

HVAC System

Solution for the plant
车间解决方案



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Case design (个案设计) :



A top view is for reference only. The equipment in the plant and its location is going to be adjusted according to different case designs, and please makes the actual situation in construction site as the standard.

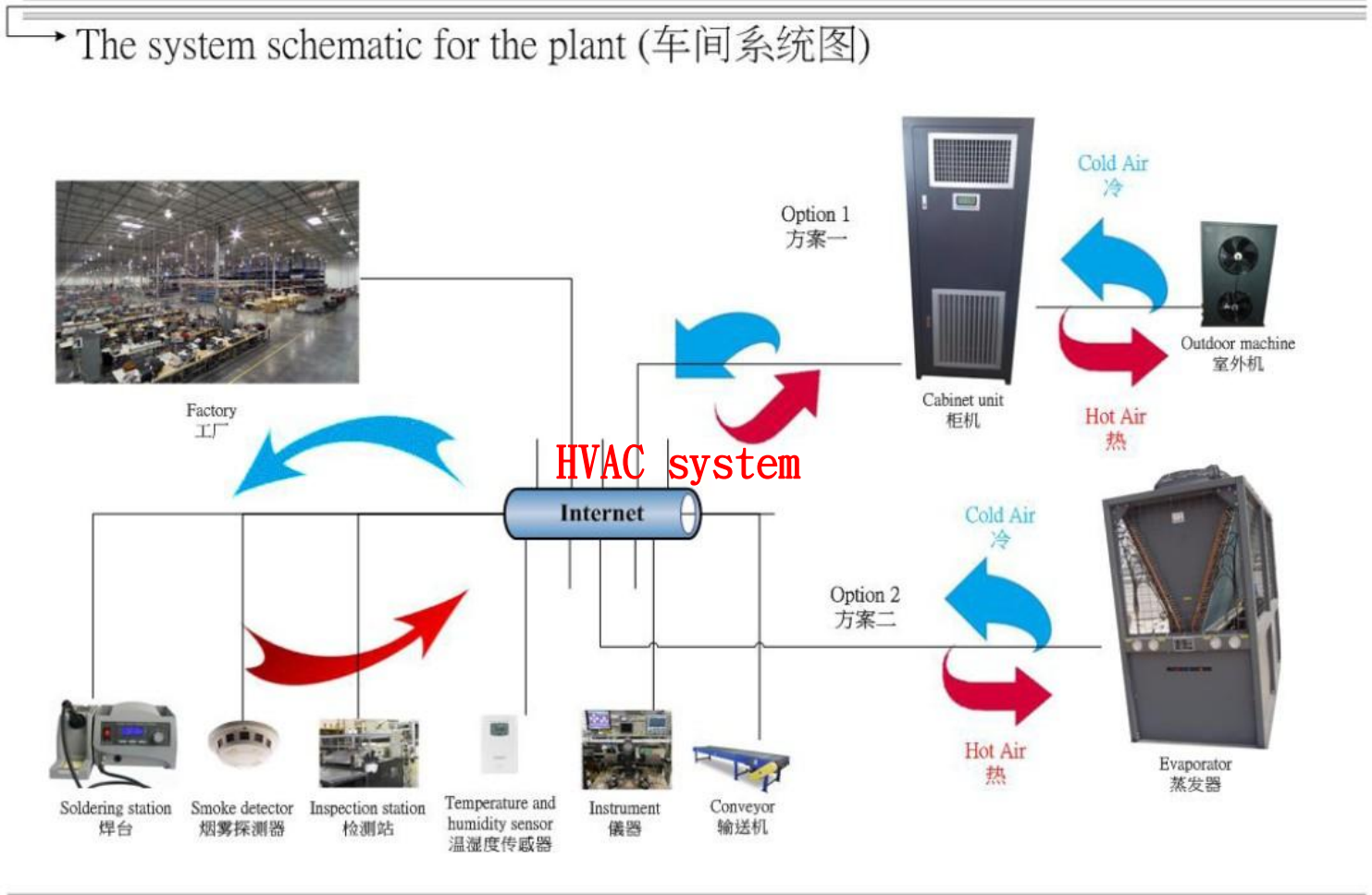
俯视图仅供参考，车间内所需的设备及其放置的地点会根据不同的个案设计而做调整，实际情况请以现场施工为准。

A 3D view is for reference only, and please makes the actual situation in construction site as the standard. A red color is represented as the source of heat, as well as a blue color is for the source of cooling.

三维示意图仅供参考，实际情况请以现场施工为准。红色：热源；蓝色：冷源。



The system schematic for the plant (车间系统图) :



With the development of the information industry, improve the production process of fine for electronic product performance and quality, the control of air cleanliness and production environment is become more and more important. So is the standard design. According to the standard (GB50073-2001) and manufacturing practical experience is applied to determine the cleanliness and the temperature and humidity requirements of electronic factory. In the clean room purification design process of the project, whatever it is the new project or the transformation of the old plant. In combination with their specific production process, production processes and other requirements are used to determine the cleanliness, temperature and humidity which are needed. According to the specific conditions of the project, while also taking into account the manufacturer's economic capacity, integrated a variety of factors to determine the purification scheme, we can design that meets the production requirements which are reasonable, economical and practical for party A.

随着信息产业的发展,许多电子产品性能、质量的提高和生产过程的微细化,越来越要求生产环境具有一定的空气洁净度和环境的控制。所以一般是依据《洁净厂房设计规范》(GB50073-2001)以及电子产品的生产厂家实际经验等来确定电子厂房的洁净度等级和温湿度的要求。在无尘车间净化工程的设计过程中,应根据该工程是新建工程或者是旧厂房改造工程,并结合其具体的生产工艺、生产流程等要求确定其需要的洁净度及温湿度。再根据该工程的具体情况,同时还要考虑到生产厂家的经济承受能力,综合各种因素来确定采用何种净化方案,这样才可设计出一个能满足甲方生产使用要求、工程造价合理、经济节能实用的方案。

Scopes and characteristics (应用范围及产品特性) :

Fields (应用领域) :

Environmental control: Electronic warehouse, cigarette factory, printing house, making up plant, electronics factory, SMT factory, MID warehouse, LCD factory, packing workhouse, dust-free workshop, PCB factory, repair workshop, embroidery workshop, and etc.

环境控制领域: 电子仓库、制烟厂、印刷厂、服装厂、电子厂、表面贴装平台、MID 车间、显示屏车间、包装车间、无尘车间、印刷电路板厂、维修车间及绣花车间等。



Electronic warehouse
电子仓库



Cigarette factory
制烟厂



Printing house
印刷厂



Making up plant
服装厂



Electronics factory
电子厂



SMT factory
表面贴装平台



MID warehouse
MID 车间



LCD factory
显示屏车间

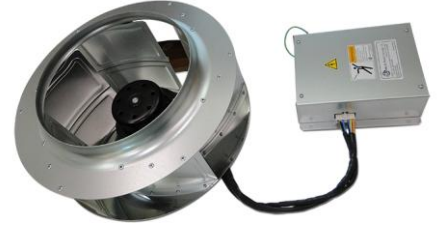


Packing workhouse
包装车间

Features (产品特性) :

Flexible (灵活):

