SPARTEK®

德国思帕综合样册
product catalogue

NEU/NEW
classic power i& aero plus

制冷&制热
compact heat pump with natural cooling

能效高达A+++
energy label up toA+++

ENERGY EFFICIENCY made in Germany

目录 Content

位于Rostock的公寓从周围130幢公寓楼进行空气热回收,用于制备生活热水。
Apartment block in Rostock
Exhaust air heat recovery from 130 apartments, used for preparation of domestic hot water

德国思帕热泵--可实现远程控制
SPARTEK heat pumps - remote control

功率范围 Capacity range	bravour i	classic i	aero	Titan

12 kW

30 kW

60 kW

480 kW

2.500 kW

bravour i

classic i

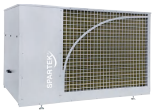
classic power i

aero plus 010i R

aero plus 026i R

aero 028i/2 R

aero plus 044 R



aero plus 088 R

aero plus 176 R

Titan

致力于热泵制造30年

德国思帕坐落于德国居斯特罗，历经三十载砥砺前行，我们始终站在热泵技术的前沿，引领着可再生能源利用的发展。公司旗下现有 SmartHeat 和 Spartek 两个品牌，产品包括定频和变频水地源空气源热泵及以及一系列定制化解决方案，全方位满足客户的个性化需求。德国思帕不仅致力于民用空调领域，在工业废热和工业热回收方面也展现了卓越的实力，为工业界提供高效、可靠的的解决方案。

热泵，作为减少碳排放的关键设备，其重要性不言而喻。在德国，大约 40% 的 CO_2 排放都来自于供热和生活热水系统。热泵做为一种清洁、高效的能源利用方式，正逐渐成为替代传统高排放设备的理想选择。热泵的广泛应用为住宅、办公楼、商业建筑以及厂房的空调系统带来了革命性的改变。根据德国热泵协会数据统计，2015 年德国新安装的热泵设备数量已突破 70000 台，这一数字不仅彰显了热泵市场的蓬勃发展，更预示着其在未来能源领域的巨大潜力。智能化利用能源、提高系统能效，不仅是我们的使命，更是我们追求的终极目标。

我们将秉持这一理念，矢志不渝为构建绿色低碳的未来贡献我们的力量。

>客户定制与产品增值

德国思帕热泵，凭借突出的 COP（性能系数）和卓越的适配能力，可与现有空调、设备管理系统结合。无论是新建建筑还是改建工程，亦或是单户住宅和区域能源供给中心，我们都能凭借优秀的产品品质和专业的定制服务，精准把握每一个细节，完美满足客户的独特需求。

德国思帕公司的企业宗旨：充分利用可再生能源，提供健康舒适的室内环境，同时最大程度降低能耗，达到人类居住环境与绿色地球可持续发展的完美平衡。

>优化的能源管理控制系统

多功能智能控制系统，能够根据热泵实际运行状况灵活调节热泵工况及制冷制热输出，确保热泵按预设模式稳定运行。同时，该系统支持网络远程访问，工程师或设备管理员可实时监控热泵性能，并根据需要调整相关性能参数。不仅如此，德国思帕热泵还可以与智能电网无缝连接，与光伏电站集成通讯接口，为未来的能源管理和优化提供了更多可能性。

>德国思帕一直在热泵技术的尖端

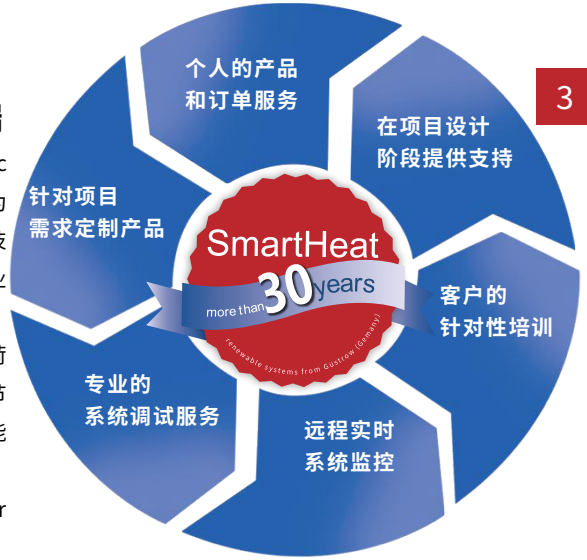
德国思帕的明星产品当属 bravour 和 classic power 系列。在高效热泵技术领域的先锋造诣为德国思帕带来很多奖项和认证，包括数个设计技术认证，VR 技术奖，DGS 太阳能奖，中小型企业大奖等。

我们的产品可以实现根据实际的制冷制热的负荷需求，无级自动调节压缩机转速从而实现系统节能，进而提高制热季节性能系数 (HSPF) 和季节能效比 (SEER)，并延长设备的使用寿命。

德国思帕现有的众多变频热泵产品中包括 bravour i(高集成度设备，2001 年获设计奖)，classic i，classic power i，aero 和 Titan 系列。这些热泵产品搭载了我们先进的变频技术和智能控制系统，保证了我们的设备在全负荷和部分负荷工况下都可以稳定和高效的运行。

>德国思帕进中国

2017 年，思帕继续完善变频技术以适应中国新市场。2018 年，德国思帕和昆山开思拓成立合资公司，博拓（苏州）新能源技术有限公司，正式进入中国市场，旨在为大中华区用户提供新能源高效解决方案和产品。博拓（苏州）新能源于 2019 年在苏州昆山市虹祺北路 166 号，投资建设工厂及新能源产业园，包含生产、组装、研发测试中心和办公楼。占地面积约 30 亩，建筑面积约为 30,000 ㎡。



2022 年，思帕热泵中国生产线启动，同时提供系统配套的毛细管舒适末端产品、重力柜和除湿新风设备、混水泵站、分集水器等。

德国思帕从 2019 年至今，与多家能源公司和多地政府合作，提供高效低能耗的热泵主机和解决方案。利用可再生清洁能源，通过高效热泵机组的转化，做为区域集中供暖的能源端，从而减少燃煤供暖导致的高碳排量。

全球先进技术

Spartek-full of energy and ideas

SmartHeat Deutschland GmbH - heat pump experts for more than 30 years

For more than 30 years, SmartHeat based in Gustrow has en supplying the market with heat pumps and other innovative solutions for renewable energies. Our commitment to heat pump technology and our innovative drive have made SmartHeat Deutschland GmbH the preferred partner of planners, architects and installers. SmartHeat is technology partner for heating and cooling systems that extract heat from the ambient air or sunlight. SmartHeat also provides solutions for geothermal installations and the recovery of energy from waste and process water.

Heat pumps will remain a key component of systems that help reduce CO2 emissions. Around 40 per cent of the CO2 emissions in Germany stem from heating and DHW systems. Heat pumps are the preferred option for the heating and cooling of homes, offices and commercial premises including factory halls. In 2015, around 70,000 new heat pumps were installed in Germany alone (source: bwp e.V.).

Smart use of energy - for greater energy efficiency.

> Smart and adding value

What makes SmartHeat so special? We produce standard heat pumps, custom-engineered small series, units for special operating conditions as well as large heat pumps for apartment blocks, commercial and industrial premises and much more. All units are produced at our own factory and undergo extensive performance and quality tests. Our highly qualified and committed employees believe in the future of heat pumps and are constantly coming up with new ideas.SmartHeat heat pumps offer unrivalled COPs, are designed for smart grid operation and can be easily integrated into existing heating and facility management systems. SmartHeat offers solutions for both new buildings and restoration projects - from family homes to apartment blocks and energy-efficient cold district heating systems. Our quality products meet the expectations of our clients. SmartHeat's philosophy is simple: promoting renewable energies as a cost-efficient alternative to fossil fuels through the production and marketing of highly efficient technical equipment.

> Energy management made easy - for optimisedcontrol

The programmable SmartHeat multi intelligent control (smic) system enables clients to adjust the heating operation and output to suit their needs and the requirements of the actual building. The smic system allows for remote access through the internet, so that operators or facility managers can constantly monitor and control all relevant performance parameters.

Smart grid ready heat pumps from SmartHeat come fully equipped with communication ports for integration into electric power grids or photovoltaic plants.

> Advanced system technology

The requirements for modern heating systems are changing all the time. The SmartHeat development team of engineers, technicians, designers and programmers are keeping pace with the latest developments and constantly come up with innovative solutions.

Among their pioneering designs are the SmartHeat compact heat pumps of the bravour and classic power series, and air/water heat pumps with ratings of up to 168 kW, to mention just a few.

With these and other milestones in efficient heat pump technology, SmartHeat has won a number of prizes and awards, such as the Solar Award of DGS. SmartHeat also was among the finalists for the Grand Prix of Small and Medium Business.

We are proud of our awards, which of course encourage us to continue on our road towards a more environmentally future.

SmartHeat was for instance among the first companies to integrate inverter technology into itsheat pump solutions. Up to recently, heat pumps were only able to operate at one power level, and he heat output was controlled by switching the pump on and off. This all changed with the innova tive inverter solutions from SmartHeat. They allow for continuous pump speed adjustment, based on the actual heating or cooling require ments, which is much more energy-efficient. nl addition, SmartHeat heat pumps with inverters offer unrivalled seasonal energy performance ratios (SEPR) and have a longer service life.

The bravour i is just one of many SmartHeat s won the Technology Award as far back as 2001. The SmartHeat heat pumps of the classic i and classic power i series also come with our advanced inverter technology. This means that they are not only extremely reliable and highly efficient in partial The SmartHeat heat pumps of the classic i and classic power i series also come with our advanced inverter technology. This means that they are not only extremely reliable and highly efficient in partial

> Simply SmartHeat

In our development projects, we cooperate with leading component manufacturers from Germany and abroad. We are therefore able to offer our clients the best possible solutions for their projects. When it comes to quality and efficiency, we never compromise.

