olyvent
air solutions

AIR-COOLED SCREW-TYPE CHILLED(HOT) WATER UNITS

风冷螺杆式冷（热）水机组

OLYVENT(OULAIBEITAI)EQUIPMENT CO.,LTD

AIR-COOLED SCREW-TYPE CHILLED(HOT)WATER UNITS

风冷螺杆式冷（热）水机组

PRODUCT OVERVIEW

产品概述

The design and manufacturing process of the air-cooled screw chiller (heat pump) unit strictly complies with national and relevant industry standards. The unit adopts the world's advanced high-quality, high-efficiency semi-hermetic twin-screw compressor, high-quality condenser fans, and a reliable microcomputer control system. Through optimized design, rational configuration, and meticulous assembly, the unit achieves a high degree of operational reliability.

This series of units uses air as the cooling (or heating) source and water as the refrigerant (coolant) carrier, making it a central air-conditioning system that integrates both cooling and heating functions.

The series features a rational structure, easy operation, reliable performance, high energy efficiency, low noise, and convenient installation and maintenance. It can serve as the cooling and heating source for comfort air-conditioning systems in various buildings and facilities such as shopping malls, residences, office buildings, commercial complexes, factory workshops, hotels, and hospitals, as well as for process air-conditioning systems in industries including electronics, pharmaceuticals, biology, chemicals, power systems, and machinery.

风冷螺杆式冷（热）水机组的设计制造过程严格按照国家及相关行业标准。机组采用当前世界先进的高品质、高效率的半封闭双螺杆压缩机、优质冷凝风扇和可靠的微电脑控制系统。通过优化设计、合理的配置以及精心的装配，使机组具有高度的运转可靠性。

该系列机组是以空气作为冷（热）源，以水作为载冷剂，是集制冷与供暖为一体的中央空调设备。

该系列机组以其结构合理、操作简便、运行可靠、高能效、低噪音以及安装维护方便等特点。可作为商场、住宅、写字楼、商业大楼、工厂车间、宾馆、医院等各类建筑设施的舒适性空调系统的冷热源以及电子、制药、生物、化工、电力系统和机械等行业的工艺性空调系统。

PRODUCT FEATURES

产品特点

All series of units are equipped with single-cooling type and heat pump type, which is convenient for users to choose.

Wide range of cooling capacity from 170kW to 1120kW for R22 refrigerant, 96kW to 546kW for R134a, and multiple combinations.

Easy to install

All the units are assembled in the factory and shipped after strict operation and debugging, and the on-site installation only requires the connection of the power supply and water system pipeline, and then it can be operated and run.

space-saving

This series of units can be directly installed on the roof, podium, courtyard or horizontal ground of the building, without the need to set up another machine room.

No-fit cooling towers

This unit adopts air circulation heat dissipation method, simple water system, convenient management and maintenance, especially suitable for places where cooling tower cannot be installed or water shortage.

Cost savings

Save on cooling tower, cooling system plumbing system material cost, installation cost, operation cost and maintenance cost, etc.

Easy operation

The unit adopts microcomputer control, which can be operated directly through the panel or remotely started. The interface of computer controller is simple, full Chinese display, easy to operate. The panel can display the operating status of the unit, operating data and fault alarm status. At a glance, easy to manage.

High energy efficiency and low noise

The unit adopts high-efficiency semi-closed double-screw compressor, brand-name condensing fan and high-quality refrigeration accessories, and after careful optimisation of design and assembly as well as rigorous testing, the unit is characterised by low operating noise, low vibration and high reliability. It improves the ability of the unit to work in harsh environments. The automatic temperature

control system of the unit makes the unit load adjustment automatically when the temperature of chilled water (hot water) is close to or reaches the set value, saving electric energy.

Attractive appearance, strong corrosion resistance

The shell of the unit is made of galvanised steel and treated with powder electrostatic plastic spraying, which is durable.

全系列机组均配置单冷型和热泵型，方便用户选择。

制冷范围宽广

R22 冷媒系列冷量范围自 170kW 至 1120kW。R134a 系列冷量范围自 96kW 至 546kW，并可多台组合。

易于安装

机组全部在工厂内完成组装并经严格运行调试后出厂，现场安装只需将供电电源及水系统管路连接，即可操作运转。

节省空间

本系列机组可直接安装于建筑物屋顶、裙楼、庭院或水平地面上，无需另设机房。

免装冷却塔

本机组采用空气循环散热方式，水系统简单，管理维护方便，特别适用于无法安装冷却塔或缺水的场所。

节省费用

节省冷却塔、冷却系统水管系统材料费、安装费、运行费及维护费等。

操作简便

机组采用微电脑控制，可直接通过面板操作也可远程遥控起动。电脑控制器界面简洁，全中文显示，易于操作。面板可显示机组的运行状态、运行数据以及故障报警状态。一目了然，便于管理。

高能效、低噪音

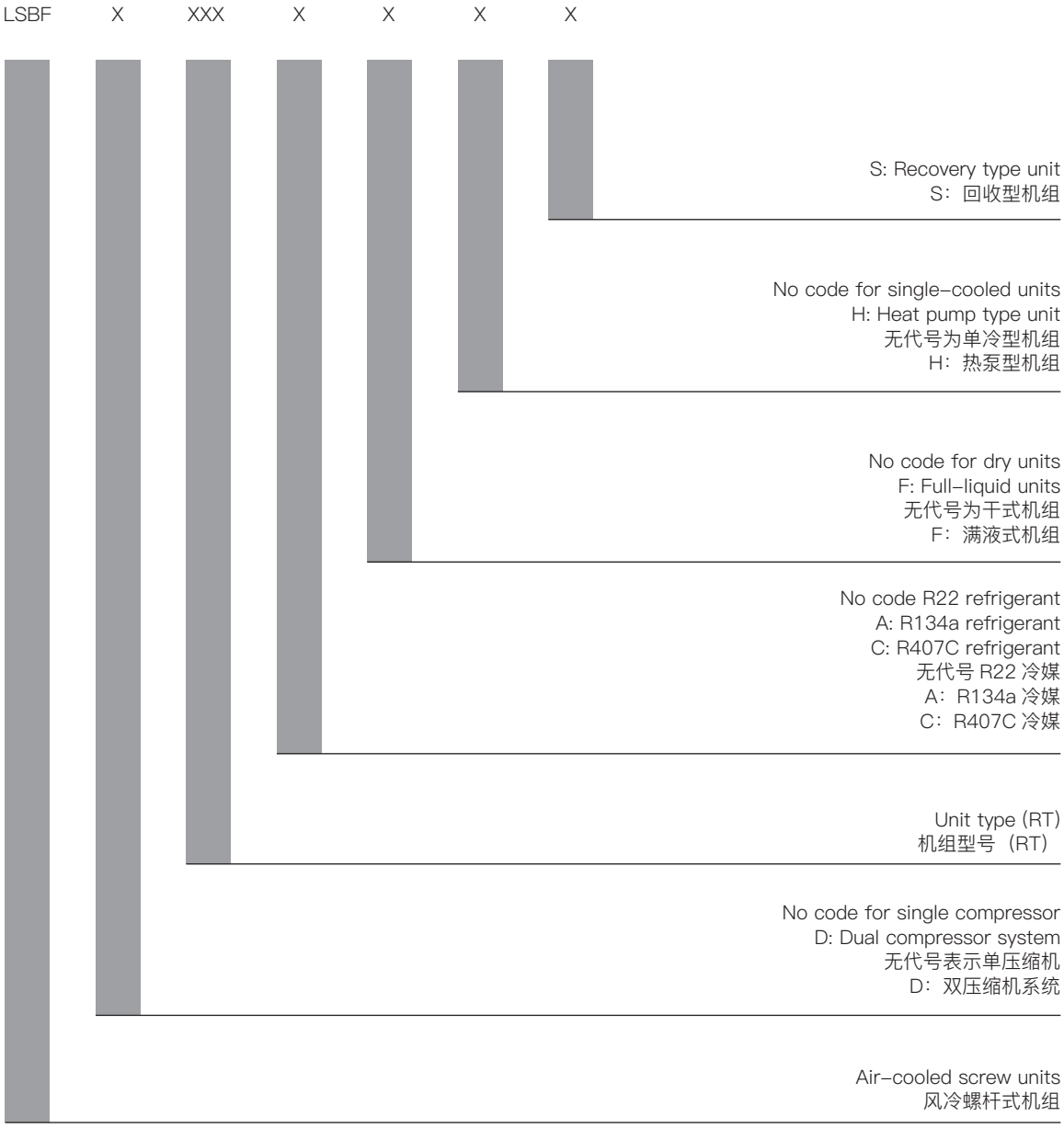
机组采用高效半封闭双螺杆式压缩机、名牌冷凝风机和优质制冷配件，经过精心的优化设计和组装以及严密的测试，使机组具有运转噪音低、震动小、可靠性高的特点。提高了机组在恶劣环境下工作的能力。机组的自动温控系统，使冷冻水（热水）温度接近或达到设定值时，会自动进行机组负荷调节，节省电能。

