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SPARTEK Official Account

SPARTEK Indoor Comfort System



A system for today and tomorrow

KST



MISSION

Make full use of renewable energy, provide the healthy & comfortable indoor environment, maximum reduction of energy consumption, to achieve a perfect balance between human living environment and sustainable development planet.

VISION

The leader of green ecological comfort system

1968

KST German established in Berlin, was the largest M&E institute in Germany



1991

SmartHeat established in Güstrow leader of variable frequency heat pump



1994

Clina established in Berlin, founder of capillary tube



1995

German Parliament Building, under cooperation between KST & Clina
It is a milestone project of capillary application

2004

KST established in Kunshan Jiangsu, China
It is the leading brand of air system terminal units

2014







KST China as the exclusive strategic partner with Clina
KST has become an exclusive partner

2018



SPARTEK(Suzhou), Joint-venture of KST China and SmartHeat, invested the workshop construction
SPARTEK, Complete the transformation from product supplier to system service provider

WIN-WIN SITUATION

	 USER	 OWNER	 ENVIRONMENT
MAX	 COMFORT	 PROFIT	 RENEWABLE ENERGIES
MIN	 HEALTH RISKS	 RUNNING COSTS	 MATERIAL FOOTPRINT

About Germany SPARTEK

SmartHeat Deutschland GmbH

-heat pump experts for more than 28 years

>Enterprise purpose

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.

>Simply SmartHeat

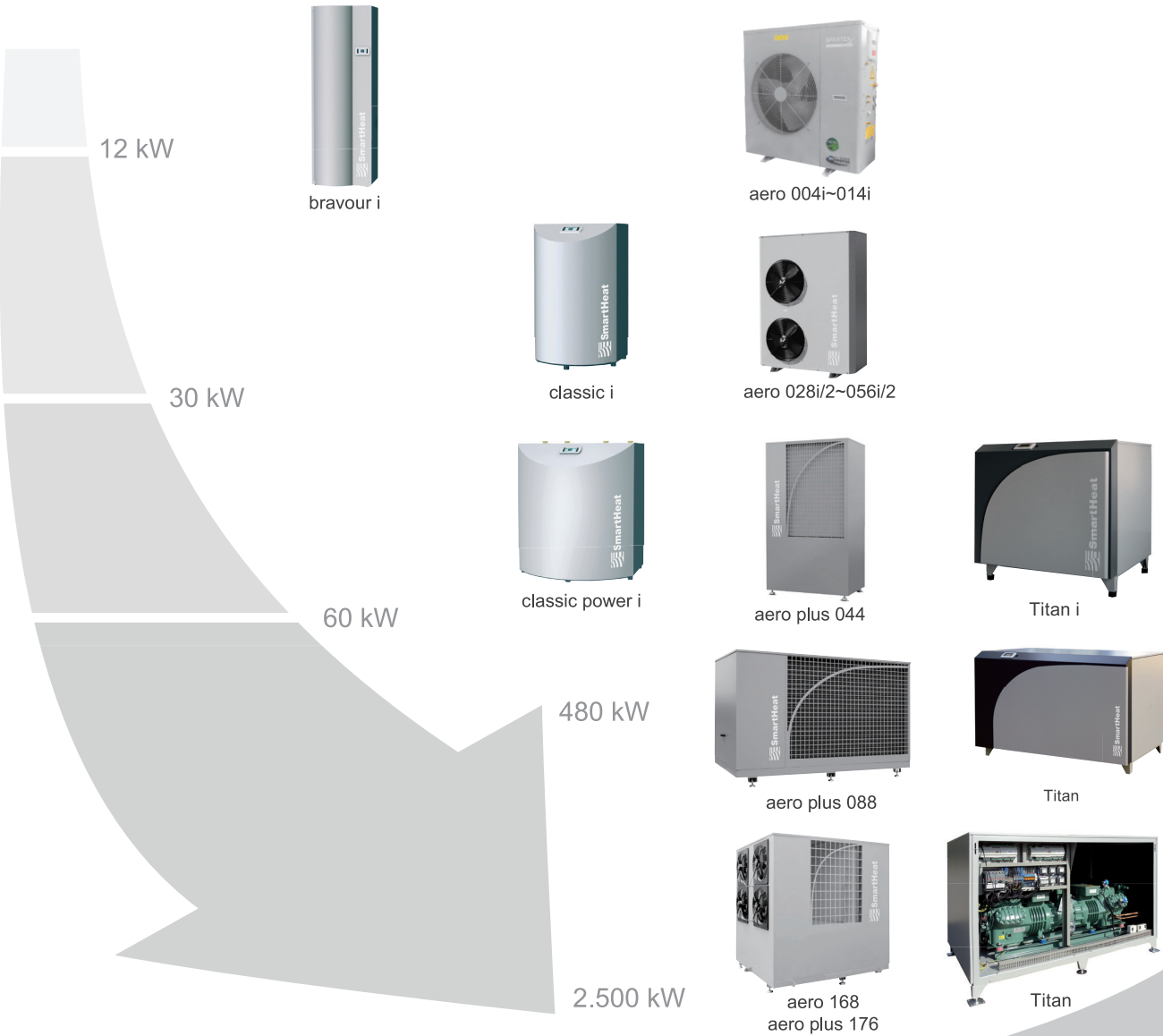
In our development projects,we cooperate with leading component manufactures from Germany and abroad. we are therefore able to offer our clients the best possible solutions for their projects.When it comes to quality and efficiency, we never compromise. Thanks to our passion for innovation,as a technology leader,we offer custom-engineered solutions that are not only future-proof but reflect the latest developments in technology.Whatever your project-SmartHeat has a technology