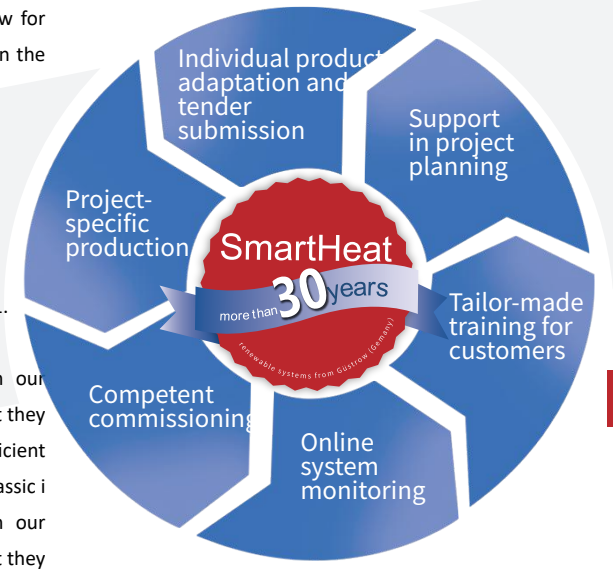
Thanks to our passion for innovation, we already have the answers to the big questions arising in the renewable energy and heating sector in the future. As a technology leader, we offer custom-engineered solutions that are not only future-proof but reflect the latest developments in technology. Whatever your project - SmartHeat has the technology.

SmartHeat products and solutions have been proven to reduce the heating and cooling costs for industrial, commercial and residential buildings.

Technology used all over the world.

Made in Germany.

SmartHeat - full of energy and ideas.

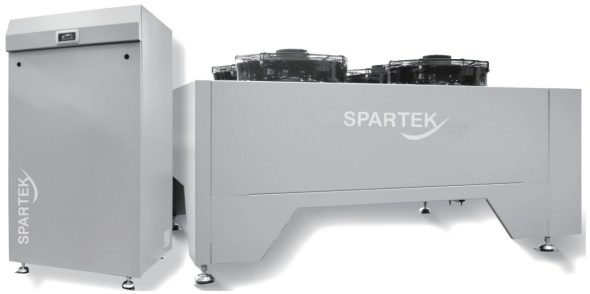


Spartek aero i & aero plus

空气源热泵
Air/Water heat pumps

A+++ 3)

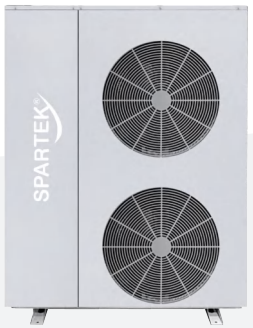
TÜV NORD



aero plus Split 088 R

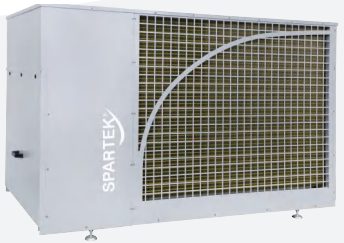
aero plus 010i R

aero plus 026i R



aero 028i/2 R

aero plus 044 R



aero plus 088 R

aero plus 176 R

aero 系列是小型变频热泵新风一体机和变频空气源热泵系列。

SERIE aero i 全变频空气源热泵

德国思帕 aero i 全变频空气源热泵系列采用先进的变频技术，可根据室内外温差和负荷变化自动调整压缩机的工作频率，始终保持高效能源利用率，相比传统定频设备，显著节约电力消耗。

类型：空气 / 水

功率范围：2-22kW（制冷）

COP: A7/W35 工况下 COP 值为 4.11

*A7/W35 表示环境温度 7°C，出水温度 35°C

优势一览：

»» 全变频设备（压缩机，风扇）

»» 三菱 / 谷轮压缩机，阿法拉伐 / 苏瑞普板换

»» 噪音最低至 40dBA

aero 028i/2 R 辐射定制双工况一体机

专为户式辐射系统量身定制，内置双变频压缩机循环回路，分别供给辐射系统用高温冷水低温热水以及新风机除湿用氟。

>为辐射系统独特设计

»» 专为中国气候特征下的户式系统量身定制的专利技术

»» 温湿度独立控制的一体式双工况主机，两套循环独立控制，制冷循环 1 提供辐射系统用高温冷热水，制冷循环 2 为除湿新风提供低温冷媒

»» 双循环独立控制，解决过渡季节的特殊工况的需求

>性能出众

»»出水温度控制精度为±0.1°C，保证辐射系统的安全运行

»»全变频压缩机和风扇保证高效稳定运行

»»核心部件选型和生产过程均满足CE标准

»»钣金喷涂工艺满足ISO12944 C4 高要求，设计使用寿命超过20年，适用于恶劣的腐蚀环境，如海洋沿岸地区

»»翅片特殊涂层处理，结合智能除霜逻辑，保证最小化霜时间

»»系统标配热管热回收除湿新风内机，对新风预冷预热，减少外机极限工况，提高能源利用率，并对除湿新风进行再加热

»»送风绝对含湿量＜8.0g/kg，夏季送风温度为16-18°C

>静音设计

»»德国EBM风机，运行噪音低至40dBA

»»多重减震措施，减少共振

»»机组内部以及管道采用德国Armacell绝热与降噪材料

»»新风内机低速送风，室内噪音低，不影响生活和睡眠

>智能节能

»»卡乐控制器、变频器，思帕优化运行控制逻辑，可接入物联网远程读取

»»集成温度补偿运行设计

»»内置软件硬件保护逻辑，提高全生命周期运行寿命，降低设备维护风险和成本

»»高效除霜策略，按需除霜

»»双循环独立控制，按需开启，系统稳定安全的同时满足高COP

SERIE aero i

Inverter air source heat pump

SPARTEK aero i inverter air source heat pump series adopts advanced inverter technology, which can automatically adjust the compressor working frequency according to the indoor/outdoor temperature difference and load change, and always maintain high efficiency in energy utilization, compared with the traditional fixed-frequency equipment, which significantly saves power consumption.

Types: air/water
Capacity range: A7/W35 up to 4.11
*A7/W35 means water output 35°C, under air source temperature 7°C

Advantages at a glance:
» Full frequency conversion unit (including compressor, fan)
» Compressor supplied by Mitsubishi, heat exchanger supplied by Alfa Laval/SWEP
» Sound pressure level under 40dBA

aero 028i/2 R

Designed for indoor radiation systems, with built-in dual frequency conversion compressor circulation, providing water for radiation systems and refrigerant for dehumidification of fresh air fans.

>Unique customization
»»Designed for household systems under Chinese climate characteristics
»»Temperature and humidity independent controlled separately
»»With fresh air unit with strong dehumidification ability

>Performance

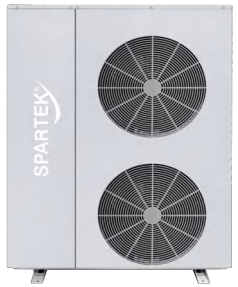
»»High precision water temperature control, with an accuracy of up to ± 0.1 °C
»»Fully variable frequency equipment (compressor, fan)
»» The core components and the production process all meet CE standards
»» The metal coating process meets the high requirements of ISO12944 C4 and is designed for a service life of more than 20 years
»»Unique intelligent defrosting logic ensures minimal frost time
»»Special coating treatment for fins, with large spacing and mechanical frost resistance
»»Fresh air unit with a heat pipe heat recovery, which pre-cools and pre-heats the fresh air, reduces the extreme working conditions of the out-unit, and reheats the dehumidified fresh air.

>Silent design

»»EBM fan with operating noise as low as 40dBA
»»Double layer shell for noise isolation »»Armacell insulation and noise reduction materials are used inside the unit and in the piping.
»»The interior of the unit adopts world-class soundproofing materials
»»Deutschland Craftsman Spirit Crafted with Exquisite Craftsmanship

>Intelligent energy-saving

»»Multifunctional intelligent control system
»»CAREL controller,frequency converter, and independently developed operational logic that can be connected to the Internet of Things
»»Complete automatic protection functions, most of which can automatically reset (protect the host while reducing maintenance)



aero 028i/2 R

aero 028i/2 R 辐射定制双工况一体机

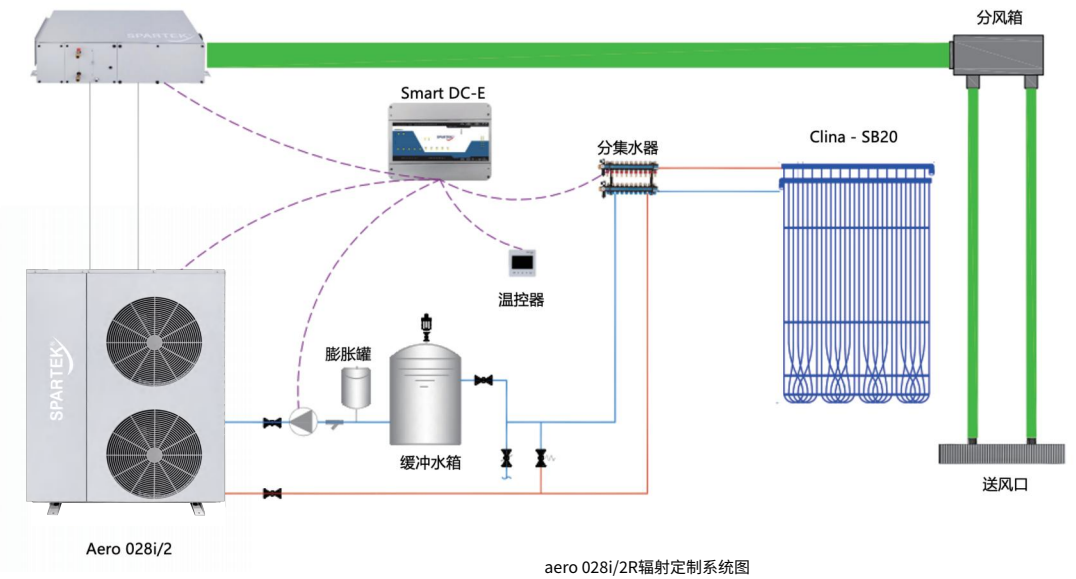
产品名称 Description	压缩机类型 Compressor	压缩机数量 Compressor	工况 Operation point 3)			性能参数 Perfomance data 1) 末端形式/压缩机转速 Revolutions per second	制热/制冷量 heating/cooling capacity	用户侧水流量 Water flow for user	用户侧水压降 Pressure drop of user	输入功率 Power input	运行电流 Current	制热/制冷能效比 COP/EER	尺寸 H×W×D Dimensions H×W×D 2)	约重量 approx. weight
							[kW]	[m3/h]	[kpa]	[kW]	[A]	[-]	[mm]	[kg]
SPARTEK aero 028i/2 R *特别为户式毛细辐射空调系统定制 *special design for capillary air conditioning system	双压缩机 two compressors 变频转子式 Inverter-rotary	2	制热 Heating	供给毛细与新风机 For capillary ceiling and fresh air unit	A7/W35 + 制冷剂	毛细管侧 Capillary	11.02	3.16	16.80	2.68	15.23	4.11	1455 x1105 x530	160
						新风机侧 Fresh air	11.42	/	/	2.87	16.31	3.98		
			制冷 Cooling	供给毛细与新风机 For capillary ceiling	A35/W16 + 制冷剂	毛细管侧 Capillary	13.20	3.79	22.60	2.65	15.06	4.98		
						新风机侧 Fresh air	10.45	/	/	2.66	15.11	3.93		

