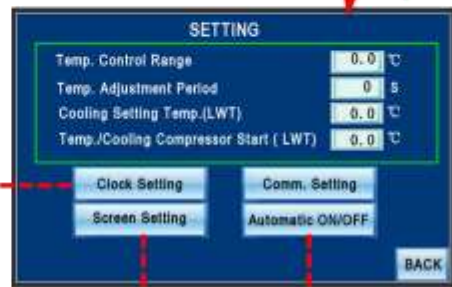


Control mode

Running mode



# Touchable screen



Refer to the IOM




This function can be only used when the unit is under timing mode

# Touchable screen

ALARM



Press the  can check the latest warning information, the unit can be started up only when the warning message was confirmed by press the "Rest" button.



Press the **History Alarm Information** in the alarm page, can look for alarm details.

# Touchable screen (single head)



Press the button in the home page



R134a

Pump Running	0 H	Comp. Running	0 H
Remaining Oil Heating	0 M		

Restart Delaying	NO
Min. Running Time Elapsed	NO
Alarm	NO
Water Temp. Allow Compressor Start	NO
Load State	0%
PLC Remaining Battery Volume	0%

PgDn BACK



Discharge Temp.	<input type="text"/>	°C
Ambient Temp.	<input type="text"/>	°C
EWT	<input type="text"/>	°C
LWT	<input type="text"/>	°C
Section Pres.	<input type="text"/>	Bar
Discharge Pres.	<input type="text"/>	Bar

PgUp PgDn BACK



INPUT

Remote Start	ON	Comp. Overload Prot. Switch	ON
Remote Stop	ON	Fan Overload Prot. Switch	ON
Water Switch	ON	Anti-freeze Switch	ON
High Pres. Switch	ON	Oil Pres. Differ. Prot. Switch	ON
Low Pres. Switch	ON	Motor Prot. Switch	ON
Power Prot. Switch	ON	Costactor Protection	ON
Oil Level Switch	ON	Reserved	ON
EXV Feedback	ON		

PgUp BACK

OUTPUT

Compressor	ON	Reserved	ON
Pump	ON	Economizer	ON
25% SOL Val.	ON	Mid. Injct.	ON
50% SOL Val.	ON	Tail Injct.	ON
75% SOL Val.	ON	Oil Supply Val.	ON
Fan NO.1	ON	Bypass SOL. Val.	ON
Fan NO.2	ON	Reserved	ON
Fan NO.3	ON	Reserved	ON
Fan NO.4	ON	Reserved	ON
Fan NO.5	ON	Cooling	ON
Fan NO.6	ON	Alarm	ON

PgUp PgDn BACK

*OFF means the point have no signal input, ON means the components are working normally.*

# Touchable screen (dual heads)

## Status inquiry

Press the button in the home page



R134a

Pump Running	0 H 1# Comp. Running	0 H
Remaining Oil Heating	0 M 2# Comp. Running	0 H
1# Restart Delaying		NO
1# Min. Running Time Elapsed		NO
1# Alarm		NO
2# Restart Delaying		NO
2# Min. Running Time Elapsed		NO
2# Alarm		NO
Water Temp. Allow Compressor Start		NO
1# Load State	9%	2# Load State 9%
PLC Remaining Battery Volume		9%

PgUp PgDn BACK

Ambient Temp.	6.3 °C
EWT	6.3 °C
LWT	6.3 °C
1# Discharge Temp.	6.3 °C
2# Discharge Temp.	6.3 °C
1# Suction Pres.	0.03 Bar
2# Suction Pres.	0.03 Bar
1# Discharge Pres.	0.03 Bar
2# Discharge Pres.	0.03 Bar

PgUp PgDn BACK

### INPUT

Remote Start	1# Comp. Overload Prot. Switch	
Remote Stop	1# Fan Overload Prot. Switch	
Water Switch	Anti-freeze Switch	
1# High Pres. Switch	1# Oil Pres. Differ. Prot. Switch	
1# Low Pres. Switch	1# Motor Prot. Switch	
Power Prot. Switch	1# Contactor Protection	
1# Oil Level Switch	Reserved	
1# EXV Feedback		

PgUp PgDn BACK

### OUTPUT

1# Compressor	1# Reserved	
Pump	1# Eccosizer	
1# 25% SOL. Val.	1# Mid. Inject.	
1# 50% SOL. Val.	1# Tail Inject.	
1# 75% SOL. Val.	1# Oil Supply Val.	
1# Fan NO.1	1# Bypass SOL. Val.	
1# Fan NO.2	Reserved	
1# Fan NO.3	Reserved	
1# Fan NO.4	Reserved	
1# Fan NO.5	Cooling	
1# Fan NO.6	1# Alarm	

PgUp PgDn BACK

### INPUT

Remote Start	2# Comp. Overload Prot. Switch	
Remote Stop	2# Fan Overload Prot. Switch	
Water Switch	Anti-freeze Switch	
2# High Pres. Switch	2# Oil Pres. Differ. Prot. Switch	
2# Low Pres. Switch	2# Motor Prot. Switch	
Power Prot. Switch	2# Contactor Protection	
2# Oil Level Switch	Reserved	
2# EXV Feedback		

