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青岛 **鑫光正** 空调设备科技有限公司
Qingdao Xinguangzheng Air-Conditioning Equipment Technology Co., Ltd

公司简介



青岛鑫光正空调设备科技有限公司是青岛鑫光正集团下属子公司，公司在2017年4月15日正式成立，持续经营和打造“同和空调”品牌。同和空调品牌创建于1980年，是国内首家生产中央空调的企业，我们的“同和空调”品牌是一个有着30多年享誉国内外的知名品牌。现公司主要以中央空调、新能源类产品为主，公司建立了国家级电制冷机组检测中心，公司产品经合肥机械研究院检验各项指标，均达到或优于国家标准，并顺利取得全国工业产品生产许可证，顺利通过ISO9001:2000国际质量体系认证。公司还与青岛理工大学合作共同开发高新技术产品。

公司遵循以社会为己任，以企业为平台，以团队为核心，完善自我，共创财富的企业宗旨；以客户满意为中心的经营理念。公司持续打造老品牌建设，在现基础保证质量的同时持续进行品牌理念的革新、蜕变，为塑造中国企业新形象，奠定基础！

Company Profile

Qingdao Xinguangzheng Air-Conditioning Equipment Technology Co., Ltd is a subsidiary of Xinguangzheng Company, and was first established on 15th, April, 2017, who keeps on managing & developing “Tonghe Air-Conditioning” mark. Its predecessor, which is known as Tonghe Air-Conditioning Equipment Co., Ltd and was established in 1980, was once a famous Enterprise which has gained good reputation inland and oversea with an age of over 30. Our main products contain central air-conditioning and new energy products. We have established our own Testing Center(state level) for electrical cooling machine units; All our products are tested by Hefei Research Institute and are up to or higher than the requirements in national codes. We have also obtained certifications like the Production Certificate(state level) of Industrial Products and ISO9001:2000 certificate. Our company also has cooperative relationship with Qingdao University of Technology for high- and new tech researches. We comply with our Enterprise Principle: To perfect itself and create wealth by taking social development as its responsibility; the enterprise, a platform; and its team, the core of development, and we also comply with our Enterprise Philosophy of Customers First. We keep on the establishment of classical mark, and the innovation and rapid development and change of ideas about our mark upon the present foundation. What we are trying to do now is to shape the fresh new image of Enterprise from China!

产品简介:

户式中央空调、屋顶式空调机组、风冷螺杆式冷（热）水机组、模块化水冷式冷水机组、水冷螺杆机组、组装式空调机组、新风机组、风机盘管系列；各种空气幕、贯流式风幕、防火排烟设备及各种空调配件等数十个系列二百多个品种。

Household central air conditioning, rooftop air conditioning unit, screw air-cooled(or -heated)unit, Modular water-cooled chiller, screw water-cooled chiller, combined air conditioning unit, new fan set, fan coil unit, air curtain, consecutive wind curtain, fireproof smoke-discharging equipment and other related matching accessories; We have dozens of series and over 200 kinds of products.



激情 务实 感恩 跨越

Passion Practicality Gratitude Transcendence

企业使命：造福社会、成就员工、让客户更幸福、让企业更持久

Enterprise Mission: benefit society, make staff successful, and give clients happiness, thus being an enterprise of lasting vitality.

企业精神：激情、务实、感恩、跨越

Enterprise Spirit: Passion; practicality; gratitude; and transcendence

企业宗旨：以社会为己任、以企业为平台、以团队为核心、完善自我、共创财富

Enterprise Principle: To perfect itself and create wealth by taking social development as its responsibility; the enterprise, a platform; and its team, the core of development

经营理念：以客户满意为中心

Enterprise Philosophy: Customers First

行动准则：保证完成任务、绝不找借口

Behavioral Principle: To accomplish work on time and in full without any excuse

光正人永远怀有伟大的梦想：成为全球现代化管理的标杆企业，成为世界第一的钢结构公司，完成造福社会、成就员工、让客户更幸福、让企业更持久的使命。

Guangzheng has a wonderful dream: to be a benchmark for the modern enterprise management in the world; to be the top steel structure enterprise in the world; to fulfill the mission of benefiting society, making staff successful, and giving clients happiness, thus being an enterprise of lasting vitality.

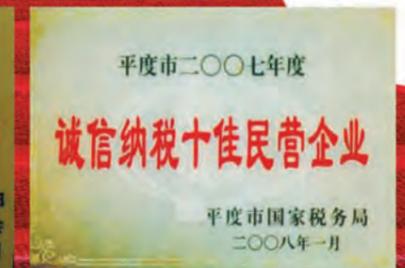
提升素养，完善管理，兴企报国，使命必达。

Guangzheng is to improve its enterprise quality, optimize its management, be loyal and contributive to the country and fulfill all its missions.



企业荣誉

CORPORATE HONOR & CERTIFICATION



CORPORATE AWARES CORPORATE AWARES



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超低温型空气源热泵机组

Super-low temperature mode air source heat pump unit



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螺杆式水源热泵机组

screw water resource heat pump unit



水冷螺杆式冷水机组

screw water-cooled chiller



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模块化水冷式冷水机组

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059-082

柜式空调机组及暖风机

cabinet air conditioning unit & warm air blower



为人类创造快适空间
Create Comfortable space for Human and let them live a Happy Life

超低温型空气源热泵机组 Super-low temperature mode air source heat pump unit

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产品简介

Product overview

同和牌超低温型空气源热泵机组是我公司自行研制开发的大型空调机组, 该机组采用国际名牌全封闭压缩机, 电气控制原件, 控制可靠, 运行经济, 机组既可现场控制, 又可远程控制, 其中机组集制冷、制热功能于一体, 既能实现夏季降温, 又能实现冬季采暖之功能。机组的模块化设计, 可多台并联, 特别适用于600m²以上的各种空调工程及工艺空调设备冷却等场合。



模块化风冷式冷(热)水机组

Super-low temperature mode air source heat pump unit (of Tonghe Mark) is a large size AC machine unit invented by our company. The unit consists of totally closed compressor & electronic control unit of international famous mark, with reliable controlling performance and it is cost-effective during operation. It can be controlled either on-site or in type of telecontrol; It supplies both cooling and heating functions for different uses in summer and in winter. Modular design is convenient for parallel connection and especially suitable for conditions with an area more than 600m², like AC engineering, equipment cooling of industrial AC.

机组特点

Characteristics of machine units

a. 安装简捷: Easy & quick installation

模块体积小, 运输方便, 现场安装只需接通电源, 连接好水管即可投入运行。
The size of the module is small and is easy for delivery, and man can operate the machine unit once it is supplied with electricity and the water piping are connected.

b. 节约投资: Investment-Saving

机组运行平稳、噪音低, 直接安装在室外, 不须设置机房, 采用风冷冷却形式, 省却了复杂的冷却水系统及机房, 节省了投资费用; 主机模块化设计, 用户可根据需要分期分批进行投资。
The machine unit runs stable with low noise, it can be installed outdoor so man needs no extra machine room for it. Its cooling form is air cooling so man needs no complicated water cooling system and matching machine room, and it saves the investment costs; The modular design of the main engine leaves users the possibility to invest as they need in type of installment.

c. 组合灵活: Flexible combination

机组采用标准快速接头连接, 根据不同容量进行组合, 若需改变机组容量, 只需增加或减少单元模块数量即可。

The unit is designed with standard quick connector which can be combined in accordance with different capacities. When the capacity shall be changed, man can just add or reduce the amount of modular units.

d. 经济节能: Cost- & Source-Saving

电脑控制压缩机依次启动, 减少了对电网的瞬间最大冲击电流, 使电力负荷降低, 节省了电能; 同时机组可根据负荷变化自动调节, 可及时准确控制机组制冷(热)量与冷(热)负荷相匹配, 保证机组以最高效率运行, 降低运行费用。

The compressors are under the control of computer and started by it one after another, which reduces the momentary maximal impulse current, lowers the power load and saves electrical power; The machine unit can be regulated automatically basing on the change of power load at the same time, control the cooling- and heating capacity as well as cooling- and heating load to let them get matched timely & accurately, and ensure the unit runs with highest efficiency, so as to lower the operation cost.

e. 运行可靠: Reliable operation

机组采用国际先进全封闭涡旋压缩机、电磁阀、膨胀阀、高效套管式换热器等部件, 保证了系统可靠运行, 维护量极小。模块化机组中的每个单元模块, 都是彼此独立, 互为备用的, 某一单元模块发生故障, 也不影响其他单元模块的工作。

The machine unit consists of totally closed swirl type, solenoid valve, expansion valve, high-efficiency tubular heat exchanger and other members, these parts ensures the reliable operation of unit, and the maintenance quantity is very small. Each element module in the machine unit is independent from one another, and has no affect on any other element modules.

f. 控制先进: Advanced control

机组采用先进的微电脑控制系统, 具有全自动控制功能, 并设有流量、高低压、过载、欠压、缺相、超温等保护装置及故障类别显示, 运行安全可靠, 实现无人操作。

The unit has advanced microcomputer control system and fully automated controlling function. It has protection for flow, high- and low voltage, overload, under voltage, phase loss, overheating and also show of failure mode. The type of unit is safe and reliable during operation, so it is capable for unmanned operation.

g. 布置灵活: Flexible arrangement

超低温型空气源热泵机组具有很强的灵活性, 可直接安装在屋顶或地面上, 无需机房和冷却塔及相关的冷却水系统。

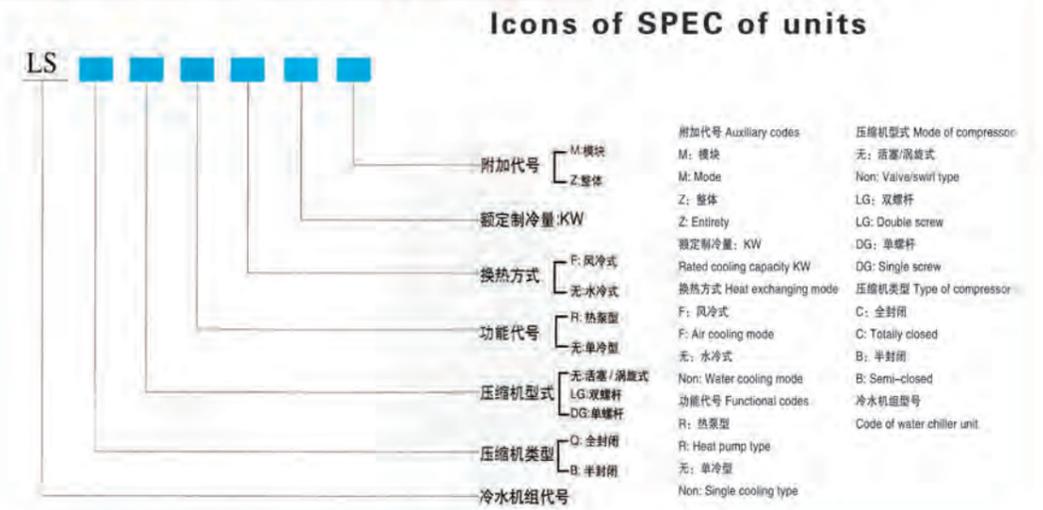
Super-low temperature mode air source heat pump unit has great flexibility, which means it can be set on roof or on ground, while no machine room, cooling tower or related cooling water is needed.

h. 工艺先进: Advanced technology

整机采用国际先进的氦质谱检漏工艺, 保证了机组的气密性, 使机组在整个寿命期内无需补充制冷剂。

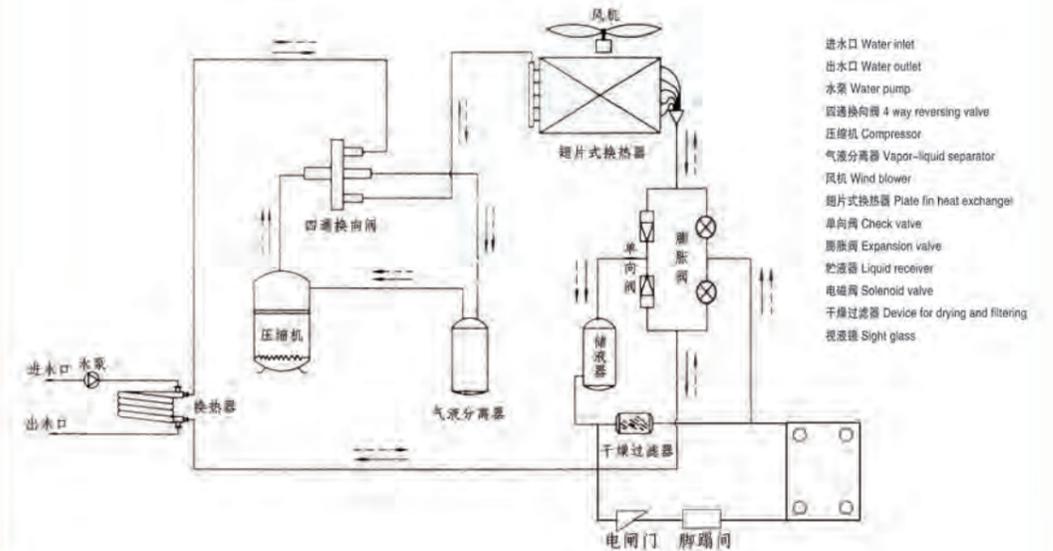
The unit has the international advanced leak detection technique of mass spectrum of helium, which ensures its air impermeability and as a result, there is no need for refrigerant supplement during the whole working period of the machine unit.

机组型号表示说明



机组循环原理图 (制冷为实线/制热为虚线)

Schematic Diagram for Recycling(Full line-Cooling procedure; Dot line-Heating procedure)



机组性能参数表

Properties & Characteristics of machine units

型号 LSQ(R)FM		66	132	198	264	330	396	462	528	594	
名义制冷量	KW	65	130	195	260	325	390	455	520	585	
名义制热量	KW	58	116	174	232	290	348	406	464	522	
电 源		380V/3N-50HZ									
蒸发器	类型	套管式热交换器									
	水流量	m ³ /h	11.5	23	34.5	46	57.5	69	80.5	92	103.5
	水阻力	mH ₂ O	5.6	5.7	6.0	6.2	6.5	7.0	7.3	7.5	7.7
进出水管径	DN	125	125	125	125	125	125	125	125	125	
运行方式		全自动运行+远程监控管理									
制冷剂	类型	R22									
	充注量	Kg	16	16*2	16*3	16*4	16*5	16*6	16*7	16*8	16*9
运行噪音	dB (A)	≤68	≤68.3	≤68.5	≤69	≤69.2	≤69.6	≤69.8	≤70	≤70.2	
外形尺寸	长	mm	2206	2206	2206	2206	2206	2206	2206	2206	2206
	宽	mm	1100	2200	3300	4400	5500	6600	7700	8800	9900
	高	mm	2020	2020	2020	2020	2020	2020	2020	2020	2020
总输入功率	KW	21.9	43.8	65.7	87.6	109.5	131.4	153.3	175.2	197.1	
机组重量	Kg	740	1480	2220	2960	3700	4440	5180	5920	6660	

型号 Type

名义制热量 Nominal heating capacity

蒸发器 Evaporator

套管式热交换器 Heat exchanger (pipe form)

水阻力 Water resistance

运行方式 Operation mode

制冷剂 Cooling fluid

充注量 Refrigerant charge

外形尺寸 Shape & Size

宽 Width

总输入功率 Total electrical power

名义制冷量 Nominal cooling capacity

电源 Power source

类型 Type

水流量 Water consumption

进出水管径 Diameter of water inlet/outlet

全自动运行+远程监控管理 Full automatic operation & Remote monitoring

类型 Type

运行噪音 Noise during Operation

长 Length

高 Height

机组重量 Weight per unit

说明: Introduction

1. 制冷工况: 冷冻水进水温度12℃, 出水温度7℃, 环境干球温度35℃。

The working condition of cooling: The temperature of chilled water Inlet/outlet is 12/7℃, and the temperature of dry bulb is 35℃.