产品名称 Description	最大电流输入 Max.Current Consumption	电源输入 Power Supply	最高出水温度 Max.Flow Temperature	用户侧接管管径 Pipe Diameter for user	地源侧接管管径 Pipe Diameter for Source	水力接口尺寸 Hydraulic Connections	制冷剂 Refrigerant	制冷剂重量 Refrigerant Weight	噪音水平 Sound Pressure Level	建议电源线径 Suggest Wire Diameter	建议空开 Suggest Air Switch
	[A]	[V.Ph.Hz]	[℃]	—	—	—	—	[Kg]	[dB(A)]	[mm^2]	[A]
SPARTEK aero 028i/2 R	2x16	220;1;50	55	1"	/	1"	R410a	1.76+3.3	49	6	40

1) 根据DIN EN 14511 according to DIN EN 14511
2) 请给接口留出足够的安装空间 please consider enough space for the connections
3) A7/W35表示环境温度7°C，出水温度35°C
A7/W35 indicates that the ambient temperature is 7°C and the outlet temperature is 35°C

aero 028i/2R 辐射定制双工况一体机新风机内机

尺寸	800x1300x300 mm
过滤等级	G4/H11
最大制冷量	10.5 kW
最大新风承担冷负荷	4.3 kW
最大新风量	500 m^3/h
电机	直流无刷
出风温度	≥16°C
除湿量	出风绝对含湿量 <8.0 g/kg



aero 028i/2R辐射定制系统图

SERIE aero plus 低温空气源热泵

德国思帕aero plus系列低温空气源热泵采用喷气增焓技术，能够使热泵在低温环境下高效运行，为用户提供舒适的采暖和制冷服务。

类型：空气/水
COP: A7/W35 工况下最高COP值为4.89
*A7/W35表示环境温度7°C，出水温度35°C

优势一览：

»»出水温度控制精度为±0.1°C，保证辐射系统的安全运行

»»核心部件选型和生产过程均满足CE标准

»»钣金喷涂工艺满足ISO12944 C4 high要求，设计使用寿命超过20年，适用于恶劣的腐蚀环境，如海洋沿岸地区

»»翅片特殊涂层处理，结合智能除霜逻辑，保证最小化霜时间

»»卡乐控制器、变频器，思帕优化运行控制逻辑，可接入物联网远程读取

»»内置软件硬件保护逻辑，提高全生命周期运行寿命，降低设备维护风险和成本

»»高效除霜策略，按需除霜

»»德国EBM风机,全系列产品运行噪音不超过59dBA

»» 零下20°C下可保证稳定50°C出水

Serie aero plus

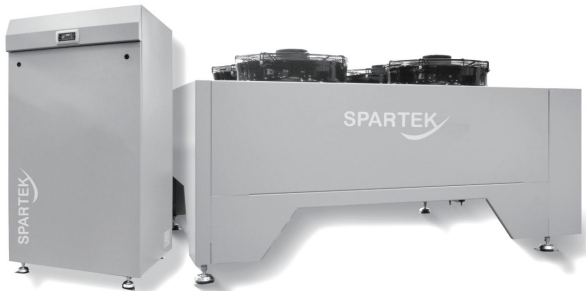
Low temperature air source heat pump

SPARTEK aero plus series low-temperature air-source heat pump adopts the Enhanced vapor injection, which enables the heat pump to operate efficiently in low-temperature environments, providing users with comfortable heating and cooling services.

Types: Air/water
COP:A7/W35 up to 4.89
*A7/W35 means water output 35°C， under air source temperature 7°C

Advantages at a glance:
»»High precision water temperature control, with an accuracy of up to ± 0.1 °C
»» The core components and the production process all meet CE standards
»» The metal coating process meets the high requirements of ISO12944 C4 and is designed for a service life of more than 20 years
»»Unique intelligent defrosting logic ensures minimal frost time
»»Special coating treatment for fins, with large spacing and mechanical frost resistance
»Smart multi-function control system, control logic is developed by Spartek
»Ensure 50°C flow temp at -20 °C

aero plus 176 R

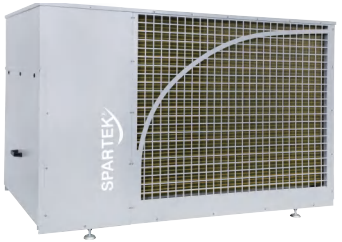


aero plus Split 088 R

aero plus 010i R

aero plus 026i R

aero plus 044 R



aero plus 088 R

SERIE aero plus 低温空气源热泵

产品名称 Description 产品编号 Ordemumber	制冷剂 Refrigerant	压缩机类型 Compressor	工况 Operation point 3)		性能参数 Perfomancedata1) 功率等级 Capacity levels	制热/制冷量 heating/cooling capacity	输入功率 Power input	运行电流 Current	制热/制冷能效比 COP/EER	最大电流输入 max.current consumption	电源输入 Powesupply	电源线径 Wirediameter	空开 Airswitch	最高出水温度 Max.flow temperature	水力接口尺寸 Hydraulic connections	尺寸 HxWxD Dimensions HxWxD 2)	约重量 approx. weight	距离1m内的声压等级 Sound pressure level
						[kW]	[kW]	[A]	[-]	[A]	[V]; [Ph]; [Hz]	[mm]	[A]	[℃]		[mm]	[kg]	[dB]
SPARTEK aeroPlus010iR	R410a	转子式 Rotary	制热 Heating	A7 /W45	20%-100%	9.9	3.1	15.4	3.25	20	380;3;50	4	40	55	1"	1200*400*820	110	48
			制冷 Cooling	A35/W7	20%-100%	7.6	2.4	12.2	3.15									
SPARTEK aeroPlus026iR	R410a	涡旋式 Scroll	制热 Heating	A7 /W45	20%-100%	25.6	7.2	12.2	3.56	17	380;3;50	6	40	55	11/4"	1612*1100*415	190	58
			制冷 Cooling	A35/W7	20%-100%	22.5	6.7	11.3	3.35									
SPARTEK aeroplus044Rh	R407c	涡旋式 Scroll	制热 Heating	A-15 /W35	100%	21.2	7.8	13.2	2.71	27	380 ; 3 ; 50	10	40	62	1 1/2"	2115*1260*775	460	56
				A7 /W35		35.3	7.7	12.9	4.60									
				A-15 /W55		22.8	11.3	19.1	2.02									
				A7 /W55		38.0	11.6	19.6	3.28									
aeroplus044Rc			制冷 Cooling	A35 / W7		32.8	11.2	18.9	2.93									
SPARTEK aeroplus088Rh	R407c	涡旋式 Scroll	制热 Heating	A-15 /W35	50% / 100%	45.4	14.9	25.2	3.04	54	380 ; 3 ; 50	16	63	62	2"	1510*2315*1320	790	59
				A7 /W35		74.1	15.1	25.6	4.89									
				A-15 /W55		49.6	21.6	36.4	2.30									
				A7 /W55		78.4	23.5	39.7	3.34									
aeroplus088Rc			制冷 Cooling	A35 / W7		65.2	21.4	36.2	3.04									
SPARTEK aero plus 176 Rh	R407c	涡旋式 Scroll	制热 Heating	A-15 /W35	25%/50%/ 75%/100%	84.8	31.1	52.5	2.73	54*2	380 ; 3 ; 50	16*2 4)	63*2 4)	62	2 1/2"	2265*2130*2260	2300	59
				A7 /W35		140.0	32.0	54.1	4.37									
				A-15 /W55		92.1	45.0	75.9	2.05									
				A7 /W55		146.4	47.8	80.7	3.06									
aero plus 176 Rc			制冷 Cooling	A35 / W7		130.4	44.8	75.6	2.91									

1) 根据DIN EN 14511 according to DIN EN 14511
2) 请给接口留出足够的安装空间 please consider enough space for the connections
3) A7/W35表示环境温度7°C，出水温度35°C A7/W35 indicates that the ambient temperature is 7°C and the outlet temperature is 35°C
4) 两个供电回路

SERIE aero plus split 分体式低温空气源热泵

德国思帕 aero plus 系列低温空气源热泵通过采用喷气增焓技术，能够使热泵在低温环境下高效运行，为用户提供舒适的采暖和制冷服务。德国思帕 aero plus spilt 分体式低温空气源热泵不仅能满足低温环境运行工况，同时分体式的设计对压缩机等核心部件和水力元件起到防冻保护措施，也可以定制能源箱设计将多台 aero plus spilt 放置于箱体内，满足分布式能源需求。