CERTIFICATE SPARTEK

- 1998: First wastewater heat pump in northern Germany
- 2001: Award of the companies group with the solar prize of the German Society for Solar Energy
- 2002: Design award - recognition for the product series Classic
- 2002: Technology prize for product series Bravour (pioneer of compact heat pump)
- 2004: Award of the companies group with the Finalist of the Grand Prix of Medium-Sized Enterprises
- 2007: Introducing the inverter technology – the pioneer of inverter heat pump
- 2010: Award for the project Sea Water Indoor Swimming Pool
- 2014: Award of SmartHeat Titan 050 BWi with the BEST of the Industry Prize
- 2019: Award of the companies group with the Finalist of the Grand Prix of Medium-Sized Enterprises

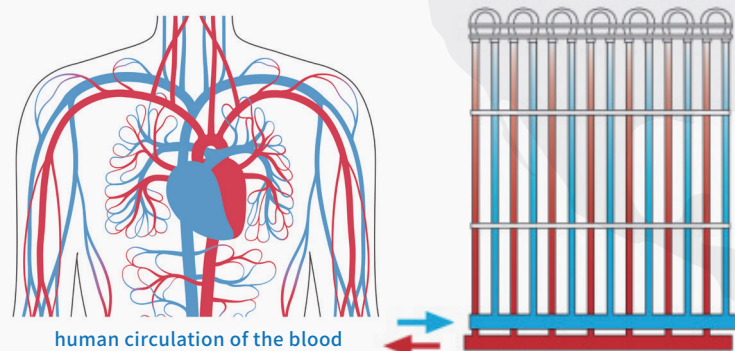


Capacity range	bravour i	classic i	aero	Titan
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Clina capillary (from nature)

Clina capillary in Germany is made of polypropylene (PPR), which is environmentally friendly and has a long service life. There are not only 3.4x0.55mm (outer diameter x wall thickness) capillary mats, but also 4.3x0.8mm capillary mats for top surface radiation plastering. Clina capillary system provides solutions for the indoor environment in a natural way, making your room spring all the year round.