2. 制热工况: 热媒水进水温度40℃, 出水温度45℃, 环境干球温度-10℃, 湿球温度-12℃, 最低工作温度为-25℃以上。

The working condition of heating: The temperature of heated water Inlet/outlet is 40/45℃, and the temperature of dry bulb is -10℃; wet bulb -12℃; The lowest temperature for working condition shall be more than -25℃.

3. 在实际使用中冷量应考虑机组安装后系统管路, 水泵, 污垢等造成的损失6%左右。

The actual cooling capacity after installation shall consider 6% of the loss caused by the whole piping system, water pump, sewage and other parts.

4. 有非标要求产品请在订货单中注明, 可根据客户要求生产。

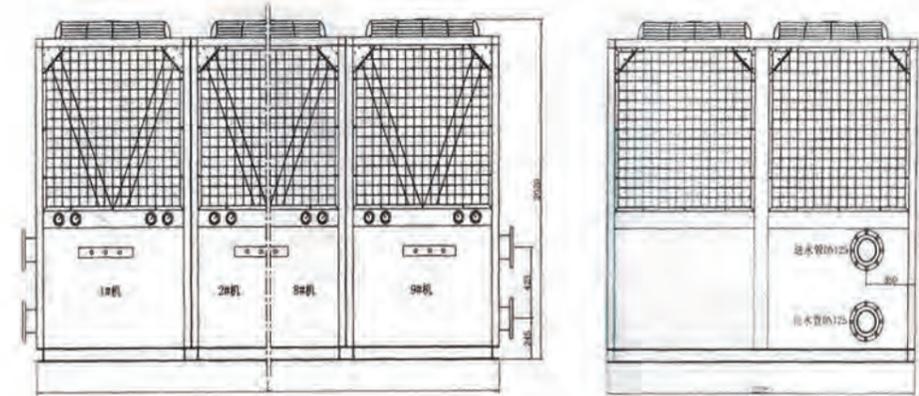
Any need for non standard products, please note their size when you place an order. We can supply the non standard types as you require.

5. 规格参数如因产品改良而进行调整, 恕不另行通知。

There will be no extra notifications if the specifications above are changed later.

机组外形图

Profile of machine units



型号	LSQRFM 66	LSQRFM 132	LSQRFM 198	LSQRFM 264	LSQRFM 330	LSQRFM 396	LSQRFM 462	LSQRFM 528	LSQRFM 594
L	1100	2200	3300	4400	5500	6600	7700	8800	9900

1#机 1st Machine

进水管DN125

型号 Type

2#机 2nd Machine

Water inlet DN125

8#机 8th Machine

出水管DN125

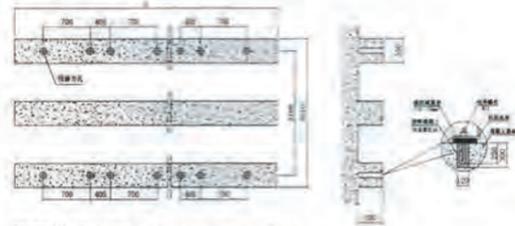
9#机 9th Machine

Water outlet DN125

机组安装基础图

Sketch map of foundation installation

机组型号	L
LSQRFM-66	1200
LSQRFM-132	2300
LSQRFM-198	3400
LSQRFM-264	4500
LSQRFM-330	5600
LSQRFM-396	6700
LSQRFM-462	7800
LSQRFM-528	8900
LSQRFM-594	10000



预留方孔: Reserved square hole
橡胶减震垫 (10~15mm):
Earthquake resistant rubber blanket(10~15mm)
地脚螺栓 (M12): Foundation bolt(4-M16)
机组底架: underframe of the unit
混凝土基础: Concrete foundation
浇筑混凝土 (设备就位后):
Cast in place concrete (after facilities are in position)

注: 基础用混凝土浇筑, 并设有排水沟, 机组与基础间必须加5~10mm的减震橡胶垫, 基础表面应水平, 误差小于0.02%。

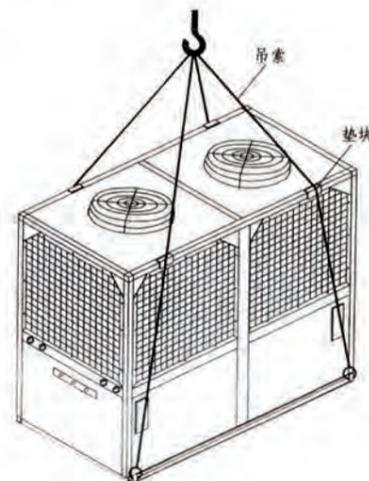
The foundation is made of cast-in place concrete with gutter; Aseismic rubber blanket shall be laid between the foundation and the machine unit; Surface horizontal, error within 0.02%.

机组搬运

Delivery of machine units

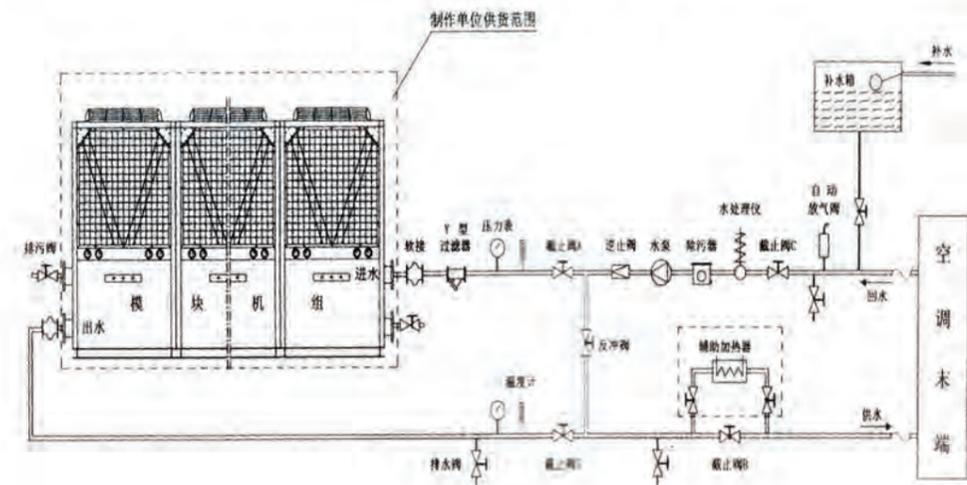
机组到达安装现场后, 在吊运过程中须小心操作, 以免伤及设备。在吊索与机组接触的地方, 要放置垫块; 搬运时, 宜采用叉车或吊车; 吊装中, 吊索与机组应连接牢固, 机组平稳无倾斜, 同时确保吊索不与侧面热交换器、面板和顶部接触。

The machine unit shall be lifted carefully to avoid damage after it is delivered to construction site; Blocks shall be laid by connections between sling & set; Delivery tool shall be forklift or crane; During lifting process, the sling and machine unit shall be connected together firmly, and the machine unit shall be steady without lean, and man shall make sure that the sling has no touch with the lateral heat exchanger, the panel and the top.



水系统接管示意图

Sketch map of water piping



出水: Water outlet

排污阀: Blow down valve

制作单位供货范围: The part that the producer supplies

Y型过滤器: Y-type filter

截止阀A: Cut off valve A

自动放气阀: Automatic air vent valve

空调末端: The terminal of air conditioning

压力表: Pressure gauge

补水箱: Feed-water tank

空调末端: The terminal of air conditioning

截止阀B: Cut off valve B

反冲阀: Backlash valve

制作单位供货范围: The part that the producer supplies

温度计: Thermometer

模块机组: Modular unit

回水: Water return

除污器: Cleaner

水泵: Water pump

截止阀C: Cut off valve C

回水: Water return

截止阀D: Cut off valve D

排水阀: Draw-off valve

排污阀: Blow down valve

供水: Water supply

Y型过滤器: Y-type filter

除污器: Cleaner

补水箱: Feed-water tank

截止阀B: Cut off valve B

温度计: Thermometer

模块机组: Modular unit

自动放气阀: Automatic air vent valve

软接: Soft connection

压力表: Pressure gauge

逆止阀: Check valve

辅助加热器: Auxiliary electrical heater

截止阀C: Cut off valve C

水处理仪: Water treatment device

补水: Water supplement

水处理仪: Water treatment device

辅助加热器: Auxiliary electrical heater

截止阀D: Cut off valve D

截止阀A: Cut off valve A

出水: Water outlet

软接: Soft connection

水泵: Water pump

逆止阀: Check valve

供水: Water supply

补水: Water supplement

反冲阀: Backlash valve

排水阀: Draw-off valve

机组安装说明

Introduction for installation of machine unit

- 虚线以外部分由用户自己准备材料及施工。
The stock & Setting out of the dot line shall be finished by the user.
- 机组到达现场后，搬运吊装时须小心处理，倾斜度不得超过 15° ，并保证设备完好。
The lifting operation shall be done carefully after the machine unit is delivered to construction site; Gradient within 15° , and man shall make sure that the unit is of good condition.
- 机组必须安装在室外，不应安装在灰尘大、污物多，有腐蚀性气体的场合，应选择通风良好，排气顺畅的场所，前、后、左、右应至少有1.5-2.0米的空间，以利于机组百分之百的出力。
The unit must be installed outdoor. Those dusty, messy areas with corrosive gas is not suitable for it, man shall leave the type by those areas with good ventilation, and also leave a space of 1.5-2.0 meters around the machine unit in horizontal direction, which contributes to the 100% operation of the unit.
- 供回水管安装时应与机组保持1米以上的距离，便于机组操作、维修及保养。
About 1 meter space shall be reserved between the supply & return water pipes and the machine unit during installation process, for better operation and maintain.
- 多个单元模块机组对接时，要根据标牌上的编号依次放置。先在机组进出水管对接端各加一个快速接头密封圈，再将各模块主管调整到同一中心轴线上，最后将快速接头连接牢固。
The butt joint between sets of different modules shall be done one after another in order, namely accord with the serial number on labels. Quick connectors shall be set by both the water inlet and water outlet of the machine unit; Then the main water pipes of the unit shall be regulated till they have the same center axis, and then fixed with quick connectors firmly.
- 机组安装底座：一种是牢固的混凝土基础；一种是钢结构的底座，底座四周应有固定条，以防设备长期运行后的位移，使管路产生扭曲而导致设备故障。并且机组安装底座应有足够的水平度，水平度的允许偏差 $\leq 0.02\%$ 。
The installation of underframe: There are general 2 types, either a firm concrete foundation or a steel frame pedestal. Fix members shall be set around the underframe in case that a displacement may appear after the machine has run for a long term, which may cause the twisting of pipe and failure operation. The levelness of the underframe shall be good enough, with an error less than 0.02%.
- 为了机组的正常运行，膨胀水箱必须安装在比整个管路系统最高点高1.5米以上的位置。
For a better operation of the machine unit, the expansion tank shall be installed more than 1.5 meters above the zenith of the whole piping system.
- 在靠近机组进水口侧，必须加装不小于40目/英寸的水过滤器，防止污物堵塞管路而造成主机故障；为便于系统排污，机组两端必须安装DN125蝶阀各1个，系统中循环水建议采用软化水或在管路中加设电子水处理仪装置；接管尺寸要符合要求（见机组性能参数表）
A water filter, whose mesh number is larger than 40 mesh/inch, shall be installed by the water inlet of the machine unit, for fear that the piping might be blocked up with sewage and that the jam might cause an accident. For better sewage drainage, two DN125 butterfly valve shall be set by the 2 sides of the machine unit, Man shall adopt softened water for water system(as suggested), or the piping could be set with an electrical water treatment device; The size of the connecting pipe shall accord with the requirements (Please see the table "properties & parameters of a machine unit").

- 系统连接完毕，进行水压实验，用试压泵加压至0.8Mpa，30min内压降不大于0.02Mpa，且检查水管外观有无渗水现象，合格后进行水管保温，且要严密、紧固。
Hydrostatic test shall be finished after all the connections are done. Man shall boost pressure to 0.8Mpa through an hydraulic test pump, and see if the pressure is not larger than 0.02Mpa in 30 minutes. Inspection for water seepage is also needed. If all factors are up to standard, heat preservation of water pipe shall be the next step, and man shall ensure the impermeability of the pipe.
- 主机冷凝水管的水平段应有不小于0.01的坡度，坡向应与预定的水流排放方向一致。
The horizontal stage of the main engine shall have a gradient not less than 0.01, and the direction shall be the same with that of the water flow.
- 机组要选择离电源较近，配线方便的地方，主机外壳应有良好可靠的接地，防止发生触电事故。
The site for machine unit shall be near the power source, and where the distribution is more convenient. The shell of the main engine shall have reliable ground connection, for fear that an electric shock might happen.
- 根据机组实际安装位置的高度，应考虑采取避雷措施。
According to the actual height of the installation site, protection measures for lightning shall also be considered.

电气要求

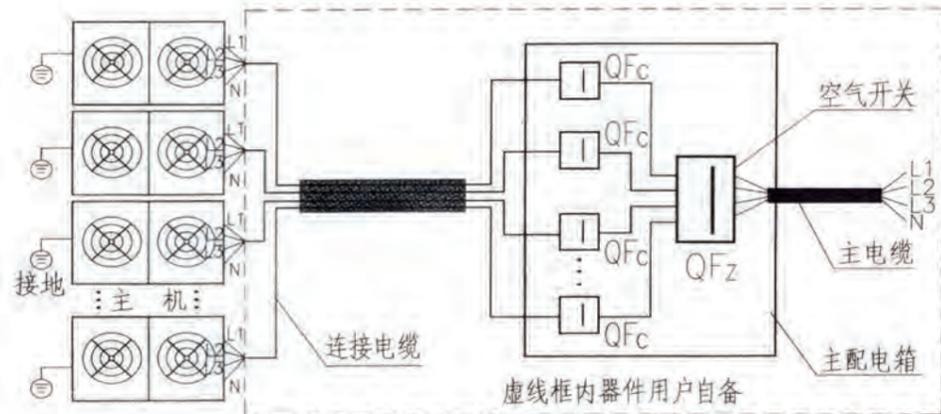
Electricity setting requirements

- 机组电源为三相四线（380V~50HZ），机组运行过程中电压值应在额定电压的 $\pm 10\%$ 范围内；且机组必须可靠接地。
The electrical source for a unit is 3-phase 4-wire(380V-50HZ), the voltage value shall be within $\pm 10\%$ of the rated voltage during the operation of a unit; And the unit must be reliable connected to the ground.
- 各相之间的电压不平衡应在 $\pm 2\%$ 范围内，电压不平衡公式如下：
The imbalance of the voltage value between different phases shall be with $\pm 2\%$ of the total value, as in the formulas listed below:
Vang=相1, 2, 3间的平均电压
Vang=The voltage between phase 1, 2 and 3
V1-3=相1, 3间的平均电压
V1-3=The voltage between phase 1 and 3
V1-2=相1, 2间的平均电压
V1-2=The voltage between phase 1 and 2
V2-3=相2, 3间的平均电压
V2-3=The voltage between phase 2 and 3



用户自备分线箱示意图

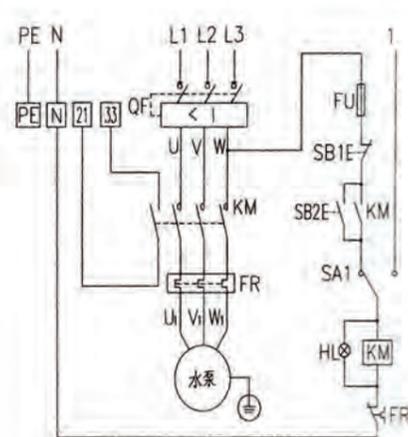
Sketch map of distribution box prepared by users



接地: Connect to the ground
连接电缆: Connection cable
主机: Main engine
空气开关: Air switch
主电缆: Main cable
主配电箱: Main distributing cabinet
虚线框内器件用户自备: The members inside the dot line are provided by users

用户自备水泵配电箱示意图

Sketch map of distribution box of water pump prepared by users



HL-运行指示灯: HL-Indicating Lamp
SA-手动、自动转换开关: SA-Selective Availability shift switch (manual/automatic)
KM-交流接触器: KM-A.C. Contactor
FU-熔断器: FU-Fuse
FR-热继电器: FR-Thermal relay
SB1-手动停止开关: SB1-Manual stop button
SB2-手动停止开关: SB2-Manual stop button
注:
1. 线号1, 21, 33分别接1号配电箱接线板上的1, 21, 33;
Line 1, 21, 33 are connected respectively to 1, 21, 33 on No.1 distribution box.
2. 水泵配电箱必须按上图进行配线。
The layout of distribution box of the water pump must comply strictly with the figure above.