优势一览：

＞设计独特

»»室外机不含压缩机，大幅度降低运行噪音

»»室外机不含水力元件，冬季没有受冻风险

»»室外外形尺寸紧凑，便于现场布置

»»室内机外形尺寸紧凑，便于机房内布置，同时降低运行噪

＞性能出众

»»出水温度控制精度为±0.1℃，保证辐射系统的安全运行

»»核心部件选型和生产过程均满足CE标准

»»钣金喷涂工艺满足ISO12944 C4 high要求，设计使用寿命超过20年，适用于恶劣的腐蚀环境，如海洋沿岸地区

»»翅片特殊涂层处理，结合智能除霜逻辑，保证最小化霜时间

»»卡乐控制器、变频器，思帕优化运行控制逻辑，可接入物联网远程读取

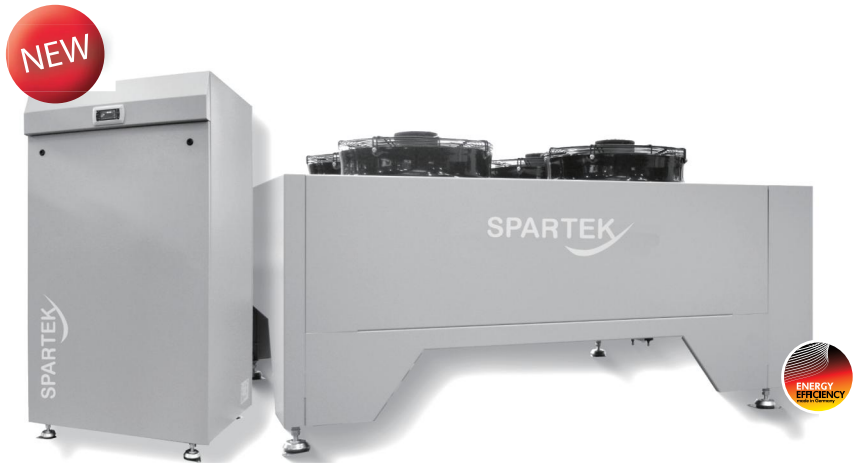
»»集成温度补偿运行设计

»»内置软件硬件保护逻辑，提高全生命周期运行寿命，降低设备维护风险和成本

»»高效除霜策略，按需除霜

»»德国EBM风机,全系列产品运行噪音不超过59dBA

»» 零下20°C下可保证稳定50°C出水



Serie aero plus split

Low temperature air source heat pump

Spartek aero plus 088 Split is a split cryogenic air source heat pump developed by SPARTEK. A technology called Enhanced Vapor Injection (EVI) is applied to expand operating range. The refrigerant can be cooled through EVI (enthalpy is increased in this way), so that its temperature can be increased much higher by compression. High COP can be ensured even when it comes to low outdoor air temperature but high outflow temperature is required.. The split installation also makes this heat pump flexible to install and easy to operate and maintain.

Advantages at a glance:

> Special design

» The outdoor unit does not contain a compressor, significantly reducing operating noise

» No hydraulic elemen outside, no risk of frosting

» Compact outdoor dimensions, easy to arrange on site

» The indoor unit has compact dimensions, which makes it easy to arrange in the machine room and reduces operating noise.

> Good performance

»»High precision water temperature control, with an accuracy of up to ± 0.1 °C

»» The core components and the production process all meet CE standards

»» The metal coating process meets the high requirements of ISO12944 C4 and is designed for a service life of more than 20 years

»»Unique intelligent defrosting logic ensures minimal frost time

»»Special coating treatment for fins, with large spacing and mechanical frost resistance

»Smart multi-function control system, control logic is developed by Spartek

»Ensure 50°C flow temp at -20 °C

SERIE aero plus split 分体式低温空气源热泵

产品名称 Description 产品编号 Order number	制冷剂 Refrigerant	压缩机类型 Compressor	工况 Operation point 3)		性能参数 Perfomance data1) 功率等级 Capacity levels	制热/制冷量 heating/cooling capacity	输入功率 Power input	运行电流 Current	制热/制冷能效比 COP/EER	最大电流输入 Max. flow temperature	电源输入 Power supply	电源线径 Wire diameter	空开 Air switch	最高出水温度 Max. flow temperature	水力接口尺寸 Hydraulic connections	尺寸 H x W x D Dimensions H x W x D 2)	约重量 approx. weight	距离1m内的声压等级 Sound pressure level
						[kW]	[kW]	[A]	[-]	[A]	[V]; [Ph]; [Hz]	[mm]	[A]	[°C]		[mm]	[kg]	[dB]
SPARTEK aero plus Split 088 Rh	R407c	涡旋式 Scroll	制热Heating	A-15 /W35	50% / 100%	40.8	15.0	25.4	2.71	54	380 ; 3 ; 50	16	63	62	2"	外800*1860*1380 内1650*895*775	外350 内520	59
				A7 /W35		69.1	15.6	26.3	4.44									
				A-15 /W55		45.3	21.0	35.4	2.16									
				A7 /W55		71.7	23.6	39.8	3.04									
aero plus Split 088 Rc			制冷Cooling	A35 / W7		65.6	22.4	37.8	2.93									

1) 根据DIN EN 14511 according to DIN EN 14511
2) 请给接口留出足够的安装空间 please consider enough space for the connections
3) A7/W35表示环境温度7°C，出水温度35°C A7/W35 indicates that the ambient temperature is 7°C and the outlet temperature is 35°C

德国思帕 classic i/classic power i
全变频水地源热泵

地源热水泵
Water/Water heat pumps

eco INVERTER TECHNOLOGIE

NEW

classic i

A+++ 4)

NEW

classic power i

classic

SERIE
classic i/classic power i
水地源热泵

德国思帕 classic i/ classic power i 系列全变频水地源热泵，可用于制热、制冷以及生活热水(控制可选),灵活性强。配置变频压缩机，功率范围为2-35kW，保证热泵全年稳定高效运行。其中classic power i 系列额外集成了用户侧与地源测的高效变频水泵、双膨胀水箱以及流量开关。也集成膨胀水箱、高效循环水泵等部件，集成度更高，更适配机房位置有限的用户。为系统提高COP值以降低能耗，德国思帕classic系列水地源热泵配备意大利Carel控制系统，优化控制逻辑以提高系统能效，是新能源被动房和系统升级改造项目的首选方案。

类型：水/水，水/盐水溶液

功率范围：2 - 35kW（制冷）

COP：B0/W35高达4.82 W10/W35高达 6.1

*B0/W35表示源侧盐水溶液0°C，出水温度35°C

W10/W35表示源侧水溶液10°C，出水温度35°C

优势一览：

＞性能出众

»»高精度水温控制，精度高达±0.1°C

»»COP最高可达6.10（W10/W35）

»»变频压缩机，classic power i 系列 配置变频水泵

»»最高出水温度可达60°C

＞静音设计

»» 运行噪音低于 50dBA，外壳为一体焊接式设计，设备内壁以及管道外壁采用德国 Armacell 吸音绝热材料保护

»» 多重减震措施，减少共振

»» 双层外壳，隔绝噪音

»» 德国工匠精神精工打造

> 智能节能

»» 多功能智能控制系统

»» 卡乐控制器，变频器，运行逻辑自主研发

»» 可接入物联网，全机上百个参数一目了然，足不出户解决售后问题

»» 齐全的自动保护功能，能自动复位（ 保护主机同时又能减少维护 ）

Serie classic i

Heat pumps of the SmartHeat classic i series offer unrivalled flexibility and can be used for heating, cooling and hot water preparation (with or without chosen external storage system of your choice). The SmartHeat classic i units are designed for an output range from 2-35 kW, where high-efficiency compressors are the most effective solution for year round operation. Advanced inverter technology combined with an electronic expansion valve guarantees high COPs and low consumption costs. In addition, the size of the buffer storage tanks can be significantly reduced. The wide range of available extras and accessories make the SmartHeat classic i one of the most versatile heat pumps in the market, as these units can be adapted to meet virtually any project requirements. SmartHeat classic i units are there fore widely used in projects as diverse as new pas sive energy houses and heating system renovations.

Types: water/water Brine/water

Capacity range: 2 - 35 kW(Cooling)

COP: B0/W35 up to 4.82 W10/W35 up to 6.10

Advantages at a glance:

> Good Performance

» Efficiency level reaches A+++ in Europe(Highest)

» Flow water temperature control accurately, the accuracy of temperature control is ±0.1 °C

» High COP, up to 6.10(W10/W35)

» Frequency conversion compressor

» Max. heating flow temperature up to 60°C

> Silence

» Sound-insulated, sound pressure less than 50dBA

» Muti-stage vibration decoupling

» Double-deck housing

» The interior of unit use the well-known sound-insulated materials

» Made by German craftsman spirit, superb assembly process and strict quality process control

> Intelligence

» Smart multi-function control system

» Controller and inverter supplied by Carel, control logic is developed by SmartHeat

» Could be connected to the Internet of Things, parameters are easy to real, after-sales can be solved remotely

» Complete automatic protection functions. Most of which can be reset automatically(protecting the equipment while reducing maintenance)

SERIE classic i 水地源热泵

产品名称 Description	压缩机 类型 Compressor	压缩机 数量 Compressor	工况 Operation Point 3)			性能参数 Perfomance Data 1) 压缩机 转速 Revolutions Per Second	制热/ 制冷量 Heating/ Cooling Capacity	用户侧 水流量 Water Flow for User	用户侧 水压降 Pressure Drop of User	地源侧 水流量 Water Flow for Source	地源侧 水压降 Pressure Drop of Source	输入 功率 Power Input	运行 电流 Current	制热/制冷 能效比 COP/EER	尺寸 HxWxD Dimensions HxWxD 2) 外壳尺寸 dimensions of housing	带接口 with connections
							[kW]	[m^3/h]	[kPa]	[m^3/h]	[kPa]	[kW]	[A]	-	[mm]	[mm]
classic 032i/ classic power 032i	变频涡旋式 Inverterscroll	1	制热 Heating	地暖供暖 Floor Heating	W10/W45	min (20rps)	5.27	0.91	/	1.18	/	1.21	12.32	4.36	classic i 1060 x 600 x 620 classic power i 1060 x 900 x 700	classic i 1060 x 600 x 700 classic power i 1100 x 900 x 700
						max (120rps)	31.65	5.46	13.1	6.89	26.20	8.05	15.45	3.93		
				毛细辐射供暖 Capillary Ceiling	W10/W35	min (20rps)	5.57	0.96	/	1.33	/	0.98	10.52	5.71		
						max (120rps)	33.22	5.73	14.77	7.77	28.13	6.44	12.44	5.11		
			制冷 Cooling	风机盘管 Fan Coil Unit	W25 / W7	min (20rps)	5.07	0.87	/	1.01	/	0.81	8.92	6.30		
						max (120rps)	29.50	5.09	12.19	5.98	26.23	5.43	10.49	5.43		
				毛细冷吊顶 Capillary Ceiling	W25/W16	min (20rps)	6.38	1.10	/	1.26	/	0.98	10.20	6.53		
						max (120rps)	35.04	9.96	24.6	6.02	29.76	5.82	13.02	6.02		