1. Adjustable fan speed (调速风机)
2. Air modes (up blowing, down blowing, side blowing, back blowing, and front blowing) (送风方式多样(上送, 下送, 侧送, 后送, 前送))
3. Modular (assemble convenient) (模块化(组合方便))
4. Multiple type modules (多型式模块)
5. Optional EC fan, sunk EC fan design, saving energy by 20% compared with ordinary EC fan (可选 EC 风机, 沉浸式设计, 与普通 EC 风机相比节能 20%)



Efficient (高效):

1. Copeland scroll compressor with high energy efficiency ratio (Copeland 涡旋式压缩机, 高能效比)
2. EC fan, 20% savings more than the regular fan (EC 风机, 比普通风机节能 20%)
3. V type evaporator, in the limited space to increase the heat transfer area (V 型蒸发器, 在有限的空间内增大换热面积)
4. Intelligent control panel (EN/CH font), LCD interface, simple, convenient, easy to maintain and settings (中英文智能控制面板, LCD 操作界面, 简洁, 方便, 易于维护和设置)
5. Standard RS485 and IP communication interface (标准的 RS485 和 IP 通信接口)
6. Powerful teamwork control and communication functions (强大团队控制和通信功能)

Maintenance easily (易维护):

1. Easy disassembly (易拆卸)
2. Less consumption (少消耗)
3. Optimized structure (最优化的结构)
4. New engineer maintenance window (最新工程师维护窗口)
5. Maintenance window (opening while equipment is operating) (维护窗口(设备运行中开放))
6. Routine maintenance and troubleshooting (便于平常维护及判断故障)



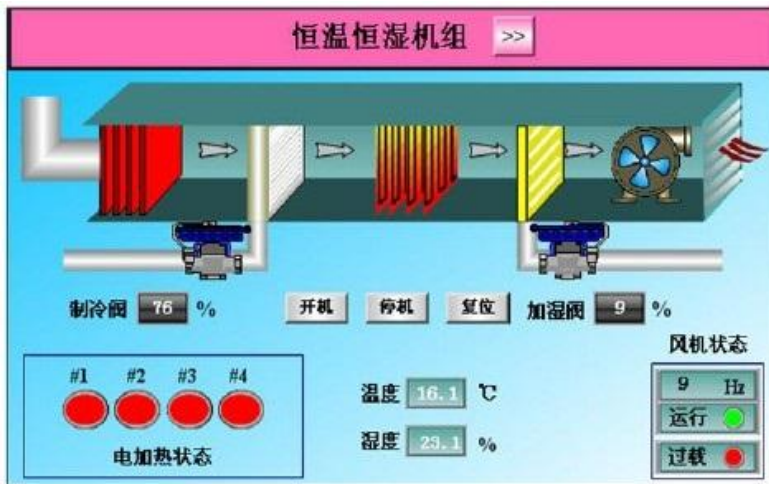
Reliable (可靠性):

1. Quality components with strict certification (过严格认证的高品质部件)
2. Advanced controller automatically balanced operation (先进的控制器自动平衡部件的运行和磨损)
3. Control system with expert diagnosis and fault alarm function (具有专家自诊断和故障预警功能的控制系统)
4. Skeleton frame riveted steel rivets, stable, sturdy, and easy separation (碳钢铆钉铆接的骨架机身, 既稳定坚固又容易拆分)
5. Inner and outer panels, built-in fire insulation materials (内外双层面板, 内置防火隔热材料)
6. Compressor of high and low pressure, exhaust temperature, air volume loss, and fan overload multiple protective measures (压缩机高低压, 排气高温, 风量丢失, 风机过载等多重保护措施)
7. High reliability, flexibility, low cost in entire life cycle (高可靠性, 灵活性, 整个寿命周期费用低)

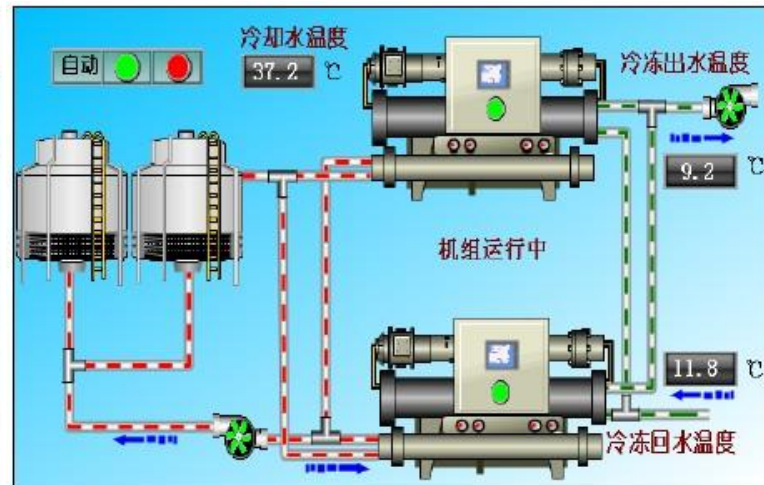


PC S/W – optional (上位机软件 – 选配) :

- The simple and stable user interface (简洁稳定的使用介面)
- Advanced controlling system (高等控制系统)
- Low cost developing environment (低成本开发环境)
- The integrated solution (整体解决方案)
- Real time monitoring and high efficiency (即时监控和高效)
- Remote sensing (远程感测)
- Alarm system (报警通知)
- Data searching, data exporting, and data printing (资料搜寻、资料导出、和资料列印)
- Manual configuration (手动排程设定)
- Message log (信息日志化)
- Password setting (密码功能)



Constant temperature and humidity control system
(恒温恒湿控制系统)



Screw type cold water machine automatic control system
(螺杆式冷水机控制系统)

Protection function (保护功能) :

The unit is implemented some functions for protections, such as: motor overloaded protection, short circuit protection, over current protection, phase sequence protection, over heating protection, high pressure protection, low voltage protection, discharge temperature protection, started frequently protection, blower fault protection, air pressure fault protection, and humidified fault protection. These features are ensured that the unit is under normal operation. The unit also reserves the interface for the fire alarm system. When fire occurs, the system will send the warning signal to the control system. The system receives the warning signal and then shuts down the unit to protect the facility. The unit also provides the interface module (RS-232/RS-485) and software for options.

机组具有电机过载、短路、过电流、相序保护、加热超温保护、压缩机高低压保护、压缩机排气高温保护、压缩机频繁启动保护、送风机故障保护、风压故障保护、加湿器故障保护等功能，为确保机组正常运行，机组留有火警信号接口与消防系统连接，当发生火灾时，消防系统传送火警信号给控制系统之后，机组即进入停机状态。机组还提供了接口模块 (RS-232 / RS-485) 和软件选项。