电气选型

Selection of SPEC of electric facilities

机组型号	空气开关 QFc	空气开关 QFz	主电缆 根数×截面积 (mm ²)	连接电缆 根数×截面积 (mm ²)	备注
LSQRFM-66	63A	63A	3 × 16+2 × 6	3 × 16+2 × 6	铜芯线
LSQRFM-132	63A	125A	3 × 25+2 × 10	3 × 16+2 × 6	铜芯线
LSQRFM-198	63A	180A	3 × 50+2 × 25	3 × 16+2 × 6	铜芯线
LSQRFM-264	63A	250A	3 × 70+2 × 35	3 × 16+2 × 6	铜芯线
LSQRFM-330	63A	315A	3 × 95+2 × 35	3 × 16+2 × 6	铜芯线
LSQRFM-396	63A	350A	3 × 120+2 × 70	3 × 16+2 × 6	铜芯线
LSQRFM-462	63A	400A	3 × 150+2 × 70	3 × 16+2 × 6	铜芯线
LSQRFM-528	63A	450A	3 × 185+2 × 95	3 × 16+2 × 6	铜芯线
LSQRFM-594	63A	500A	3 × 240+2 × 120	3 × 16+2 × 6	铜芯线

机组型号 SPEC of machine unit

铜芯线 Copper core cable

连接电缆 根数×截面积 Connecting cable Qty*section area

空气开关 Air button

主电缆 根数×截面积 Main cable Qty*section area

备注 Remark

注:

(1) 机组模块化设计, 可并联多台, 动力供电为单台一组三相四线, 如五台并联为五组三相四线外加接地线。

This kind of machine unit is of modular design, so it is capable for large number of sets of parallel connection. Power supplying mode: Single unit per group, 3-phase 4-line system; 5 groups for 5 units in parallel; ground lead in addition.

(2) 表中电缆规格为主机电缆规格, 如需辅助电加热设备应根据要求选取相应规格的电缆。

The SPEC in the table above is for main cables. Respective cables shall be chosen when auxiliary electrical heater is needed.

(3) 空气开关脱扣类型应为保护电动机专用。

The trip of air button shall be especially chosen for motor protection.



开机说明

Introduction of starting up

开机操作前必须做好以下工作:

The steps as follows shall be done before the machine unit is started.

1. 检查所有管路连接是否正确,压力表、温度计安装是否正确。

Check all the connections of piping system, the pressure gauge, thermometer to see if they are correctly done or correctly installed.

2. 按照要求接好全部供电电缆与外部供电控制设备,检查电源电压是否符合要求。

Connect all the power supplying cables with the outer control equipments for power supply, and check if the power voltage is up to standard.

3. 主电源接通后,机组压缩机在开机前必须预热12小时以上。

When the main power supply is in position, a preheating of compressor over 12 hours shall be done before it is started.

4. 点动风机交流接触器,检查风机转向是否正确。点动水泵交流接触器,检查水泵转向是否正确。

Inch the a.c. contactor of blower, and check if the turning direction of the blower is correct; Inch the a.c. contactor of the water pump, and check the turning direction of the blower.

5. 检查整个管路系统水量是否充满,空气是否排放干净(通常判断方法为观察水压是否稳定)。

以上各项工作完成后,即可开启空调主机,待水温达到要求后,就可以启动末端设备进入正常制冷(热)运行。
Detect whether the whole piping system is full of water, and whether the discharge of air is complete. (The general judging method is to see if the water pressure is stable)

When all steps above have been done, the main engine of the AC unit can be started. The equipment by ending can be turned on for cooling (or heating) if the water temperature is up to the requirement.

维护保养说明

Introduction of maintenance

1. 空调机组经本公司调试人员调整,已达最佳工作状态,请用户勿再自行调节,若因此造成机组损坏,本公司概不负责。

All of the devices of a machine set are regulated by our clerks before delivery with the best working condition. Please do not adjust the machine set by yourself. Any damage due to an adjustment made by users is not in the scope of duty of our company.

2. 空调机组在试运行24小时后,必须清洗水泵进水端的过滤器。机组正常运转过程中,要定期清洗过滤器,以防过滤器堵塞导致机组故障。

Man shall clean the filter by water inlet of water pump 24 hours after test running. And man shall clean the filter at regular interval during the everyday-running of a set, for fear that a jam might occur and the machine break down.

3. 严禁频繁操作各操作开关,压缩机的开停次数应少于6次/小时。

It is forbidden to turn on (off) switches frequently, the frequency for start (stop) of the compressor shall be less than 6 times per hour.

4. 主电路电源开关在正常使用期内不能断开,若停机时间较长,重新开机前,压缩机必须预热12小时以上。

The switch of power supply by the main electrical circuit shall not be cut off. When the unit has not been used for a long time, a preheating of compressor over 12 hours shall be done before it is put in to use again.

5. 机组上及其附近请勿堆放杂物以免堵塞进出风口,四周应保持干燥清洁,通风良好。

Please leave no extra goods on or near the machine unit for fear that it might cause a jam by the air inlet/outlet of the unit; The area around the machine unit shall be dry and clean with good ventilation.

6. 空调机组换热器每年至少用洗洁精或高压水清洗两次,以保持良好的换热效果。

The machine unit shall be cleaned at least twice a year with cleanser essence or through high pressure water for a better heat-exchanging effect.

7. 在冬季,机组停止使用后(不采用防冻措施),应从泄水阀处将机组内及水管路系统中的水放净,以防冻裂机组内的换热器及水管路。

In winter, when a machine set is not in use (without anti-freeze measures), the water in the set & in water piping system shall be discharged clearly by the draining valve, for fear that the frost crack might damage the internal heat exchanger & water piping.

8. 空调机组如发现异常情况应及时停机并查明原因和排除故障,如遇无法解决之困难,请随时与本公司售后服务部门联系。

When the machine unit has any abnormal condition, man shall turn it off instantly and check the failure. Please contact with our colleagues responsible for after-sales service when the failure is too hard to solve.

9. 机组运行一段时间后,要进行反冲排污;关闭截止阀A和B,打开反冲阀及排污阀,启动水泵进行清洗,直至无杂物排出为止,然后将阀恢复到初始状态,并将系统补满水。反冲排污周期4-6次/年,对水质较差的地区可多反冲几次。

Short after the machine set runs, sewage back washing discharge shall be done; Man shall close cut valve A and B, and open the backlash valve & blow down valve, start the cleaning by starting the water pump, till no waste water could be seen; Then reset the valves to original settings, and fill up the system with water. The period for backlash drainage is 4-6 times annually, for regions with worse water quality, the frequency of backlash drainage could be increased.

用户订货须知

Ordering Instruction

1. 订货时须注明机组型号,冬季使用情况,并确定订购单冷型或冷暖两用型;本公司产品标准系列中无辅助加热器,若需要,我们可另行非标设计,配套供应。

The SPEC of machine set, the working condition in winter, and whether it is cooling type or dual type, are suggested to be noted when the user place an order; Our standard products has no auxiliary heater, please also note if you need, then we will supply you with non standard design with matching members.

2. 订货前可来人洽谈业务、技术咨询。

Any business cooperation or technology consultation is available before you place an order.

产品简介

同和地源热泵机组是利用地下水的低品位热能,采用“逆卡诺循环”原理,通过压缩机工作消耗小部分电能冬季把地下水的低品位热量“取”出来,制取45℃的热水向室内供暖;夏季把室内的热量释放到地下水中,制取7℃的冷水实现室内降温的目的。由于地下水的温度常年基本恒定,受环境温度的影响比较小,所以地源热泵机组即使在零下30℃的严冬照样高效运行。

同和地源热泵机组设计合理,运行稳定可靠,制冷制热效率高,在标准工况下,能量输入与能量输出之比:制冷状态时1:5.1,制热状态时为1:4.3。从而大大降低用户的运行费用。



干式水源热泵机组

Dry-type water resource heat pump unit

随着人类环保要求越来越高,燃烧所用油、气、煤等能源日趋枯竭及价格高涨等多种因素,使得人们不断舍弃传统冷、暖方式,进而采用更先进、更节能的环保空调设备及更先进、节能的运行方案。地下水源热泵无需冷却塔等装置,初投资和运行管理费都相应比传统冷暖方式低,并且地下水温度稳定,受外界影响小,机组的制冷和制热功能均能得到更好的发挥。正因如此,地温技术的应用也逐步受到社会各界的关注和运行。

同和水源热泵机组是利用地下水的低品位热能,采用“逆卡诺循环”原理,通过压缩机工作消耗小部分电能,冬季把地下水中的低品位热量“取”出来,制取45℃的热水向室内供暖;夏季把



满液式水源热泵机组

Flooded water resource heat pump unit

室内的热量释放到地下水中,制取7℃的冷水实现室内降温的目的。由于地下水的温度常年基本恒定,受环境温度的影响比较小,所以地源热泵机组即使在零下30℃的严冬照样高效运行。

同和水源热泵机组设计合理,运行稳定可靠,制冷制热效率高,在标准工况下,能量输入与能量输出之比:制冷状态时1:5.9,制热状态时1:5。从而大大降低用户的运行费用。

Product introduction

Tonghe screw ground resource heat pump set, which relies on the low-grade ground water, and complies with the rule of Reverse Carnot Cycle, consumes a little electrical energy through the running of compressor. It gets the low-grade heat of the ground water in winter, to make heated water with a temperature of 45℃ for indoor heating supply; While in summer it release the indoor heat to ground water, and make cooled water with a temperature of 7℃ for cooling. The temperature of ground water is generally at the same level for years, and the environmental temperature has little affect on it, so this type of set runs well even at a temperature of 30℃ below zero in winter.

Tonghe screw ground resource heat pump set is well designed and runs stable, and has good cooling & heating capacity. The ratio of energy(input to output) under standard working condition is: 1:5.1 under cooling condition; 1:4.3 under heating condition, which lower the cost for machine operation.

As the requirement for environmental friendly products grows gradually, and the cost of oil, gas and coal increases greatly because they are getting exhausted, and also for many other factors, man has to give up traditional cooling & heating modes and start to use more advanced, more energy-saving air conditioning as well as plans. This type of machine do not need cooled tower or similar sets, and its cost of primary investment, operation and management is far lower than that of the traditional modes. While the temperature of the ground water is stable for years, it can be hardly affected by surroundings, leading to a better cooling & heating performance of the machine. Because of that, the application of earth temperature technology has been paid more attention, and it is more widely used day by day.

Tonghe screw water resource heat pump set, which relies on the low-grade ground water, and complies with the rule of Reverse Carnot Cycle, consumes a little electrical energy through the running of compressor. It gets the low-grade heat of the ground water in winter, to make heated water with a temperature of 45℃ for indoor heating supply; While in summer it release the indoor heat to ground water, and make cooled water with a temperature of 7℃ for cooling. The temperature of ground water is generally at the same level for years, and the environmental temperature has little affect on it, so this type of set runs well even at a temperature of 30℃ below zero in winter.

Tonghe screw water resource heat pump set is well designed and runs stable, and has good cooling & heating capacity. The ratio of energy(input to output) under standard working condition is: 1:5.9 under cooling condition; 1:5 under heating condition, which lower the cost for machine operation.



SSDRF满液式机组主要技术性能参数表

Main Parameters for technical properties of flooded machine units

(一) 单压机 Single Acting Compressor

项目	型号	226S	3057S	3789S	4885S	5710S	6555S	7140S	9165S	9910S
制冷量KW		226.0	305.7	378.9	488.5	571.0	655.5	714.0	916.5	991.0
制热量KW		238.1	322.4	396.0	509.4	595.6	698.2	760.0	959.8	1034.6
压缩机	型式	半封闭螺杆式压缩机								
	制冷输入功率: KW	39.3	52.7	64	82.1	95.8	109.6	120.2	155.6	167.4
	制热输入功率: KW	49.1	65.8	80	102.5	119.6	136.9	150.2	194.3	209
	电源	380V-50HZ-3PH								
	最大运行电流A	122	165	250	275	290	352	395	493	528
能量调节	25%-50%-75%-100%四级或无级调节									
安全保护	高低压、防冻、安全阀、过载、欠相、欠压、逆相、水流量保护等									
制冷剂	类型	R22								
	充注量KG	60	75	95	120	150	180	200	230	260
蒸发器	型式	满液式壳管型								
	水流量m ³ /h	41	55	68	88	102	120	131	165	178
	接管尺寸DN	DN80	DN100	DN100	DN125	DN125	DN125	DN150	DN150	DN150
	水压降KPa	<78								
冷凝器	型式	壳管型								
	水流量m ³ /h	22	29	36	47	55	63	68	88	95
	接管尺寸DN	DN80	DN100	DN100	DN125	DN125	DN125	DN150	DN150	DN150
	水压降kPa	<80								
外型尺寸	长mm	2850	3000	3600	3600	3900	3900	3900	4000	4000
	宽mm	1050	1100	1130	1230	1280	1330	1350	1450	1450
	高mm	1330	1375	1485	1750	1770	1485	1875	1950	1950
机组重量Kg		1550	1850	2200	2700	3000	3350	3500	4000	4200

说明: 1、以上参数是根据(一)制冷工况:冷水进出口温度12/7℃,地下水进出口温度18/29℃;(二)制热工况:地下水进出口温度15/7.2℃,热水进出口温度40/45℃,污垢系数0.0001m²℃/W,状态下测试的数据。

- 2、如有特殊要求,订货前请提出要求规范。
- 3、以上规格如有变更,恕不另行通知。

附录 The appendix

项目: Item	型号: Type	制冷量KW: Cooling Capacity(KW)
制热量KW: Heating Capacity(KW)	压缩机: Compressor	
型式: Model	半封闭螺杆式压缩机: Semi-closed screw compressor	
制冷输入功率KW: Input power of cooling(KW)	制热输入功率KW: Input power of heating(KW)	
电源: Electrical power	最大运行电流A: The maximum running current A	
能量调节: Energy regulation		
25%-50%-75%-100%四级或无调节: 25%-50%-75%-100% 4th-level or no-level regulation		
安全保护: Safety Protection		
高低压、防冻、安全阀、过载、欠相、欠压、逆相、水流量保护等。		
High- or Low pressure voltage, freeze protection, safety valve, overload, phase loss, under voltage, phase reversal, water flow protection.		
制冷剂: Cooling fluid	类型: Type	充注量KG: Refrigerant charge(KG)
蒸发器: Evaporator	型式: Type	满液式壳管型: Flooded tube-shell type
水流量m ³ /h: Water carrying capacity(m ³ /h)		接管尺寸DN: Size of the connected tube(DN)
水压降KPa: Water pressure drop(KPa)		冷凝器: Condenser
型式: Type	壳管型: Tube-shell type	水流量m ³ /h: Water carrying capacity(m ³ /h)
接管尺寸DN: Size of the connected tube(DN)		水压降KPa: Water pressure drop(KPa)
外型尺寸: Shape&Size	长mm: Length(mm)	宽mm: Width(mm)
		高mm: Height(mm)
机组重量Kg: The weight per unit(Kg)		

说明: Notes

1. 以上参数是根据(一)制冷工况:冷水进出口温度12/7℃,地下水进出口温度18/29℃;(二)制热工况:地下水进出口温度15/7.2℃,热水进出口温度40/45℃,污垢系数0.0001m²℃/W,状态下测试的数据。

The Parameters above, the measurements are under the following 2 conditions: (1)Cooling condition. The temperature of cold water Inlet/outlet is 12/7℃, while that of the ground water inlet/outlet is 18/29℃; (2)Heating condition. The temperature of ground water inlet/outlet is 15/7.2℃, while that of the hot water inlet/outlet is 40/45℃, with a fouling factor of 0.0001m²℃/W.