PgUp PgDn BACK

### OUTPUT

2# Compressor	2# Reserved	
Pump	2# Eccosizer	
2# 25% SOL. Val.	2# Mid. Inject.	
2# 50% SOL. Val.	2# Tail Inject.	
2# 75% SOL. Val.	2# Oil Supply Val.	
2# Fan NO.1	2# Bypass SOL. Val.	
2# Fan NO.2	Reserved	
2# Fan NO.3	Reserved	
2# Fan NO.4	Reserved	
2# Fan NO.5	Cooling	
2# Fan NO.6	2# Alarm	

PgUp PgDn BACK



## Network control

### 1-1 Host computer system



### 1-N Host computer system

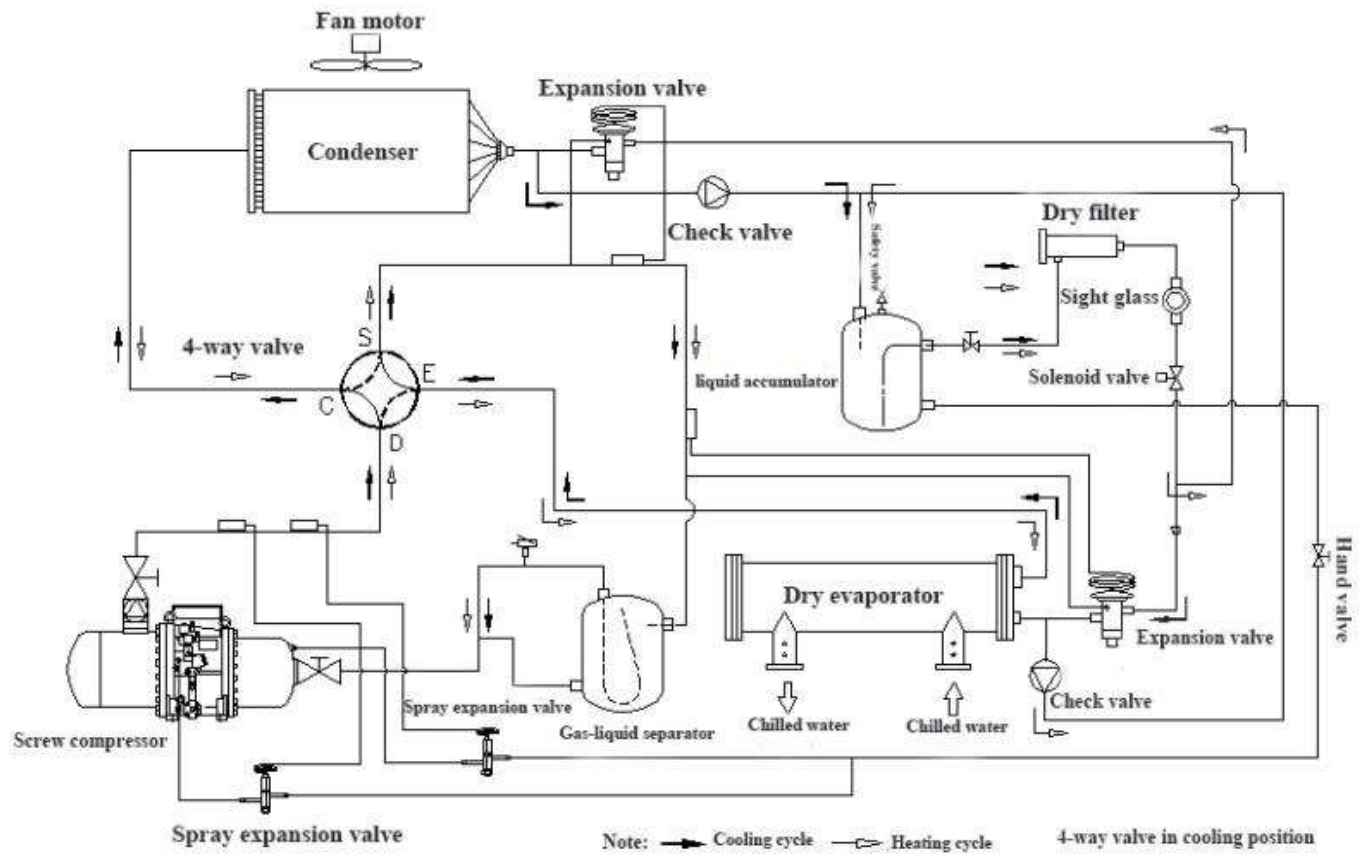


The PLC controller reserved RS485 port which can be communicate with BAS (Building Automation system) though the Modbus communication protocol, as we know our units can be combined by max 12 units to one group, we need to set the master unit and the slave units on the PLC and then only master unit connect to the Host computer.