外形美观，抗腐蚀性强

机组外壳采用镀锌钢板制作并采用粉末静电塑料喷涂处理，经久耐用。

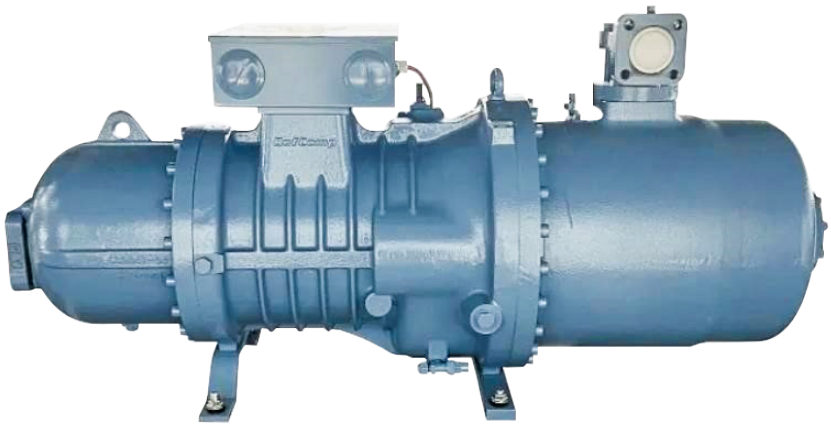
DESCRIPTION OF UNIT TYPE

机组型号说明



PRODUCT MAIN COMPONENTS

产品主要部件



COMPRESSOR
压缩机

Compressor

The compressor adopts positive displacement double helix design, using R–22 or R–134a refrigerant, the compressor consists of two intermeshing helical rotor, driven by the yang rotor, the yin rotor, double torsion positive displacement constitutes a pure rotary action, so that the vibration is extremely small, the operation range is wide, from suction, compression to the discharge of the process of high efficiency, smooth airflow characteristics. Compressor lubrication and airtight using differential pressure oil supply method, without the need of Compressor lubrication and airtightness is by differential pressure oil supply, no lubricant pump is needed.

The compressor is equipped with a built–in high–efficiency oil separator, which is integrated into the compressor to minimise the compressor's profile and simplify the refrigerant circulation process. Under special operating conditions, an external oil separator is available.

The solenoid valve and the slide valve driven by the hydraulic system constitute a floating capacity adjustment system, which can conveniently achieve part–load operation, and the compressor can be adjusted in segments from 25% to 100%. Fuzzy control theory can also be used to control the way to achieve stepless energy regulation, to achieve full matching with the building load.

Compared to piston compressors, semi–hermetic screw compressors offer the following advantages:

- Fewer running parts (about 1/3–1/4 of the piston compressor), simple structure, fewer wearing parts, high reliability and long life.
- Uniform and continuous suction and exhaust, no pulsation phenomenon, low exhaust temperature, small running vibration, insensitive to wet compression, strong resistance to liquid strike.

压缩机

压缩机采用正位移双螺旋设计，使用 R-22 或 R-134a 冷媒，压缩机由两个相互啮合的螺旋转子组成，由阳转子带动阴转子，双扭力正位移构成纯转动动作，使震动极小，操作范围宽广，从吸气、压缩至排气的过程具有高效率、气流平顺的特点，压缩机润滑及气密采用压差供油方式，不需润滑油泵。

压缩机内置高效油分离器，油分离器与压缩机合二为一，使压缩机具有最小外形，简化冷媒循环流程。在特殊运转条件下可外加油分装置。

由电磁阀和液压系统带动的滑阀构成浮动式容量调整系统，可方便实现部分负载操作，压缩机可实现 25%-100% 的分段调节。也可以采用模糊控制理论控制方式，实现无级能量调节，做到与建筑物负荷充分匹配。

与活塞式压缩机相比，半封闭式螺杆压缩机具有以下优点：

- 运转部件少（约为活塞式压缩机的1/3-1/4），结构简单，易损件少，可靠性高，寿命长。
- 吸排气均匀连续，无脉动现象，排气温度低，运转震动小，对湿压缩不敏感，抗液击能力强。

FINNED CONDENSER

翅片式冷凝器

Finned condenser

The finned air-cooled condenser adopts seamless purple copper tubes and special aluminium fins with secondary stamping and flanging technology and double corrugated sheet type, and the copper tubes and fins are tightly bonded by the mechanical upturning of the tubes to achieve the best heat exchanging effect.

The condenser adopts inverted M-type layout to improve the airflow organisation and make full use of the area of the air-cooled condenser, which makes the efficiency greatly improved.

翅片式冷凝器

翅片式风冷冷凝器采用无缝紫铜管和采用二次冲压翻边技术及双波纹状片型的特制铝翅片，经机械涨管使铜管和翅片紧密结合，达到最佳换热效果。

冷凝器采用倒置 M 型布局，改善气流组织，充分利用风冷冷凝器的面积，使得效率大大提高。

Shell and tube evaporator

- Shell: high-quality steel plate for pressure vessels, the production and testing are in line with the provisions of JB/T4750-2003 "Pressure Vessels for Refrigeration Units".
- The outer surface is made of flame retardant and waterproof type heat insulation and heat preservation material.
- Evaporator folding plate is made of PVC engineering plastics, with strong corrosion resistance and tight closure, which makes the chilled water flow up and down along the partition plate and increases the disturbing effect to improve the heat exchange capacity of the evaporator.
- Refrigerant inlet ad hoc equalisation device, so that the refrigerant in each heat transfer copper tube distribution is uniform, improve the heat transfer efficiency of the whole unit.
- Copper tube: High-efficiency DAC corrugated internal threaded heat transfer copper tube, which greatly strengthens the heat transfer capacity on the refrigerant side and improves the heat transfer coefficient, so as to ensure the unit's good refrigeration and heating effect.

壳管式蒸发器

- 壳体：压力容器专用优质钢板，制作与试验均符合JB/T4750-2003《制冷装置用压力容器》的规定。
- 外表面：采用阻燃防水型隔热保温材料。
- 蒸发器折流板：采用PVC工程塑料，耐腐蚀能力强，封闭严密，使冷冻水沿隔板上下迂回流动，增加扰流效果提高蒸发器换热能力。
- 冷媒入口：特设均流装置，使冷媒在各个换热铜管内分布均匀，提高整台机组的换热效率。
- 铜管：高效DAC波纹状内螺纹换热铜管，极大的强化冷媒侧换热能力，提高传热系数，以确保机组良好的制冷、制热效果。

Four-way directional valves

The imported four-way directional valve ensures reliable direction change and low system resistance loss.

Expansion valve

Electronic expansion valve control system, up to 2600 steps of control accuracy, according to the degree of suction superheat and saturation pressure with the electronic control system, precise control of refrigerant flow, so that the

unit will always remain in the best operating state, to give full play to the unit's maximum capacity.

Distribution control box

Contains compressor starter, power protector and microcomputer controller. Adopt famous brand wide temperature type electrical components.

The microcomputer controller can operate stably and reliably under the ambient temperature from –15 ℃ to 65 ℃ , with perfect automatic control function, equipped with RS–232 and RS–485 standard communication interfaces, which can realise remote control.

Microcomputer control features

- Cold water temperature setting and display.
- Automatic energy control and start/stop function.
- Touch screen operation method.
- Displays the electric flow rate (option) and its set value, operating status, alarm condition, and compressor running hours.
- Accepts remote start and stop signals.
- Power failure occurs when there is a fault in the external line, and the unit can automatically resume operation when the power supply is restored.
- Protected by a password setting.

Safety Equipment

High and low voltage switch

A device that protects the compressor from damage caused by excessive high pressure or low pressure.

Anti–freeze temperature control

A device that protects the system from cold water freezing due to water system failure, causing damage to the evaporator.

Oil heater

Each compressor has an oil heater, which heats the oil when the compressor stops and protects the system from dilution due to the mixing of refrigerant and oil at the next start–up.

Liquid–viewing mirror

The liquid tube is fitted with a humidity–indicating sight glass with a readable humidity indicator, which allows the sight glass to observe whether the refrigerant volume is sufficient and whether the water content in the refrigerant exceeds the standard when the system is in operation.

High pressure spit check valve

Valve to prevent high pressure refrigerant flow back to the compressor during shutdown.

Interchangeable cartridge filter drier

Filtering impurities in the system and absorbing moisture from the refrigerant system, filter driers are characterised by a large effective flow area and very low pressure drop.

High temperature expansion valve

Expansion valves for liquid injection are used in compressors for controlling the exhaust gas temperature under high compression ratios or high superheat conditions, and are equipped with thermal expansion valves for cooling.

Pressure gauge

Indicates the high and low pressures during operation or shutdown of the unit to help the operator understand the use of the unit.

Emergency stop switch

In case of emergency, emergency stop by manual means.