2. 如有特殊要求,订货前请提出要求规范。

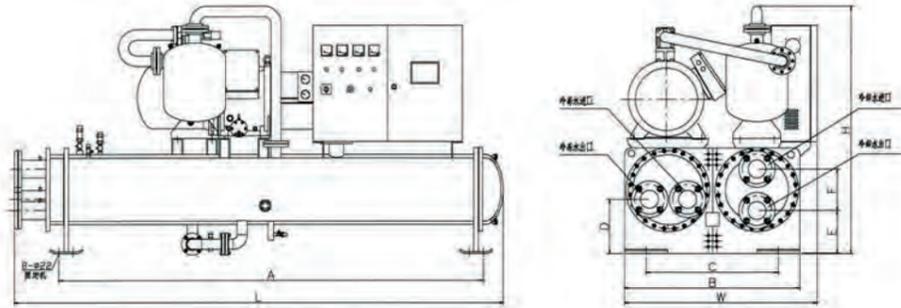
Please offer us the relevant codes before you place an order if there are any special requirements.

3. 以上规格如有变更,恕不另行通知。

There will be no extra notifications if the specifications above are changed later.

机组外形尺寸图 (单压机)

Shape&Size of a unit(Single acting compressor)



满液式水源热泵机组

Flooded water resource heat pump unit

规格	L	W	H	A	B	C	D	E	F
SSDRF-2260S	2850	1050	1330	2330	945	685	295	280	165
SSDRF-3057S	3000	1100	1375	2560	1000	775	305	290	170
SSDRF-3789S	3600	1130	1485	3034	1000	720	315	335	170
SSDRF-4885S	3600	1230	1750	3034	1100	800	335	320	210
SSDRF-5710S	3900	1380	1770	3234	1150	835	340	320	210
SSDRF-6555S	3900	1330	1845	3234	1200	860	385	340	210
SSDRF-7140S	3900	1350	1875	3234	1200	860	385	325	240
SSDRF-9165S	4000	1450	1950	3234	1300	930	430	400	240
SSDRF-9910S	4000	1450	1950	3234	1300	1000	445	405	240

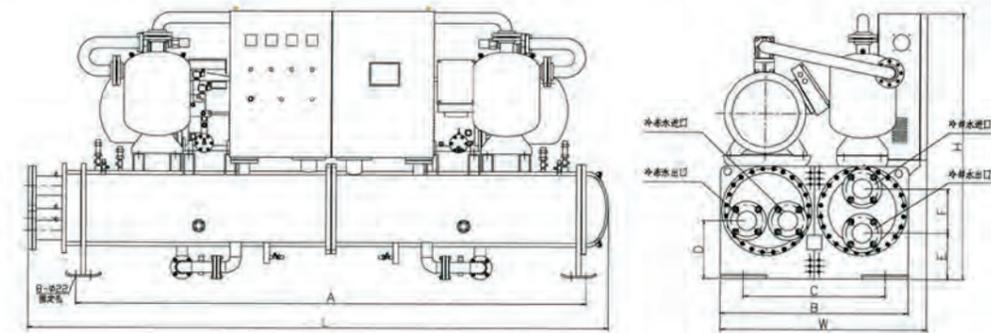
附录 The appendix

8-Φ22 固定机: 8-Φ22 fixing machine
 冷冻水出口: chilled water outlet
 冷却水出口: cooled water outlet
 规格: Size

冷冻水进口: chilled water inlet
 冷却水进口: cooled water inlet

机组外形尺寸图 (双压机)

Shape&Size of a unit(Double acting compressor)



满液式水源热泵机组

Flooded water resource heat pump unit

规格	L	W	H	A	B	C	D	E	F
SSDRF-4520D	3650	1240	1420	3150	1020	740	355	305	285
SSDRF-6114D	3850	1280	1460	3340	1050	800	380	316	290
SSDRF-7578D	4000	1300	1750	3510	1170	890	405	338	294
SSDRF-9770D	4000	1400	1820	3510	1250	960	400	315	307
SSDRF-11420D	4450	1500	1920	3810	1370	1037	425	371	248
SSDRF-13110D	4500	1630	1980	3910	1500	1124	450	396	248
SSDRF-14280D	4750	1650	2050	4110	1500	1124	450	396	248
SSDRF-18330D	5050	1750	2050	4410	1600	1195	440	380	330
SSDRF-19820D	5050	1850	2050	4410	1700	1274	465	405	330

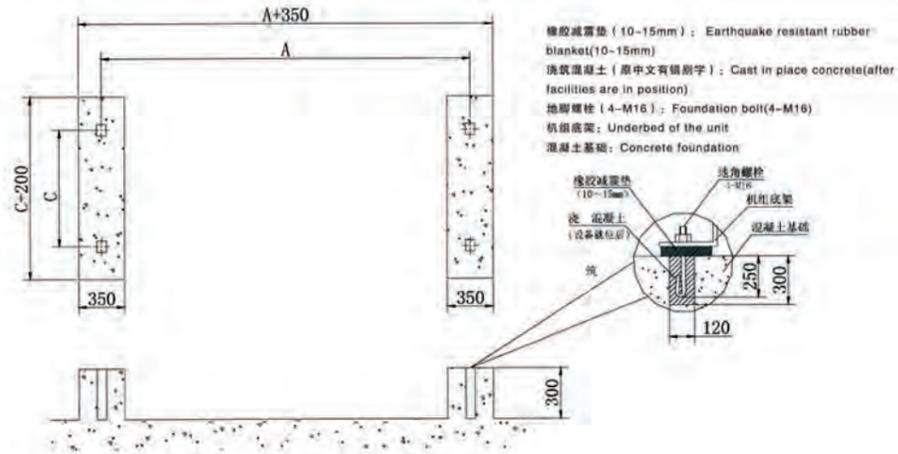
附录 The appendix

8-Φ22 固定机: 8-Φ22 fixing machine
 冷冻水出口: chilled water outlet
 冷却水出口: cooled water outlet
 规格: Size

冷冻水进口: chilled water inlet
 冷却水进口: cooled water inlet

机组安装基础图

The foundation layout of a unit



满液式水源热泵机组 Flooded water resource heat pump unit

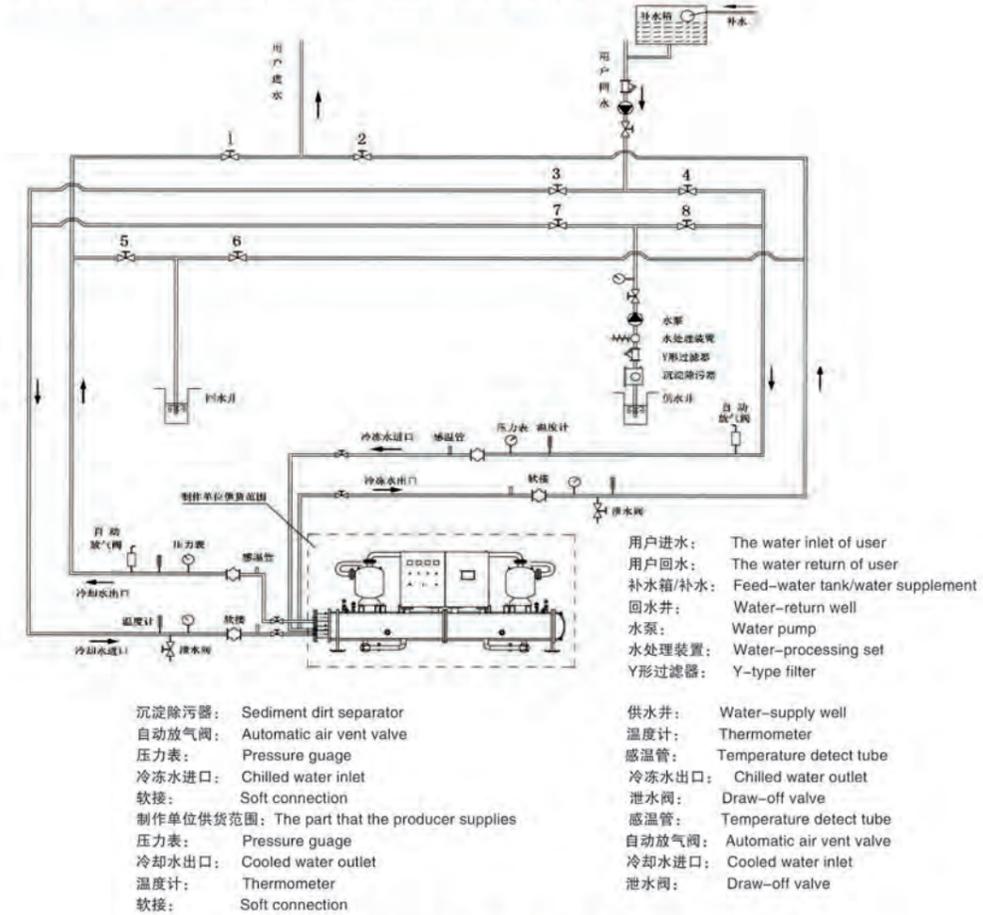
注: 基础用混凝土基础, 表面应水平, 误差小于0.02%;
The foundation is made of concrete; Surface horizontal error within 0.02%.
地脚螺栓采用浇筑方式, 需预留120*120mm的方孔
The foundation bolt is in type of cast in place, leaving a 120mm*120mm square hole.

规格	A	C	规格	A	C
SSDRF-2260S	2000	660	SSDRF-4520D	3050	810
SSDRF-3057S	2400	700	SSDRF-6114D	3300	860
SSDRF-3789S	3034	720	SSDRF-7578D	3510	890
SSDRF-4885S	3034	800	SSDRF-9770D	3510	960
SSDRF-5710S	3234	835	SSDRF-11420D	3810	1037
SSDRF-6555S	3234	860	SSDRF-13110D	3910	1124
SSDRF-7140S	3234	860	SSDRF-14280D	4110	1124
SSDRF-9165S	3234	930	SSDRF-18330D	4410	1195
SSDRF-9910S	3234	1000	SSDRF-19820D	4410	1274

规格: Size

机组水系统接管示意图

The water piping layout of a unit



满液式水源热泵机组 Flooded water resource heat pump unit

注: Notes

- 制冷工况时, 2, 4, 5, 7 阀门开启, 1, 3, 6, 8 阀门关闭。
Under Cooling condition: valve 2, 4, 5, 7 open, while 1, 3, 6, 8 closed.
- 制热工况时, 1, 3, 6, 8 阀门开启, 2, 4, 5, 7 阀门关闭。
Under Heating condition: valve 1, 3, 6, 8 open, while 2, 4, 5, 7 closed.
- 地下水系统必须安装沉淀池, 过滤器和软化水处理装置。
The ground water system must be equipped with sediment pool, filter and water-softening processing set.

机组安装注意事项

Notes for setting

1. 虚线以外部分由用户备料及施工。

The stock & Setting out of the dotline shall be finished by the householder.

2. 机组安装基础既可以是混凝土基础，也可以为钢架结构，但均应保证其水平度，偏差 $\leq 0.02\%$ ；此外机组安装平台必须足以承受机组的重量。

The frame for setting can either be concrete foundation or steel structure, whose levelness shall be ensured, with an error less than 0.02%; Moreover, the setting platform of a machine unit must be able to bear the whole weight of a unit.

3. 机组附近应有足够排放能力的排水措施，以便系统停止运作或维修时排放系统中的水。

There shall be water drainage facilities near the unit, with a draining capacity good enough to get rid of the water under the condition of a system sudden-stop or a maintenance.

4. 机组冷冻水、冷却水回水管必须加装不小于20目/英寸的水过滤器，防止污物堵塞管路而造成主机故障；地下循环水必须加装水处理仪装置。

The return pipe of chilled water and cooled water must be equipped with a water filter, whose mesh number is larger than 20 mesh/inch.

5. 为了机组的正常运行，膨胀水箱必须安装在比整个管路系统最高点高1.5米以上的位置。

In order that the unit could run well, the expansion tank must be set at least 1.5m over the top of the piping system.

6. 机组外部管路应有有效支撑，以免外部力量破坏机组内管路的密封。
There shall be effective support out of piping, for fear that the external force might damage the seal of the internal piping.

7. 系统水管路冲洗和保温要在与机组连接前进行，严禁管道在未冲洗前与机组连接。清洗完毕后，去除过滤器的杂质，并将系统中的水放净。

The piping cleaning thermal insulation shall be finished before the piping is connected to the unit. THERE SHALL BE NO CONNECTION UNLESS THE CLEANING OF PIPING IS FINISHED. Once the cleaning has been finished, the impurity of the filter shall be taken out and the water drawn off.

8. 机组可以安装于室内任何合适的地方；推荐的维修空间为：机组周围应保留有1.5米~2米的维修空间，机组上方所需的垂直距离为米，冷(热)媒水及地下水供水管安装应与机组保持1米以上的距离，以便于机组的操作、保养及维修。

A unit can be set anywhere that is suitable indoor. The repairing space recommended is: 1.5~2m around the unit, and the vertical distance above the unit is in meter. The set of cold(hot)water and that of ground water shall be at least 1 meter away from the unit, in order that the unit could be well operated, maintained and repaired.

电气要求

Requirements for electrical facilities

1. 机组电源为三相四线 (380V~50HZ), 机组运行过程中电压值应在额定电压的 $\pm 10\%$ 范围内; 且机组必须可靠接地。

The electrical source for a unit is 3-phase 4-wire(380V-50HZ), the voltage value shall be within $\pm 10\%$ of the rated voltage during the operation of a unit; And the unit must be reliable connected to the ground.

2. 各相之间的电压不平衡应在 $\pm 2\%$ 范围内, 电压不平衡公式如下:

The imbalance of the voltage value between different phases shall be with $\pm 2\%$ of the total value, as in the formulas listed below:

V_{ang} =相1, 2, 3间的平均电压

V_{ang} =The voltage between phase1, 2 and 3

V_{1-3} =相1, 3间的平均电压

V_{1-3} =The voltage between phase 1 and 3

V_{1-2} =相1, 2间的平均电压

V_{1-2} =The voltage between phase 1 and 2

V_{2-3} =相2, 3间的平均电压

V_{2-3} =The voltage between phase 2 and 3

机组主要电源配线(低压四芯聚氯乙烯及护套铜芯电缆)参考

The wiring of main electric power in a unit, for reference(Low voltage cable of 4 copper core with PVC protective jacket)

机组规格型号	电缆线规格	机组规格型号	电缆线规格
SSDR-1811S	3x50+1x16	SSDR-3662D	3x120+1x35
SSDR-2421S	3x70+1x25	SSDR-4842D	3x185+1x50
SSDR-3045S	3x120+1x35	SSDR-6090D	3x240+1x70
SSDR-3822S	3x120+1x35	SSDR-7644D	3x240+1x70
SSDR-4640S	3x120+1x35	SSDR-9280D	2x3x120+1x50
SSDR-5476S	3x185+1x50	SSDR-10952D	2x3x185+1x50
SSDR-6006S	3x185+1x50	SSDR-12012D	2x3x120+1x50
SSDR-7374S	3x240+1x70	SSDR-14748D	2x3x240+1x50
SSDR-8222S	3x240+1x70	SSDR-16444D	2x3x120+1x50

干式水源热泵机组

Dry-type water resource heat pump unit

机组主要电源配线(低压四芯聚氯乙烯及护套铜芯电缆)参考

The wiring of main electric power in a unit, for reference(Low voltage cable of 4 copper core with PVC protective jacket)

机组规格型号	电缆线规格	机组规格型号	电缆线规格
SSDRF-2260S	3X50+1X16	SSDRF-4520D	3X120+1X35
SSDRF-3057S	3X70+1X25	SSDRF-6114D	3X185+1X50
SSDRF-3789S	3X120+1X35	SSDRF-7578D	3X240+1X70
SSDRF-4885S	3X120+1X35	SSDRF-9770D	3X240+1X70
SSDRF-5710S	3X120+1X35	SSDRF-11420D	2X3X150+1X50
SSDRF-6555S	3X185+1X50	SSDRF-13110D	2X3X185+1X50
SSDRF-7140S	3X185+1X50	SSDRF-14280D	2X3X185+1X50
SSDRF-9165S	3X240+1X70	SSDRF-18330D	2X3X240+1X70
SSDRF-9910S	3X240+1X70	SSDRF-19820D	2X3X240+1X70

满液式水源热泵机组

Flooded water resource heat pump unit

产品简介

水冷螺杆式冷水机组通过冷却水进行冷却，以R22为工质，通过螺杆式压缩机进行压缩制冷，制取12/7℃冷冻水供给各空调末端设备使用。

随着螺杆式压缩机精密加工技术的日趋完善，近几年来螺杆式冷水机组呈快速的增长趋势，该机组具有高效节能、容量调节方便、噪音低、振动小、结构紧凑、维护方便等诸多优点，被广泛应用于宾馆、医院、商场、写字楼等舒适性中央空调系统以及化工、冶金、制药、电力、机械、电子等行业的工艺性空调系统。



Product introduction

Screw water cooled chiller chills through chilled water, with the working fluid R22, compresses & chills through screw type compressor, making 12/7℃ chilled water for respective ending equipments of different Air-Conditioning. With the gradually perfected accurate processing technology of screw compressor, the use of screw water cooled chiller sets increases rapidly. This type of set has the following advantages: High efficiency and energy saving, convenient for volume adjusting, low noise, smaller vibration, compact structure, convenient for maintenance etc. It is widely used in hotel, hospital, store, office, where comfortable air conditioning system is suitable, and where artificial air conditioning is suitable, e.g., metallurgy industry, medical industry, electrical power industry, machinery industry, electrical industry and other fields.