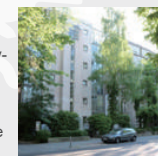


Like the human blood circulation system, the capillary system is designed according to human bionics. It exchanges energy through water flowing in a very thin capillary tube to cool or heat the room. It is the most efficient, energy-saving and environmentally friendly indoor temperature regulation method in the contemporary era.



1983

The energy-saving house built for the 1987 World Architecture Expo was completed in West Berlin. The energy-saving house was installed and applied with the five most advanced new energy-saving technology and equipment at that time to compete the energy-saving effect. The Clina radiant system finally won the competition



1983

German Clina was founded by Mr. BechirChahed in 1994. The company has become a leading manufacturer of capillary technology in the world now. Mr. BechirChahed has been engaged in the development of capillary technology for 37 years. He has been trying new ideas for many years, applying capillaries to various new fields



At the beginning of its establishment, company provided capillary for the design and renovation of the Reichstag Building, which became a milestone of the Clina capillary radiant system in the construction renovation project

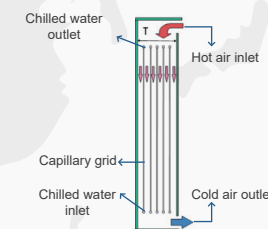
1998

OPTMAT SB 20 capillary was developed for harsh construction conditions



1997

Research and development of Gravimat with dehumidification function and continuous optimization design have been recognized by many projects



1995

Clina wins the gold medal at the Interclima trade fair for energy-efficient building technology in Paris.



2009

Chairman and CEO of Clina Bechir Chahed and Federal Environment Minister Sigmar Gabriel



2018

Production capacity will be significantly increased in March 2018. Clina is investing in state-of-the-art production facilities for capillary tube mats at its second production site in Spreenhagen.



PATENT 专利



5S SYSTEM FEATURES



Self-clean



Solve the problem of traditional air conditioning
The problem of dirt in the filter screen
Avoid secondary cross pollution and air conditioning disease



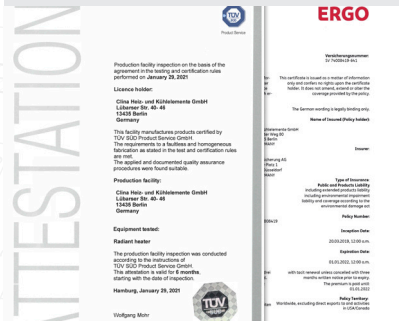
Silence



Truly realize "zero noise" to create a quiet work and rest environment



Safety



The system operates safely and stably, maintenance-free capillary provides a global joint guarantee of 15 years of service life and the same life as the building



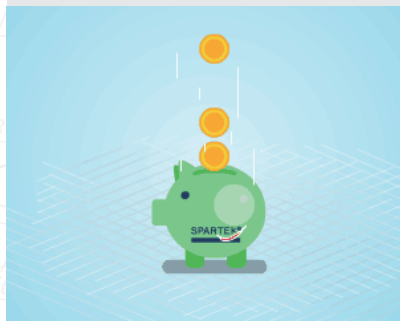
Simplify



Easy to install, suitable for surface and concealed installation
Closely combined with decoration
Easy installation



Saving



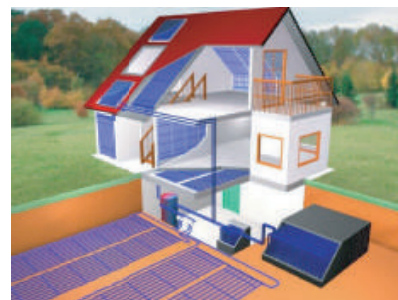
No mechanical power unit
Combined with natural convection and displacement ventilation Compared with traditional air conditioning, system energy consumption can be saved at least 40%-60%

Indoor Comfort System

—Capillary radiation cooling & heating

The capillary comfort system installed on the wall, floor and ceiling radiates to the whole area of the room, creating a natural, comfortable and energy-saving indoor climate.