Overload protector

When the motor load current exceeds the rated value, it stops the motor from continuing to run and protects the motor from burning out.

Power protectors

Protective device to prevent the compressor from operating in reverse phase or under phase due to over or under voltage.

Refrigerant injection unit

This is a device that cools the compressor by spraying liquid into the compressor to prevent the compressor discharge temperature from getting too high.

四通换向阀

进口的四通换向阀确保换向可靠，系统阻力损失小。

膨胀阀

电子膨胀阀控制系统，最多可达 2600 步的控制精度，根据吸气过热度及饱和压力配合电子控制系统，精确控制冷媒流量，使机组永远保持在最佳的运行状态，发挥机组最大能力。

提取内容涵盖了四通换向阀的可靠性优势及电子膨胀阀的高精度控制特性（2600 步调节、过热 / 压力联动控制）。

配电控制箱

含压缩机起动装置、电源保护器和微电脑控制器。

采用知名品牌宽温型电器元件。

微电脑控制器在 –15℃至 65℃环境温度下可稳定可靠运行，具有完善的自动控制功能，配备 RS–232、RS–485 标准通讯接口，可实现远程控制。

微电脑控制特性

- 冷水温度设定及显示。
- 自动能量控制及启停机功能。
- 触摸式屏幕操作方式。
- 显示电流量（选配件）和其设定值、运行状态、报警状况、压缩机运转时数。
- 可接受远程启动、停机讯号。
- 外线故障发生停电，供电恢复后机组可以自动恢复运转。
- 设有密码设定保护功能。

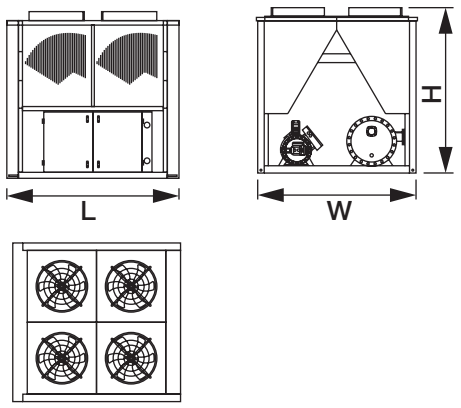
安全设备

- **高低压开关：**保护压缩机免于高压过高或低压过低而引起损坏的装置。
- **防冻温度控制：**保护系统免于因水系统故障造成冷水冻结，引起蒸发器损坏的装置。
- **机油加热器：**每个压缩机都有一机油加热器，当压缩机停止时，机油加热器对油进行加热，下次启动时保护系统免于因冷媒与油混合而稀释的装置。
- **视液镜：**在液管上装设一带湿度指示的视液镜，视液镜内有一可判读的湿度指示器，可由视液镜观察系统运转时冷媒量是否足够和冷媒中的含水量是否超标。
- **高压吐出逆止阀：**防止停机时高压冷媒流回压缩机的阀。
- **可换滤芯式干燥过滤器：**过滤系统中所含杂质，并吸收冷媒系统中水分，干燥过滤器均具有极大有效流通面积与极低压降的特性。
- **高温膨胀阀：**液喷射用膨胀阀，运用于在压缩机，使用于高压缩比或高过热度等工况下，为控制排气温度所搭配的冷却用热力膨胀阀。
- **压力表：**指示机组运转或停机中的高压、低压压力，用以帮助操作人员了解机组的使用状况。
- **急停开关：**在紧急情况下，以手动方式紧急停机。
- **过载保护器：**电动机负载电流超过额定值时，停止电动机继续运转，保护电动机免于烧毁。
- **电源保护器：**防止压缩机因电压过高或过低，逆相与欠相运转的保护装置。
- **冷媒喷射装置：**防止压缩机排气温度过高，向压缩机进行喷液冷却的装置。

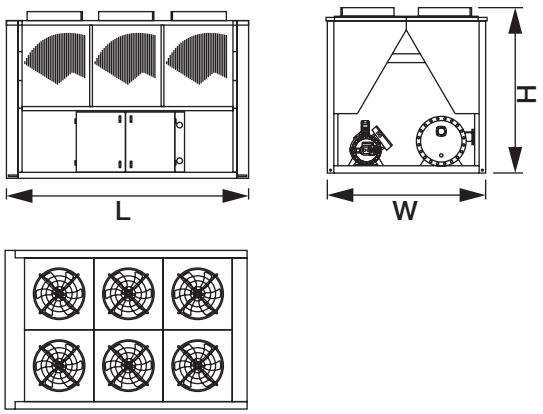
OUTLINE DRAWING OF THE UNIT

机组外形图

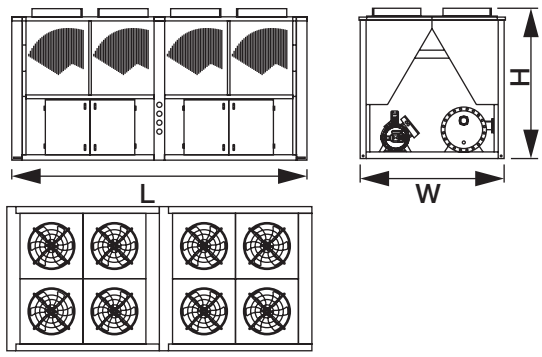
R22 refrigerant unit external dimensions
R22冷媒机组外形尺寸图



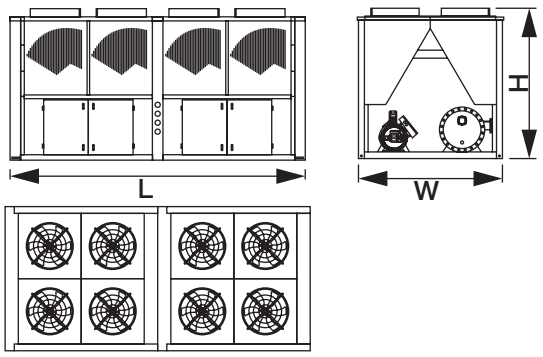
LSA050(H)



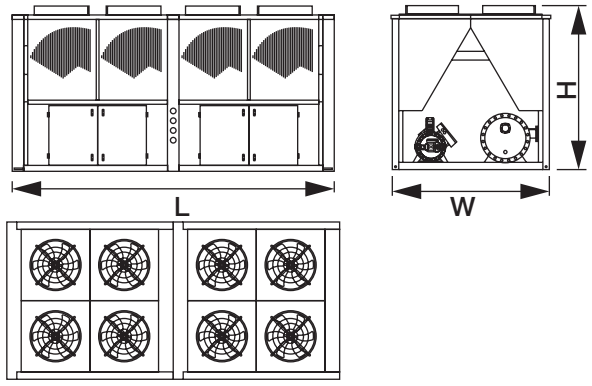
LSA060(H)
LSA080(H)



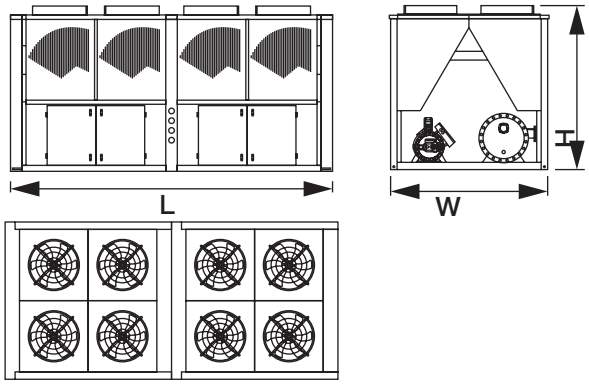
LSA100(H)



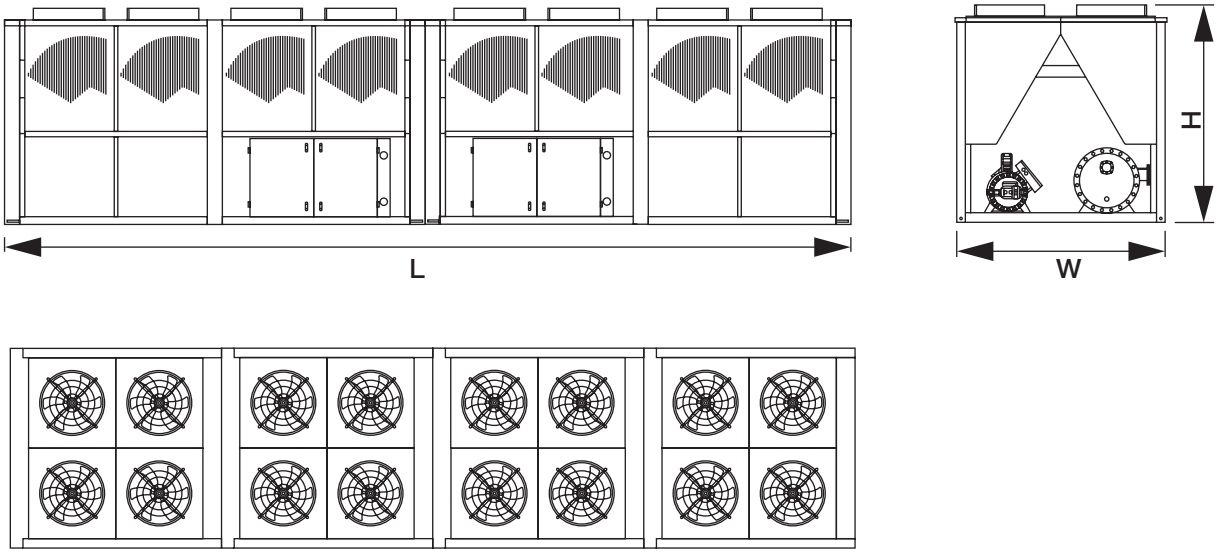
LSA120(H)