LSFBLG满液式机组主要技术性能参数表(单压机)

Main Parameters for technical properties of flooded machine units(Single Acting Compressor)

项目	型号	285S	355S	430S	510S	560S	690S	770S
制冷量	10 ³ Kcal/h	285	357.7	434.2	512.5	562.1	690.1	769.4
	KW	331.4	416	505	596	653.7	802.6	894.8
压缩机	型式	半封闭螺杆式压缩机						
	电机功率:KW	67.3	82.2	96.3	114.3	126.9	161.1	173.6
	电源	380V~50HZ-3PH						
	最大运行电流	142	200	235	278	309	393	423
	能量调节	25%/50%/75%/100%四级或无级调节						
安全保护		高低压、防冻、安全阀、过载、欠相、欠压、逆相、水流量保护等						
制冷剂	类型	R22						
	充注量 Kg	95	120	150	180	200	230	260
蒸发器	接管尺寸	DN100	DN125	DN125	DN125	DN125	DN150	DN150
	水流量 m ³ /h	57.1	71.7	87	102.7	112.6	138.2	154.1
	水压降 KPa	<78						
冷凝器	接管尺寸	DN100	DN125	DN125	DN150	DN150	DN150	DN150
	水流量 m ³ /h	68.7	85.8	103.6	122.3	134.5	166	184
	水压降 KPa	<80						
外形尺寸	长 mm	3600	3600	3900	3900	3900	4000	4000
	宽 mm	1130	1230	1280	1330	1350	1450	1450
	高 mm	1485	1750	1770	1845	1875	1950	1950
机组重量 Kg		2200	2700	3000	3350	3500	4000	4200

- 注: 1、制冷标准工况: 冷冻水进出口温度12/7℃, 冷却水进出口温度30/35℃;
污垢系数0.0001m²℃/w。
2、如有特殊要求, 订货前请提出要求规范。
3、以上参数如有变更, 恕不另行通知。

附录 The appendix

项目: Item 型号: Type 制冷量KW: Cooling Capacity(KW)
 压缩机: Compressor 型式: Model
 半封闭螺杆式压缩机: Semi-closed screw compressor
 电机功率KW: Motor Power (KW) 电源: Electrical power
 最大运行电流: The maximum running current 能量调节: Energy regulation
 25%/50%/75%/100%四级或无调节: 25%/50%/75%/100% 4th-level or no-level regulation
 安全保护: Safety Protection
 高低压、防冻、安全阀、过载、欠相、欠压、逆相、水流量保护等。
 High- or Low pressure voltage, freeze protection, safety valve, overload, phase loss, under voltage, phase reversal, water flow protection.
 制冷剂: Cooling fluid 类型: Type 充注量Kg: Refrigerant charge(Kg)
 蒸发器: Evaporator 接管尺寸: Size of the connected tube
 水流量m³/h: Water carrying capacity(m³/h) 水压降KPa: Water pressure drop(KPa)
 冷凝器: Condenser 接管尺寸: Size of the connected tube
 水流量m³/h: Water carrying capacity(m³/h) 水压降KPa: Water pressure drop(KPa)
 外形尺寸: Shape&Size 长mm: Length(mm) 宽mm: Width(mm)
 高mm: Height(mm) 机组重量Kg: The weight per unit(Kg)

说明: Notes

- 1、制冷标准工况: 冷冻水进出口温度12/7℃, 冷却水进出口温度30/35℃; 污垢系数0.0001m²℃/w。
The standard working condition: The temperature of chilled water Inlet/outlet is 12/7℃, while that of the cooled water inlet/outlet is 30/35℃, with a fouling factor of 0.0001m²℃/W.
- 2、如有特殊要求, 订货前请提出要求规范。
Please offer us the relevant codes before you place an order if there are any special requirements.
- 3、以上规格如有变更, 恕不另行通知。
There will be no extra notifications if the specifications above are changed later.

LSFBLG满液式机组主要技术参数表(双压机)

Main Parameters for technical properties of flooded machine units(Double Acting Compressor)

项目		型号	570D	715D	865D	1025D	1120D	1380D	1540D
制冷量	10 ³ Kcal/h		570	715.4	868.4	1024.9	1124.2	1380.2	1538.8
	KW		662.8	832	1010	1192	1307.4	1605.2	1789.6
压缩机	型式	半封闭螺杆式压缩机							
	电机功率:KW		134.6	164.4	192.6	228.6	253.8	322.2	347.2
	电源	380V~50HZ-3PH							
	最大运行电流		284	400	470	556	618	786	846
	能量调节	25%/50%/75%/100%四级或无级调节							
	安全保护	高低压、防冻、安全阀、过载、欠相、欠压、逆相、水流量保护等							
制冷剂	类型	R22							
	充注量 Kg		190	240	300	360	400	460	520
蒸发器	接管尺寸		DN125	DN150	DN150	DN200	DN200	DN200	DN200
	水流量 m ³ /h		114.2	143.4	174	205.4	225.2	276.4	308.2
	水压降 KPa		<78						
冷凝器	接管尺寸		DN150	DN150	DN200	DN200	DN200	DN200	DN200
	水流量 m ³ /h		137.4	171.6	207.2	244.6	269	332	368
	水压降 KPa		<80						
外形尺寸	长 mm		4000	4000	4450	4550	4750	5050	5050
	宽 mm		1300	1400	1500	1630	1650	1750	1850
	高 mm		1750	1820	1920	1980	2050	2050	2050
	机组重量 Kg		4300	5000	5500	5900	6500	7600	8100

- 注: 1、制冷标准工况: 冷冻水进出口温度12/7℃, 冷却水进出口温度30/35℃;
污垢系数0.0001m²℃/w。
2、如有特殊要求, 订货前请提出要求规范。
3、以上参数如有变更, 恕不另行通知。

附录 The appendix

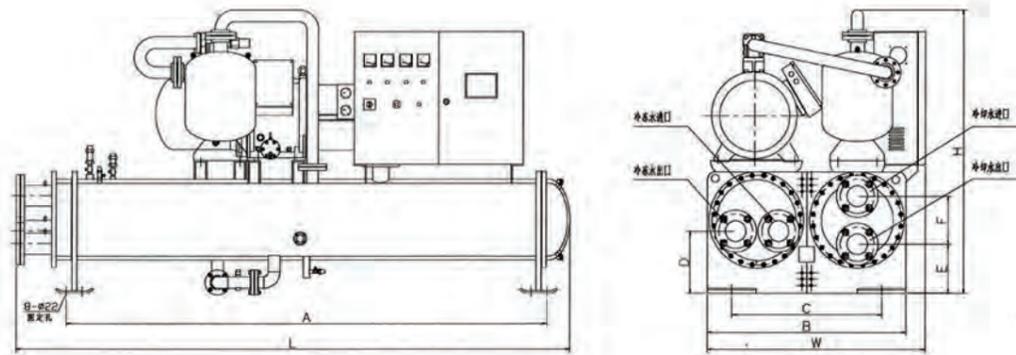
项目: Item 型号: Type 制冷量KW: Cooling Capacity(KW)
 压缩机: Compressor 型式: Model
 半封闭螺杆式压缩机: Semi-closed screw compressor
 电机功率KW: Motor Power (KW) 电源: Electrical power
 最大运行电流: The maximum running current 能量调节: Energy regulation
 25%/50%/75%/100%四级或无调节: 25%/50%/75%/100% 4th-level or no-level regulation
 安全保护: Safety Protection
 高低压、防冻、安全阀、过载、欠相、欠压、逆相、水流量保护等。
 High- or Low pressure voltage, freeze protection, safety valve, overload, phase loss, under voltage, phase reversal, water flow protection.
 制冷剂: Cooling fluid 类型: Type 充注量Kg: Refrigerant charge(Kg)
 蒸发器: Evaporator 接管尺寸: Size of the connected tube
 水流量m³/h: Water carrying capacity(m³/h)
 水压降KPa: Water pressure drop(KPa) 冷凝器: Condenser
 接管尺寸: Size of the connected tube
 水流量m³/h: Water carrying capacity(m³/h)
 水压降KPa: Water pressure drop(KPa)
 外型尺寸: Shape&Size 长mm: Length(mm) 宽mm: Width(mm)
 高mm: Height(mm) 机组重量Kg: The weight per unit(Kg)

说明: Notes

- 1、制冷标准工况: 冷冻水进出口温度12/7℃, 冷却水进出口温度30/35℃; 污垢系数0.0001m²℃/w。
The standard working condition: The temperature of chilled water Inlet/outlet is 12/7℃, while that of the cooled water inlet/outlet is 30/35℃, with a fouling factor of 0.0001m²℃/W.
- 2、如有特殊要求, 订货前请提出要求规范。
Please offer us the relevant codes before you place an order if there are any special requirements.
- 3、以上规格如有变更, 恕不另行通知。
There will be no extra notifications if the specifications above are changed later.

满液式螺杆机组外形尺寸图(单压机)

Shape&Size of a Flooded screw set(Single acting compressor)

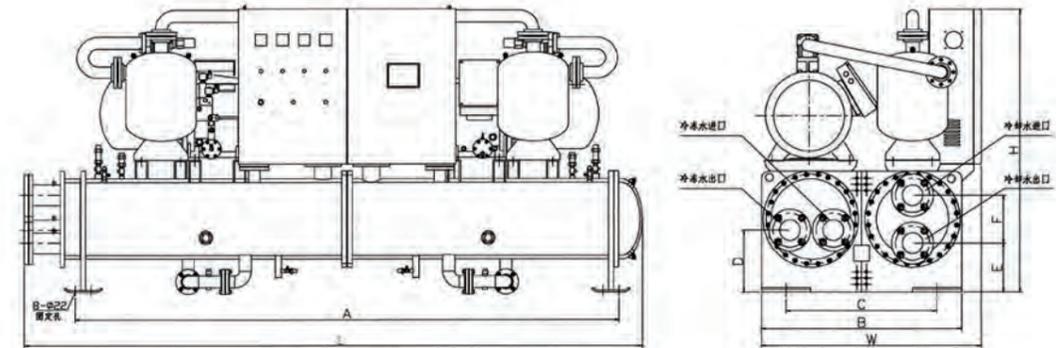


规格	L	W	H	A	B	C	D	E	F
LSFBLG-285S	3600	1130	1485	3034	1000	720	315	335	170
LSFBLG-355S	3600	1230	1750	3034	1100	800	335	320	210
LSFBLG-430S	3900	1380	1770	3234	1150	835	340	320	210
LSFBLG-510S	3900	1330	1845	3234	1200	860	385	340	210
LSFBLG-560S	3900	1350	1875	3234	1200	860	385	325	240
LSFBLG-690S	4000	1450	1950	3234	1300	930	430	400	240
LSFBLG-770S	4000	1450	1950	3234	1300	1000	445	405	240

8-Φ22 固定机: 8-Φ22 fixing machine
 冷冻水出口: chilled water outlet
 冷却水出口: cooled water outlet
 冷冻水进口: chilled water inlet
 冷却水进口: cooled water inlet
 规格: Size

满液式螺杆机组外形尺寸图(双压机)

Shape&Size of a Flooded screw set(Double acting compressor)



规格	L	W	H	A	B	C	D	E	F
LSFBLG-570D	4000	1300	1750	3510	1170	890	405	338	294
LSFBLG-715D	4000	1400	1820	3510	1250	960	400	315	307
LSFBLG-865D	4450	1500	1920	3810	1370	1037	425	371	248
LSFBLG-1025D	4500	1630	1980	3910	1500	1124	450	396	248
LSFBLG-1120D	4750	1650	2050	4110	1500	1124	450	396	248
LSFBLG-1380D	5050	1750	2050	4410	1600	1195	440	380	330
LSFBLG-1540D	5050	1850	2050	4410	1700	1274	465	405	330

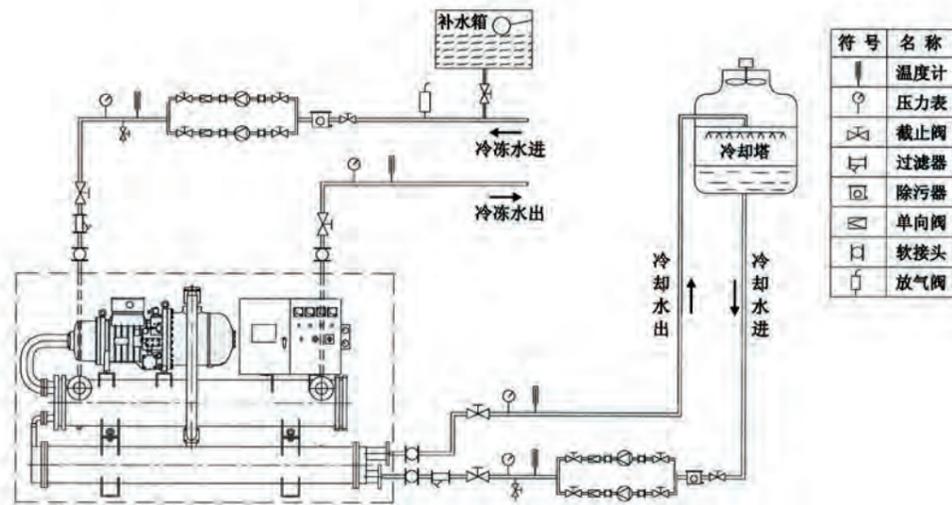
8-Φ22 固定机: 8-Φ22 fixing machine
 冷冻水出口: chilled water outlet
 冷却水出口: cooled water outlet
 冷冻水进口: chilled water inlet
 冷却水进口: cooled water inlet
 规格: Size

机组接管示意图/安装注意事项

Shape&Size of a Flooded screw set(Single acting compressor)

机组接管示意图

The sketch map for piping system



温度计: Thermometer
压力表: Pressure gauge
截止阀: Cut off valve
过滤器: Filter
除污器: Dirt Separator
单向阀: Check valve
软接头: Soft connection
放气阀: Vent valve

补水箱: Feed-water tank
冷冻水进: Chilled water inlet
冷冻水出: Chilled water outlet
冷却塔: Chilled water tower
冷却水出: Cooled water outlet
冷却水进: Cooled water inlet

机组安装注意事项: Notes for setting

- 虚线以外部分由用户备料及施工。
The stock & Setting out of the dot line shall be finished by the householder.
- 机组冷冻水、冷却水管路进水口侧必须安装20目/英寸的水过滤器,以防污物堵塞管路而发生事故;水系统中的冷冻/冷却水建议采用软化水或在管路中设置电子水处理仪;管路尺寸规格应符合技术要求(见性能参数表)。
The inlet of chilled water and cooled water must be equipped with a water filter with a mesh number of 20mesh/inch, for fear that the piping might be blocked up with sewage and that the jam might cause an accident. The chilled/cooled water in water system could be softened water(as suggested)or the piping could be set with an electrical water-processing set. The piping SPEC shall accord with the technical requirements(as listed in the Table: Main parameters for technical properties of P9 and P10).
- 机组应安装在刚性底座或混凝土基础上,该基础应能承受机组运行时的重量。
The unit shall be installed either on a rigid support or on a concrete foundation. The base shall be able to bear the whole weight when a machine set is running.
- 空调系统水管路的安装、保温,应由专业人员设计指导,并根据“暖通空调安装规范”进行安装。
The setting & installation of water piping of air conditioning shall be designed & directed by professional man and installed accord with the code for HVAC installation.
- 冷冻/冷却水泵的转速尽量不要使用2900r/min型,以免与机组产生共振。
It is suggested that the chilled/cooled water pump shall not be a 2900r/min type, for fear that it might cause a resonance between itself and the set.
- 机组周围要留出操作及维修空间。
The operation & maintenance space for a set shall be reserved.
- 机组附近应具备足够的排水措施,以便排放系统中的水。
There shall be enough water drainage facilities near the unit to get rid of the water in system.
- 系统水管路冲洗和保温要在与机组连接前进行,严禁管道在未冲洗前与机组连接。
The piping cleaning & thermal insulation shall be finished before the piping is connected to the unit. NON CONNECTION SHALL BE DONE UNLESS THE CLEANING OF PIPING IS FINISHED.
- 机组外壳应可靠接地,以防发生触电事故。
The set shell shall be reliable connected to the ground, for fear that an electric shock might occur.