产品名称 Description	最大电流输入 Max.Current Consumption	电源输入 Power Supply	最高出水温度 Max.Flow Temperature	用户侧接管管径 Pipe Diameter for User		地源侧接管管径 Pipe Diameter for Source		膨胀罐容积 Tank Volume for Source	制冷剂 Refrigerant	制冷剂 重量 Refrigerant Weight	约重量 Approx. Weight	噪音 水平 Sound Pressure Level	建议电源 线径 Suggest Wire Diameter	建议 空开 Suggest Air Switch
				classic i	classic power i	classic i	classic power i							
	[A]	[V,Ph,Hz]	[°C]	—	—	—	—	[L]	—	[Kg]	[Kg]	[dB(A)]	[mm^2]	[A]
classic 032i/ classic power 032i	24	400;3;50	60	1 1/4"	1 1/2"	1 1/4"	1 1/2"	classic power i 12L/12L	R407c	4.4	250	32-43	6	32

1) 根据DIN EN 14511 according to DIN EN 14511
2) 请给接口留出足够的安装空间 please consider enough space for the connections
3) W10/W35表示源测水温7°C，出水温度35°CA7/W35 indicates that the ambient temperature is 7°C and the outlet temperature is 35°C

SERIE Titan水地源热泵

德国思帕Titan系列产品是可以满足高负荷需求的大型热泵，可以与不同的热源系统并联。Titan系列机组根据不同需求装配高效涡旋式压缩机，通过多种可选择设备配置及多功能智能控制系统满足任何工程项目要求。

类型：水/水

功率范围：Titan 115—186Kw

优势一览：

»» 高效涡旋式压缩机

»» 大型铜焊接不锈钢板式换热器

»»R407c 制冷剂，最高出水温度可达 65°C

»» 机组外壳由喷涂钢板制成，钣金喷涂工艺满足ISO12944 C4 high 要求，设计使用寿命超过 20 年

»» 内置软件硬件保护逻辑，提高全生命周期运行寿命，降低设备维护风险

»» 多功能减震

»» 制热时源侧水温范围 -20~20°C

»» 源侧可在 -20°C运行

Serie Titan Water/ground source heat pump

SPARTEKTitan series is a large heat pump , which can be connected with different heat source systems, and is equipped with high-efficiency scroll compressors according to different needs, and meets the requirements of any project through a variety of optional equipment configurations and multi-functional intelligent control systems.

Types: water/water
Capacity range: Titan 115- 186 kW

> Standard features:
» High-efficiency scroll com pressors in tandem design
» Large copper-soldered stainless steel plate heat exchangers
» R407C refrigerant, max. heating flow temperature 65°C

»» The metal coating process meets the high requirements of ISO12944 C4 and is designed for a service life of more than 20 years
»Smart multi-function control system, control logic is developed by Spartek
» Range of source temperature -20~20°C (Heating)
» Ensure good performance under -20°C
» Sound-insulated housing made in powder-coated sheet steel
» Multi-function control system
» All electrical components installed and fully wired
» Hydraulic connections at the rear of the unit, adaptable
» Multi-stage vibration decoupling

产品名称 Description 产品编号 Ordernumber	制冷剂 Refrigerant	压缩机类型 Compressor	工况 Operationpoint		性能参数 Perfomancedata 1)					最大电流输入 max.current consumption	电源输入 Powersupply	电源线径 Wire diameter	空开 Air switch	最高出水温度 Max.flow temperature	水力接口尺寸 Hydraulic connections	尺寸 H x W x D Dimensions H x W x D 2)	约重量 approx. weight	距离1m内的声压等级 Soundpressure level
					功率等级 Capacitylevels	制热/制冷量 heating/cooling capacity	输入功率 Powerinput	运行电流 Current	制热/制冷能效比 COP/EER									
						[kW]	[kW]	[A]	[-]	[A]	[V];[Ph];[Hz]	[mm]	[A]	[°C]		[mm]	[kg]	[dB]
SPARTEK Titan176	R407c	涡旋式 Scroll	制热 Heating	W-5 /W35	25%/50%/ 75%/100%	115.0	27.6	46.6	4.17	54*2	380；3；50	16*2	63*2	65	2 1/2"	1210*1842*1275	950	51
				W20/W35		196.1	29.3	49.5	6.69									
				W-5 /W45		117.4	34.3	57.9	3.42									
				W20/W45		186.9	29.3	49.5	6.38									
				W-5 /W55		119.9	44.6	75.3	2.69									
				W20/W55		178.8	45.1	76.1	3.96									
				W10/W45		155.4	36.6	61.7	4.25									
			制冷 Cooling	W34/ W7		121.5	31.0	52.3	3.92									
				W29/ W7		124.1	28.5	48.1	4.35									

1) 根据DIN EN 14511 according to DIN EN 14511
2) 请给接口留出足够的安装空间 please consider enough space for the connections
3) A7/W35表示环境温度7°C，出水温度35°C A7/W35 indicates that the ambient temperature is 7°C and the outlet temperature is 35°C

SERIE Air单/双冷源除湿新风机

德国思帕 Air 是内置压缩机的除湿新风机系列，根据系统使用要求可选双冷源一体机或单冷源分体机解决方案，可实现深度除湿、加湿、温度控制、远程操作。采用高效EC风机和双层隔板的钣金设计，降低噪音，防止结露。

德国思帕Air全系列除湿新风机产品通过《强制性产品认证管理规定》CCC认证

类型：除湿新风机

风量范围：双冷源一体机300/500m³/h

单冷源分体机300/500m³/h

减小空间 Compact Size

·同等风压风量工况下，送风风机体积更为紧凑，大大节省新风整机内部空间，可以实现大风量、小型化，同时风机设计安装方便，全生命周期维护便捷。

降低噪音 Noise Reduction

·超静音风机，降噪结构设计，噪音性能优于行业标准与平均水平，助力设计静音型新风机产品。

EMC达标 EMC Complied

·控制驱动硬件EMI与EMS 设计，符合国家以及行业标准。

提高净化能效 Purification Energy Efficiency Improvement

·风道设计及选型技术支持，优化整机性能，提升洁净空气量及净化能效，降低输入功率，助力设计高能效新风机产品。

提高空气性能 Aerodynamic Performance Improvemen

·无传感器恒风量功能使整机适用于配置高效净化滤网或送风排风管道的系统，可弥补各种风管系统设计不足，保证机组在不同管道条件下，输出风量恒定，性能稳定。

优势一览：

＞超薄机身，安装更便捷

»»超薄轻巧设计，宽窄度缩减，更易安装在浴室、厨房、储藏间等空间，更少占用天花吊顶

单冷源机组:L*W*H=837*700*283

双冷源机组:L*W*H=1150*670*310

Air 300/500双冷源除湿新风一体机

＞高品质外壳，最高至C4级喷涂

»»扎实的钣金用料，严苛的喷涂要求

»»ISO12944-C4喷漆工艺，使用寿命大于15年

SERIE Air单/双冷源除湿新风机

>超静音设计，高档运行内机噪声低至40dBA

»»EC风机，无极调速

»»变频压缩机，低噪高效

»»EPP整体发泡保温包裹。保证外钣金不结露，同时降低噪声

>双级物理过滤，隔绝室外污浊空气

»»G4+H11双级过滤，有效隔绝PM2.5、花粉、细菌

»»物理过滤，不产生臭氧等有害物质

»»抽拉式滤网，更换方便，可设定滤网更换时间

>冷凝热回收，节能舒适

»»利用压缩机冷凝热再热除湿后的新风，免费再热，避免冷热抵消造成浪费

»»节能同时提升压缩机效率

»»送风温度温和，最高26°C，避免除湿新风过冷

>蒸汽或湿膜加湿

»»内置加湿功能，蒸汽或湿膜加湿两种加湿形式可供选择

»»双冷源新风机组，在选择湿膜加湿时，为保证加湿效果，需注意供水温度不低于43°C

>模块化检修，维护更方便

»»机组各部件均为可拆卸模块，可在吊顶内进行各模块，降低维护成本

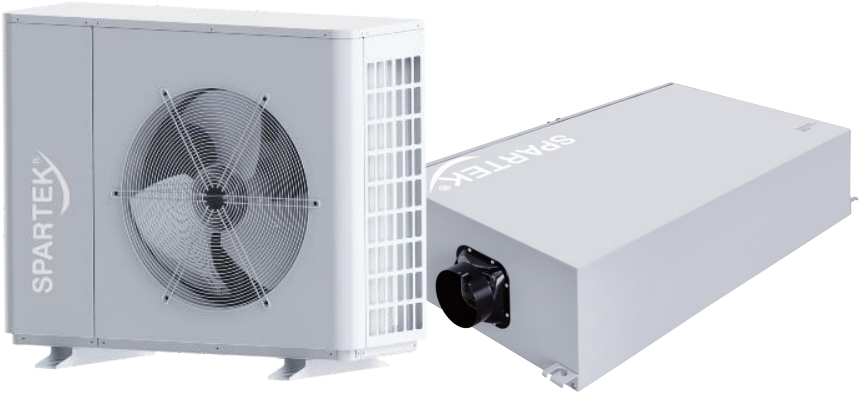
>智能化控制，多模式可选，自由切换

»»可选86彩色触摸控制屏

»»基本系统模式：节能、标准、强力、新风、制热模式

»»场景选择：居家，离家，聚会

»»防冻保护，过热保护，防过度除湿



Air aero spilt 300/500单冷源除湿新风分体机

SERIE Air

Air 双冷源除湿新风一体机

型号 Model	新风量 Air volume	机外余压 Machine pressure	送风口尺寸 Air outlet dimensions	取风口尺寸 Air inlet dimensions	除湿送风温度 Summer supply air temp.	制热出风温度 Winter supply air temp.	滤网等级 Filtration	冷却水进水温度 Cooling water supply temp.	冷却水出水温度 Cooling water return temp.	水流量 Water flow rate	除湿量* Dehumidification capacity*	水侧阻力 Flow resistance	供/回水接管尺寸 Supply/return water tube	冷凝水管尺寸 Condensate water tube	加湿接管尺寸 Humidification tube	尺寸 长*宽*高 Dimensions L*W*H	压缩机类型 Compressor	风机类型 Fan	额定功率 Power input	通讯协议 Communications	电源 Power supply	噪音值 Sound power level	整机重量 Weight
	m^3/h	Pa	mm	mm	℃	℃	/	℃	℃	m^3/h	kg/h	Kpa	inch	inch	inch	mm	/	/	W	/	/	dBA	kg
Air 300	300	120	p148	442x237	15~25	20~30	G4+H11	16	19	2	4.5	30	R1	R1/2	R3/4	1150*670*310	直流变频 DC	EC 电机	900W±5% 3.5A±5%	Modbus 485 RTU	220~50Hz	45	78
Air 500	500	150	189x389	442x237	15~25	20~30	G4+H11	16	19	2.5	8	30	R1	R1/2	R3/4	1150*670*310	直流变频 DC	EC 电机	950W±5% 5A±5%	Modbus 485 RTU	220~50Hz	48	86