- Based on the radiation comfort principle
- The indoor heat distribution uniform
- Fast response temperature
- Noiseless operation
- No dust and odor
- Perfect integration with architecture



When capillary radiation heating/cooling is used, because the capillary is installed on the interior wall, ceiling and floor of the building, the radiation heating/cooling capacity per unit area is large, the response time is fast, natural, healthy and comfortable.

When capillary radiation heating is used, the perceived temperature of human body is greater than the indoor air temperature, which can reduce the design temperature; The heating temperature of 30 °C - 32 °C can meet the heating requirements in winter; It is far lower than the water temperature requirements of conventional floor heating (40 °C - 45 °C) and radiator (65 °C), greatly improving the COP of heat pump.

When capillary radiation cooling is used, the perceived temperature of human body is lower than the indoor air temperature; The cooling water supply temperature is 16 °C - 19 °C. The high temperature water cooling improves the COP of heat pump, and the operation energy consumption is low.



goldmedalinterclima,Paris 1995

Clina capillary system is a comfortable air-conditioning system after years of practical experience in many projects around the world. Clina guarantees the quality of capillary grids for 15 years.

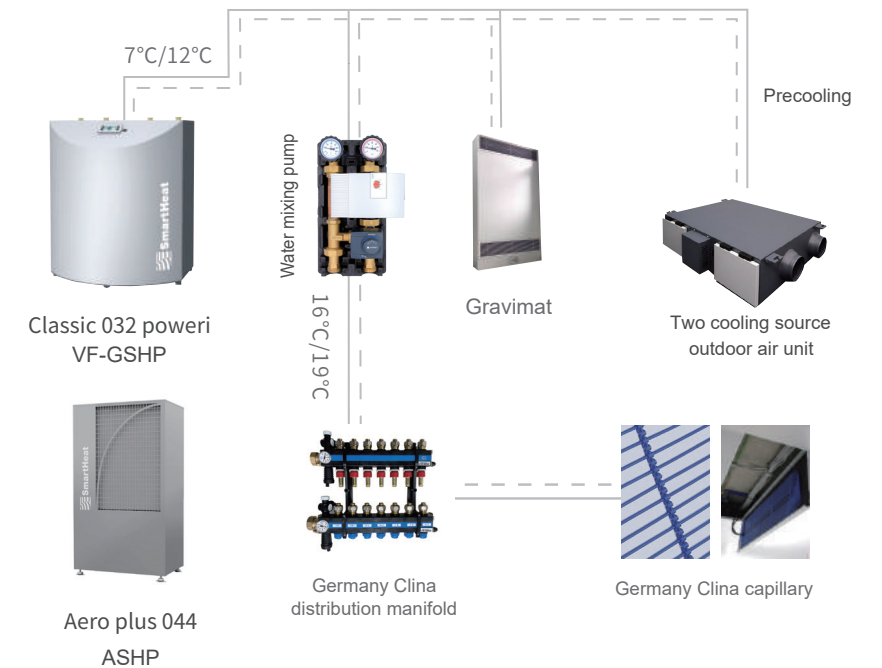


SPARTEK Comfort System
—Customized edition
 For High-end villa

System characteristics and adaptation area:

- The indoor temperature is evenly distributed without noise, and fresh air ensures the indoor air is fresh
- The characteristics of capillary and variable frequency heat pump reduce the energy consumption of system operation
- If you need a garden, you can dig a source well
- There is no power component in the room, and the running noise of the heat pump is low

System diagram



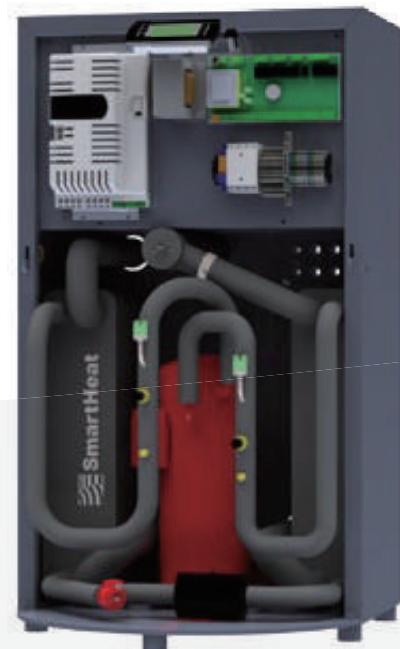
SmartHeat classic i

Compact structure, diverse functions

Ground source heat pump units



classic i



classic i



SmartHeat heat pump

>Energy saving

Variable frequency ground source heat pump, COP value up to 6.5, energy efficiency level up to the highest level in Germany A+++