电气要求/满液式螺杆机组安装基础图

Requirements for electrical facilities/The foundation layout for flooded screw machine sets

电气要求

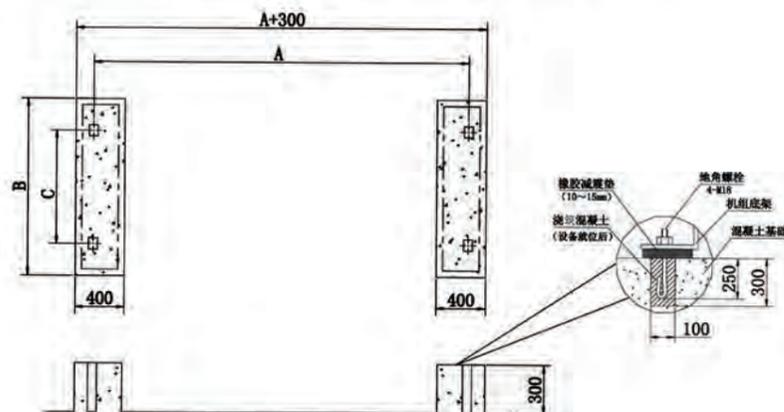
Requirements for electrical facilities

机组电源为三相四线(380V-50HZ), 机组运行过程中电压值应在额定电压的±10%范围内, 各相之间的电压差应在±2%范围内, 机组电源开关的选择应按机组总输入电功率的150%选定相应的自动空气开关。

The electrical source for a unit is 3-phase 4-wire(380V-50HZ), the voltage value shall be within ±10% of the rated voltage during the operation of a unit. The voltage difference value between different phases shall be within ±2%, and the selection of the switch of power source depends on the total input electrical power. The parameter of an automatic air switch shall match 150% of the total input electrical power.

满液式螺杆机组安装基础图

The foundation layout for flooded screw machine sets



橡胶减震垫(10~15mm): Earthquake resistant rubber blanket(10~15mm)

浇筑混凝土(原中文有错别字): Cast in place concrete(after facilities are in position)

地脚螺栓(4-M16): Foundation bolt(4-M16)

机组底架: Underbed of the unit

混凝土基础: Concrete foundation

注: Notes

基础用混凝土基础, 表面应水平、误差小于0.02%。

The foundation is made of concrete; Surface horizontal, error within 0.02%.

地脚螺栓采用浇筑方式(原文错别字), 需预留120*120mm的方孔。

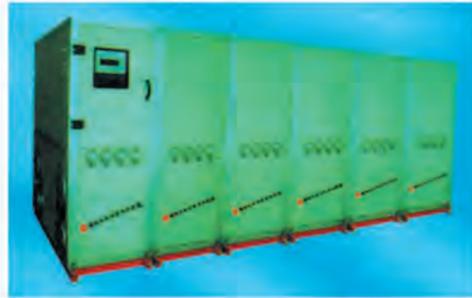
The foundation bolt is in type of cast in place, leaving a 120mm*120mm square hole.

规格	A	B	C	规格	A	B	C
LSFBLG-285S	3034	850	720	LSFBLG-570D	3510	1000	890
LSFBLG-355S	3034	900	800	LSFBLG-715D	3510	1100	960
LSFBLG-430S	3234	950	835	LSFBLG-865D	3810	1150	1037
LSFBLG-510S	3234	1000	860	LSFBLG-1025D	3910	1250	1124
LSFBLG-560S	3234	1000	860	LSFBLG-1120D	4110	1250	1124
LSFBLG-690S	3234	1050	930	LSFBLG-1380D	4410	1300	1195
LSFBLG-770S	3234	1100	1000	LSFBLG-1540D	4410	1400	1274

规格: Size

产品简介

模块化水冷式冷(热)水机组由多个单元模块组合而成,该机组通过冷却塔或地下水进行冷却,以其高效率、低噪音、操作简单。运行安全。安装为何方便等诸多优点,广泛应用于宾馆、商场、办公楼、展览馆、体育馆等舒适性中央空调系统,也可应用于电子、制药、化工、机械等行业的工艺性空调系统。



模块化水冷式冷水机组
Modular water-cooled chiller

Product introduction

Modular water-cooled chiller is made up of several units. It chills through cooling tower or ground water, and is widely used in hotel, store, office, exhibition hall, gymnasium, where comfortable air conditioning system is suitable, and where artificial air conditioning is suitable, e.g., electrical industry, pharmacy industry, medical industry, machinery industry and other fields because of its advantages: High efficiency, low noise, easy operation, and security running.

机组性能参数表

Main Parameters per set

机组型号		LSQ130M-N	LSQ150M-N	LSBLG195M-N
单元模块额定制冷量 (KW)		130	149	195
机组单元组合数量N (单元)		1-13	1-13	1-10
机组制冷量 (KW)		130 x N	149 x N	195 x N
供电电源		50HZ 380V		
压缩机	类型	全封闭涡旋式	全封闭涡旋式	半封闭螺杆式
	数量	2 x N	2 x N	1 x N
	每台压机输入功率 (KW)	16.3	19	45
	每台压机额定电流 (A)	29.3	34.2	81
制冷量调节级数		0-100%共 2 x N 级		0-100%共 4 x N 级
制冷剂	工质	R22		
	充注量 (kg)	(4.7x2) x N	(8.5x2) x N	17xN
蒸发器	型式	不锈钢钎焊板式换热器		壳管式换热器
	额定水流量 (m³/h)	22.3 x N	25.6 x N	33.2 x N
	水侧阻力 (Kpa)	50	50	50
冷凝器	型式	不锈钢钎焊板式换热器		壳管式换热器
	额定水流量 (m³/h)	27.7 x N	32 x N	41.4 x N
	水侧阻力 (Kpa)	60	60	60
接管尺寸 (mm)		150 (N>9时, 200)	150 (N>7时, 200)	150 (N>6时, 200)
外形尺寸	长度 (mm)	600 x N	600 x N	700 x N
	宽度 (mm)	1350	1350	200
	高度 (mm)	1670	1670	1650
单元模块机组重量 (kg)		600xN	700xN	1500xN

额定工况: Rated working condition

冷却水 进水温度12℃, 出水温度7℃。 The temperature of cooled water Inlet is 12℃, outlet 7℃.

冷却水 进水温度30℃, 出水温度35℃。 The temperature of cooled water Inlet is 30℃, outlet 35℃.

附录 The appendix

机组型号: Set type

单元模块额定制冷量 (KW): Rated cooling capacity per module(KW)

机组单元组合数量N (单元): Combined set number N(unit)

机组制冷量 (KW): Cooling capacity per set(KW)

供电电源: Power supply

压缩机: Compressor

全封闭涡轮式: Total-closed spiral type

全封闭涡轮式: Total-closed spiral type

半封闭螺杆式: Semi-closed screw type

每台压缩机输入功率 (KW): Input power per compressor unit(KW)

每台压缩机额定电流 (A): Rated electric current per compressor unit(A)

制冷量调节级数: Regulation series of cooling capacity

0-100%共2XN级: 0-100%, 2XN in total

0-100%共4XN级: 0-100%, 4XN in total

制冷剂: Cooling fluid

工质: Working fluid

充注量 (Kg): Refrigerant charge(Kg)

蒸发器: Evaporator

不锈钢钎焊板式换热器: Stainless steel BPHE

壳管式换热器: Heat exchanger in type of shell & tube

额定水流量 (m³/h): Rated water carrying capacity(m³/h)

水侧阻力 (Kpa): Resistance by water side(Kpa)

冷藏器: Refrigerator

不锈钢钎焊板式换热器: Stainless steel BPHE

壳管式换热器: Heat exchanger in type of shell & tube

额定水流量 (m³/h): Rated water carrying capacity(m³/h)

水侧阻力 (Kpa): Resistance by water side(Kpa)

接管尺寸 (mm): Size of the connected tube(mm)

150 (N>9时, 200): 150 (200, when N>9)

150 (N>7时, 200): 150 (200, when N>7)

150 (N>6时, 200): 150 (200, when N>6)

外形尺寸: Shape & Size

长度 (mm): Length(mm)

宽度 (mm): Width(mm)

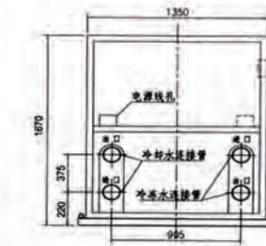
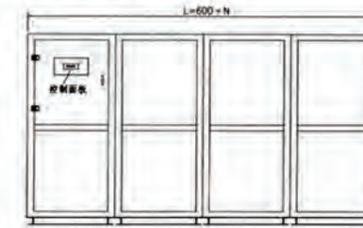
高度 (mm): Height(mm)

单元模块机组重量 (Kg): Set weight per module(Kg)

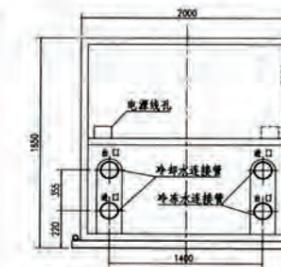
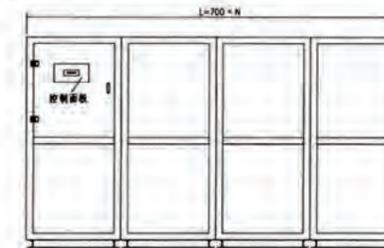
机组外形图

Machine set profile

● LSQ130M-N, LSQ150M-N

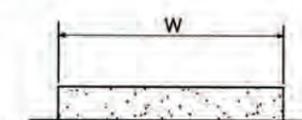
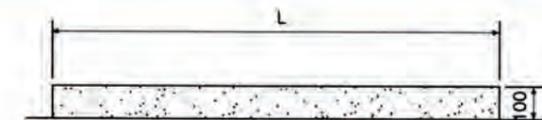


● LSBLG195M-N



机组安装基础图

The foundation layout per set



机组型号	L	W
LSQ130/150M-N	600 x N + 100	1470
LSBLG195M-N	700 x N + 100	2120

机组外形图: Machine set profile

出口: Outlet

电源线孔: Power wire threading hole

冷冻水连接管: The connection tube of chilled water

控制面板: Control panel

进口: Inlet

冷却水连接管: The connection tube of cooled water

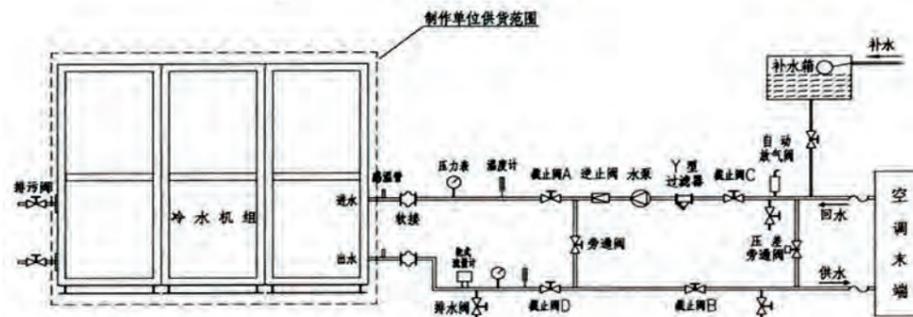
注: 基础既可以用混凝土浇筑, 也可以为钢结构基础, 基础表面水平, 误差小于0.02%

Note: The foundation can either be cast-in-situ concrete or steel structure base, whose levelness shall be ensured, and whose error shall be less than 0.02%.