SL485 extension PCB board
SL485 扩展板

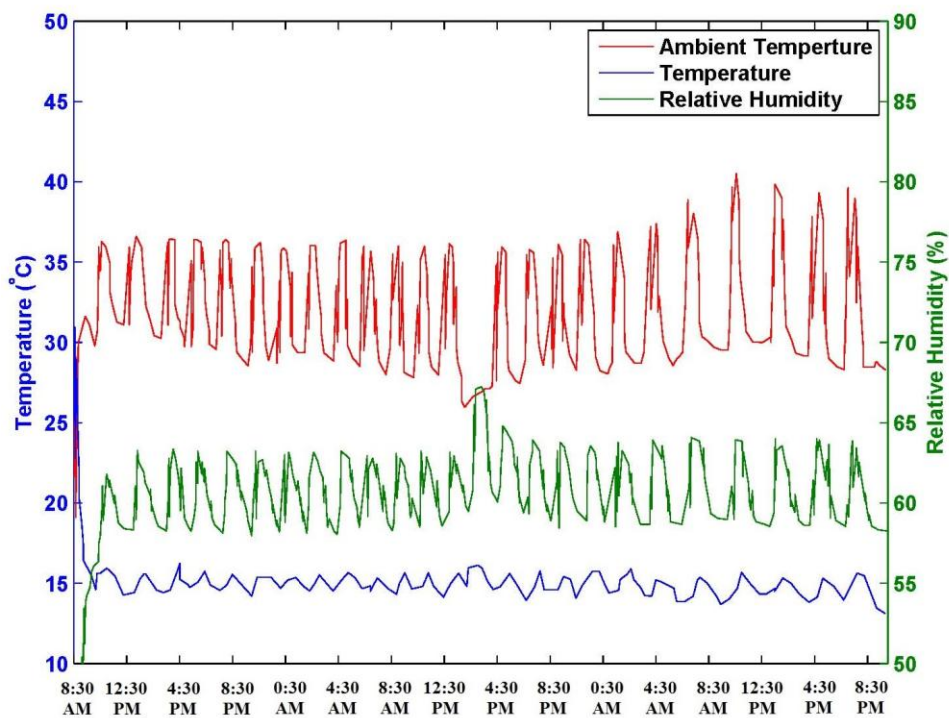
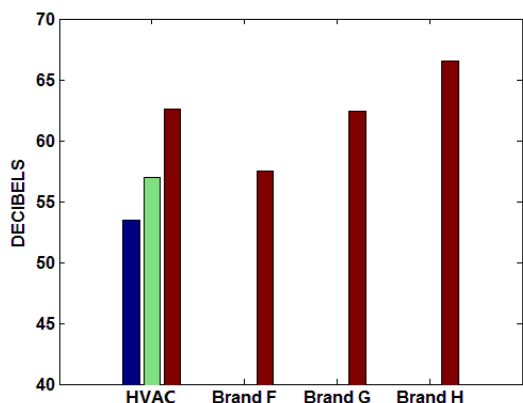
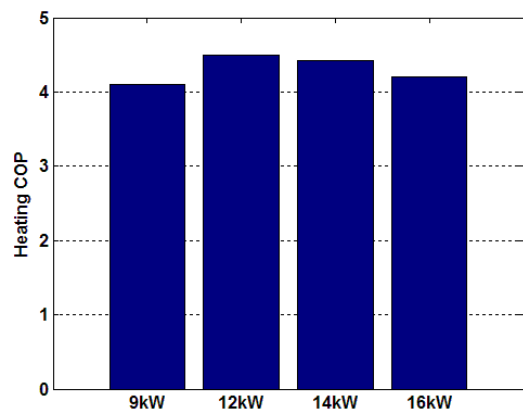


Protection function PCB board
保护功能控制版

Energy-saving data & performance of unit (节能数据和机组性能) :

The chart displaying on the up left side shows how the coefficient of performance (C.O.P.) of a heat pump varies with the input power. The unit offers three variable-speed settings - Low, Medium and High - to meet variable cooling needs and ambient conditions. Decibel measurements were recorded at all three fan settings and displayed on the down left side.

下面左上的图表显示热泵的冷冻系数（冷冻系数）与不同功率的变化。冷却机组提供三变速设置：低、中和高满足变冷的需要和环境条件。分贝的测量是所有三个风扇设置在下面左下的图表显示的记录。



Summary(总结):

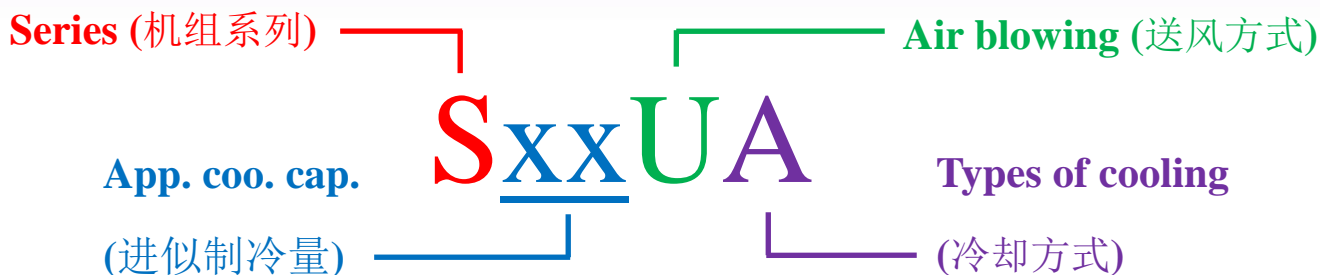
The unit was tested in the testing room for 24 hours by heating the condenser environment to 36.5°C. Despite the grueling heat, the unit was able to maintain temperatures at 15°C and relative humidity at 62% (±3%) inside the wine cellar.

单元在测试室内加热冷凝器摄氏 36.5 度测试 24 小时。尽管残酷的热，单元能保持测试室温度在摄氏 15 度和相对湿度在百分之 62 的水準(±3%)。

Test Conditions (测试条件):

- The cooling unit was tested in the testing room.
 - The cooling unit was set to maintain 15°C (14°C "off" and 2°C) Temperature Differential). The short spikes reflect the cooling unit's auto-defrost cycle.
 - The temperature measurement was taken at the far wall (approximately 3m (300cm) from the cooling unit).
- 冷却机组装置在测试室中进行测试。
 - 冷却机组被设置为保持摄氏 15 度 (摄氏 14 度“关闭”和摄氏 2 度的温度差)。短暂剧烈跳动反映冷却机组自动除霜周期。
 - 温度测量是离墙一段距离 (离冷却机组大约 3 米 (300cm))。

Product type (产品型号) :



I.

The first letter represents the model. They are S, E, M, Q, W, V, I, L, and P series.

第一个英文字母表示机组系列，分别为 S、E、M、Q、W、V、I、L 及 P 系列。

I: integrated machine series (一体机系列); V: evaporator (蒸发式系列); W: ceiling unit (吊顶式系列)

II.

The xx represents the approximate cooling capacity.

xx 英文字母表示进似的制冷量，以数字表示。

III.

The third letter represents the way of wind blowing. By using the letter to describe the different way of wind blowing is shown as following:

第三个英文字母表示不同送风方式，不同送风方式分别用不同英文字母表示，定义如下：

U – outlet (bottom); O – outlet (top); D – outlet (exchanging); G – outlet (gate); K – outlet (high accuracy); T – other purposes.

U – 下送风；O – 上送风；D – 置换送风；G – 格栅送风；K – 高精度型；T – 其他配置

IV.

The last letter represents the way of cooling. By using the letter to describe the way of cooling is shown as following:

第四个英文字母表示不同冷却方式，不同冷却方式分别用不同英文字母表示，定义如下：

A – air cooling 风冷；W – water cooling 水冷；D – air cooled dual-fluid 风冷双冷源；C – chilled water 冷冻水；E – free cooling 自由冷却；K – water cooled dual-fluid 水冷双冷源

Example: A customer makes a request for the cooling unit. The required specification is described as following: If S series is the best solution, the model can use the letter, "S" based on I, to represent it. The cooling capacity is 72kW. The xx letter can use the number, "72" based on II, to represent it. The wind blowing is out from the top and in form the bottom. The wind blowing can use the letter, "U" based on III, to represent it. The way of cooling is used the water to cool down the plant. The way of cooling can use the letter, "W" based on IV, to represent it. Because the cooling capacity is large than 52kW, the letter "S" has to replace by the letter "L". Finally, the model will use the letter, "L72OW", to represent it.

