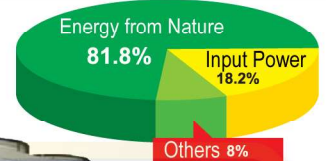
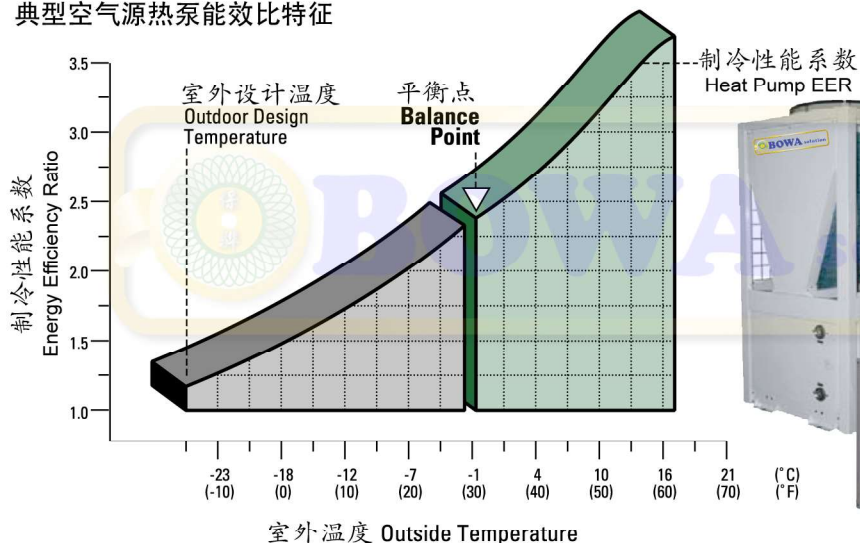


Performance Characteristics of a Typical Air-Source Heat Pump
 典型空气源热泵能效比特征



Perfect system consists of 30% equipments and 70% installation & testing. Wonderful installation & testing will decide engineering quality. This is especially true for air source heat pump water heaters. Before installation, it needs to do topographic & local climate analysis, buried pipelines length calculations, and take consideration of other factors. It should try best to avoid any error appears.

完备系统基本是“三分产品，七分安装”。尤其对于含水系统的空气源热泵热水器来说，专业安装的更加尤为重要、突出。从安装前的地形分析，当地水文气候，再到水埋管等因素都得充分考虑进去。任何一环节的松懈缺少或错误都有可能导致整个系统的运行不完美。

*** Installation location should be easy to debug and repair and reserve maintenance space**

安装位置应便于调试和维修，预留检修空间

*** Installation location should be away from direct strong electricity, the role of strong magnetic fields**

安装位置应远离强电、强磁场直接作用的区域

*** It must be equipped with a shock absorber to prevent the transmission of vibrations to the building**

机组必须安装减震装置，以防止振动传递至建筑物

*** As far as possible not to install the unit in the sun and rain environment, or need to install shelter**

尽可能不要将机组安装在日晒雨淋的环境中，否则需安装遮蔽物

*** The unit and hot water outlet pipe, circulating water pipe and tap water inlet pipe with flexible connection to prevent vibration from the unit to the water pipes**