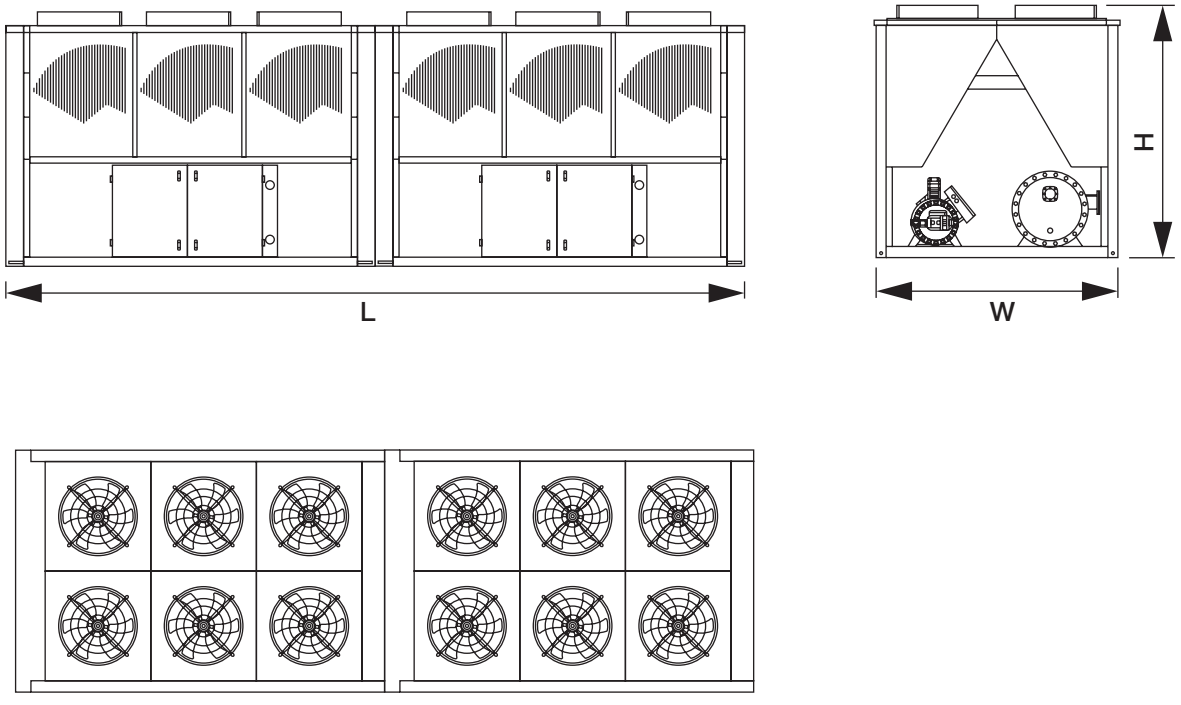
LSA140(H)



LSA160(H)

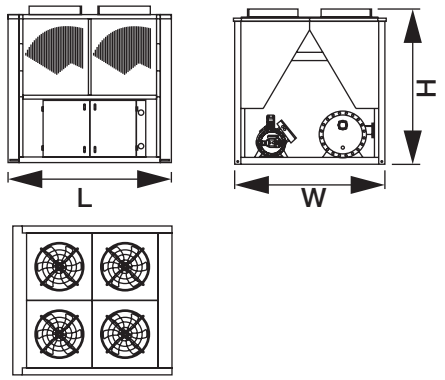


LSA200(H)、LSA240(H)、LSAD200(H)、LSAD240(H)、LSAD280(H)、LSAD320(H)

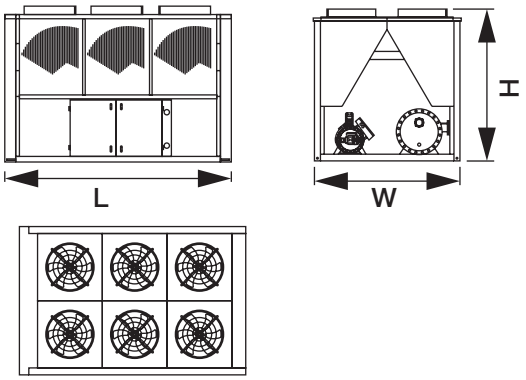


LSA160(H)

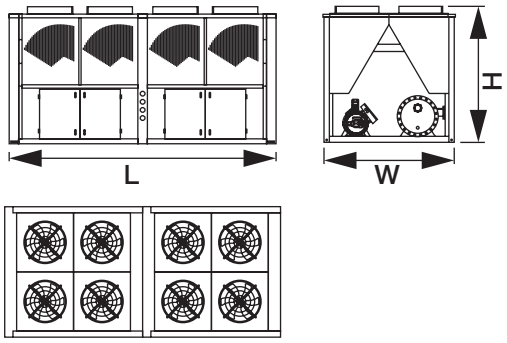
R134a Refrigerant Unit Dimensions
R134a 冷媒机组外形尺寸图



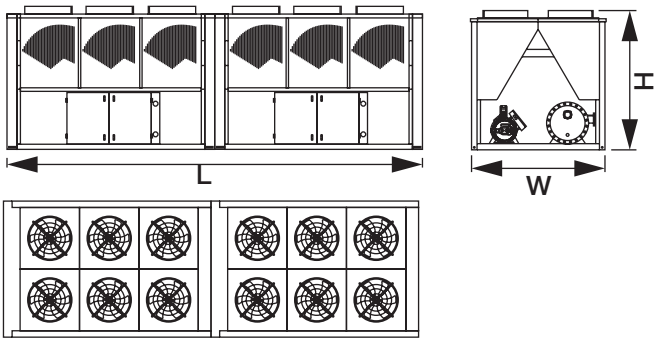
LSA025—040(H)



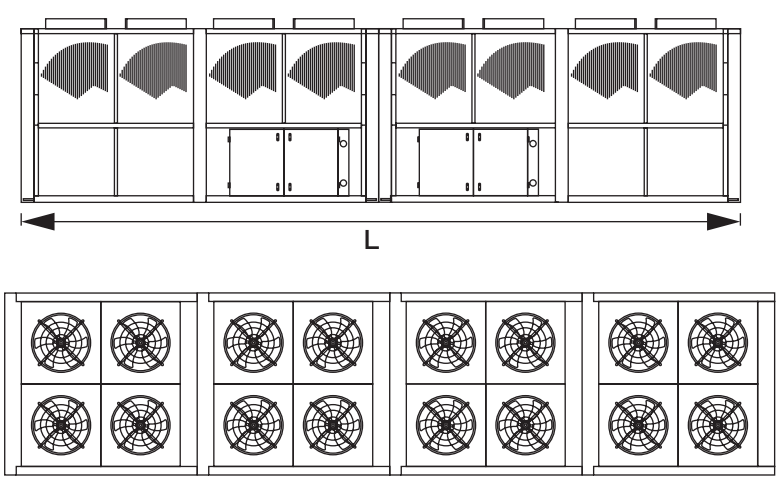
LSA050—060A(H)、LSAD050—060A(H)



LSA070A(H)
LSAD070—080A(H)
LSAD090A(H)



LSAD100—120A(H)



LSAD140A(H)

AIR-COOLED SCREW-TYPE CHILLED (HOT) WATER UNIT PARAMETER TABLE

风冷螺杆式冷（热）水机组参数表

Air-cooled screw-type chilled (hot) water unit technical parameters table (I) R22
风冷螺杆式冷（热）水机组技术参数表（一）R22