例如：依客户提出的要求。所要求的规格如下：如果 S 系列是最好的解决方案，可以用英文字母 "S" 代表它，依照 I 的规则。若冷却能力为 72KW。XX 可以使用数字 "72" 表示进似的制冷量，基于 II 的规则。送风方式若是从顶部送出和底部回风。送风方式可以使用英文字母 "O" 表示，基于 III 的规则。冷却的方式是使用水来冷却车间。因此冷却的方式可以使用英文字母 "W" 代表它，基于 IV 的规则。由于冷却能力大于 52kW，字母 "S" 会由字母 "L" 替换。最后，此机型的表示方式为 "L72OW"。

Specifications for S series (S 系列风冷/水冷规格):

Model (型号): S	Unit (单位)	S03	S04	S05	S08	S10	S13	S16
Co. cap. (制冷量)	kW (功率)	2.7	3.7	5.4	8.1	10.4	13.4	16
Sen. co. cap. (显冷量)	kW (功率)	2.6	3.6	5.1	7.8	10	12.9	15.5
S.H.R. (显热比)		0.98	0.97	0.95	0.96	0.96	0.96	0.97
Compressor (压缩机)	n (数量)	1	1	1	1	1	1	1
	kW (功率)	0.8	1.2	1.5	1.9	2.5	3.7	4.1
Fan (风机)	n (数量)	1	1	1	1	1	1	1
	m ³ /h (风量)	1000	1050	1250	2300	3400	3600	5100
	kW (功率)	0.27	0.38	0.46	0.57	0.61	0.65	0.66
	Pa (风压)	50 to 450(最大可调整到 450)						
Fan type (风机型式)		Belt/DC/EC fan (皮带/直连/EC 风机)						
Humidifier (加湿器)	kg/h (加湿量)	1	2	2	2	3	3	3
	kW (功率)	0.8	1.6	1.6	1.6	2.3	2.3	2.5
Hum. type (加湿方式)		Electrode/far-infrared /ultrasonic(电极/远红外线/超声波)						
Heater (加热)	kW (加热量)	3	3	3	3	3	3	6
	G (工作级数)	1	1	1	1	1	1	2
Tem. acc. (温度精度)	°C	+/-0.5						
Hum. acc. (湿度精度)	%	+/-3						
Refrigerant (制冷剂)		R22/R407c/R410a/R134a						
Size (室内机尺寸)	L (mm) 长	650	650	650	700	700	700	700
	W (mm) 宽	450	450	450	700	700	700	700
	H (mm) 高	1800	1800	1800	1800	1800	1800	1800
Weight (室内机)	kg (重量)	102	130	165	187	212	246	278
Noise (噪音)	dB(A)	40.3	40.9	42	43.7	45.1	47.1	49
Condenser - air cooling (冷凝器-风冷式)	kW (功率)	0.06	0.08	0.1	0.2	0.3	0.4	0.5
	dB(A)	48	50	52	59	59	58	62
Condenser - water cooling (冷凝器-水冷式)	m ³ /h (水流量)	0.6	0.8	1.1	1.6	2.1	2.6	2.8
	Pa (水压)	10	14	18	22	20	23	25
	L (水量)	0.3	0.4	0.6	1	1	1.8	2
Tube dia. (气/液管直径)	mm	12/12	12/12	12/12	16/12	16/16	18/16	18/16
Power (电源)	VAC(Hz)	415/380/220VAC (50Hz) TN-C/TN-S						
Size (室外机尺寸)	L (mm) 长	780	780	840	830/880	880	830/930	930
	W (mm) 宽	258	258	285	310/360	360	310/390	390
	H (mm) 高	540	540	610	710/800	800	1260/1270	1270
Weight (室外机)	kg (重量)	41	45	48	52	55	60	63

P.S.: (备注)

- The unit of energy level efficiency is based on the reference, GB/T17758-2010. Testing condition (indoor) → Dry ball: 27°C, wet ball: 19°C, condenser water (in): 30°C, condenser water (out): 35°C.
 - The specifications due to the improvement of product and redesign would not give the notice.
 - The unit is the national energy-saving product that meets the national energy-saving requirement.
- 机组能效等级参考《GB/T17758-2010 单元式空气调节机能效限定值及能源效率等级》。测试条件：室内干球温度 27°C，湿球温度 19°C，冷凝进水温度 30°C，冷凝出水温度 35°C。
 - 机组规格因产品改良而更改，恕不另行通知。
 - 机组为国家节能产品，符合国家节能产品的要求。

Specifications for S series (S 系列风冷/水冷规格):

Model (型号): S	Unit (单位)	S18	S21	S23	S29	S34	S42	S52
Co. cap. (制冷量)	kW (功率)	18.4	21.4	23.4	29	33.6	42	52
Sen. co. cap. (显冷量)	kW (功率)	16.9	19.9	21.5	27.3	30.9	38.3	47.8
S.H.R. (显热比)		0.91	0.93	0.92	0.94	0.92	0.91	0.92
Compressor (压缩机)	n (数量)	1	1	1	1	1	2	2
	kW (功率)	4.7	5.8	6.1	7.6	8.7	11.9	14.7
Fan (风机)	n (数量)	1	1	1	1	2	2	2
	m ³ /h (风量)	5400	6200	7200	8000	9900	13000	14500
	kW (功率)	0.69	0.73	1	1.5	2.1	2.6	2.7
	Pa (风压)	50 to 450(最大可调整到 450)						
Fan type (风机型式)		Belt/DC/EC fan (皮带/直连/EC 风机)						
Humidifier (加湿器)	kg/h (加湿量)	4	4	4	4	8	10	12
	kW (功率)	3.2	3.2	3.2	3.2	6	7.5	9
Hum. type (加湿方式)		Electrode/far-infrared /ultrasonic(电极/远红外线/超声波)						
Heater (加热)	kW (加热量)	6	6	6	6	9	9	18
	G (工作级数)	2	2	2	2	2	2	2
Tem. acc. (温度精度)	°C	+/-0.5						
Hum. acc. (湿度精度)	%	+/-3						
Refrigerant (制冷剂)		R22/R407c/R410a/R134a						
Size (室内机尺寸)	L (mm) 长	700	1200	1200	1200	1200	1500	1850
	W (mm) 宽	700	800	800	800	800	800	850
	H (mm) 高	1800	1800	1800	1800	1800	2000	2000
Weight (室内机)	kg (重量)	286	292	295	299	376	473	634
Noise (噪音)	dB(A)	50.1	52	52.5	53.2	53.6	56.1	58.7
Condenser - air cooling (冷凝器-风冷式)	kW (功率)	0.6	0.7	0.75	0.8	0.8	1.5	1.5
	dB(A)	63	67	67	66.2	66.2	67	67
Condenser - water cooling (冷凝器-水冷式)	m ³ /h (水流量)	3.1	3.6	4	4.6	5.8	7.5	7.6
	Pa (水压)	23	36	32	25	33	24	24
	L (水量)	1.8	2.1	2.3	2.5	3	4	4
Tube dia. (气/液管直径)	mm	18/16	18/18	18/18	22/18	22/18	28/22	28/22
Power (电源)	VAC(Hz)	415/380/220VAC (50Hz) TN-C/TN-S						
Size (室外机尺寸)	L (mm) 长	930	1220	1220	1220	1500	1500	2165
	W (mm) 宽	390	450	450	450	450	450	450
	H (mm) 高	1270	1180	1180	1180	1180	1425	1180
Weight (室外机)	kg (重量)	65	67	70	77	77	93	120