Air 组合式空气处理机组

型号 Model	送风量 Air supply volume	排风量 Air exhaust volume	新风量 Air volume	送风侧机外静压 Air supply static pressure	排风侧机外静压 Air exhaust static pressure	尺寸 长*宽*高 Dimensions L*W*H	整机重量 Weight	滤网等级 Filtration	冷媒类型 Refrigerant type	加湿类型 Humidification	噪音 Sound power level
	m^3/h	m^3/h	m^3/h	Pa	Pa	mm	kg	/	/	/	dBA
Air6000	6000	4800	6000	500	400	5600*1274*946	841	G4/F9	R410A	高压微雾加湿	80.03
Air12000	12000	9600	12000	500	300	5700*1835*1456	1351	G4/F9	R410A	高压微雾加湿	79.69

SERIE Air aero split

Air aero split 单冷源除湿新风分体机

型号 Model	新风量 Air volume	机外余压 Machine pressure	送风口尺寸 Air outlet dimensions	取风口尺寸 Air inlet dimensions	除湿送风温度 Summer supply air temp.	制热出风温度 Winter supply air temp.	除湿量* Dehumidification capacity*	滤网等级 Filtration	室外机尺寸 长*宽*高 Outdoor unit dimensions L*W*H	风模块尺寸 长*宽*高 Indoor unit dimensions L*W*H	液管尺寸 Liquid tube	气管尺寸 Gaseous tube	排水接管尺寸 Drain tube	加湿接管尺寸 Humidification tube	压缩机类型 Compressor	风机类型 Fan	内机额定功率 Indoor unit power input	外机额定功率 Outdoor unit power input	电源 Power supply	内/外机噪音 Indoor/Outdoor sound power level	风模块重量 Indoor unit weight	室外机重量 Outdoor unit weight
	m^3/h	Pa	mm	mm	℃	℃	kg/h	/	mm	mm	mm	mm	inch	inch	/	/	W	W	/	dBA	kg	kg
Air aero split 300	300	120	Φ148	442x237	15~25	25~35	4.5	G4+H11	837*700*283	904*330*652	6.35	12.7	R1/2	R3/4	直流变频 DC	EC 电机	200	1560	220~50HZ	40/58	36	62
Air aero split 500	500	150	189*389	442x237	15~25	25~35	8	G4+H11	837*700*283	1200*330*823	9.52	16	R1/2	R3/4	直流变频 DC	EC 电机	200	2250	220~50HZ	40/58	36	72

* Air300/500加湿形式：蒸汽加湿/湿膜加湿可选

* PM2.5过滤效率：≥99%

*如需定制大风量设备，请询SPARTEK工厂

SPARTEK Smart control system
思帕智控系统

思帕云管理平台，提供数据云平台管理系统，实现实时采集和多终端信息交互，历史数据时时调取，如出现故障报警信息第一时间发给紧急联系人。全球范围内项目地图，可实现远程多个项目协同。与AIoT结合，可实现漏氟预警，关键参数预报警，负荷预测，系统能效计算，碳计算等功能。

SPARTEK Smart control system providing data cloud platform management system, real-time collection and multi-terminal information interaction, historical data when accessing, such as failure alarm information sent to emergency contacts at the first time. Worldwide project map, which can realize Remote multiple project collaboration. Combined with AIoT, it can realize the functions of fluorine leakage warning, key parameter forecasting alarm, load prediction, system energy efficiency calculation, carbon calculation, etc.

思帕热泵智控系统

思帕热泵智控系统可满足复杂的温度需求和建筑管理要求，不仅使热泵与智能电网的整合，实现智能计量，更确保设备稳定运行。

＞标准功能

»卡乐/西门子电子控制器
»根据天气条件的变化（室外温度），可以自动连续地控制热泵，调节系统温度
»实现制热、制冷和生活热水制备的独立调节，为用户提供最佳的舒适感
»热水制备中集成消除军团杆菌模块
»防冻保护措施
»空气热泵除霜控制
»多个外设通信接口，包括可调节压缩机的控制装置
»多个热泵连接时接口预留（串联控制）
»对设备附带的额外第二热源进行控制
»对所有重要且与安全相关的设备配置进行密码保护
»可根据需要预设记录的变量
»所有参数均有故障安全储存
»内置电池作为后备电源
»智能电网接口
»利用智能钥匙系统进行软件更新和数据备份
»多种模拟量和数字量输入/输出
»广泛兼容的传感器和发生器
»数字SEPR计算器

＞附件

通信模块I：
用总线板完成热泵与设备管理系统的数据交换；Mod 协议监控记录，可选择 lonBus 或 BACnet 协议接口；

通信模块II：
用于实时监控的网卡配合用户操作界面，可以和互联网进行数据通信；
密码保护防止未经授权的访问。

SPARTEK smart control system

SPARTEK Heat Pump Intelligent Control System can meet complex temperature demands and building management requirements, not only enabling the integration of heat pumps with smart grids for smart metering, but also ensuring the stable operation of the equipment.

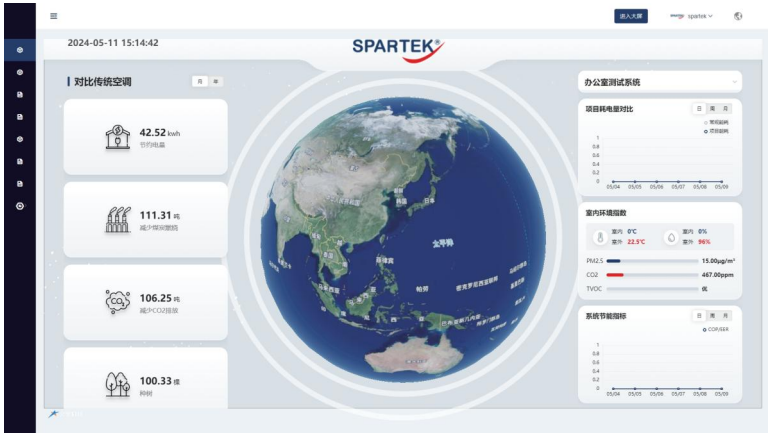
> Standard functions
»Carle/Siemens electronic controller
»According to the change of weather conditions (outdoor temperature), automatically and continuously control the heat pump and regulate the system temperature.
»Independent regulation of heating, cooling and domestic hot water preparation, providing users with optimal comfort
»Frost protection measures
»Controlled passive and/or active cooling (optional)
»Configurable defrost control for air/water heat pumps
»Automatic superheating control in cooling circuits by means of pressure and temperature sensors and one or more electronic expansion valves
»Monitoring of various safety limits in source, refrigerant and cooling circuit
»Communication interfaces for various peripherals, including control devices for adjustable com pressors
»Interfaces for the linking of multiple heat pumps
»Automatic activation of additional heat sources for bivalent operation
»Password protection for all critical and safetyrelevant unit configurations
»Monitoring of operating limits for certain compressor types
»Comprehensive range of predefined variables for data analysis
»Intuitive graphic user interface (available in various sizes)
»Plug-type connectors for all cables
»Power and switching electronics adapted to suit heat pump model
»Fail-safe storage of all parameter values
»Integrated battery for timer
»Smart grid communication interface
»Smartkey software updates and data backups

> Additional functional features*
»Various analogue and digital inputs / outputs
»Broad range of compatible sensors and actors
»Evaluation of single-ended and floating signals
»Digital SEPR calculator

> Accessories*
Communication module I:
Bus card for data exchange between heat pump and building management system, with ModBus monitoring log;
optional LonBus or Bacnet interface;
Communication module II:
Web card for real-time monitoring with intuitive user interface and data communication through the internet; optional data logging for selected parameters;
password protected to prevent unauthorised access.