机组型 Unit Model			LSBF050	LSBF060	LSBF080	LSBF100	LSBF120
			LSBF050H	LSBF080H	LSBF080H	LSBF100H	LSBF120H
名义制冷量 Nominal cooling capacity		kW	170	210	280	350	420
制冷工况输入功率 Refrigeration working condition input power		kW	53.13	65.63	87.5	109.38	131.25
名义制热量 Nominal heating capacity		kW	187	231	308	385	462
制热工况输入功率 Input power for heating condition		kW	55	67.94	90.59	113.24	135.88
压缩机型式 Compressor type			半封闭螺杆式 Semi-closed screw type				
压缩机数量 Number of compressors			1	1	1	1	1
电源电压 Power supply voltage			3-380V-50Hz				
启动方式 Starting method			Y—Δ				
能量控制 Energy control			25% ～ 100%				
制冷剂 Refrigerant			R22				
控制装置 Control device			热力 / 电子膨胀阀 Thermal/Electronic Expansion Valves				
制冷剂充注量 Refrigerant charge		kg	45	56	75	110	132
蒸发器 evaporator	型式 Type		壳管式 shell and tube type				
	水阻力 Water resistance	K pa	70-90				
	污垢系数 Fouling coefficient	$m^2℃$ /KW	0.086				
	水管直径 Water pipe diameter	DN	80	100	100	100	125
	冷冻水流量 Flow rate of chilled water	m^3/h	29.2	36.1	48.2	60.2	72.2
	热水流量 Hot water flow rate	m^3/h	32.2	39.7	53	66.2	79.5
冷凝器型式 Condenser type			铜管铝翅片式 Copper tube aluminium finned				
冷凝风扇 Condensing-fan	型式 Type		轴流式 Axial flow				
	数量 Number of units	台 unit	4	6	6	8	8
	输入功率 Input power	kW	1.1x4	0.75x6	1.1x6	1.1x8	1.5x8
	风量 Air volume	m^3h	14650x4	13260x6	14650x6	14650x8	16270x8
外形尺寸 Dimension(mm)ww		L	2280	3370	3370	4100	4100
		W	2250	2250	2250	2250	2250
		H	2240	2240	2240	2240	2240
机组重量 Unit weight		kg	1900	2220	2700	3000	3600
运行重量 Operating weight		kg	2200	2500	3200	3600	4200
噪音 Noise		dB(A)	77	78	78	79	79

- Note: Refrigeration standard working conditions: ambient temperature 35 ℃ DB/24 ℃ WB; cold water inlet temperature 12 ℃, water temperature 7 ℃. Heating standard working conditions: ambient temperature 7 ℃ DB/6 ℃ WB; hot water inlet temperature 40 ℃, water temperature 45 ℃. This parameter is subject to change without prior notice.

Air-cooled screw-type chilled (hot) water unit technical parameters table (II) R22
风冷螺杆式冷（热）水机组技术参数表（二）R22

机组型号 Unit Model			LSBF140	LSBF160	LSBF200	LSBF240	LSBF160
			LSBF140H	LSBF160H	LSBF200H	LSBF240H	LSBF160H
名义制冷量 Nominal cooling capacity		kW	490	560	700	840	560
制冷工况输入功率 Refrigeration working condition input power		kW	153.13	175	218.75	262.5	175
名义制热量 Nominal heating capacity		kW	539	616	770	924	616
制热工况输入功率 In put power for heating condition		kW	158.53	181.18	226.47	271.76	181.18
压缩机型式 Compressor type			半封闭螺杆式 Semi-closed screw type				
压缩机数量 Number of compressors			1	1	1	1	2
电源电压 Power supply voltage			3-380V-50Hz				
启动方式 Starting method			Y一Δ或分绕组 Y一Δ or split winding				
能量控制 Energy control			25% ～ 100%				
制冷剂 Refrigerant			R22				
控制装置 Control device			热力 / 电子膨胀阀 Thermal/Electronic Expansion Valves				
制冷剂充注量 Refrigerant charge		kg	131	150	220	264	2×75
蒸发器 evaporator	型式 Type		壳管式 shell and tube type				
	水阻力 Water resistance	K pa	70-90				
	污垢系数 Fouling coefficient	$m^2℃$ /KW	0.086				
	水管直径 Water pipe diameter	DN	150	150	150	150	150
	冷冻水流量 Flow rate of chilled water	m^3h	84.3	96.3	120.4	144.5	96.3
	热水流量 Hot water flow rate	m^3/h	92.7	106	132.4	158.9	106
冷凝器型式 Condenser type			铜管铝翅片式 Copper tube aluminium finned				
冷凝风扇 Condensing-fan	型式 Type		轴流式 Axial flow				
	数量 Number of units	台 unit	8	8	16	16	12
	输入功率 Input power	kW	2.2×8	2.2×8	1.1×6	1.5x16	1.1×12
	风量 Air volume	m^3/h	21000x8	21000x8	14650×16	16270x16	14650x12
外形尺寸 Dimension(mm)		L	4620	4620	8000	8000	6540
		W	2250	2250	2250	2250	2250
		H	2240	2240	2240	2240	2240
机组重量 Unit weight		kg	5200	5400	6000	7200	5400
运行重量 Operating weight		kg	6000	6400	7200	8400	6400
噪音 Noise		dB(A)	80	81	82	83	81

- 注：制冷标准工况：环境温度35℃ DB/24℃ WB；冷水进水温度12℃，出水温度7℃。 制热标准工况：环境温度7℃ DB/6℃ WB；热水进水温度40℃，出水温度45℃。 本参数如有变动，恕不另行通知。

Air-cooled screw-type chilled (hot) water unit technical parameters table (III) R22
风冷螺杆式冷（热）水机组技术参数表（三）R22

机组型号 Unit Model			LSBF200	LSBF240	LSBF280	LSBF320
			LSBF200H	LSBF240H	LSBF280H	LSBF320H
名义制冷量 Nominal cooling capacity		kW	700	840	980	1120
制冷工况输入功率 Refrigeration working condition input power		kW	218.75	262.5	306.25	350
名义制热量 Nominal heating capacity		kW	770	924	1078	1232
制热工况输入功率 Input power for heating condition		kW	226.47	271.76	317.06	362.35
压缩机型式 Compressor type			半封闭螺杆式 Semi-closed screw type			
压缩机数量 Number of compressors			2	2	2	2
电源电压 Power supply voltage			3-380V-50Hz			
启动方式 Starting method			Y —Δ或分绕组 Y —Δ or split winding			
能量控制 Energy control			12.5% ～ 100%			
制冷剂 Refrigerant			R22			
控制装置 Control device			热力 / 电子膨胀阀 Thermal/Electronic Expansion Valves			
制冷剂充注量 Refrigerant charge		kg	2x110	2×132	2×131	2×150
蒸发器 evaporator	型式 Type		壳管式 shell and tube type			
	水阻力 Water resistance	K pa	70-90			
	污垢系数 Fouling coefficient	m^2C/KW	0.086			
	水管直径 Water pipe diameter	DN	150	150	200	200
	冷冻水流量 Flow rate of chilled water	m^3h	120.4	144.5	168.6	192.6
	热水流量 Hot water flow rate	m^3h	132.4	158.9	185.4	211.9
冷凝器型式 Condenser type			铜管铝翅片式 Copper tube aluminium finned			
冷凝风扇 Condensing -fan	型式 Type		轴流式 Axial flow			
	数量 Number of units	台 unit	16	16	16	16
	输入功率 Input power	kW	1.1x16	1.5x16	2.2x16	2.2x16
	风量 Air volume	m^3h	14650x16	16270x16	21000x16	21000x16
外形尺寸 Dimension(mm)		L	8000	8000	9000	9000
		W	2250	2250	2250	2250
		H	2240	2240	2240	2240
机组重量 Unit weight		kg	6000	7200	104000	108000
运行重量 Operating weight		kg	7200	8400	12000	12800
噪音 Noise		dB(A)	82	83	84	85

Air-cooled screw-type chilled (hot) water unit technical parameters table (I) R134a
风冷螺杆式冷（热）水机组技术参数表（一）R134a

机组型号 Unit Model			LSBF025A	LSBF030A	LSBF040A	LSBF050A	LSBF060A
			LSBF025AH	LSBF030AH	LSBF040AH	LSBF050AH	LSBF060AH
名义制冷量 Nominal cooling capacity		kW	96	111	145	185	237
制冷工况输入功率 Refrigeration working condition input power		kW	30.2	33.7	44.9	54.5	70.6
名义制热量 Nominal heating capacity		kW	111.4	127.2	167.5	210.5	270.2
制热工况输入功率 In put power for heating condition		kW	29.1	32.5	43.3	52.6	68
压缩机型式 Compressor type			半封闭螺杆式 Semi-closed screw type				
压缩机数量 Number of compressors			1	1	1	1	1
电源电压 Power supply voltage			3-380V-50Hz				
启动方式 Stating method			Y—Δ				
能量控制 Energy control			25% ～ 100%				
制冷剂 Refrigerant			R134a				
控制装置 Control device			热力 / 电子膨胀阀 Thermal/Electronic Expansion Valves				
制冷剂充注量 Refrigerant charge		kg	37	43	56	72	92
蒸发器 evaporator	型式 Type		壳管式 shell and tube type				
	水阻力 Water resistance	K pa	70-90				
	污垢系数 Fouling coefficient	$m^2℃/W$	0.086				
	水管直径 Water pipe diameter	DN	50	50	65	100	100
	冷冻水流量 Flow rate of chilled water	m^3/h	16.5	18.9	24.7	31.8	40.7
	热水流量 Hot water flow rate	m^3/h	19.2	21.8	28.8	36.2	46.5
冷凝器型式 Condenser type			铜管铝翅片式 Copper tube aluminium finned				
冷凝风扇 Condensing -fan	型式 Type		轴流式 Axial flow				
	数量 Number of units	台 unit	4	4	4	6	8
	输入功率 Input power	kW	1.1x4	1.1x4	1.54x4	1.54x6	1.5x6
	风量 Air volume	m^3h	44000	44000	52000	78000	78000
外形尺寸 Dimension(mm)		L	2400	2400	2400	3400	3400
		W	2250	2250	2250	2250	2250
		H	2220	2220	2220	2240	2240
机组重量 Unit weight		kg	1500	1700	1900	2200	2700
运行重量 Operating weight		kg	1700	2000	2200	2500	3200
噪音 Noise		dB(A)	77	78	78	78	78