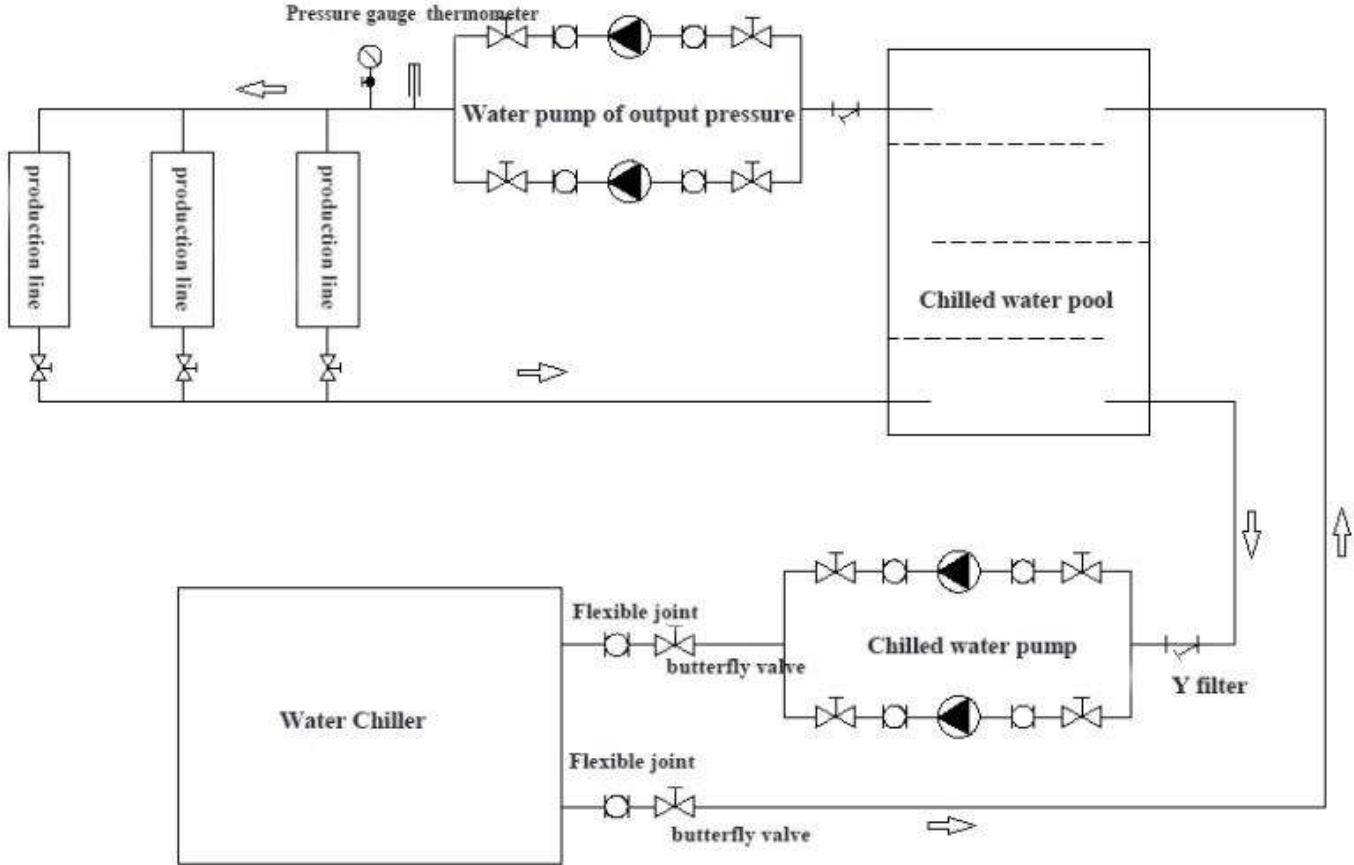
# Production line, Test, Package, Shipment and Installation