机组和热水出水管、循环水管及自来水进水管采用柔性连接，可防止振动从机组传递至水管

*** Water inlet and circulation heating inlet must be installed a Y strainer to prevent impurities**

主机自来水进口端和循环加热进水口端必须安装一个Y型过滤器，以防止杂质损坏设备

*** Rigid pipes of the unit should select spring-damped bracket to prevent transmitting vibrations to the building**

主机的刚性管道应采用弹簧减振支架，避免管路将振动传递到建筑物

*** Install the pressure gauge and thermometer for maintenance**

安装水压表和温度计，以便保养维修

*** Pipe insulation must be done to prevent energy loss**

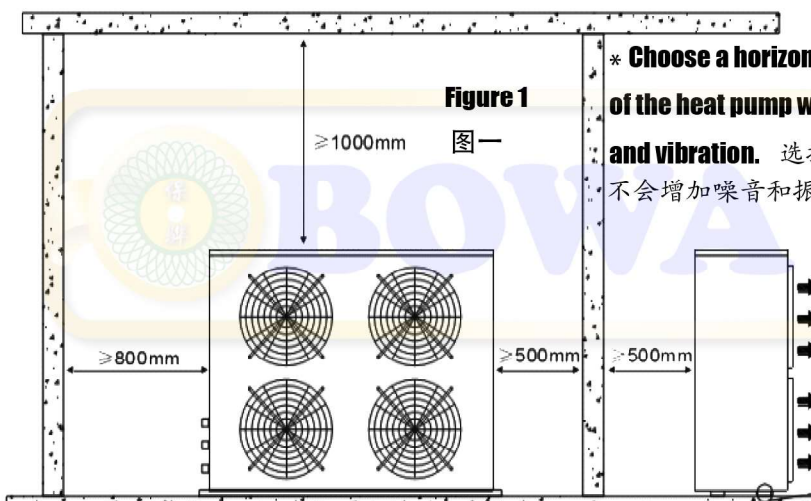
必须做好水管保温，防止能量损失

*** The outside of the unit should be left with enough space**

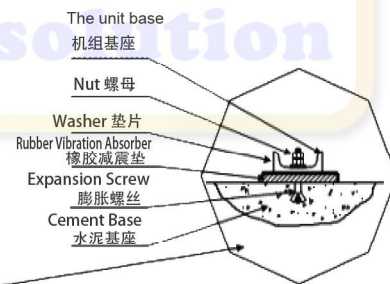
机组外侧应留有足够的空间

*** If you install more than one heat pump, the distance between the units required (Figure 2)**

如安装多台直热式热水机，机组间的距离要求如（图二）

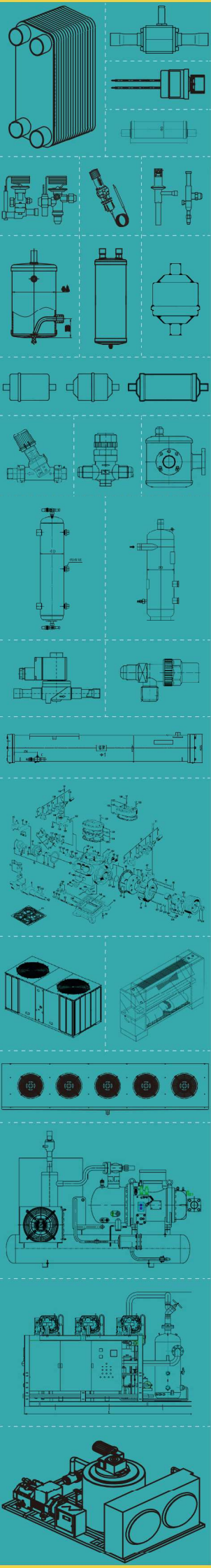


*** Choose a horizontal position that supports the weight of the heat pump water heater without increasing noise and vibration.** 选择一个能够支撑热泵热水器重量且不会增加噪音和振动的水平位置