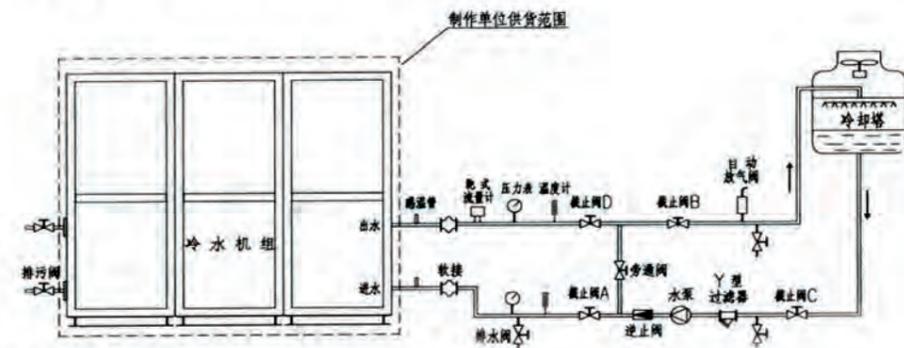
机组水系统接管示意图

The water piping layout of a unit

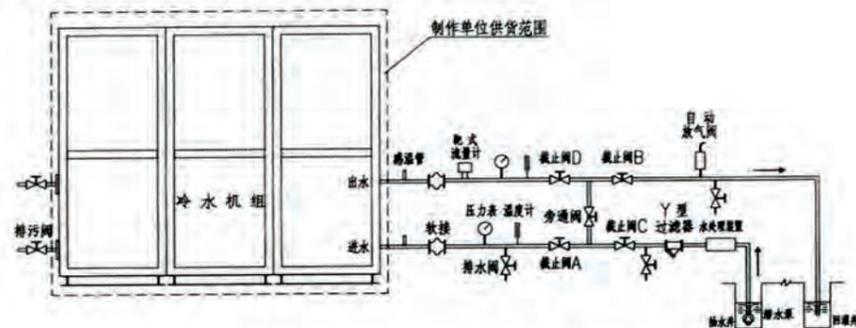
● 冷冻水系统 Chilled water system



● 冷冻水系统 (I) Chilled water system(I)



● 冷冻水系统 (II) Chilled water system(II)



附录 The appendix

Chilled water system

排污阀: Blow down valve
冷水机组: Chilled water set
进水: Water inlet
出水: Water outlet
制作单位供货范围: The part that the producer supplies
感温管: Temperature detect tube
软接: Soft connection
压力表: Pressure gauge
温度计: Thermometer
截止阀A: Cut off valve A
逆止阀: Check valve
水泵: Water pump
Y型过滤器: Y-type filter
截止阀C: Cut off valve C
自动放气阀: Automatic air vent valve
补水箱: Feed-water tank
补水: Water supplement
靶式流量计: Target type flow meter
排水阀: Draw-off valve
截止阀D: Cut off valve D
旁通阀: By-pass valve
截止阀B: Cut off valve B
压差旁通阀: Pressure differential by-pass valve
回水: Water return
供水: Water supply
空调末端: The terminal of air conditioning

Chilled water system(II)

排污阀: Blow down valve
出水: Water outlet
制作单位供货范围: The part that the producer supplies
靶式流量计: Target type flow meter
截止阀B: Cut off valve B
软接: Soft connection
排水阀: Draw-off valve
截止阀A: Cut off valve
截止阀C: Cut off valve C
水处理装置: Water treatment equipment
潜水泵: Submerged pump

Chilled water system(I)

排污阀: Blow down valve
冷水机组: Chilled water set
出水: Water outlet
进水: Water inlet
制作单位供货范围: The part that the producer supplies
感温管: Temperature detect tube
靶式流量计: Target type flow meter
压力表: Pressure gauge
温度计: Thermometer
截止阀D: Cut off valve D
截止阀B: Cut off valve B
自动放气阀: Automatic air vent valve
冷却塔: Cooling tower
软接: Soft connection
排水阀: Draw-off valve
截止阀A: Cut off valve A
旁通阀: By-pass valve
逆止阀: Check valve
水泵: Water pump
Y型过滤器: Y-type filter
截止阀C: Cut off valve C

机组安装注意事项

Notes for setting

- 1、机组可以安装于室内任何合适的地方。且四周应留有1.5米。上方1米以上的空间，以便机组的维护保养。
A unit can be set anywhere that is suitable indoor. The space recommended is 1.5 around the unit, and the vertical distance above the unit is over 1 meter, in order that the unit could be well maintained and repaired.
- 2、机组对接时，要根据标牌上的编号依次连接。多个单元模块机组连接时，机组主管的中心线应在同一中心轴线上，然后用快速接头连接牢固。
The butt joint between sets shall be done one after another in order, namely accord with the serial number on labels. When there are several modules to be connected together, their center line shall be along the same center axis, and then fixed with quick connectors firmly.
- 3、机组安装基础既可以是混凝土基础，也可以为钢结构，但均应保证其水平，偏差≤0.02%；此外机组安装平台必须足以承受机组的重量。
The frame for setting can either be concrete foundation or steel structure, whose levelness shall be ensured, with an error less than 0.02%; Moreover, the setting platform of a machine unit must be able to bear the whole weight of a unit.
- 4、机组附近应有足够排放能力的排水措施，以便系统停止运作或维修时排放系统中的水。
There shall be water drainage facilities near the unit, with a draining capacity good enough to get rid of the water under the condition of a system sudden-stop or maintenance.
- 5、机组冷冻水、冷却水回水管必须加装不小于40目/英寸的水过滤器，防止污物堵塞管路而造成主机故障；系统中循环水建设采用软化水或在管路中加设水处理装置。
The return pipe of chilled water and cooled water must be equipped with a water filter, whose mesh number is larger than 40 mesh/inch, for fear that the piping might be blocked up with sewage and that the jam might cause an accident. Man shall adopt softened water for water system(as suggested), or the piping could be set with an electrical water-processing set.
- 6、安装于管路上的水流开关，应将其的控制方式设定为流量低于额定流量80%时，触点断开，机组停止运行。
The control mode of the water switch by the piping system shall be set as follows: Switch off when the flow is less than 80% of the rated value; Then the set will stop running.
- 7、为了机组的正常运行，补水箱必须安装在比整个管路系统最高点高1.5米以上的位位置。
In order that the unit could run well, the feed-water tank must be set at least 1.5m over the top of the piping system.
- 8、机组外部管路应有有效支撑，以免外部力量破坏机组内管路的密封。
There shall be effective support out of piping, for fear that the external force might damage the seal of the internal piping.
- 9、机组在投入使用之前应对系统水管路进行清洗，以防止对机组的堵塞。在进行管路清洗时，应先打开系统中的旁通阀，关闭机组进出口的截止阀，将机组与系统管路隔绝。清洗完毕后，去除过滤器的杂质，并将系统中的水放净。
The piping cleaning shall be finished before the set is to be put into use, to keep the set from being blocked up. During the cleaning, man shall first open the by-pass valve, then close the cut off valve at the inlet/outlet of the set, in order to isolate the set from its piping system. Once the cleaning has been finished, the impurity of the filter shall be taken out and the water drawn off.

电气要求

Requirements for electrical facilities

- 1、机组电源为三相四线（380V~50HZ），机组运行过程中电压值应在额定电压的±10%范围内；且机组必须可靠接地。
The electrical source for a unit is 3-phase 4-wire(380V~50HZ), the voltage value shall be within ±10% of the rated voltage during the operation of a unit; And the unit must be reliable connected to the ground.
- 2、各相之间的电压不平衡应在±2%范围内，电压不平衡公式如下：
The imbalance of the voltage value between different phases shall be with ±2% of the total value, as in the formulas listed below:

$$\frac{|V_{avg}-V_{1-2}|+|V_{avg}-V_{1-3}|+|V_{avg}-V_{2-3}|}{2 \times V_{avg}} \times 100\%$$

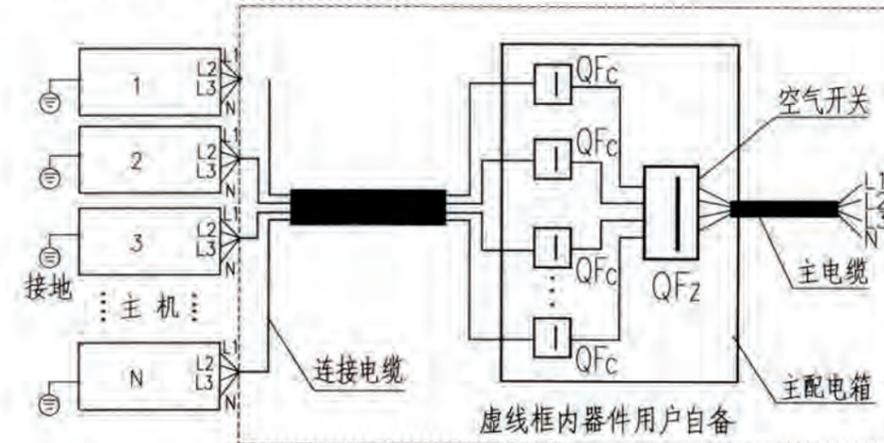
V_{avg} =相1,2,3的平均电压 V_{1-3} =相1,3之间的电压
 V_{1-2} =相1,2之间的电压 V_{2-3} =相2,3之间的电压

V_{avg} =相1, 2, 3间的平均电压
 V_{1-3} =相1, 3间的平均电压
 V_{1-2} =相1, 2间的平均电压
 V_{2-3} =相2, 3间的平均电压

V_{avg} =The voltage between phase 1, 2 and 3
 V_{1-3} =The voltage between phase 1 and 3
 V_{1-2} =The voltage between phase 1 and 2
 V_{2-3} =The voltage between phase 2 and 3

用户自备分线箱示意图

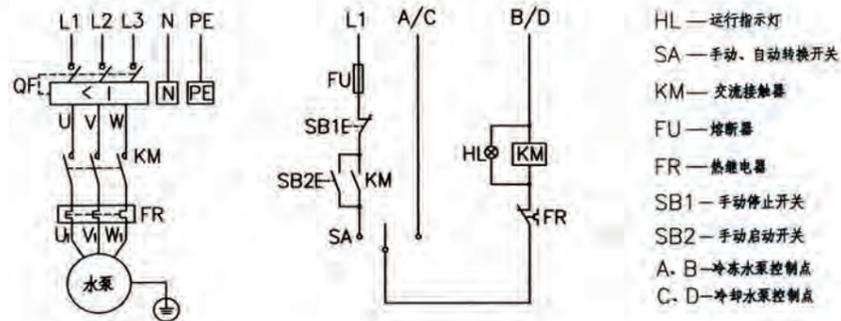
The sketch map of user-provided distributing cabinet



接地: Connect to the ground
 连接电缆: Connection cable
 虚线框内器件用户自备: The members inside the dot line are provided by users
 空气开关: Air switch
 主配电箱: Main distributing cabinet
 主机: Main engine
 主电缆: Main cable

用户自备冷冻水泵/冷却水泵配电箱配线示意图

The sketch map of user-provided distributing cabinet of chilled/cooled water pump



- HL—运行指示灯: HL—Indicating Lamp
- FU—熔断器: FU—Fuse
- SB1—手动停止开关: SB1—Manual stop button
- A、B—冷冻水泵控制点: A、B—Controlling point of chilled water pump
- C、D—冷却水泵控制点: C、D—Controlling point of cooled water pump
- SA—手动、自动转换开关: SA—Selective Availability shift switch(manual/automatic)
- 注: 1号机配电箱端子排留有A、B、C、D接点。
Note: Connecting point A, B, C, D are reserved at the end of distributing cable of the 1st machine set.
- KM—交流接触器: KM—A.C. Contactor
- FR—热继电器: FR—Thermal relay
- SB2—手动启动开关: SB2—Manual stop button

机组配线参考

The wiring of a machine set, for reference

低压四芯聚氯乙烯绝缘及护套电缆允许载流量 (A)

芯数、导线截面 (mm ²)	敷设在空气中 (铜芯)	芯数、导线截面 (mm ²)	敷设在空气中 (铜芯)
3 X 4 + 1 x 2.5	29	3 X 50 + 1 x 16	144
3 X 6 + 1 x 4	38	3 X 70 + 1 x 25	178
3 X 10 + 1 x 6	51	3 X 95 + 1 x 35	218
3 X 16 + 1 x 6	68	3 X 120 + 1 x 35	252
3 X 25 + 1 x 10	92	3 X 150 + 1 x 50	297
3 X 35 + 1 x 10	115	3 X 185 + 1 x 50	341

低压四芯聚氯乙烯绝缘及护套电缆允许载流量 (A)

The allowable current carrying capacity of low voltage cable of 4 copper cores with PVC protective jacket(A)
芯数、导线截面 (mm²): The amount of core & the section of wire
敷设在空气中 (铜芯): Wire routing in air (copper wire)

注: 芯线最高工作温度65℃, 环境温度25℃。

The highest working temperature of core wire is 65℃; The environmental temperature 25℃.

建议按机组额定运行电流的125%按上表选取相应电缆。

It is suggested that the cable selection accord with both the rated electric current of a machine set and the above selection SPECS.

维护和保养

Preservation & Maintenance

- 1、用户使用和维本机组时应注意: 机组内所有安全保护装置均在出厂前设定完毕, 切勿自行调整, 若因此造成机组损坏, 本公司概不负责。
Attention for use and maintain: All of the protective devices of a machine set are finished before delivery. Please do not adjust the machine set by yourself. Any damage due to an adjustment made by users is not in the scope of duty of our company.
- 2、机组在试运行24小时后, 必须清洗机组进水端的过滤器, 机组正常运行过程中, 要定期清洗过滤器, 以防堵塞导致机组故障。
Man shall clean the filter by water inlet of a machine set 24 hours after test running. And man shall clean the filter at regular interval during the everyday-running of a set, for fear that a jam might occur and the machine break down.
- 3、机组电源在正常使用期内不能断开, 若停机时间较长, 重新开机前, 压缩机必须预热12小时以上。
Man shall never stop the power source during normal running of a machine set. When the set has not been used for a long period, a preheating of compressor over 12 hours shall be done before the set is put into use again.
- 4、机组运行一段时间后, 冷冻水系统和冷却水系统要进行反冲排污; 关闭截止阀A和B, 打开旁通阀及排污阀, 启动水泵进行清洗, 直至无杂物排出为止, 然后将阀恢复到初始状态, 并将系统补满水。反冲排污次数可根据当地水质情况而定。Short after the machine set runs, sewage back washing discharge shall be done by both chilled and cooled water system; Man shall close cut valve A and B, and open the by-pass valve & blow down valve, start the cleaning by starting the water pump, till no waste water could be seen; Then reset the valves to original settings, and fill up the system with water. The frequency of sewage back washing discharge complies with the local water quality condition.
- 5、在冬季, 机组停止使用后, 应从排水阀处将机组内及水管路系统中的水彻底放净, 以防冻裂机组内的换热器及水管路。In winter, when a machine set is not in use, the water in the set & in water piping system shall be discharged clearly by the draining valve, for fear that the frost crack might damage the internal heat exchanger & water piping.
- 6、机组的某一模块需维修时, 建议用户将该模块移出, 用短接管接好原水管路, 并尽快与我公司售后服务部门联系。When a module of a machine set needs to be required, users are suggested to move the part out of the whole set and connect the piping with short tube, and contact with our after-sales service department as soon as possible.

产品简介

同和牌屋顶式空调(热泵)机组,是我公司在吸取最新科研成果以及中小型制冷式空调机组的各项优点基础上,为适应市场发展及社会的需求,开发自带冷(热)源的中央空调设备。机组采用模块化的设计方案,与其他功能段体组合,可具有制冷、制热、加湿、空气净化、电脑全自动控制等功能,被广泛应用于办公楼、商场、计算机房、烟草或医药及电子行业等有严格要求的场所。



Product introduction

Rooftop air-conditioning(heat pump) unit bases on the achievements of recent R&D and the advantages of middle- and small type sets, is a new type air conditioning with self-contained cool(heat) source created by our company in order to meet the development of society. This type of set is designed in different modules, which work together with other multi-function parts, has the capacity of cooling, heating, humidifying, air cleaning, total automatic controlling with computer etc. It is widely used where has strict requirements like office, store, computer room; Tobacco industry, medicine industry, electrical industry and other industries.