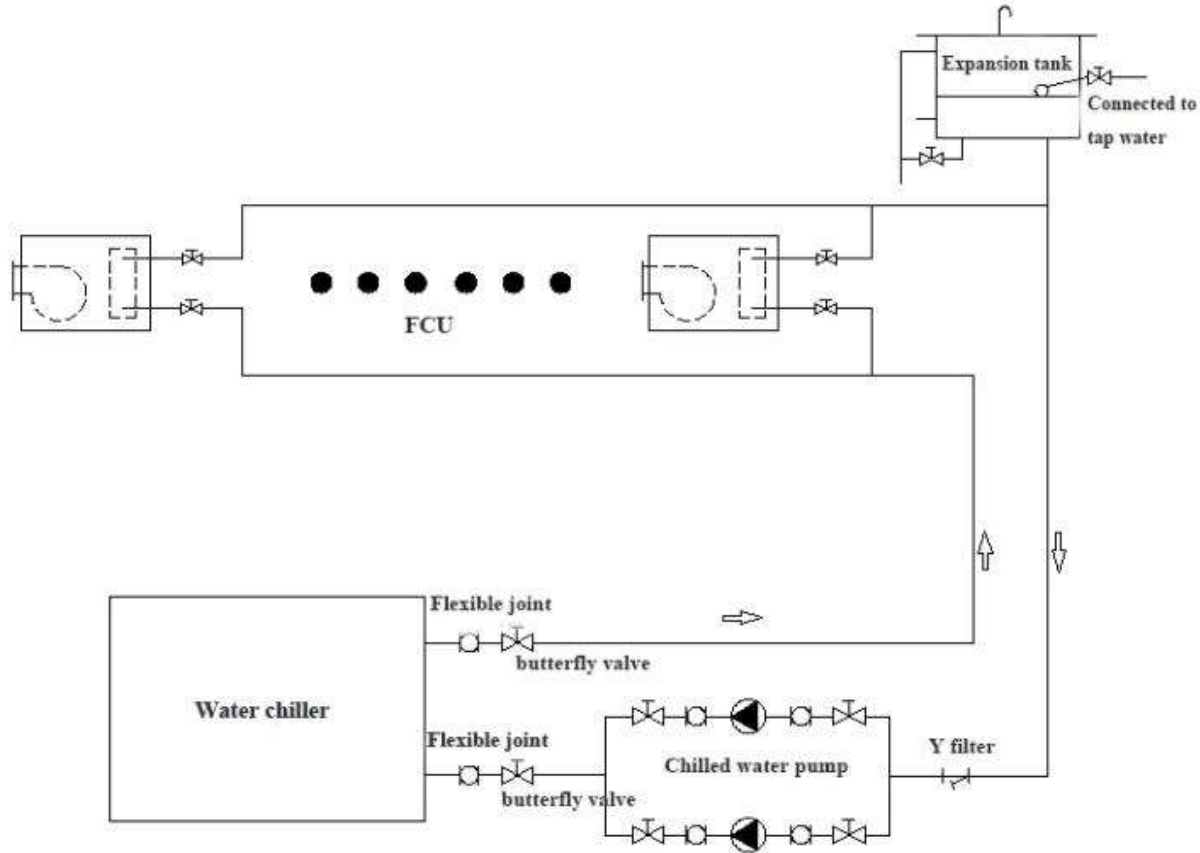
# Circuit Diagram



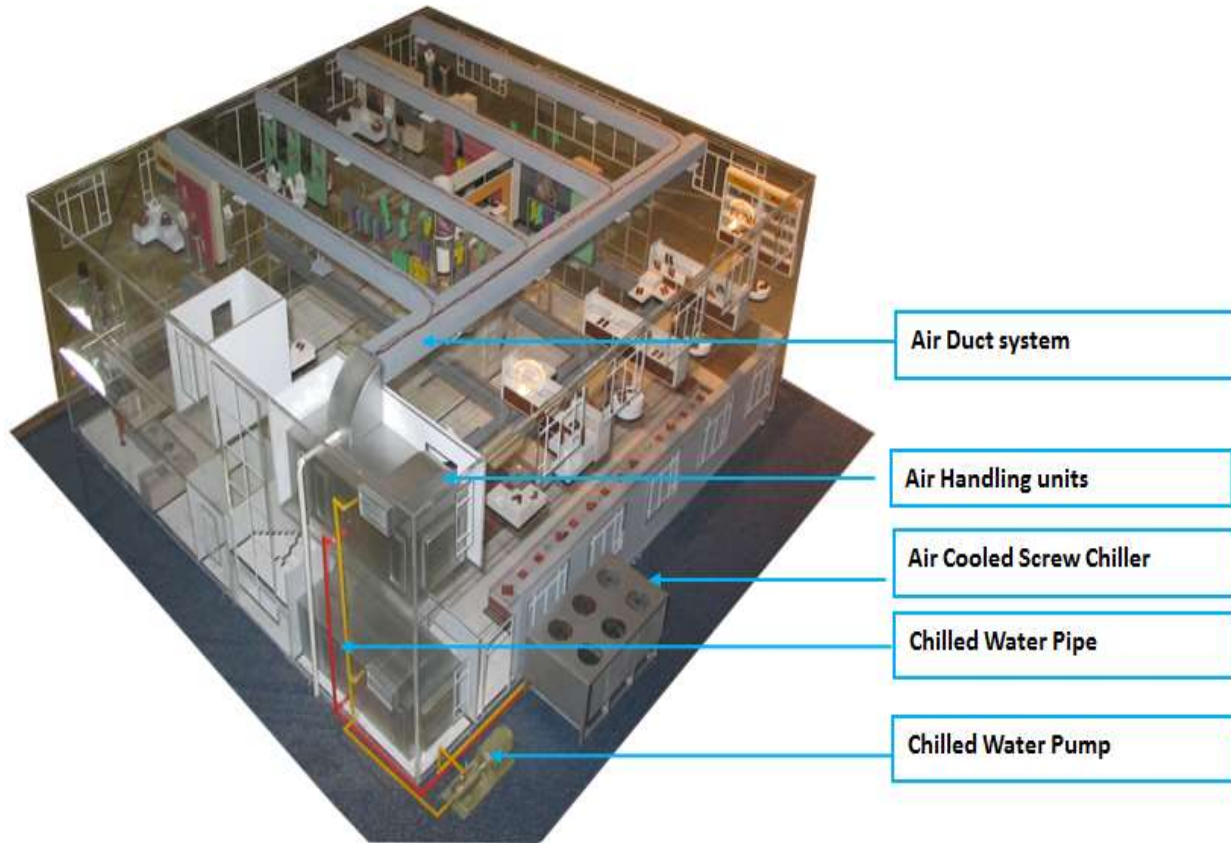
# System Installation Diagram (Industrial Refrigeration Solutions)