Air-cooled screw-type chilled (hot) water unit technical parameters table (II) R134a
风冷螺杆式冷（热）水机组技术参数表（二）R134a

机组型号 Unit Model			LSBF70A	LSBF050A	LSBF060A	LSBF070A	LSBF080A
			LSBF070AH	LSBF050H	LSBF060AH	LSBF070AH	LSBF080AH
名义制冷量 Nominal cooling capacity		kW	273	191	222	256	290
制冷工况输入功率 Refrigeration working condition input power		kW	81.4	2x30.2	2x33.7	33.7+44.9	2x44.9
名义制热量 Nominal heating capacity		kW	312.2	222.9	255	295	335
制热工况输入功率 Input power for heating condition		kW	78.5	2x29.1	2x32.5	32.5+43.3	2x43.3
压缩机型式 Compressor type			半封闭螺杆式 Semi-closed screw type				
压缩机数量 Number of compressors			1	2	2	2	2
电源电压 Power supply voltage			3-380V-50Hz				
启动方式 Starting method			Y—Δ或分绕组 Y—Δ or split winding				
能量控制 Energy control			25% ～ 100%	12.5% ～ 100%			
制冷剂 Refrigerant			R134a				
控制装置 Control device			热力 / 电子膨胀阀 Thermal/Electronic Expansion Valves				
制冷剂充注量 Refrigerant charge		kg	106	2x37	2x43	43+56	2x56
蒸发器 evaporator	型式 Type		壳管式 shell and tube type				
	水阻力 Water resistance	K pa	70-90				
	污垢系数 Fouling coefficient	m^2C/KW	0.086				
	水管直径 Water pipe diameter	DN	100	100	100	100	100
	冷冻水流量 Flow rate of chilled water	m^3/h	47	33	38	44	50
	热水流量 Hot water flow rate	m^3/h	53.7	38.3	43	50	58
冷凝器型式 Condense type			铜管铝翅片式 Copper tube aluminium finned				
冷凝风扇 Condensing -fan	型式 Type		轴流式 Axial flow				
	数量 Number of units	台 unit	8	6	6	8	8
	输入功率 Input power	kW	1.5x8	6x1.5	6x1.5	8x1.5	8x1.5
	风量 Air volume	m^3/h	104000	78000	78000	104000	104000
外形尺寸 Dimension(mm)		L	3400	3400	3400	4100	4100
		W	2250	2250	2250	2250	2250
		H	2240	2240	2240	2240	2240
机组重量 Unit weight		kg	3000	2900	3200	3800	4000
运行重量 Operating weight		kg	3600	3400	3700	4300	4500
噪音 Noise		dB(A)	79	78	81	79	79

Air-cooled screw-type chilled (hot) water unit technical parameters table (III) R134a
风冷螺杆式冷（热）水机组技术参数表（三）R134a

机组型号 Unit Model			LSBF090A LSBF090AH	LSBF100A LSBF100H	LSBF120A LSBF120AH	LSBF140A LSBF140AH
名义制冷量 Nominal cooling capacity		kW	342	369	473	546
制冷工况输入功率 Refrigeration working condition input power		kW	2x50.6	2x54.5	2x70.6	2x81.4
名义制热量 Nominal heating capacity		kW	420	420	539	624
制热工况输入功率 Input power for heating condition		kW	2x48	2x52.6	2x68	2x78.5
压缩机型式 Compressor type			半封闭螺杆式 Semi-closed screw type			
压缩机数量 Number of compressors			2	2	2	2
电源电压 Power supply voltage			3-380V-50Hz			
启动方式 Starting method			Y —Δ或分绕组 Y —Δ or split winding			
能量控制 Energy control			12.5% ～ 100%			
制冷剂 Refrigerant			R134a			
控制装置 Control device			热力 / 电子膨胀阀 Thermal/Electronic Expansion Valves			
制冷剂充注量 Refrigerant charge		kg	2x64	2x72	2x92	2x106
蒸发器 evaporator	型式 Type		壳管式 shell and tube type			
	水阻力 Water resistance	K pa	70-90			
	污垢系数 Fouling coefficient	$m^2℃$ /KW	0.086			
	水管直径 Water pipe diameter	DN	125	125	125	150
	冷冻水流量 Flow rate of chilled water	m^3h	59	63.4	81.4	94
	热水流量 Hot water flow rate	m^3h	72	72.4	93	107.4
冷凝器型式 Condenser type			铜管铝翅片式 Copper tube aluminium finned			
冷凝风扇 Condensing -fan	型式 Type		轴流式 Axial flow			
	数量 Number of units	台 unit	8	12	12	16
	输入功率 Input power	kW	1.5x8	12x1.5	12x1.5	16x1.5
	风量 Air volume	m^3h	104000	156000	156000	208000
外形尺寸 Dimension(mm)		L	4600	6600	6600	8000
		W	2250	2250	2250	2250
		H	2240	2240	2240	2240
机组重量 Unit weight		kg	4200	4440	5400	6000
运行重量 Operating weight		kg	4700	5000	6400	7200
噪音 Noise		dB(A)	79	80	80	81

TABLE OF CORRECTION FACTORS

修正系数表

Air-cooled screw chiller refrigeration working condition correction factor table R22
风冷螺杆冷水机制冷工况修正系数表 R22

		环境温度℃ Ambient temperature℃									
		25		30		35		40		45	
		制冷量 Refrige ration capacity	输入功率 input power	制冷量 Refrige ration capacity	输入功率 input power	制冷量 Refrige ration capacity	输入功率 input power	制冷量 Refrige ration capacity	输入功率 input power	制冷量 Refrige ration capacity	输入功率 input power
蒸发器出水温度℃ Evaporator outlet temperature℃	5	1.058	0.82	0.995	0.899	0.928	0.983	0.854	1.023	0.776	1.162
	6	1.096	0.826	1.032	0.907	0.963	0.992	0.889	1.081	0.809	1.174
	7	1.136	0.833	1.071	0.914	1	1	0.923	1.091	0.842	1.185
	8	1.177	0.838	1.11	0.921	1.038	1.009	0.959	1.1	0.876	1.197
	9	1.219	0.845	1.151	0.929	1.077	1.017	0.997	1.111	0.911	1.208
	10	1.262	0.85	1.192	0.936	1.117	1.025	1.035	1.12	0.947	1.219

Air-cooled screw chilled (hot) water unit heating condition correction factor table R22
风冷螺杆冷（热）水机制制热工况修正系数表 R22

		环境温度℃ Ambient temperature℃									
		25		30		35		40		45	
		制热量 Refrige ration capacity	输入功率 input power	制热量 Refrige ration capacity	输入功率 input power	制热量 Refrige ration capacity	输入功率 input power	制热量 Refrige ration capacity	输入功率 input power	制热量 Refrige ration capacity	输入功率 input power
蒸发器出水温度℃ Evaporator outlet temperature℃	5	1.058	0.82	0.995	0.899	0.928	0.983	0.854	1.023	0.776	1.162
	6	1.096	0.826	1.032	0.907	0.963	0.992	0.889	1.081	0.809	1.174
	7	1.136	0.833	1.071	0.914	1	1	0.923	1.091	0.842	1.185
	8	1.177	0.838	1.11	0.921	1.038	1.009	0.959	1.1	0.876	1.197
	9	1.219	0.845	1.151	0.929	1.077	1.017	0.997	1.111	0.911	1.208
	10	1.262	0.85	1.192	0.936	1.117	1.025	1.035	1.12	0.947	1.219

Air-cooled screw chiller refrigeration working condition correction factor table R134a
风冷螺杆冷水机制冷工况修正系数表 R134a