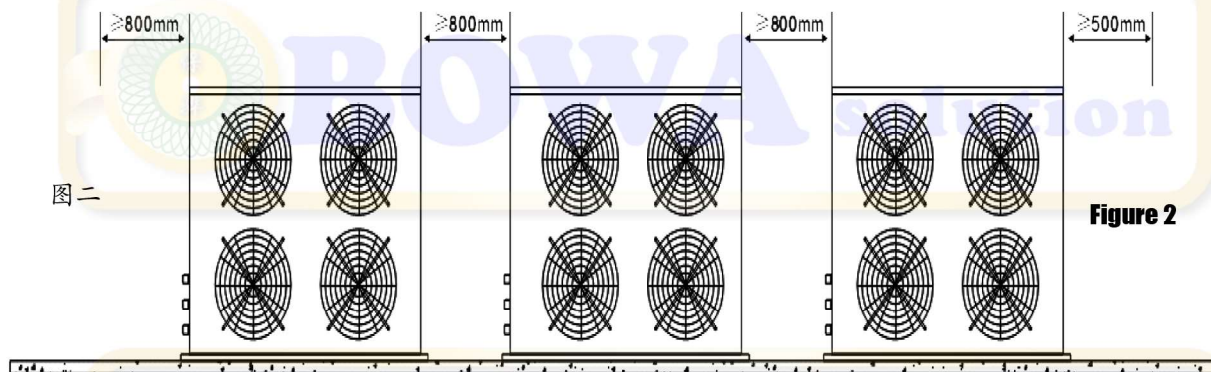


*** Choose an air inlet and outlet without shelter and unclosed locations. Minimum distance between air**

inlet, both sides and the wall as (Figure 1). 选择一个空气的入口和出口没有遮挡物和非密闭的地点。热泵热水器进风的三面与墙壁的最小距离如（图一）。

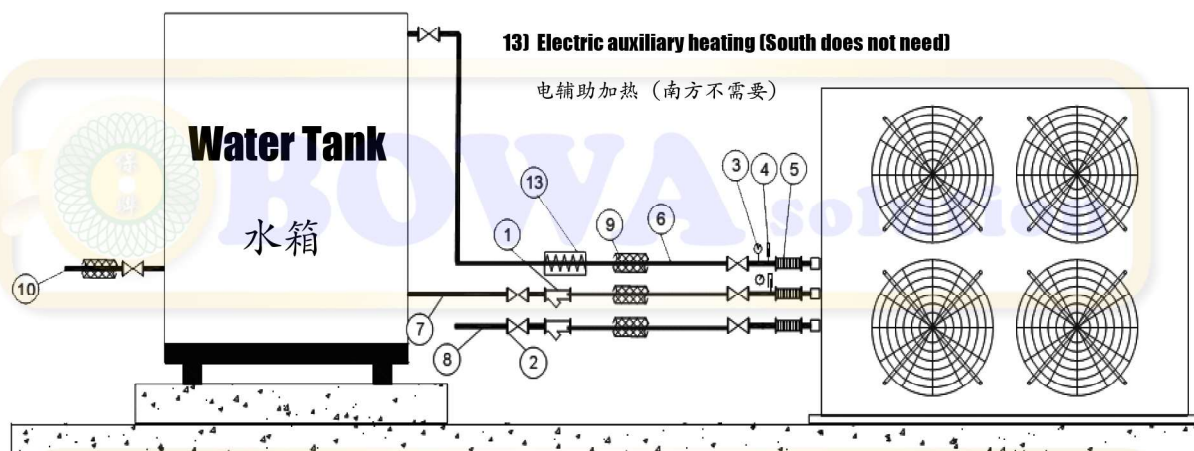


Multiple heat pump units 多台热泵并联



Installation steps & Caution 安装步骤及注意事项

- * **Install the safety valve and check valve according to the direction of the body arrow to avoid barrier.**
安装时,安全阀及止回阀请按阀体箭头方向安装,避免水流不通。
- * **In installing small capacity unit, the wrench is used to fix the joint and rotate the water pipe inlet and outlet prohibit directly rotating inlet and outlet;**
小型热泵机组接管时,用管钳固定接头,旋转进出水管,禁止接头直接承受旋转扭力;
- * **Water supply pipes and circulation pipes must meet maxi. water volume required for all units running**
自来水供水管和循环水管必须满足所有机组运行所需要的最大水量
- * **Y stainer and insulation should be made demountable, easy to wash, repair and disassembly**
Y型过滤器和检修保温应做成可拆卸式,方便系统冲洗和维修拆卸
- * **The circulating water outlet of the unit shall not be higher than the circulating water inlet of the water tank; the highest point of the circulating pipe shall not be higher than the circulating water inlet of the water tank**
机组的循环水口不得高于水箱循环水口;循环管路最高点不得高于水箱循环口
- * **The user-side water supply port must be higher than the tank circulating heating nozzle 100mm above**
水箱用户端供水口必须要高于水箱循环加热水口100mm以上
- * **After installation of equipment and pipelines, run the unit (water tank has enough water) 30 minutes trially, clean filter, and then repeat the above steps, until the filter is clear.**
设备和管路安装完毕后,运行机组(水箱有足够水),试运行30分钟后,对过滤器进行清洗,再重复以上步骤,直达过滤器无脏物为止。
- * **If water tank is installed on the roof, lightning rod must be installed to prevent lightning**
储水箱如果安装在楼顶,应安装避雷针,以防雷击
- * **Connect heat pump water heater, insulation tank power supply and temperature sensor cables according to the wiring diagram**
将热泵热水器和保温水箱的电源和感温连接线按接线图连接