思帕Smart能源管理云平台

思帕云管理平台，提供数据云平台管理系统，实现实时采集和多终端信息交互，历史数据时时调取，如出现故障报警信息第一时间发给紧急联系人。全球范围内项目地图，可实现远程多个项目协同。与AIoT结合，可实现漏氟预警，关键参数预报警，负荷预测，系统能效计算，碳计算等功能。



＞控制器配置

»»10路DO220v输出，用于控制小功率设备

»»2路（带常开常闭）无源干接点输出，用于控制大功率设备

»»1路0~10v模拟量输出，用于控制支持模拟量控制的设备

»»7路NTC温度读取，用于读取管路或者环境温度

»»4路485串口，用于接串口通讯设备

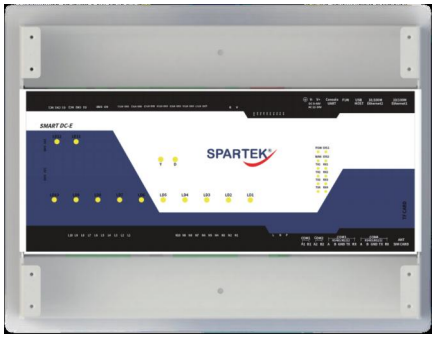
»»提供30W，DC12V和DC24V弱电电源，用于接弱电供电设备

»»标配4G模组，安装SIM卡后可以通过4G连接网络

»»2路100M，RJ45网口，用于网络连接

»»标配一路Usb串口，可接外设，例如wifi模块，使用wifi连接网络

»»标配一路Type-c口，用于连接超级串口线，进行系统调试



思帕SMART DC-E

＞思帕舒适系统智能小程序

»»提供多种情景供您选择，分别是居家、离家、聚会、度假，设置习惯参数自动切换。也开放自定义功能，设定您想要的室内状态

»»稳定：具备故障恢复和容错机制，以及能够应对网络、硬件等各种故障情况

»»安全性：智慧云平台具备了高级别的安全性，以保护用户数据和系统安全。这包括数据加密、访问控制、身份认证、漏洞修复等安全措施，以及符合相关安全标准和法规要求

»»弹性计算：智慧云平台具备了弹性计算能力，能够根据实际需求动态分配计算资源。这包括自动伸缩机制，能够根据负载情况进行资源的动态调整，以提高资源利用率和降低成本

»»数据管理：智慧云平台具备了高效的数据管理能力，能够对大规模数据进行存储、检索、分析和处理。这包括高速缓存、分布式文件系统、数据备份和恢复等功能，以及支持数据分析和挖掘的工具和算法

»»碳计算：空调系统作为建筑运行碳排放中的主力军，思帕舒适系统相较于传统空调的最大特点之一即是节能，将节碳数据量化并展示

»»PC后台：为授权合作伙伴开放数据分析和统计功能，项目实时上传并展示，实时曲线展示，分析系统和设备运行状态

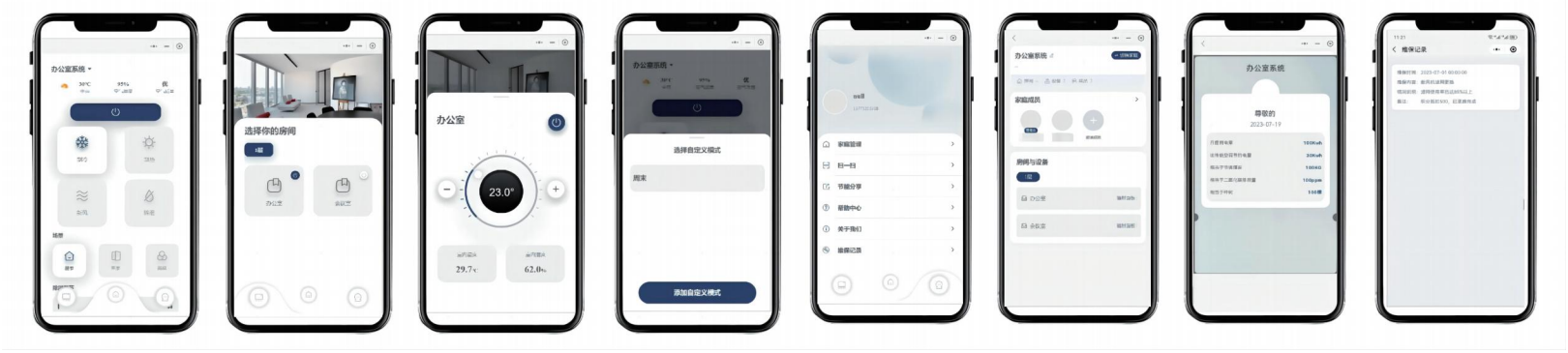
＞思帕云管理平台小程序

»» 采用 Linux 系统架构，系统开源，稳定，安全，系统资源管理效率高，兼容性强

»» 系统控制逻辑完善，可适配氟机、水机、多联机，风盘、地暖、毛细，混水、变风量等多种配置的场景

»» 具有夏季跟随室内露点供水逻辑，冬季随室外温度变供水温度逻辑，防过度除湿，设备防冻保护，室内防结露保护，节能模式和多末端自动控制等逻辑

»» 具有高扩展性，可以和小爱同学，天猫精灵，小度音箱等常规的能语音助手进行适配，让语音助手控制我们的设备



SERIE Accessories
系统模块

Distributor
集分水器

思帕集分水器由抗腐蚀塑料制成，确保长使用寿命和稳定性。由于集成的空气腔，无需加额外保温。

组件包含：

1. 流量计 (带调节阀)
2. 供回水温度计，球阀，压力表
3. 墙壁支架
4. 热力执行器 (24/230V)

The manifolds are made of corrosion-resistant plastic, to ensure a long service life and stability. No additional insulation is required.
Components included:
1. Flow meter (with regulating valve)
2. Supply and return thermometer, ball valve, pressure gauge
3. Wall bracket 4. Thermal actuator 24/230V

Water circulation center
混水中心

思帕混水中心应用于供热/制冷系统中，安装于热源和末端设备之间对系统介质进行循环。

组件包含：

三通混水阀、电动执行器、温度计、压力表、一体模块化设计、球阀、高效节能循环泵

Used in heating/cooling systems to circulate the system medium between the heat source and the equipment to circulate system.
Components include:3-way mixing valve, electric actuator, thermometer, pressure gauge, one-piece modular design, ball valves, energy efficient circulation pump.

Dewpoint controller
房间温湿度控制器

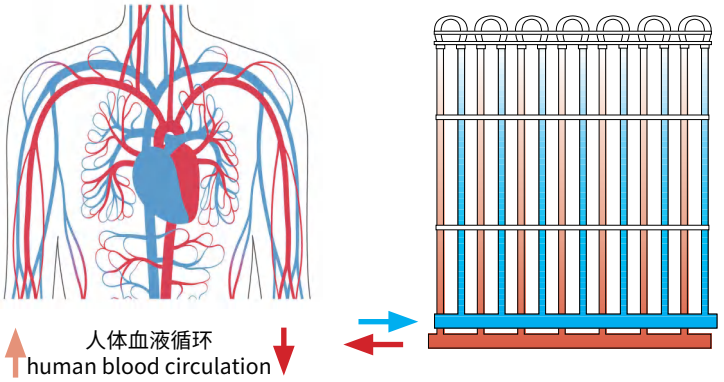
房间温湿度控制器适用于顶面或地面的单辐射系统或顶面加地面的辐射系统。通过室内温度和设定温度的比较，对辐射空调系统末端的热电阀进行控制，以达到调节室内温度、舒适和节能的目的，此外控制系统在辐射表面即将结露前，预先关闭进水阀门，起到防结露功能的智能控制。

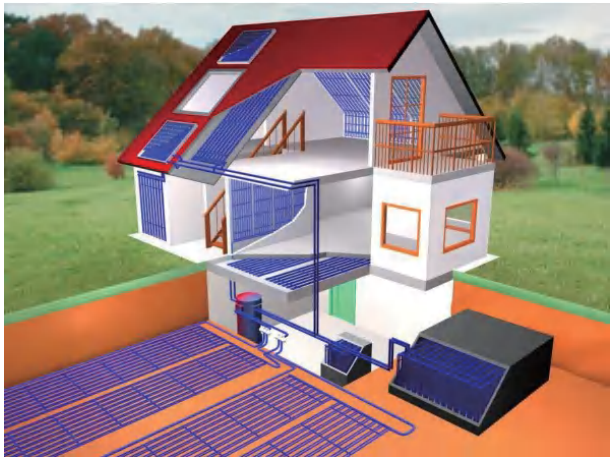
Dew point controllers are suitable for radiantion system. By comparing with the indoor temperature and the set temperature, the thermoelectric valve is controlled to regulate the indoor temperature. Before the surface is about to condense, the water inlet valve is closed in advance to prevent condensation, which is an intelligent control with anti-condensation function.

Clina Capillary Tubes
德国Clina毛细管

德国Clina毛细管的材质为聚丙烯，材料环境友好且使用寿命长，可提供4.3x0.8mm规格的毛细管席供顶面辐射抹灰使用。Clina毛细管系统以自然的方式为室内环境提供解决方案，让您的房间四季如春。

Clina capillary tubes are made of polypropylene, an environmentally friendly material with a long service life. Capillary mats of 4.3x0.8mm are available for radiant plastering of roof surfaces. The Clina capillary system offers solutions for indoor environments in a natural way.





Practical application of Clina capillary tubes in cooling/heating ceilings
Clina毛细管在供冷/供暖辐射吊顶中的实际应用

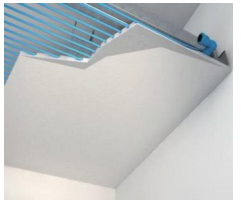
Introduction to capillary application
毛细管施工应用方法介绍

现场抹灰施工
Plastering on site

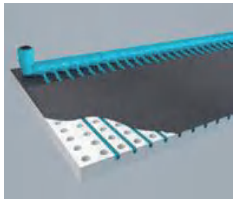

结构面抹灰
Structural Plastering


吊顶抹灰

石膏辐射板集成吊顶
Gypsum radiant panel integrated ceiling


一体化石膏板施工，无消音孔
One-piece gypsum board construction


一体化石膏板施工，有消音孔
Integrated plasterboard construction with sound deadening holes


预制毛细管辐射板
Prefabricated capillary radiant panels

金属辐射板集成吊顶
Metal Radiant Panel Integrated Ceiling


金属吊顶板
Metal ceiling panels


预制长跨度金属辐射板
Prefabricated metal radiant panels

重力柜
Cooling shaft


重力柜的应用
Cooling shaft

SERIE GRAVIMAT cooling shaft

德国思帕重力柜——无风感冷暖末端

COOLING

享受辐射生态

系统的舒适

DEHUMIDIFY

没有吹风感

却可以除湿

HEATING

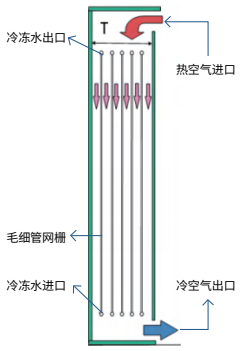
享受暖气片

系统的惬意

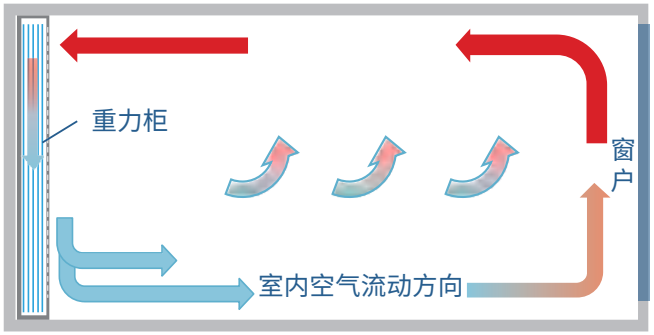
传统空调末端多为机械式，如风机盘管，强制空气流动，急促的气流吹风感强烈同时产生风机噪音。传统空调需要定期维护，冷热不均，使室内环境长期处于亚健康状态。