>High flexibility

It can be used for cooling, heating and domestic hot water. It is applicable to new and renovated buildings. The maximum outlet temperature is 60 °C, and the capacity is from 2KW-33KW.

>Low noise , simple and beautiful shape

Shell silencing treatment + shock absorber, refrigerator-like running sound, can be directly installed indoors

>Safe and stable operation

Made in Germany, complete machine imported, strict quality control and German supplier selection

>Intelligence

The latest frequency conversion technology, high-efficiency scroll or rotary compressor, dual-frequency water pump with built-in double expansion, smart control can quickly respond to the requirements of the remote service system

>Multi-function control system

The serial interface can connect multiple heat pump units, and the bus board interface or network card can be selected. The smart grid can meet the customized solutions of most energy recovery systems

classic power i



SmartHeat classic power i

Compact structure,diverse functions

Ground source heat pump units

eco Inverter Technology new



classic power i



classic power i

Variable frequency heat pump - Benefits for customers

Product characteristics	
High product integration	Including variable frequency compressor, variable frequency water pump (indoor side and ground source side), water flow switch (indoor side and ground source side), 12L expansion tank (indoor side and ground source side)
Compressor 30-120rps adjustable operating range	Adjust according to actual demand
	No frequent start and stop, so overall efficiency is higher
	Correct the design error (the design of most systems is much larger than the actual demand). The use of capacity demand changes greatly and is self-regulating
	Heat/cold demand expansion in stages, automatic load regulation
The pump flow is adjusted according to the heat pump	Avoid frequent start-stop and improve the service life of heat pump
	Energy saving variable frequency water pump, adjust the power and head according to the demand

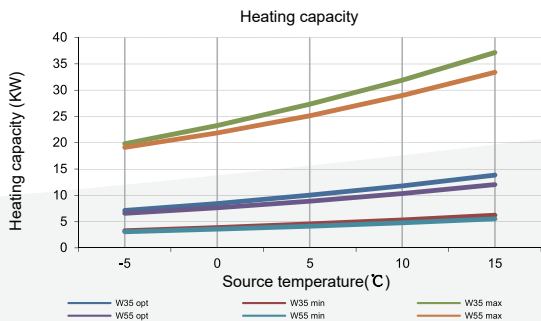
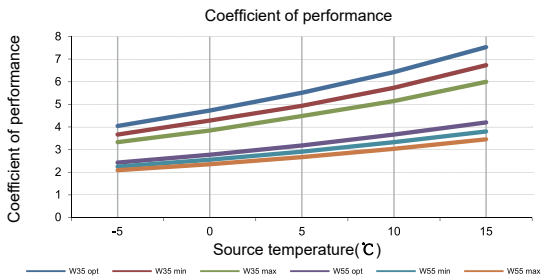
SmartHeat classic power i !
Ideal for detached and semidetached



Technical data

SmartHeat classic power 032 WWiR H055107032

Description	Unit	Value
Type of device	Art	
Number of compressor	-	1
Weight	kg	245
Dimensions(H*W*D)	m	1.06*0.9*0.7
Refrigerant/GWP	-	R407C/1430
Refrigerant	kg/t	4.4
Max.starting current an max. consumption	A	30
Max.consumption (MCC)	A	30
Min.heating capacity*	kW	5.34
Heating capacity**	kW	11.77
Max.heating capacity***	kW	31.87
COP**	-	6.42
Max.flow rate source side	m³/h	4.98
Max.flow rate heating side	m³/h	4.01
Connections source side	"/-	1 1/2"
Connections heating side	"/-	1 1/2"