P.S.: (备注)

- The unit of energy level efficiency is based on the reference, GB/T17758-2010. Testing condition (indoor) → Dry ball: 27°C, wet ball: 19°C, condenser water (in): 30°C, condenser water (out): 35°C.
 - The specifications due to the improvement of product and redesign would not give the notice.
 - The unit is the national energy-saving product that meets the national energy-saving requirement.
- 机组能效等级参考《GB/T17758-2010 单元式空气调节机能效限定值及能源效率等级》。测试条件：室内干球温度 27°C，湿球温度 19°C，冷凝进水温度 30°C，冷凝出水温度 35°C。
 - 机组规格因产品改良而更改，恕不另行通知。
 - 机组为国家节能产品，符合国家节能产品的要求。

Specifications for S series (S 系列风冷/水冷规格):

Model (型号): S	Unit (单位)	L65	L72	L91	L10	L13	L18	L20
Co. cap. (制冷量)	kW (功率)	65	72	91	104.3	129.6	180.1	200.3
Sen. co. cap. (显冷量)	kW (功率)	59.8	65.5	81.9	91.8	112.8	154.8	172.3
S.H.R. (显热比)		0.92	0.91	0.90	0.88	0.87	0.86	0.86
Compressor (压缩机)	n (数量)	2	2	2	2	2	3	3
	kW (功率)	17.4	18.8	26.5	29.2	33.2	35.1	39.3
Fan (风机)	n (数量)	2	2	2	2	3	3	3
	m ³ /h (风量)	18500	19500	24000	29000	31000	33000	35000
	kW (功率)	3.21	3.89	4.5	4.5	5	5	5
	Pa (风压)	50 to 450(最大可调整到 450)						
Fan type (风机型式)		Belt/DC/EC fan (皮带/直连/EC 风机)						
Humidifier (加湿器)	kg/h (加湿量)	15	16	16	20	24	28	32
	kW (功率)	11.3	12	12	15	18	21	24
Hum. type (加湿方式)		Electrode/far-infrared /ultrasonic(电极/远红外线/超声波)						
Heater (加热)	kW (加热量)	24	36	42	48	54	60	66
	G (工作级数)	2	2	2	2	2	2	2
Tem. acc. (温度精度)	°C	+/-0.5						
Hum. acc. (湿度精度)	%	+/-3						
Refrigerant (制冷剂)		R22/R407c/R410a/R134a						
Size (室内机尺寸)	L (mm) 长	1900	2200	2300	2300	2300	2350	2350
	W (mm) 宽	950	950	1080	1080	1080	1080	1080
	H (mm) 高	2150	2150	2200	2200	2200	2300	2300
Weight (室内机)	kg (重量)	675	687	813	842	876	902	935
Noise (噪音)	dB(A)	61.2	64.1	68	68.3	70.2	72.4	74.7
Condenser - air cooling (冷凝器-风冷式)	kW (功率)	1.6	1.6	2.8	2.8	3.2	3.5	3.7
	dB(A)	66.2	66.2	70	70	72.3	74.5	76.2
Condenser - water cooling (冷凝器-水冷式)	m ³ /h (水流量)	11.2	12.9	16.7	18.2	20.5	22.4	24.5
	Pa (水压)	23	22	21	26	24	23	27
	L (水量)	6	7	9	9	12	12	15
Tube dia. (气/液管直径)	mm	28/22	28/22	28/22	28/22	28/22	28/22	28/22
Power (电源)	VAC(Hz)	415/380/220VAC (50Hz) TN-C/TN-S						
Size (室外机尺寸)	L (mm) 长	2030	2030	2030	2030	2820	2820	2820
	W (mm) 宽	770	770	770	770	1120	1120	1120
	H (mm) 高	760	760	760	760	1195	1195	1195
Weight (室外机)	kg (重量)	120	120	120	120	140	140	140

P.S.: (备注)

- The unit of energy level efficiency is based on the reference, GB/T17758-2010. Testing condition (indoor) → Dry ball: 27°C, wet ball: 19°C, condenser water (in): 30°C, condenser water (out): 35°C.
 - The specifications due to the improvement of product and redesign would not give the notice.
 - The unit is the national energy-saving product that meets the national energy-saving requirement.
- 机组能效等级参考《GB/T17758-2010 单元式空气调节机能效限定值及能源效率等级》。测试条件：室内干球温度 27°C，湿球温度 19°C，冷凝进水温度 30°C，冷凝出水温度 35°C。
 - 机组规格因产品改良而更改，恕不另行通知。
 - 机组为国家节能产品，符合国家节能产品的要求。

Specifications for S series (S 系列冷冻水规格):