重力柜一个设备会帮您解决所有问题，在夏季，较热的室内空气从柜体的上部进入，被通有冷冻水（7°C）的毛细管网冷却，在重力的作用下，被冷却的空气向下流动，带走房间内的温度和湿度，全过程都不需要消耗额外的能量。在冬季，毛细管内需要45°C热水，辐射和自然对流结合为房间提供热量。

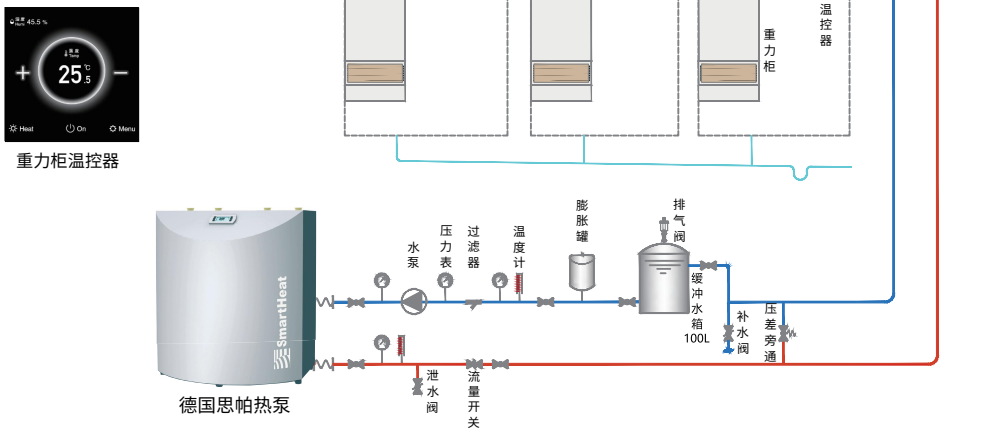
Traditional air conditioning require regular maintenance, leaving the indoor environment under a unhealthy condition.In summer, the warm indoor air enters from the upper part of the cabinet and is cooled by the capillary with chilled water (7°C). Under the action of gravity, the cooled air flows down and takes away the temperature and humidity in the room, and the whole process does not need to consume additional energy. In winter, 45°C hot water is required in the capillary tubes, and a combination of radiation and natural convection provides heat to the room.



图例：夏季工况



SERIE GRAVIMAT cooling shaft
重力柜系统



重力柜应用和传统水系统设计原理类似，整个系统需要热泵主机、水路分配器，并搭配控制系统实现房间温度控制，或进行远程控制。

但跟传统的风机盘管系统不同的是，重力柜把辐射和对流紧密结合，效果加倍，功能更强。再结合置换通风的原理，空调能耗较传统空调降低40%-60%。

夏季也可开窗，不畏室外湿度干扰，自主调节室内热湿环境，使房间与自然环境同呼吸。

The design principle of coolling shaft is similar with traditional water system , the whole system needs heat pump, water distributor, and with the control system to satisfy the room temperature.

Different with the traditional fan coil unit system, cooling shaft system combined with the replacement ventilation, the design capacity can be reduced by 40%-60% compared with the traditional air conditioning, reducing the energy consumption. In summer, you can also open the window independently, so that the room can breathe with the natural environment.

SERIE GRAVIMAT cooling shaft
重力柜参数及供冷供暖能力

磨砂黑（玫瑰金风口）　磨砂黑（土豪金风口）　格栅白　珍珠白/磨砂白　珍珠白/磨砂白（玫瑰金风口）

重力柜型号	GS-T/5	GS-S/5	GS-H/5
柜子净尺寸(mm)	2000x700x205	2250x1100x205	2500x1100x205
毛细管尺寸(mm)	1750x600	2000x1000	2250x1000
毛细管网片数	5	5	5
全热制冷量(7°C供水, 5L/min,W)	958	1640	1804
除湿量(26°C-60%, g/h)	569	959	1041
制热量(45°C供水, 5L/min,W)	707	1020	1096
建议匹配空调面积(m^2)	10~16	16~27	18~30

重力柜型号	GS-T/3	GS-S/3	GS-H/3
柜子净尺寸(mm)	2000x 700x155	2250x1100x155	2500x1100x155
毛细管尺寸(mm)	1750x600	2000x1000	2250x1000
毛细管网片数	3	3	3
全热制冷量(7°C供水, 5L/min,W)	692	1247	1374
除湿量(26°C-60%, g/h)	402	713	775
制热量(45°C供水, 5L/min,W)	561	910	990
建议匹配空调面积(m^2)	7~12	12~21	13~23

Air diffuser and distribution products
风量调节末端

Slot diffusers
条形风口

SLA

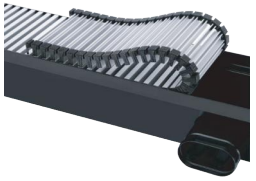
SLC

SLT

条形风口出风槽为1-4槽。
出风口角度可根据实际需要做调整。所占高度小，适用于各种吊顶内安装。
美观且大方，能配合各种设计风格，适用范围广。
风口诱导作用强，可快速消除送风温差，降低气流速度。

The air diffuser including 1-4 slots。
The angle of the air outlet can be adjusted according to the needs.
It is suitable for installation in all kinds of ceilings.
Beautiful and generous, with a variety of design styles, can quickly eliminate the temperature difference between the air supply and reduce the air velocity.

Displacement diffusers
地板格栅



AFD

GAL

地板格栅可用于送风和排风，亦可用于地板及墙体侧送风。
砖石结构处亦可安装，安装简便，适用范围广，可纵横扩展，并且送连接稳固，拆卸便捷。

Floor grilles can be used for supply and exhaust air, as well as for floor and wall side air supply. They can also be easy installed. It can be extended vertically and horizontally to form a large grille, and is firmly connected and easy to dismantle.

Air distribution
风量调节阀

CAVC unit

VAV terminal unit

CAVC定风量调节阀无需外部动力，为自动机械机构，适用于送风和排风，压差范围为50~1000Pa。入口前要求最小1.5D直管段，风量调节误差小于5%。
VAV变风量调节末端适用于各类办公建筑和家庭新排风用，产品设计和工艺沿用德国标准，高控制精度、快速控制响应、手机APP便捷调试、云端维护等特点。

CAVC constant air volume control valve does not need external power.It is suitable for air supply and exhaust, the differential pressure range is 50~1000Pa, and the minimum 1.5D straight pipe section is required before the inlet.The error of air volume adjustment less 5%.

VAV variable air volume regulating terminal is suitable for all kinds of office buildings and exhaust air system. The product designed by the German standard, high measurement accuracy, fast control response, iphone APP commission, and intelligent maintenance.

Reference
业绩

西门子斯图加特总部
应用型号：aero 168

埃尔福特歌剧院
应用型号:aero 080

罗斯托克大学图书馆
应用型号：Titan SW80

Kleine Traber 日间托儿中心
应用型号：aero plus 088

霍夫海姆兽医诊所
应用型号：Titan 120 BW

德国Bosbüll市区域集中供热
应用型号：aero 168

Reference
业绩

长春爱尔铃克铃尔工厂改造
地点:长春
业主:爱尔铃克铃尔
建筑类型:工业厂房
应用型号:aero plus 088
热源:工业废气
用途:热回收

应用热泵系统后,综合节能效果达到80%

BDR喜德瑞嘉兴工厂
应用型号:titan 729

丽枫酒店(天津梅江会展中心山姆会员店)
地点:天津
应用型号:能源箱

Reference
业绩

沈阳康莱德酒店热水系统

地点:辽宁沈阳

应用型号:Classic power 032i

用途:生活热水

月节省了约16万人民币的运行费用,仅3年就可以收回初投资成本。

上海市杨浦水质监测站

应用型号:aero 028i/2

屋顶配有光伏板,产生电能可用于建筑自身使用,或用锂电池储存,

也可用于氢气制备。

太保家园国际颐养社区

地点：上海、成都、杭州、崇明、厦门、南京、武汉等

应用型号：重力柜，aero系列热泵

舍弗勒大中华区总部及研发中心

地点：上海

应用型号：重力柜，金属冷辐射吊顶

Reference
业绩

上海古北壹号　　应用型号：aero 168

上海海泰北外滩项目　　应用型号：aero plus 044

南京九月森林　　应用型号：classic power 032i

上海御翠园　　应用型号：classic power 032i

Reference
业绩

上海华府天地　　应用型号：aero plus 044

上海翠湖天地　　应用型号：aero 168

淮海路老洋房　　应用型号：aero 032i

上海品臻园邻湖别院　　应用型号：classic power 032i

Reference
业绩

上海虹桥华庭

应用型号：aero 028i/2 **系统**

深圳水木一方

应用型号：aero 028i/2 **系统**

天津欣悦华庭

应用型号：aero 028i/2 **系统**

Reference
业绩

三亚京东智湾酒店

应用型号：aero 168

南京揽江府

应用型号：aero 028i/2

无锡路劲天御

应用型号：aero plus 088R

崇明三湘森林海尚

应用型号：classic power 032i **系统**

无锡印象剑桥

应用型号：aero plus 088R

上海露香园

应用型号：aero plus 088R split

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德国思帕热泵荣誉一览

- 1998年：制造首台污水热泵
- 2001年：在德国太阳能学会中获太阳能奖
- 2002年：荣获设计大奖—classic被评为产品系列中的经典
- 2002年：Bravour 系列产品获得技术奖—小型集成热泵的先锋
- 2004年：获最佳中型企业奖（德国）
- 2007年：引入变频器技术—变频热泵的先锋
- 2010年：Waterindoo游泳池项目获奖
- 2014年：smartheat titan 050bwi获得最佳产品奖
- 2019年：获中型企业大奖提名（德国）

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出版日期：2024年5月