Power supply	V, Hz	400, 50
Power input**	kW	1.83
Max.power input source flow	kW	0.016-0.310
Max.flow temperature	°C	48
Min.cooling capacity(W35/W7IA35/W7)	kW	4.52
Max.cooling capacity(W35/W7IA35/W7)	kW	26.34
Coefficient of performance***	-	4.25
Power input***	kW	6.19

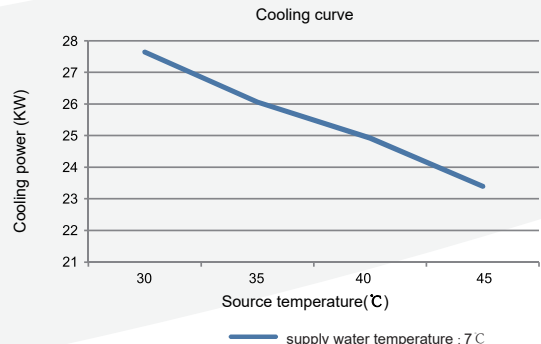
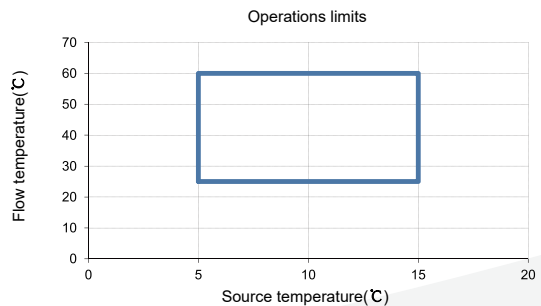
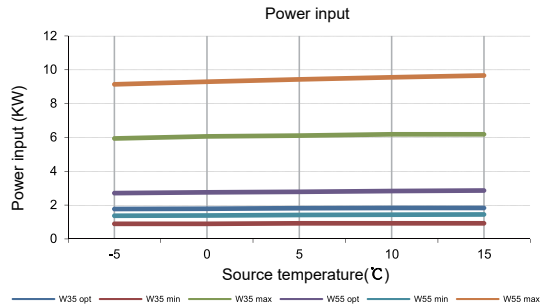
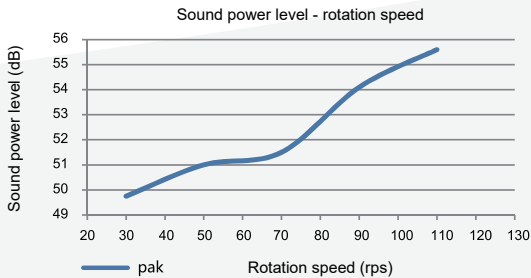
Sound power level	dB	36-54
Energy efficiency class at 35 °C/55 °C	A+++ / A++	

Performance data apply to a new device with clean heat exchangers

*Performance in nominal conditions at W10/W35,W35/W7

**Specifications at a nominal speed of 42rps

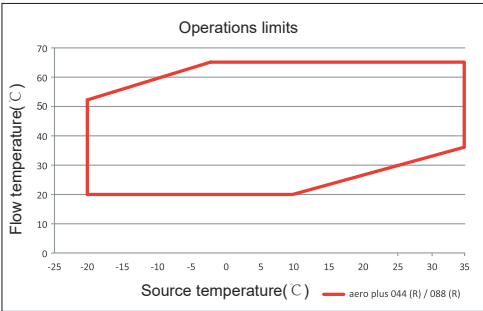
***Performance in maximun conditions at W35/W7



SPARTEK aero plus Low-temperature ASHP

SmartHeat aero plus is a very special unit,offering exceptional advantages when it comes to operating range and heating flow temperature.Using EVI (Enhanced Vapour Injections) technology,the operating range of this model has been expanded significantly. Enhancedvapour injection cools the refrigerant,which can then be compressed to a much higher degree than would be otherwise possible. This ensures excellent COPs even with low outdoor temperatures and high heating flow temperatures