— System Installation Diagram (Central Air Conditioning Solutions) —



— System Installation Diagram (Central Air Conditioning Solutions) —



# Technical Data

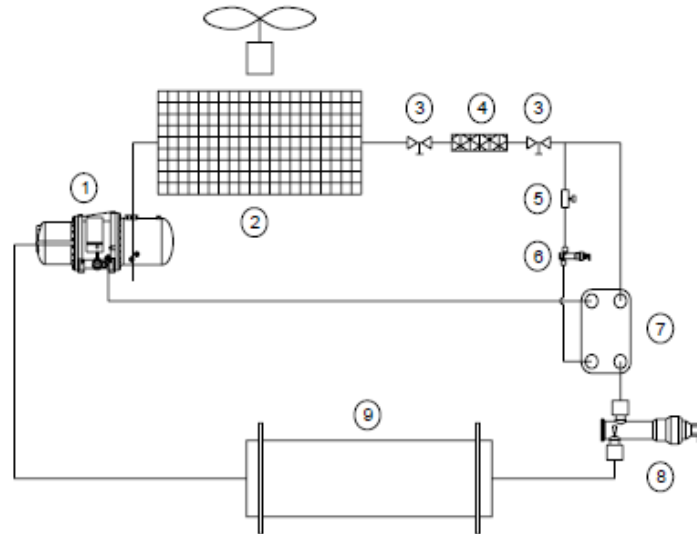
Model		W02C1-200S	W02C1-300S	W02C1-520S	W02C1-720S	W02C1-900S	W02C1-1080S	W02C1-1300S	W02C1-1516S	
Nominal cooling capacity	kW	200	300	520	720	900	1,080	1,300	1,516	
	USRT	56.9	85.3	147.9	204.7	255.9	307.1	369.6	431.0	
	EER	3.58	3.62	3.56	3.57	3.55	3.58	3.61	3.60	
Power supply		380V/3P/50Hz (400V/415V/3P/50Hz, 380V/460V/3P/60Hz as option)								
Compressor	Type	Advanced semi-hermetic twin screw compressor (Inverter compressor as option)								
	Brand	Hanbell, RefComp, Danfoss								
	Starting mode	Y-Δ								
	Motor	Electronic overload protection								
	Oil lubrication	Injection								
	Capacity steps	0-25%-50%-75%-100%, 12.5%,25%,37.5%,50%,62.5%,75%,87.5%,100%, stepless control as option								
	Quantity	1	1	2	2	2	4	4	4	
Input power	kW	55.8	82.7	146	201.1	252.2	301	360	421	
Refrigerant	Type	HFC - R134a or R407C								
	Circuit quantity	1	1	2	2	2	4	4	4	
Control type		Siemens PLC control system, microprocessor control center touch-screen user interface simplifies operation								
Safe protection device		High & low pressure protection, overload protection, power open phase protection, frequent startup protection, overcurrent & overheating protection of compressor, water flow protection, reversal protection control, anti-freeze protection, etc.								
Building management system		BACNET MSTP building management system interface module as option								
Air side heat exchanger (condenser)	Type	High efficiency exchanger copper tube and aluminum fin coil								
	Fan type	High efficiency axial fan, static and dynamic balanced fan with low noise and vibration								
	Air volume	10,800	176,000	220,000	352,000	352,000	460,000	460,000	589,000	
	Motor input power	1.56	3.12	4.76	6.86	8.65	10.28	13.56	19.22	
Water side heat exchanger (evaporator)	Type	High efficiency shell and tube, direct expansion type with refrigerant inside high efficiency copper tubes								
	Waterflow	m <sup>3</sup> /h	34	51	89	123	154	185	223	247
	Pressure drop	kPa	48	55	44	52	44	48	44	80
	Fouling factor	m <sup>2</sup> .°C/kW	≤0.086							
	Pipe size	In	4"				6"			
Dimension	Length	mm	2,300	3,300	5,400	7,200	9,900	10,800	13,400	18,413
	Width	mm	2,140	2,140	2,140	2,140	2,140	2,140	2,140	2,065
	Height	mm	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,196
Noise level		dB(A)	73	75	75	79	78	79	78	79
Weight	Net	kg	2,750	3,750	6,200	8,600	11,250	12,900	16,000	18,600
	Gross	kg	3,000	4,050	6,700	9,500	12,150	14,250	17,400	22,700

- Notes: 1. Standard cooling work condition: entering chilled water temperature 12°C, leaving temperature 7°C; dry bulb temperature 35°C, wet bulb temperature 24°C.  
2. Standard heat recovery work condition: entering hot water temperature 15°C, leaving temperature 55°C; dry bulb temperature 20°C, wet bulb temperature 15°C.  
3. Heat recovery for hot water (55°C) function as option, when cooling mode, free of charge for hot water production.  
4. All models, sizes, dimensions, and specifications are subject to change without prior notice, please refer to nameplates for the most accurate specifications.

## Working Principle

Air-cooled screw chiller combine with five main components and other accessories, Five components are compressor, fins type heat-exchanger, solenoid valve, tube-shell exchanger and control system; and economizer etc. unit basic working principle as flow:

### (1) R134a units



1	Twin screw compressor	4	Filter-drier	7	Economizer
2	Copper-fin heat- exchanger	5	Solenoid valve	8	Electrical expansion valve
3	Cut valve	6	Economizerexpansion valve	9	Shell-and-tube evaporator

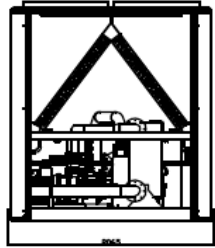
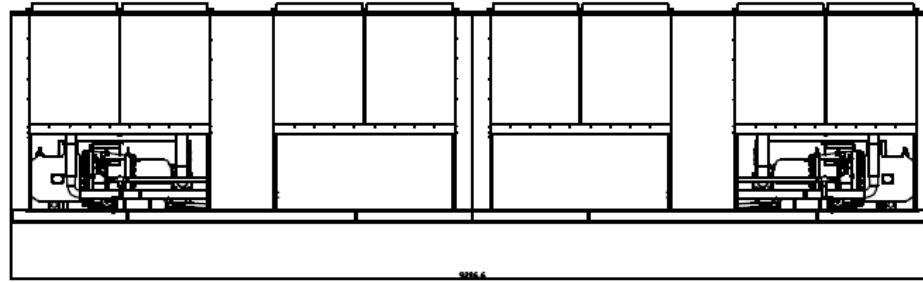