		环境温度℃ Ambient temperature℃									
		25		30		35		40		45	
		制热量 Refrige ration capacity	输入功率 input power	制热量 Refrige ration capacity	输入功率 input power	制热量 Refrige ration capacity	输入功率 input power	制热量 Refrige ration capacity	输入功率 input power	制热量 Refrige ration capacity	输入功率 input power
蒸发器出水温度℃ Evaporator outlet temperature℃	5	1.059	0.816	0.992	0.889	0.92	0.983	0.842	1.101	0.759	1.243
	6	1.103	0.823	1.034	0.897	0.959	0.992	0.88	1.11	0.794	1.252
	7	1.148	0.83	1.076	0.904	1	1	0.918	1.118	0.831	1.26
	8	1.194	0.837	1.12	0.911	1.042	1.007	0.958	1.127	0.868	1.27
	9	1.242	0.843	1.166	0.918	1.085	1.015	0.998	1.135	0.906	1.279
	10	1.291	0.849	1.212	0.926	1.129	1.024	1.04	1.144	0.946	1.287

Air-cooled screw chilled (hot) water unit heating condition correction factor table R22
风冷螺杆冷（热）水机制制热工况修正系数表 R22

		环境温度℃ Ambient temperature℃									
		-10		-5		0		7		9	
		制热量 Refrige ration capacity	输入功率 input power	制热量 Refrige ration capacity	输入功率 input power	制热量 Refrige ration capacity	输入功率 input power	制热量 Refrige ration capacity	输入功率 input power	制热量 Refrige ration capacity	输入功率 input power
蒸发器出水温度℃ Evaporator outlet temperature℃	35	0.557	0.697	0.686	0.738	0.832	0.777	1.071	0.83	1.149	0.844
	40	0.538	0.762	0.664	0.805	0.804	0.847	1.035	0.904	1.109	0.919
	45	0.521	0.852	0.643	0.896	0.779	0.94	1	1	1.071	1.016
	48	–	–	0.632	0.964	0.765	1.008	0.98	1.07	1.049	1.087
	50	–	–	0.625	1.013	0.755	1.058	0.967	1.12	1.035	1.138

PRECAUTIONS FOR LIFTING AND INSTALLATION OF THE UNIT

机组吊运及安装注意事项

Installation of air-cooled screw chilled (hot) water units should be carried out by professional personnel. The following matters should be noted during installation:

风冷螺杆式冷（热）水机组的安装应由专业人员进行。安装时应注意如下事项：

Selection of mounting position

The unit should be installed outdoors and in a well-ventilated, open and empty area. There is no obstruction around it. Air intake and maintenance space should be left around the unit (see illustration). When the unit is installed in a location with a daughter wall or wall that is higher than the unit, the spacing should be increased appropriately.

The exhausted air should be such that it is not sucked in by the unit itself or by other units, so as not to affect the normal operation of the unit.

When the unit is installed on the top of a building, the building load bearing should take full account of the weight of the unit during operation and additional stresses caused by other reasons.

The unit itself does not require a machine room, but if it is necessary to add a shading facility, take full account of the 2nd precautionary requirement.

The chilled water of the unit should be clean and free of oil and corrosive substances. When the water quality is too hard, consideration should be given to installing a softening device to avoid internal scaling of the unit, affecting the use of the unit.

The air inlet side of the air-cooled heat exchanger should be considered to avoid the monsoon direction.

The base of the bottom of the unit can be a cement base or made of steel structural material. The foundation should be level and firm. It should be strong enough to support the weight of the unit.

After the unit is placed on the foundation, the unit should be fixed so that it is firmly connected to the foundation. In order to avoid the transmission of vibration of the unit through the building structure, vibration-damping materials should be placed underneath the unit.

A drainage trench shall be provided around the unit foundation with a slope of more than 5 per cent and sloping towards the drain.

安装位置的选择

机组应安装在室外且通风良好、开阔、空旷的地方。周围无遮挡物。机组周围应留出空气进风和检修空间（见图示）。当机组安装位置有高过机组的女儿墙或墙面时，要适当加大间距。

排出的空气应保证不被机组本身或其他机组吸入，以免影响机组的正常工作。

当机组安装在建筑物顶部时，建筑物承重应充分考虑机组运行时的重量以及其他原因引起的附加应力。

机组本身无需机房，但如果需要加盖遮阳设施时，要充分考虑到第 2 项注意事项要求。

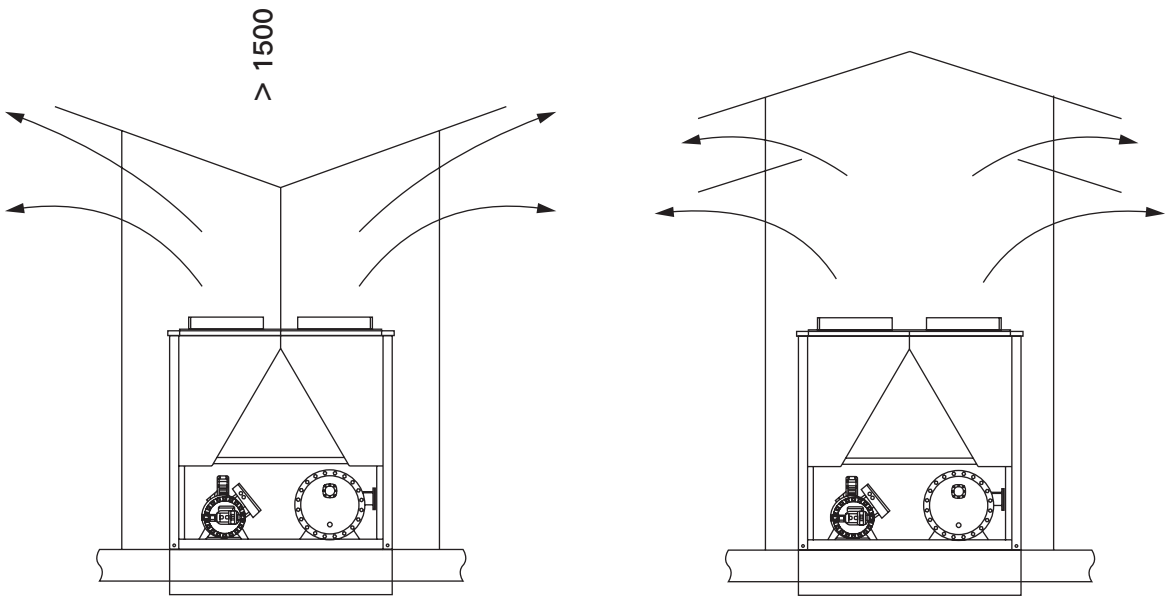
机组冷冻水应清洁，不含油污及腐蚀性物质。当水质过硬时，应考虑加装软化装置，以免机组内部结垢，影响机组使用。