1) Y strainer / Y型过滤器

5) Flex Connection / 软接头

9) Insulation / 保温

2) Shutoff Valve / 截止阀

6) Hot water output pipe / 热水出水管

10) Hot water supply pipe / 热水供水管

3) Temperature Gauge / 温度计 (10~100℃)

7) Hot water circulation pipe / 热水循环管

11) Liquid Line / 液管

4) Pressure Gauge / 压力表 (0~2.5MPa)

8) Tap water supply pipe / 自来水补水管

12) Suction Line / 气管

Heat Pump Unit installation 热泵主机安装

- * **Installed on the ground, roof, balcony, special platform or any other places easy to install and withstand the unit running weight**

可安装于地面、屋顶、阳台、专用平台或其它任何便于安装并可承受主机运行重量的地方。

- * **Choose a well-ventilated, smooth exhaust, not in airtight space, which affect the unit take heat from air**

选择通风良好、排气顺畅的安装场所，不应安装密闭的空间内，以免影响主机从空气中取热。

- * **Do not install the unit in a contaminated, dusty place**

勿将主机安装在有污染，灰尘大的地方

- * **There should be no strong heat and other equipment around the exhaust port, no corrosive & flammable gas**

周围应无强热源及其它设备的排气口，无腐蚀性和可燃性气体。

- * **The distance between the outdoor unit and the surrounding walls or other objects should not be less than the marked distance on the figures.**

室外主机与四周墙壁或其它放置物体之间的距离不得小于下图标示的间距。

- * **When placed on the roof, it should be noted that the wind direction, to avoid overhead; and should have good lightning protection devices.**

主机置于屋顶时，应注意风向，避免主机排风方向直接顶风；并应有良好的防雷措施。

- * **If landing installation, it should avoid strong vents, must be installed above 200mm height of the foundation and ensure horizontal installation. Install 10 mm ~ 20 mm rubber shock pad between the unit and the base**

主机如果落地安装，应尽量避免强风口，必须做200mm 高度以上的安装地基，并确保水平安装。主机与基础之间加10 mm~20 mm 的橡胶减震垫。

- * **Installed in the places near power and water for easy wiring and piping.**

应安装于离电源、水源较近的地方，以便于配线和布管。

- * **Down pipes should be installed near the unit to drain condensing water during work.**

主机附近应有落水管用于排放工作过程中产生的冷凝水。



- * **The unit and hot water tank as close as possible, the distance should not be greater than 5m, the height difference between the unit and the heated water tank shall not be greater than its journey**
主机与热水箱尽量靠近，距离不宜大于5 m，主机与加热水箱的高度差不得大于其机扬程。
- * **There should be preset outlet near the unit which match the power**
主机附近应预置有与主机功率相匹配的独立插座
- * **Operation panel should be installed in the place easy to observe and operate, not in wet places.**
操作面板应安装在易观察操作的地方，不宜安装在有水潮湿的地方。
- * **The control circuits are pre-buried with the conduit pipe to the unit**
控制线路用穿线管预埋至主机边。

Water Tank 水箱

- * **Water tank can be installed on the roof, ground and other places; as close as possible near the water and heat pump unit to reduce pipeline heat loss; and installed on the place which connect drain pipe**
水箱可随安装在平屋顶、地面等位置，应尽可能安装在靠近用水点及热泵主机的位置，以减少管路热损失，同时要安装在可排水的地方。
- * **It is better to select polyurethane foam insulation technology; in order to avoid little heat loss, it is better to install indoor places which are not ventilated**
水箱宜采用聚氨酯发泡保温技术；考虑到热量微小散失，应尽可能放置在室内不通风的位置最佳。
- * **The water tank must be installed vertically on the ground. The foundation must be solid and firm. The load-bearing capacity should be more than double the operating weight of the tank. Do not install on the wall.**
水箱必须座地式直立安装，安装基础必须坚实牢固，承重能力应大于水箱运行重量的两倍。严禁挂墙安装。
- * **Water tank should stay more than 600mm space for installation and maintenance**
水箱周围应留大于600 mm 的安装维修空间