## Operating Range

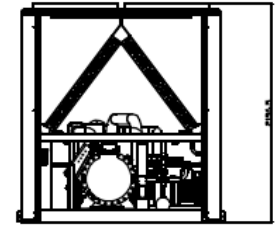
Content	Running range
Ambient Temp.	15℃~43℃(T1)
Leaving water Temp.	5℃~15℃
Water flow volume	Rating flow volume±20%
Max inlet/outlet water Temp. difference	8℃
Fouling factor (m <sup>2</sup> ·℃/kW)	0.086
Voltage tolerance	Rating Voltage±10%
Phase tolerance	±2%
Power supply frequency	Rating frequency±2%
Evaporator max working pressure on water side	1.0MPa
Compressor max. start count	4 times/h
Environment quality	High corrosive environment and high humidity should be avoided.
Drainage system	The height of water drainage should not be higher than the base of the unit on the spot
Storage and transport temperature	-25℃~55℃
RH(relative air humidity)	In + 40℃ does not exceed 50%, + 25℃ no more than 90%
Applicable altitude range:	No more than 1000m

— View —

Front View

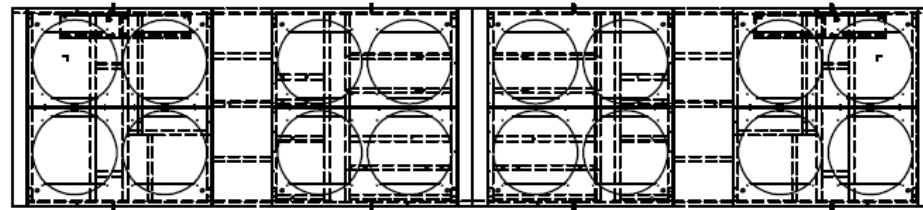


Side View



Side View

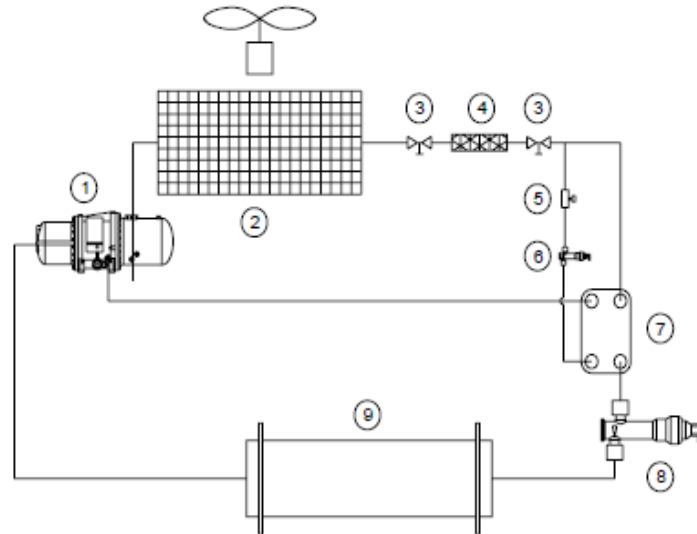
Top View



## Working Principle

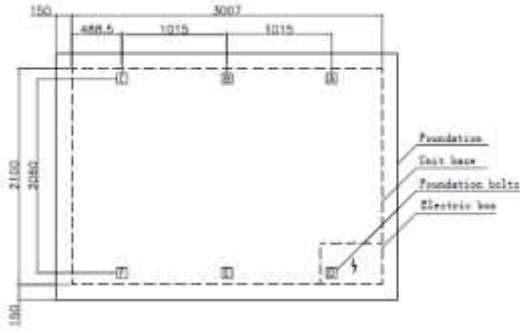
Air-cooled screw chiller combine with five main components and other accessories, Five components are compressor, fins type heat-exchanger, solenoid valve, tube-shell exchanger and control system; and economizer etc. unit basic working principle as flow:

### (1) R134a units



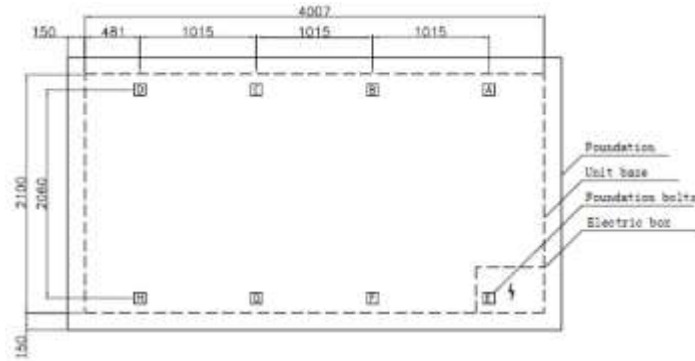
1	Twin screw compressor	4	Filter-drier	7	Economizer
2	Copper-fin heat- exchanger	5	Solenoid valve	8	Electrical expansion valve
3	Cut valve	6	Economizerexpansion valve	9	Shell-and-tube evaporator

## — Installation Foundation —



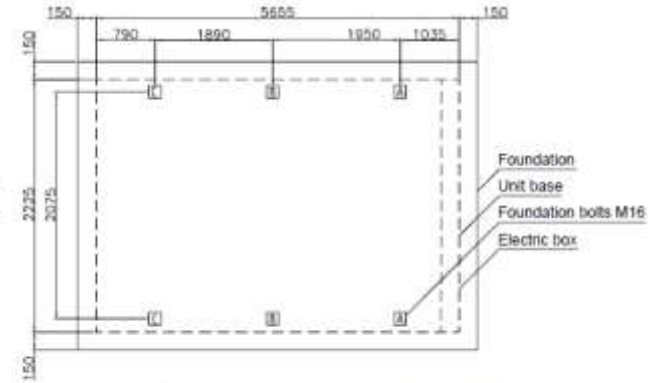
Weight to be supported by spring isolator			
A	C	D	F
952	714	646	1088
938	704	936	1072