机组性能参数表

Main Parameters of machine units

性能		型号	WK(R)10	WK(R)13	WK(R)15	WK(R)21	WK(R)30	WK(R)45	WK(R)60
空调机性能	制冷量	KW	10.6	12.5	16.2	22.1	31	48	68
	制热量	KW	12.4	13.7	16.7	23.2	32.7	50	70
	风量	m ³ /h	2000	2500	3000	4200	6500	9000	12000
	机组噪音	dB(A)	≤ 62	≤ 62	≤ 63	≤ 65	≤ 68	≤ 70	≤ 72
	机外余压	Pa	320	320	320	320	400	400	400
电源		380V 50Hz 三相四线制							
制冷系统	压缩机	型式	进口全封闭						
		功率KW	3.1	4.1	5	6.8	9.17	14.2	21.4
		工质类型	R22						
	制冷剂	充量Kg	3.8	4.0	6.5	8.5	10	18	22
	蒸发器	型式	铜管套冲缝铝翅片						
	冷凝器	型式	铜管套冲缝铝翅片						
	冷凝风机	功率KW	0.15	0.15	0.37	0.30	0.74	1.1	1.5
	型式	低噪音轴流风机							
	风量m ³ /h	7000	7500	9000	6000 × 2	8500 × 2	10000 × 2	13000 × 2	
送风机	类型	离心式双进风风机							
	功率KW	0.45	0.45	0.55	0.8	1.5	2.2	3.0	
外形尺寸	长L	mm	1640	1640	1950	2500	2600	2700	3100
	宽W	mm	850	850	900	950	1150	1250	1350
	高H	mm	1020	1020	1070	1020	1020	1285	1350
总电功率	KW	3.7	4.7	5.9	7.9	11.4	17.5	25.9	
重量	Kg	280	300	400	500	650	750	900	

性能: Property

空调机性能: Properties for air conditioning

风量: Air Quantity 机组噪音: Noise

380V 50Hz 三相四线制: 380V 50Hz 3-phase 4-wire

型式: Type

工质类型: Type of working Medium

蒸发器: Evaporator

冷凝器: Condenser

冷凝风机: Condenser blower

风量 m³/h: Air Quantity m³/h

离心式双进风风机: Centrifugal 2-inlet wind blower

长mm: Length(mm)

总电功率: Total electric power

型号: Type

制冷量: Cooling Capacity

机外余压: Excess Pressure

制冷系统: Cooling system

进口全封闭: Inlet whole-sealed

制冷剂: Cooling fluid

型式: Type

型式: Type

功率KW: Electric Power KW 型式: Type

送风机: Blower

功率KW: Electrical Power KW

宽mm: Width(mm)

重量: Weight

制热量: Heating Capacity

电源: Power source

压缩机: Compressor

功率KW: Electric Power KW

充量Kg: Refrigerant charge Kg

铜管套冲缝铝翅片: Copper tube punched slotted Al fin

铜管套冲缝铝翅片: Copper tube punched slotted Al fin

低噪音轴流风机: Low noise axial flow fan

类型: Type

外型尺寸: Shape&Size

高mm: Height(mm)

明: Notes

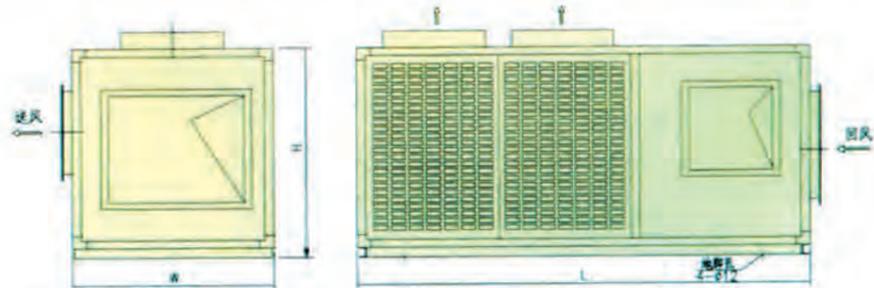
制冷标准工况: 室内干球温度27℃, 湿球温度19℃; 室外干球温度35℃, 湿球温度24℃。The standard working condition(under cooling condition): The temperature of indoor dry ball is 27℃, and that of wet ball 19℃; The temperature of outdoor dry ball is 35℃, and that of wet ball 24℃.

制热标准工况: 室内温度20℃, 室外干球温度7℃, 湿球温度6℃。

The standard working condition(under heating condition): The temperature of indoor is 20℃, The temperature of outdoor dry ball is 7℃, and that of wet ball 6℃.

机组外形图

Machine set Profile



注：出风口位置可根据用户要求设计

Note: The wind outlet can be laid where the user want it to be.

送风: Wind Blowing

回风: Wing Returning

地脚孔: Holes for Foundation bolt

机组安装基础图

The foundation layout of a unit

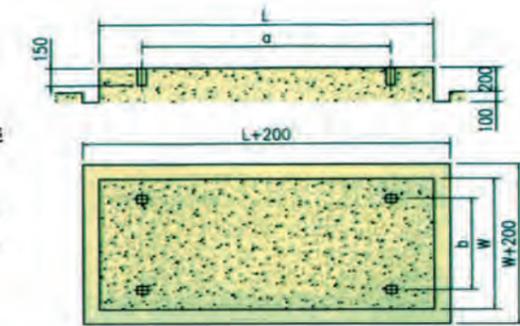
机组型号: Type

尺寸: Size

注: Notes

基础用混凝土结构, 并设有排水沟, 其固定螺栓采用浇注方式; 表面应水平、误差小于0.02%。

The foundation is in type of concrete structure, and equipped with gutter, whose fixed bolt is poured on site; Surface horizontal, error within 0.02%.



机组型号	尺寸	L	W	a	b
WK(R)-10/13		1790	1000	1120	770
WK(R)-15		2100	1050	1430	820
WK(R)-21		2650	1100	1680	870
WK(R)-30		2750	1300	1780	1070
WK(R)-45		2950	1350	1880	1170
WK(R)-60		3250	1500	2080	1270

机组风口尺寸

Diffuser size

机组型号	进风口 (mm)	出风口 (mm)
WK(R)10/13	380 x 280	330 x 220
WK(R)15	450 x 350	400 x 300
WK(R)21	530 x 400	450 x 320
WK(R)30	600 x 500	500 x 400
WK(R)45	620 x 520	550 x 450
WK(R)60	700 x 600	600 x 500

机组型号: Type of machine set

进风口 (mm): Wind inlet (mm)

出风口 (mm): Wind outlet (mm)

机组安装示意图

Sketch map of set installation

机组型号: Type

空调机组: Air Conditioning set

初效过滤: Pre-filter

新风阀: New wind valve

回风道: Return airway

水封: Water seal

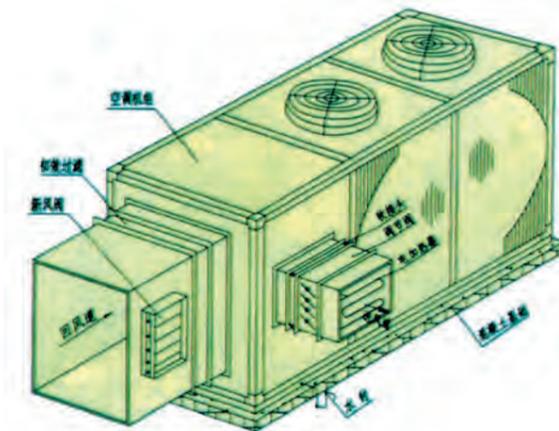
送风道: Delivery conduit

混凝土基础: Concrete foundation

电加热量: Electrical heating capacity

调节阀: Regulating valve

软接头: Soft connection



机组安装注意事项

Notes for setting

- 1、机组可安装在屋顶或地面等通风良好，排气顺畅，空气洁净的场所。
The machine set can be installed at any place with good ventilation and clean air, like roof and ground.
- 2、机组基础可采用混凝土或刚性框架，且在安装之前必须核实建筑物的承重能力。
The foundation for a machine set can either be concrete or rigid, and the bearing capacity of building shall be tested before installation.
- 3、设备基础应平整，并高于地面200mm以上，且四周设有排水沟。
The levelness of the unit foundation shall be ensured; The foundation shall be 200mm above the ground, surrounded with gutters.
- 4、机组四周离墙距离不应小于2米，以便于良好的换热和调试维修空间。
The distance between machine set and the wall shall not be less than 2m for better heat exchange and better adjustment of maintenance space.
- 5、为避免阳光直射或防雨防雪，可在机组顶部设置遮棚，以利于维护保养作业。
In order to avoid direct sunshine, or to resist rain or snow, a shed can be laid at the top of the set for easy maintenance.
- 6、机组连接风道及其他附件的重量不可用封口法兰承载。
The weight of machine set, its combined wind shaft and other connected accessories shall not be sealed off with flange.
- 7、机组送风道上必须安装风量调节阀，以便调节送风量，风道与法兰之间使用软连接。
The delivery conduit shall be equipped with wind regulating valve to regulate the wind blowing amount. The connection between the delivery conduit and the flange is flexible connection.
- 8、机组需配置专用电源，请勿同其他电器设备混用一套供电系统。
The machine set has its own power source, please do not share its own electric supply system with that of the other electrical equipments.
- 9、机组凝结水管须接水封装置，结构见标牌（用户自备）。
The condensate pipe of a machine set shall be connected to water closing equipments, to get its structure, please read the labels (User prepared).

电气控制

Electrical Controlling

- 电源要求：机组电源为三相四线（380V-50HZ），电压值应在额定电压的±10%范围内，各相之间的电压不平衡应在±2%范围内。
Requirements for power source: The electrical source for a unit is 3-phase 4-wire(380V-50HZ), the voltage value shall be within ±10% of the rated voltage, The imbalance of the voltage value between different phases shall be with ±2% of the total value.
- 供电线路的敷设与导线的选择应由专业人员选定，室外的导线为避免日晒雨淋应实施防护。
The layout of electric supply circuit and the selection of conducting wire shall be confirmed by professional persons, and the outdoor conducting wire shall be protected from sunny, rainy and other weather conditions.

电气参数及配线要求

Electrical parameters & wiring requirements

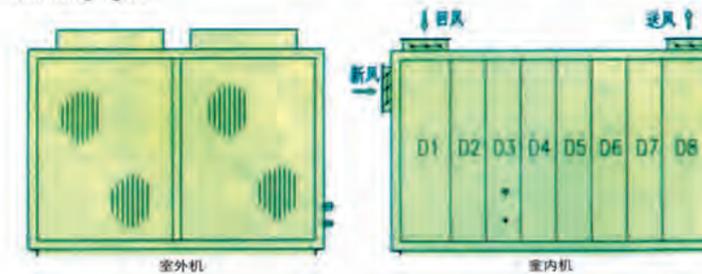
机组型号	WK(R)10	WK(R)13	WK(R)15	WK(R)21	WK(R)30	WK(R)45	WK(R)60
额定电流 A	6.61	8.4	10.5	14.1	20.4	3.3	45.6
电 源 线	聚氯乙烯护套电缆						
	名称	规格	芯数×截面	规格	芯数×截面	规格	芯数×截面
	3×2.5+	3×2.5+	3×4+	3×4+	3×6+	3×10+	3×16+
	1×2.5	1×2.5	1×2.5	1×2.5	1×4	1×6	1×6

- 机组型号: Type of machine set
额定电流A: Rated electric current A
电源线: Power line
名称: Name
聚氯乙烯护套电缆: Cable with PVC protective jacket
规格: Size
芯数X截面: Core X section

屋顶式恒温恒湿机组

Rooftop machine set(invariable temperature & humidity)

标准型号的屋顶式空调机组仅能对空气进行冷热处理，但机组还可以根据用户要求配置不同功能的段体，可实现组合式空调机组的所具有的功能，及空气净化、补充新风、温度调节等，组合后的机组又称屋顶式恒温恒湿机，常见的组合形式如图所示：
Rooftop air conditioning unit in standard type can only heat or cool the air, while a machine unit can be equipped with parts of different functions as the user requires. It can realize the functions which the combined air conditioning has, and also air cleaning, new wind replenishing, temperature adjusting etc. The combined machine set is also called Rooftop machine set(invariable temperature & humidity), the general combining form is in the following figure:



- 外机: External machine
回风: Wind returning
送风: Wind blowing
D2-初效过滤段: Pre-filter stage
D4-加热: Heating
D6-送风机段: Wind blower stage
D8-送风段: Wind blowing stage

- 室内机: Internal machine
新风: New wind replenishing
D1-混合段: Mixing stage
D3-表冷段: Surface cooling stage
D5-加湿段: Humidifying stage
D7-中效过滤段: Mid-filter stage

屋顶式恒温湿机主要性能参数表

Main Parameters for machine set(invariable temperature & humidity)

性能		型号	WKHD30	WKHD45	WKHD60	WKHD95	WKHD130	
空调机性能	制冷量	KW	31	48	68	96	136	
	风量	m ³ /h	6500	9000	12000	19000	25000	
	机组噪音	dB(A)	≤68	≤70	≤72	≤81	≤84	
	机外余压	Pa	400	400	400	400	500	
	温度控制范围及精度	16℃~30℃±2℃						
	湿度控制范围及精度	50~70%±5%						
	电 源	380V 50HZ 三相四线制						
	输入电功率	制冷/制热 KW	11.4/36.7	17.9/57.2	26.6/80	36.9/115.5	54.7/150.5	
	室外机	压缩机	型式	全封闭涡旋式/活塞式				
			功率 KW	9.17	14.2	21.4	28.4	42.8
制冷剂		工质类型	R22					
		节流方式	热力膨胀阀					
冷凝风机		型式	铜管套铝翅片					
		功率	0.74	1.5	2.2	3.0	4.4	
		制冷剂配管	液管	Ø 16 × 1	Ø 19 × 1	Ø 22 × 1	Ø 19 × 1-2	Ø 22 × 1-2
		汽管	Ø 28 × 1	Ø 35 × 1.5	Ø 41 × 2	Ø 35 × 1.5-2	Ø 41 × 2-2	
重量		kg	500	600	650	900	1100	
外形尺寸		L × W × H	1825 × 1150 × 1020	1750 × 1200 × 1220	2100 × 1350 × 1350	3000 × 2500 × 1500	2320 × 2000 × 1920	
室内机	蒸发器	型式	铜管套铝翅片					
		类型	低噪音离心式双进风风机					
	送风机	功率 KW	1.5	2.2	3.0	5.5	7.5	
		型式	干蒸汽					
	加湿器	功率 W	60	60	60	60	60	
		加湿量 kg/h	13	17	28	35	55	
	电加热器	加热量 kW	32	50	70	100	130	
过滤器	初中效	无纺布						
外形尺寸	L × W × H	5350 × 1200 × 1140	5450 × 1200 × 1460	6594 × 1884 × 1361	5870 × 2000 × 1500	7000 × 2000 × 1800		

性能: Property

空调机性能: Properties for air conditioning

风量: Air Quantity

机外余压: Excess Pressure

温度控制范围及精度: The scope & accuracy of temperature control

湿度控制范围及精度: The scope & accuracy of temperature control

电源: Power source

输入电功率: Input electric power

室外机: External machine

制冷剂: Cooling fluid

冷凝风机: Condenser blower

型号: Type

制冷量: Cooling Capacity

机组噪音: Noise

380V 500Hz 三相四线制: 380V 500Hz 3-phase 4-wire

制冷/制热KW: Cooling/Heating KW

压缩机: Compressor

冷凝器: Condenser

制冷剂配管: Matched tube of cooling fluid

重量: Weight

室内机: Internal machine

送风机: Blower

电加热器: Electric Heater

外形尺寸: Shape&Size

功率KW: Electric Power KW

节流方式: Current-saving mode

汽管: Steam pipe

加热量 kW: Heating capacity kW

全封闭涡旋式/活塞式: Total closed spiral type/piston type

热力膨胀阀: Heating power expansion valve

铜管套铝翅片: Copper tube Aluminium fin

低噪音轴流风机: Low noise axial flow fan

低噪音离心式双进风风机: Low noise centrifugal 2-inlet wind blower

无纺布: Non-woven fabric

外型尺寸: Shape&Size

蒸发器: Evaporator

加湿器: Humidifier

过滤器: Filter

型式: Type

工质类型: Type of working Medium

液管: Liquid pipe

加湿量 kg/h: Humidifying capacity kg/h

初中效: Pre- & Mid-effect

1、制冷标准工况: 室内干球温度27℃, 湿球温度19℃; 室外干球温度35℃, 湿球温度24℃。

The standard working condition(under cooling condition): The temperature of indoor dry ball is 27℃, and that of wet ball 19℃; The temperature of outdoor dry ball is 35℃, and that of wet ball 24℃.

2、加热器可做成蒸汽或热水加热形式; 电加热器的加热量可根据用户要求制作。

The heater can be made either steam heating type or water heating type; The heating capacity of an electric heater can be made as what the user requires.

3、室外机与室内机管路长度应控制在20m内, 高度差应在10m内。

The piping length external machine & internal machine shall be controlled within 20m, and the height difference be controlled within 10m.

订货须知

Notifications before an order

用户在订购本系列机组时, 需详细注明产品的规格型号、是否需要调节阀、电加热及其他功能段等; 另外公司可根据用户特殊要求制作非标产品, 如大容量机组、水冷式恒温恒湿机组等。

The users are suggested to note the SPECs of the series, whether function stages like regulating valve, electric heating etc. is needed when they place an order. We can also produce non-standard products in accordance with the requirements of the users, like great capacity machine set, water cooled machine set with invariable temperature & humidity.

本公司的产品在保修期内, 确因质量问题发生的故障, 都将予以免费维修; 如设备已出保质期或在保修期内由用户原因而造成的故障, 须酌情收取维修费。

The product of our company, which is broken down due to quality problems and is under guarantee, will be repaired for free; Maintain fee will be paid by users when the machine is out of guarantee or the damage is due to the improper use of users.