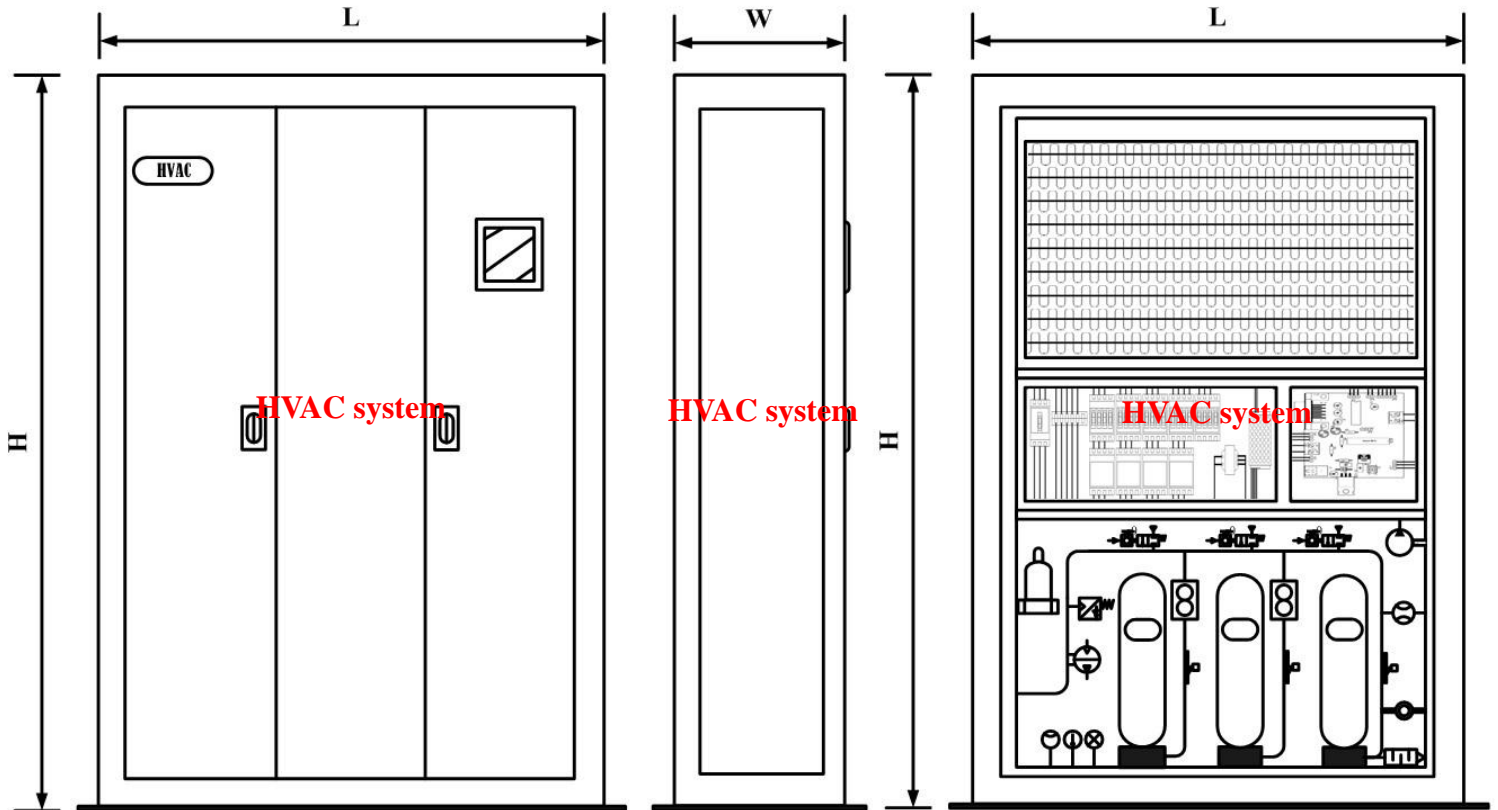
Model (型号): S	Unit (单位)	S31	S42	S52	L65	L72	L91	L10
Co. cap. (制冷量)	kW (功率)	31.2	42	52	65	72	91	104
Sen. co. cap. (显冷量)	kW (功率)	25.3	34.9	42.7	54.6	59.1	73.8	85.6
S.H.R. (显热比)		0.81	0.83	0.82	0.84	0.82	0.81	0.82
Fan (风机)	n (数量)	1	1	1	1	2	2	2
	m ³ /h (风量)	7800	11000	14500	16000	17000	23000	29000
	kW (功率)	1.29	2.09	2.33	2.67	2.75	4.14	5.93
	Pa (风压)	50 to 450(最大可调整到 450)						
Fan type (风机型式)		Belt/DC/EC fan (皮带/直连/EC 风机)						
Chilled water tube (冷冻水盘管)	°C(温度)进/出	7.0/12.5	7.0/12.5	7.0/12.5	7.0/12.5	7.0/12.5	7.0/12.5	7.0/12.5
	m ³ /h (水流量)	4.6	6.2	8.3	10.4	11.6	13.9	16.3
	Pa (盘管+阀压)	27	18	27	30	51	39	25
	L(水量)	9.7	14.4	19.7	24.4	27.6	29.7	37.7
Pipe (水管管径)	inch	1 1/4"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	2"	2"
Humidifier (加湿器)	kg/h (加湿量)	8	8	15	15	15	15	15
	kW (功率)	6	6	11.3	11.3	11.3	11.3	11.3
Hum. type (加湿方式)		Electrode/far-infrared /ultrasonic(电极/远红外线/超声波)						
Heater (加热)	kW (加热量)	9	13.5	13.5	13.5	13.5	18	18
	G (工作级数)	2	2	2	2	2	2	2
Tem. acc. (温度精度)	°C	+/-0.5						
Hum. acc. (湿度精度)	%	+/-3						
Size (室内机尺寸)	L (mm) 长	1320	1620	1830	2040	2155	2690	3225
	W (mm) 宽	860	860	860	860	860	860	860
	H (mm) 高	1800	1800	1800	1800	1800	1800	1800
Weight (室内机)	kg (重量)	337	391	427	490	510	596	735
Noise (噪音)	dB(A)	54.1	57	59.1	60	62	66.1	64.3
Power (电源)	VAC(Hz)	415/380/220VAC (50Hz) TN-C/TN-S						

P.S. (备注):

- The unit of energy level efficiency is based on the reference, GB/T17758-2010. Testing condition (indoor) → Dry ball: 27°C, wet ball: 19°C, frozen water (in): 7°C, frozen water (out): 12.5°C.
 - The specifications due to the improvement of product and redesign would not give the notice.
 - The unit is the national energy-saving product that meets the national energy-saving requirement.
- 机组能效等级参考《GB/T17758-2010 单元式空气调节机能效限定值及能源效率等级》。测试条件：室内干球温度 27°C，湿球温度 19°C，冷冻水进水温度 7°C，冷冻水出水温度 12.5°C。
 - 机组规格因产品改良而更改，恕不另行通知。
 - 机组为国家节能产品，符合国家节能产品的要求。



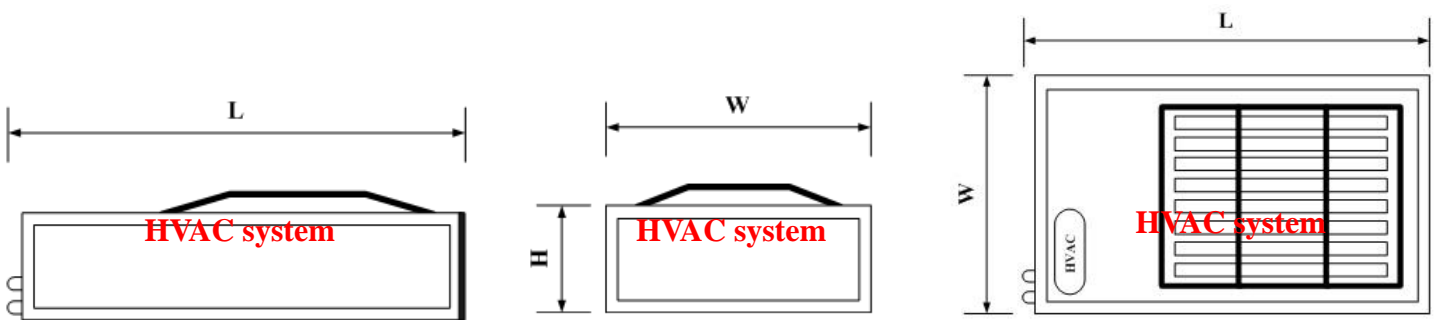
Structure (结构图):



The unit for indoor
(Front view)
室内机 (前视图)

The unit for indoor
(Side view)
室内机 (侧视图)

The unit for indoor
(Inner view)
室内机 (内视图)



The unit for outdoor
(Front view)
室外机 (前视图)

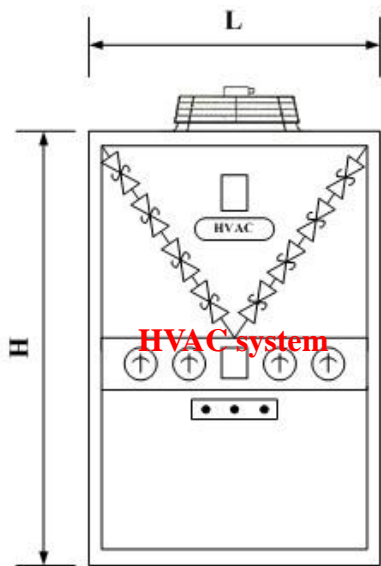
The unit for outdoor
(Side view)
室外机 (侧视图)

The unit for outdoor
(Vertical view)
室外机 (俯视图)

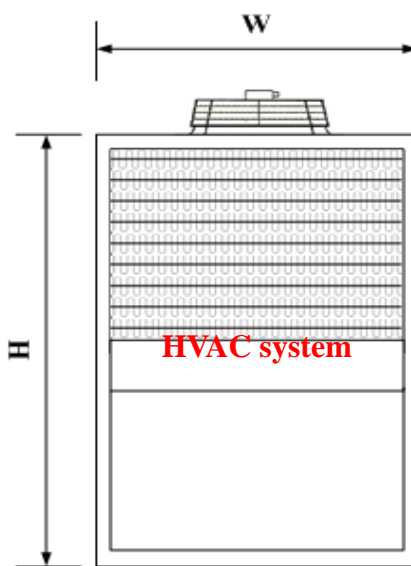
P.S. The parameters for length (L), width (W), and height (H) are varied with different models. Please check specifications of dimensions in previous pages for more details.