- (1) W02C1-200S  
W02C1-300S  
unit (mm)



Weight to be supported by spring isolator			
A	D	E	H
1014	697	819	1170
1040	920	640	1200

- (2) W02C1-520S  
W02C1-720S  
W02C1-900S  
unit (mm)



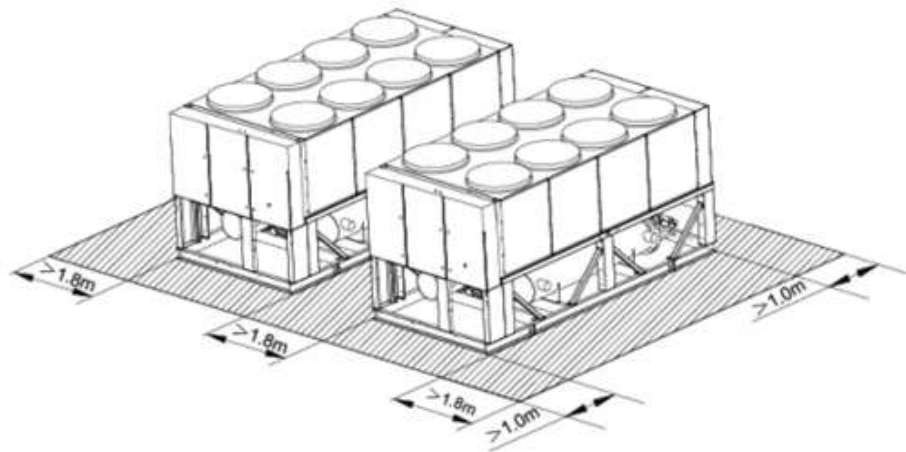
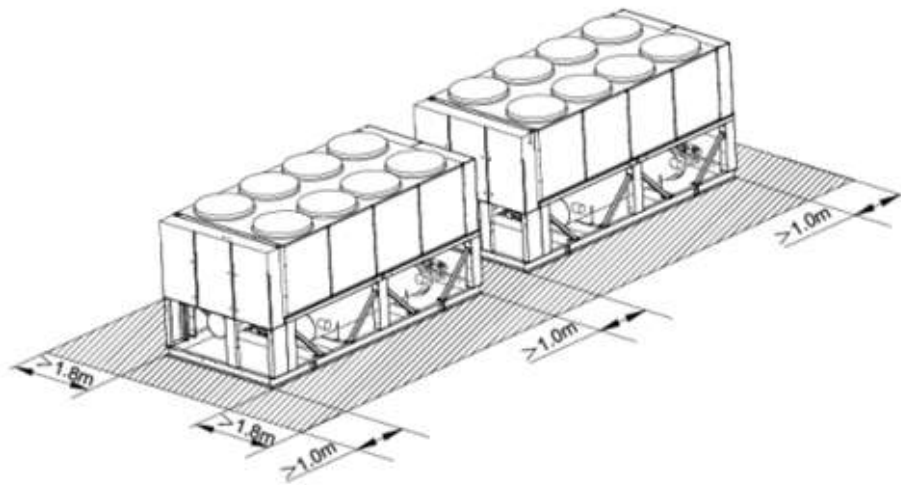
Weight to be supported by spring isolator		
A	B	C
890	930	780

- (3) W02C1-1080S  
W02C1-1300S  
W02C1-1516S  
unit (mm)



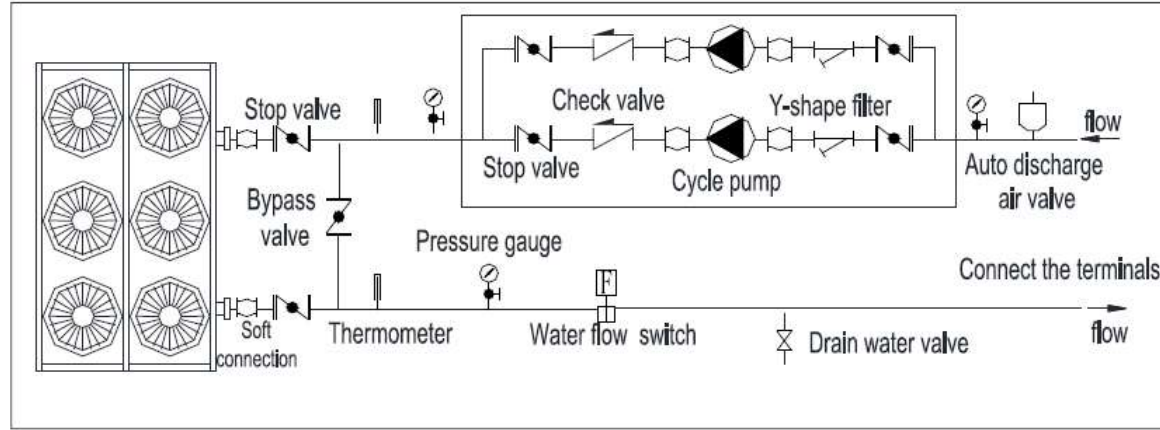
## Installation Spaces

There must be no obstruction under the fans.