Water pipeline connection 水路连接

- * **Install heating pipe: connect tank circulation outlet and heating water inlet with PPR pipe or aluminum pipe exhaust valve and Y stainer must be installed as figure 3**
安装循环加热管道：将水箱的循环出水口与主机的循环进水口用PPR管或铝塑管相连接主机的循环出水口与水箱的循环进水口相连接，之间必须安装排气阀而且进水管需要安装Y型过滤器（如图三）。
- * **Pipe layout should be reasonable to minimize the pipe length and unnecessary bending, reducing water pressure drop and heat loss; each pipe should be insulated to avoid heat loss, resulting in increased the power consumption.**
管道布置应合理，尽量减少连接管道长度和不必要的弯曲，减少水系统的压力及热量损失，各水管及接头应做良好的保温处理，以免热量的损失，导致主机的功耗增加。
- * **If there is a wall between the water tank and the unit, it is necessary to open a pipe of $\phi 70$ on the wall. The holes should be slightly inclined to the outside and put through the wall sheathing on both sides.**
如水箱与主机之间有墙，须在墙上开 $\phi 70$ 的管道，孔应稍微向外侧倾斜并在两侧套上穿墙护套。

Operation and maintenance 操作与维护

- * **The main power supply must meet equipment power demand; electricity must meet the national civil / commercial use requirements. Otherwise it will make the unit over-voltage, under-voltage operation or damage, or even a fire.**
主电源要符合设备功率的要求，用电必须符合国家民用/商用使用要求。否则会使机组过压、欠压运行而损坏，甚至发生火灾。
- * **Please check if it is properly grounded. If not correct, it may cause personnel electric shock accident.**
确认是否正确接地。若接地不完善，可能引起人员的触电事故。
- * **Please confirm there install correct leakage protection devices between the unit and the user's power supply, and the grounding is wired well. Failure to install the earth leakage switch may occur to electric shock or fire.**
确认机组和用户电源之间是否安装了功率相等的漏电保护开关，接地性能良好。若不安装漏电保护开关，则可能造成人员触电或发生火灾。
- * **Please commission a professional installation. Non-professional personnel may cause incorrect installation, lead to water leakage, electric shock or fire.**
请委托专业人员进行安装。其他人员安装可能造成安装不完善，从而引起漏水、人员触电事故或引发火灾。
- * **The main controller must be installed in a waterproof place and must be solid.**
安装主控制器时请务必安装在防水的地方，安装一定要牢靠。
- * **Finish pipe connecting and wiring, It must check there exist no mistck beofre power running**
完成机组水管及接线时，须检查无误后再将机组接通电源运行
- * **In normal run, we must ensure that circulation water flow rate and pressure, so as to avoid water running out and protection action.**
设备在正常使用时，必须保证设备循环水的流量和压力，以免造成缺水运行，机组保护。
- * **Temperature detector can not be separated from the tank temperature detection blind tube, so as not to cause the heater overheating lead to damage the unit.**
温度探测器不可脱离水箱温度探测盲管，以免造成机组加热器过热，损坏机组。
- * **Fuse selection should be suitable, if copper or steel wire, it may cause failure or cause a fire.**
保险丝的选用要相匹配，若用铜或铁丝，则有可能造成故障或引发火灾。
- * **When it happen abnormal (coke smell), it must immediately cut off the manual power switch, stop running, and get in touch with the dealer. If Continued abnormal operation , it may lead to electric shock and fire.**
发生异常时(焦臭味)，应立即切断手动电源开关，停止运行，并与经销商取得联系。若继续异常运行，则可能造成人员触电及引发火灾。
- * **Do not spray combustibile gas or liquid directly to heat pump unit, otherwise it may cause fire accident.**
不可将可燃性喷雾剂直接喷向热水机组，否则易引发火灾事故。