备注：长度 (L)、宽度 (W)、和高度 (H) 的参数会随不同的型号而改变。更多的细节请参考前面页面尺寸规格的部分。

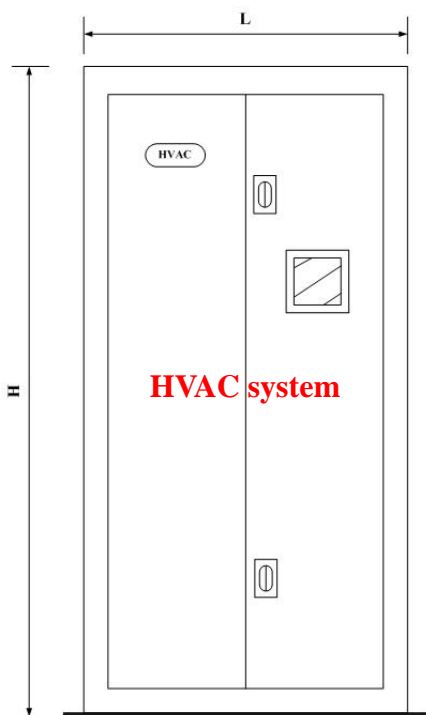
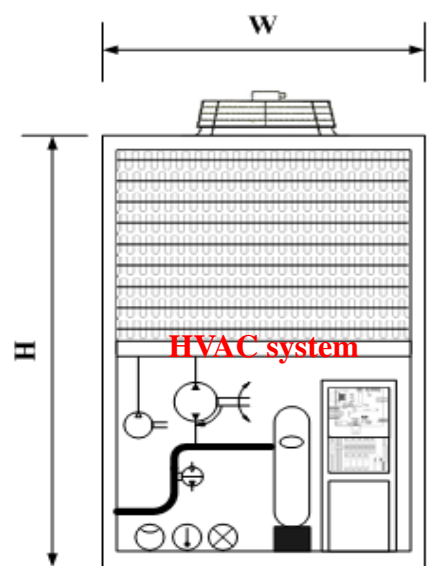
The unit for outdoor
(Front view)
室外机 (前视图)



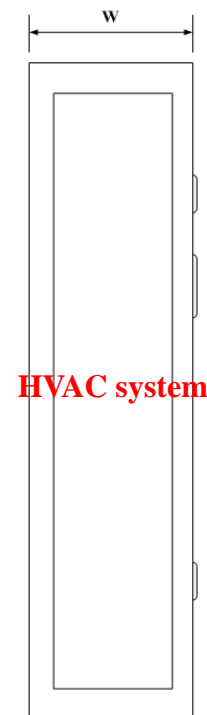
The unit for outdoor
(Side view)
室外机 (侧视图)



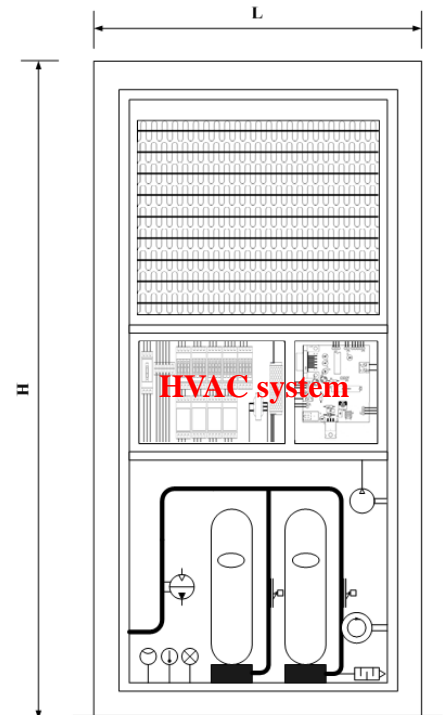
The unit for indoor
(Inner view)
室内机 (内视图)



The unit for indoor
(Front view)
室内机 (前视图)



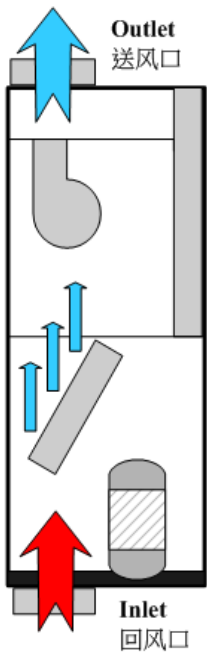
The unit for indoor
(Side view)
室内机 (侧视图)



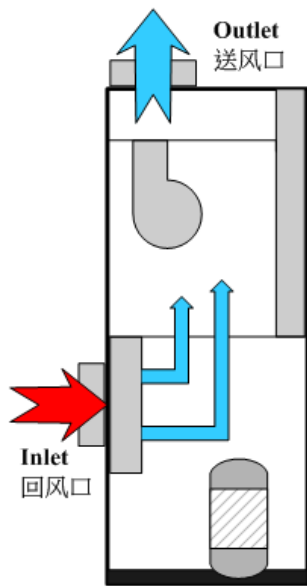
The unit for indoor
(Inner view)
室内机 (内视图)

P.S. The parameters for length (L), width (W), and height (H) are varied with different models. Please check specifications of dimensions in previous pages for more details.
备注：长度 (L)、宽度 (W)、和高度 (H) 的参数会随不同的型号而改变。更多的细节请参考前面页面尺寸规格的部份。

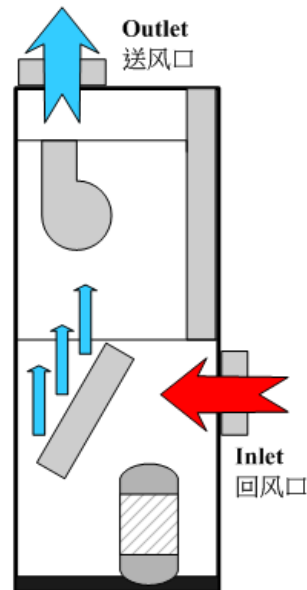
Air blowing (送风方式):



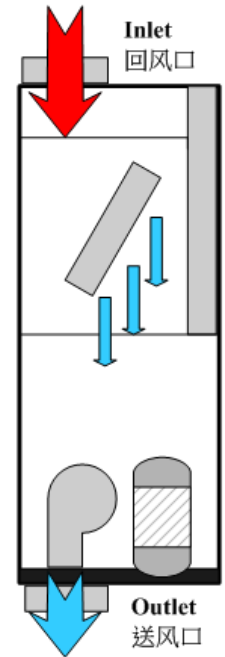
Cabinet: V type up outlet
down inlet
柜式: V型上送风下回风