风冷换热器的进风面应考虑避开季风方向。

机组底部基础可以是水泥基础，也可以是钢结构材料制作。基础应平整、牢固。强度足以承受机组的重量。

机组放置在基础上之后，应对机组进行固定，使机组与基础连接牢固。为避免机组的震动通过建筑结构的传递，机组下部应放置减震材料。

机组基础四周应留有排水沟，沟槽斜度应大于 5%，且坡向排水口。

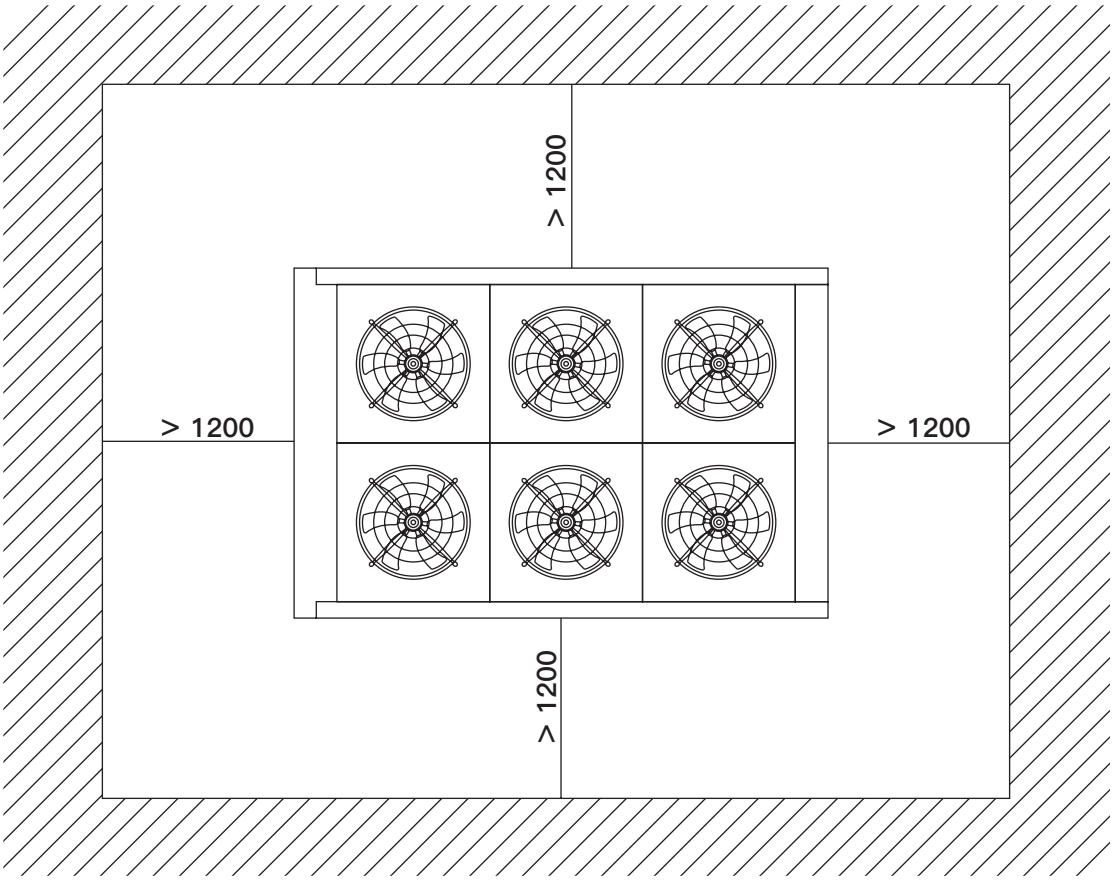


Form I
形式一

Form II
形式二

Lifting and Handling of Units

After the unit arrives at the site, it should be handled carefully during lifting and transport and seating to avoid damage to the equipment. In the process of lifting, pads should be placed on the contact parts of the rigging and the unit, and for the heavier units, support rods should be used between the slings on the upper part of the unit to overcome the diagonal pressure of the rigging on the unit and to ensure that the rigging does not come into contact with the side panels of the unit, the heat exchanger and so on. During lifting, the rigging and the unit must be firmly connected, and it is necessary to ensure that the unit is smooth and without tilting.



机组四周空间尺寸示意图

Schematic of space dimensions around the unit

机组的吊装与搬运

机组到达现场后，吊装与运输和就位过程中，应小心操作，以免对设备造成损坏。在吊装过程中，索具与机组的接触部位应放置垫块， 对重量较重的机组，在机组上部的吊索之间应使用支撑杆，以克服索具对机组的斜向压力，确保索具不与机组的侧面板、换热器等接触。吊 装过程中，索具与机组必须连接牢固，要确保机组平稳，无倾斜。

Water system connections

The dimensions of the connected water pipe must meet the requirements (see the table of unit performance parameters). The design department should be consulted on the selection of water pipe specifications for units with multiple connections.

Water pipes must be insulated after installation.

To ensure the safe operation of the unit, a water filter should be installed on the inlet side of the unit.

The unit must be fitted with an expansion system.

The water pipe is installed and qualified by pressure testing, leakage testing and cleaning before connecting to the unit.

Specific considerations should refer to the design unit construction requirements and construction acceptance standard provisions. GB50243–1997 "Ventilation and air–conditioning engineering construction and acceptance specification".

水系统的连接

连接水管的尺寸必须符合要求（见机组性能参数表）。多台连接的机组，其水管规格的选用应咨询设计部门。 水管安装完毕必须进行保温。 为保证机组的运行安全，机组的进水侧要安装水过滤器。 机组必须安装膨胀系统。 水管安装并经试压、检漏、清洗合格后，方可与机组连接。 具体注意事项应参照设计单位施工要求和施工验收标准规定。GB50243–1997《通风与空调工程施工及验收规范》。

Hose flow rate selection

1.GBJ13–86 ”outdoor water supply design specification” recommended flow rate

2.Design manual recommended flow rate (m/s)

水管流速选择

1. GBJ13–86《室外给水设计规范》推荐流速

2. 设计手册推荐的流速（m/s）

管道种类 Pipe Type	管道公称直径 (mm) Nominal diameter of pipe(mm)		
	<250	250 ～ 1600	>1600
水泵吸水管 Water pump suction pipe	1.0~1.2	1.2 ～ 1.6	1.5 ～ 2.0
水泵出水管 Water Pump Outlet Pipe	1.5~2.0	2.0 ～ 2.5	2.0 ～ 3.0

管道种类 Pipe Type	推荐流速 (m/s) Recommended flow rate(m/s)	管道种类 Pipe Type	推荐流速 (m/s) Recommended flow rate(m/s)
水泵吸水管 Water pump suction pipe	1.2 ～ 2.1	集管 header (of piping system)	1.2 ～ 2.1
水泵出水管 Water Pump Outlet Pipe	2.4 ～ 3.6	排水管 waste pipe	2.4 ～ 3.6
一般供水干管 General water mains	1.5~3.0	接自城市供水管 From the city water supply pipe	1.5 ～ 3.0
室内供水立管 Indoor water supply riser	0.9~3.0	–	–

3.Comparison of prices of pipes and fittings of different diameters

As the diameter increases, the price of the pipe itself and fittings such as valves, as well as the cost of installation, rise dramatically. Therefore, for large diameter pipelines, it is advisable to choose a flow rate close to the upper limit.

3.不同直径管道和管件的比价

随着直径的增大，管道本身和阀门等配件的价格以及安装费用都大幅度上升。因此，对大直径管道，流速宜选择接近上限的数值。

Connection of electrical systems

The unit should have an independent power switch. The switch should be an air switch, and the use of knife switches is strictly prohibited.

Perform wire wiring and construction in accordance with requirements, with wiring performed in strict accordance with the provisions of the equipment electrical schematic.

The unit must be well grounded. It is strictly prohibited to connect the bottom wire to the upper or lower water pipe, gas pipe, or heating pipe. Serious electric shock accidents can occur when the unit is poorly grounded.

Unit wiring must use copper conductors that meet the requirements, and it is strictly prohibited to use aluminium conductors as the unit's wiring.

Specific construction requirements are described in the design instructions and corresponding construction acceptance specifications.

电系统的连接

机组应设独立的电源开关。开关应为空气开关，严禁使用刀开关。 按照要求进行电线配线和施工，接线严格按设备电器原理图规定执行。 机组必须有良好的接地。严禁将底线连接到上、下水管、煤气管、暖气管道上。机组接地不良时会发生严重的触电事故。 机组接线必须使用符合要求的铜导线，严禁使用铝导线作为机组的接线。 具体施工要求见设计说明及相应施工验收规范。

Repair and maintenance

Repair and maintenance of the unit must be carried out by specially trained and experienced professionals, especially when overhauling the compressor and refrigeration system of the unit. Non-professional operation may cause serious personal and equipment accidents.

After the completion of the inspection and maintenance work must be all the control functions of the unit, the protection function and the protection of the set value to confirm that there is no error strictly in accordance with the "equipment operation and use of the instructions" required by the protocols to start running.

In general, only need to check whether the finned heat exchanger surface of the unit has dust, debris, whether the air inlet is normal, etc., can be based on the conditions of the installation location, monthly or seasonal inspection, for a long period of time in the oil, dust and other harsh environments of the unit, you should shorten the inspection cycle, if necessary, cleaning or dust, or it will make the unit work poorly or cause the unit to malfunction, and in serious cases, cause damage to the unit and shorten the Otherwise, the unit will not work well or cause malfunction, and in serious cases, the unit will be damaged and its service life shortened. Please consult your local office or distributor for unit cleaning.

In winter, when the unit is no longer in use, please make sure to drain the water in the unit to avoid damage to the unit due to low temperature and ice formation in the unit, resulting in unnecessary loss of equipment (damage caused by ice formation is not covered by the warranty of the unit).

维修和保养

机组的维修和维护必须要由经过专门训练且有操作经验的专业人员进行，特别是对机组的压缩机和制冷系统进行检修时更是如此。非专业人员操作可能会造成严重的人身和设备事故。

检修工作完成后必须对机组的所有控制功能、保护功能及保护设定值进行确认、确定无误后严格按《设备操作使用说明书》要求的规程开机运行。

一般情况下，只需检查机组的翅片式热交换器表面是否有灰尘、杂物，进风是否正常等，可以根据安装位置的条件，按月或按季进行检查，对长期处于多油、多尘等恶劣环境下的机组，应缩短检查周期，必要时进行清洗或除尘，否则会使机组工作不良或造成机组故障，严重时造成机组损坏，缩短使用寿命。机组清洗事宜请咨询当地办事处或经销商。

冬季当机组不再使用时，请务必将机组内的水放掉，以免因气温过低，机组内的水结冰造成机组损坏，造成设备无谓的损失（结冰造成的损坏不在机组保修范围内）

Supplier: Olyvent (Oulairuina) Equipment Co., Ltd.
Office Address: Room 105–194, 1st Floor, No. 610–1, Gutai South Road, Hunnan District, Shenyang Area, China (Liaoning) Pilot Free Trade Zone, Shenyang City, Liaoning Province, China
Manufacturing Address: D6, Luquan Qianmu Industrial Park, Dezhou, Shandong, China
Contact Person: Leon Zhao
Tel / WeChat: (+86) 139 0400 7173
Tel: (+86) 0534–6398555
Email: leon@olyvent.com
Made–in–China: hvac–trust.en.made–in–china.com