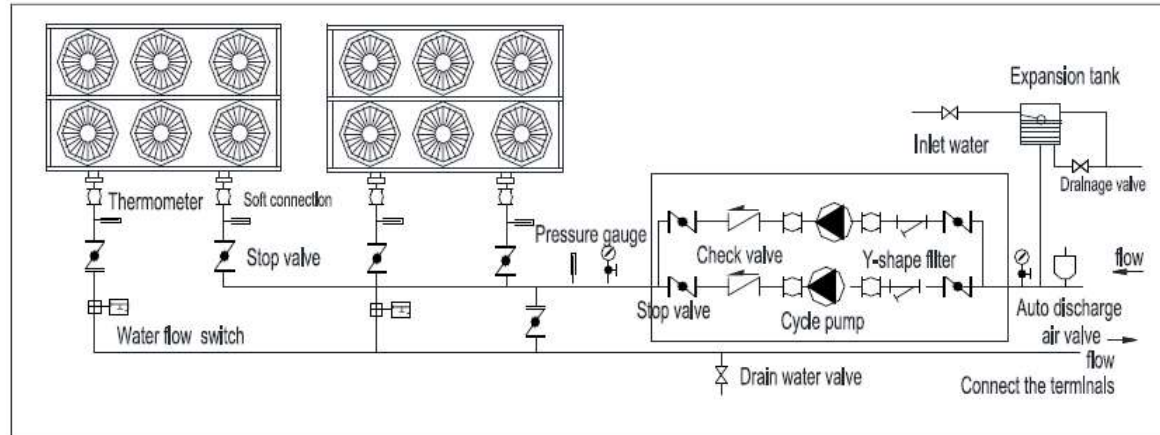


# Water Piping

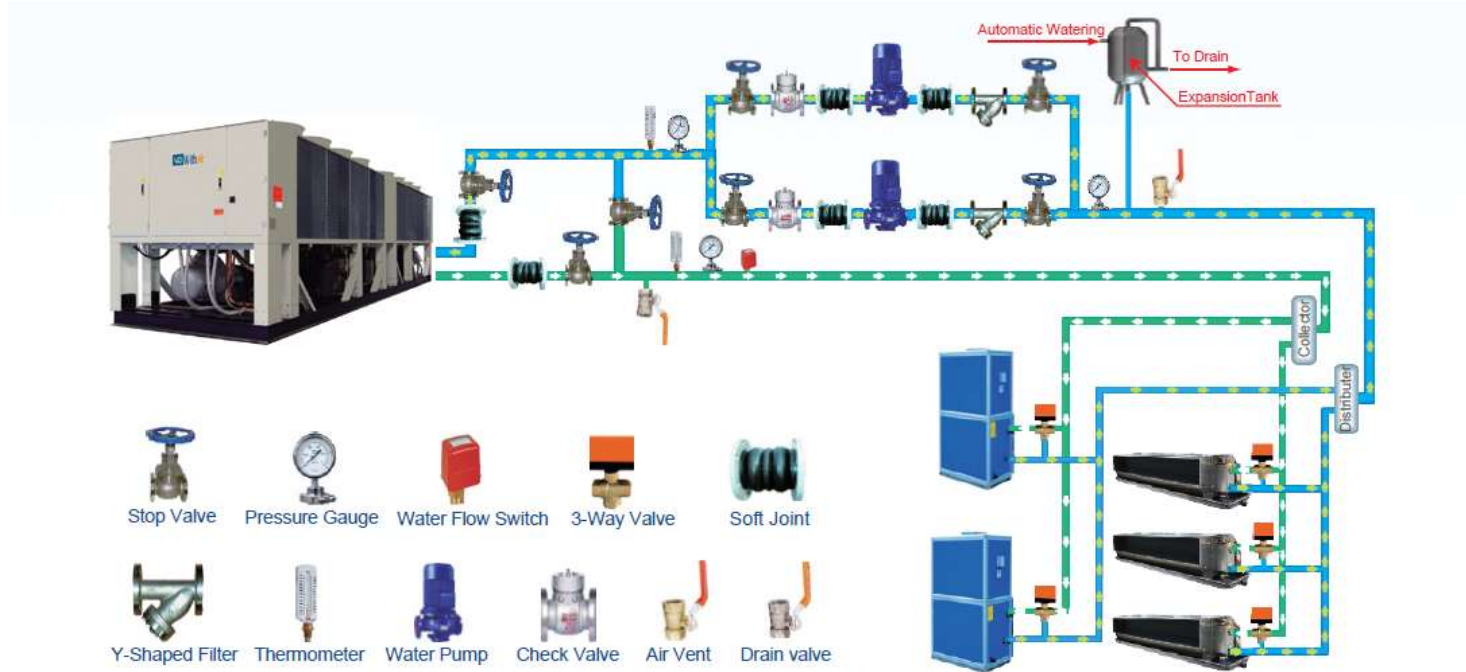
Single unit:



Parallel connection of units:



# Typical Water Piping Layout



## Introduction

The following pertinent guidelines are served to ensure satisfactory operation of the units. Failure to follow these recommendations may cause improper operation and loss of performance, damage to the unit and difficulty in servicing and maintenance.



— Some Certificates —



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Screw Compressor Water Chiller



+ Fan Coil Unit



+ Insulation pipe



+ Thermostat





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