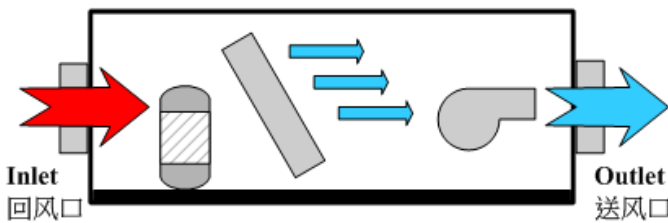
Cabinet: B type up outlet
back inlet
柜式: B型上送风后回风



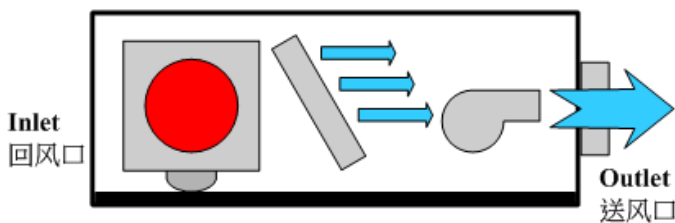
Cabinet: U type up outlet
front inlet
柜式: U型上送风前回风



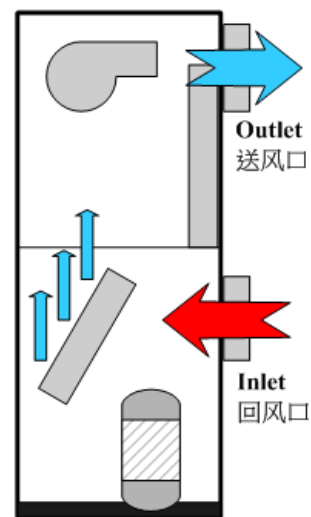
Cabinet: D type up outlet
down inlet
柜式: D型下送风上回风



Ceiling unit: U type side
outlet side inlet
吊顶式: U型侧送风侧回风

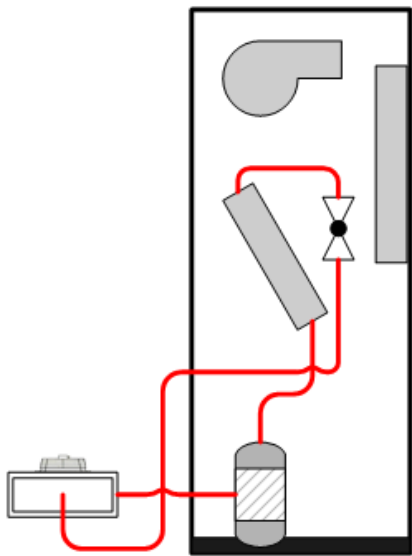


Ceiling unit: U type side outlet
front inlet
吊顶式: U型侧送风前回风

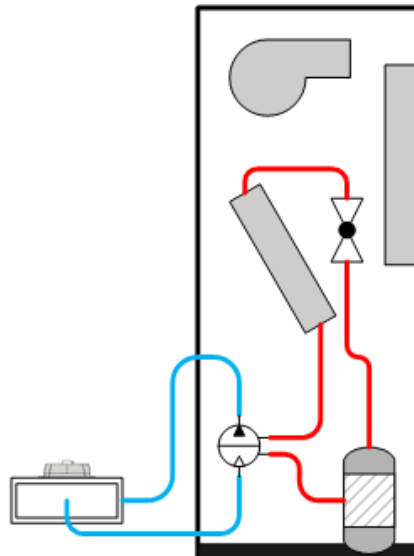


Cabinet: U type front outlet
front inlet
柜式: U型前送风前回风

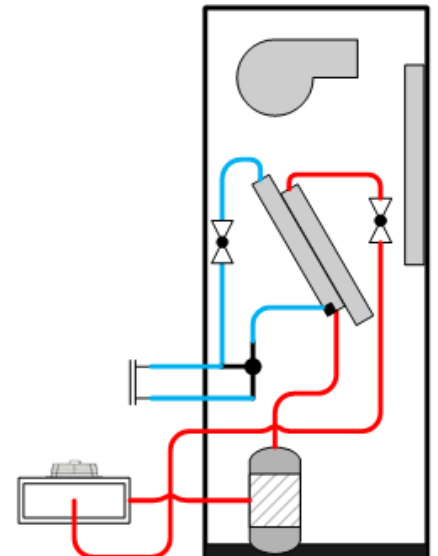
Functional schemes (功能性架构):



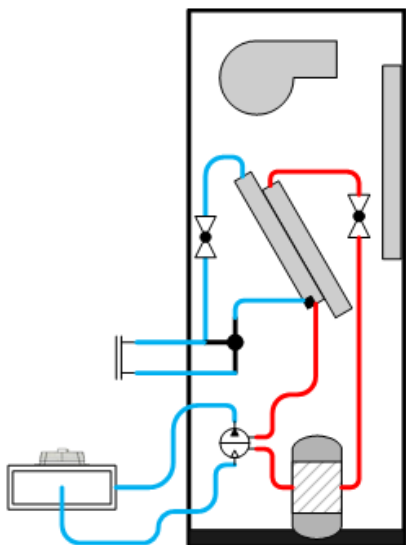
Air cooling
风冷



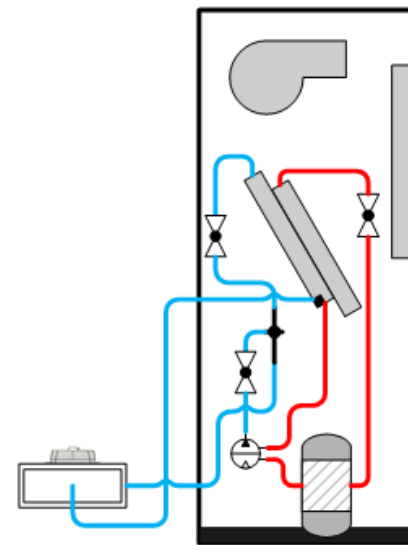
Water cooling
水冷



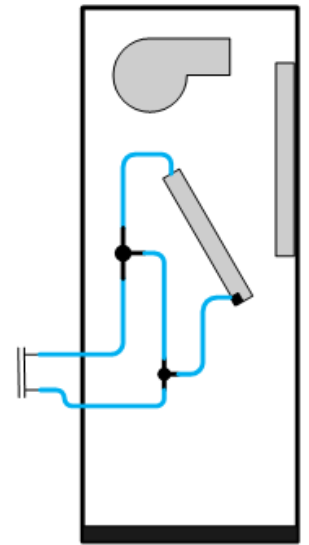
Air cooled dual-fluid
风冷双冷源



Water cooled dual-fluid
水冷双冷源



Free cooling
自由冷却



Chilled water
冷冻水

No one knows when or how disaster will strike. We just know the potential is always there, so preparation is crucial to minimizing its impact on computers, networks, users, and business. The Engineering Department provides a series of solutions for the functional architecture of unit. Customers could choose one of the functional frameworks of unit according to the actual situation. If customers cannot make the choice, engineers will serve their needs in a professional point of view.

没有人知道何时或如何将走向灾难，我们知道可能性总是存在的，所以准备是对电脑、网络、用户和业务降低受灾难影响的重要关键。工程部门针对机组功能性架构提供了一系列的解决方案，客户可依实际的情况选择合适的功能性架构，若客户无法选择，工程师会以专业的角度提供客户所需的服务。



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