Types: Air/water
Capacity range: 34-138kW(Coolig)
COP:A7/W35 up to 5.13



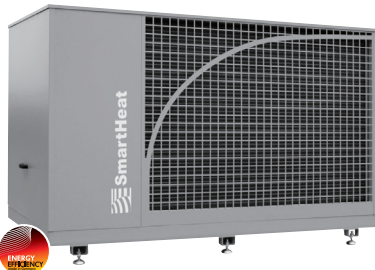
*Heating conditon

Advantages at a glance

- »» Efficiency level reaches A+++ in Europe(Highest)
- »» Special coating treatment of fins,anti-frost function
- »» High efficiency EC fan support by Ziehl-Abegg, silence and high low energy sonsumption
- »» EVIcompressor,heating flow temperature up to 65 °C intelligent defrosting logic,ensure the min frost time
- »» Up to 2performance levels (4performance levels for aero plus 176)
- »» Smart multi-function control (smic) system,control logic is developed by SmartHeat
- »» Ensure 50 °C flow temp at -20 °C



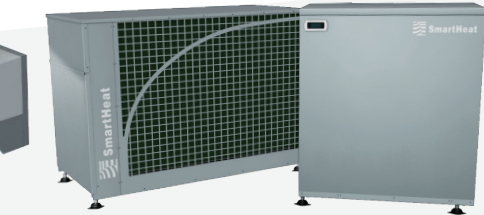
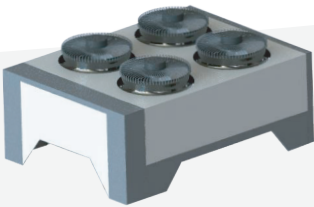
aero plus 176



aero plus 088



aero plus 044



aero plus 088 Split

Description Order number	Compressor	Compressor	Operation point		Performance parameter							H x W x D Dimensions H x W x D 2)	approx. weight
					Capacity levels	heating/cooling capacity	Water flow for user	Pressure drop of user	Power input	Current	COP/EER		
			--	--	--	[kW]	[m3/h]	[Kpa]	[kW]	[A]	[-]	[mm]	[kg]
SmartHeat aero plus 044 H955047044	Scroll	1	=	A7 / W35	100%	34.32	5.91	18.00	7.87	13.00	4.42	2115x1250x775	460
			#	A35 / W7		36.73	6.33	27.80	9.12	14.90	4.03		
SmartHeat aero plus 088 H955047088	Scroll	2	=	A7 / W35	50% / 100%	68.64	11.82	18.86	15.24	26.00	4.53	1510x2315x1320	790
			#	A35 / W7		73.74	12.70	22.73	17.81	29.80	4.13		
SmartHeat aero plus 176 H955047159	Scroll	4	=	A7 / W35	25% / 50% / 75% / 100%	146.15	25.17	36.32	28.49	52.4	5.13	2265x2130x2260	2300
			#	A35 / W7		137.82	23.74	32.87	30.16	53.78	4.57		

Description Order number	max. current consumption	Power supply	Max. flow temperature	Hydraulic connections	能效标签		Refrigerant	Refrigerant weight	Model of lubricating oil	weight of lubricating oil	Sound power level	Suggest Wire Diameter	Suggest Air Switch
					Space heaters 3)	Smart Package 4)							
	[A]	[V]; [Ph]; [Hz]	[°C]	--			--	[kg]	--	[L]	[dB]	[mm]	[A]
SmartHeat aero plus 044 H955047044	26.7	400 ; 3 ; 50	65	1 1/2"	A++	A+++	R407c	14	FV68S	2.6	54	10	63
SmartHeat aero plus 088 H955047088	54.3	400 ; 3 ; 50	65	2"	A++	A+++	R407c	18	FV68S	5.2	56	16	80
SmartHeat aero plus 176 H955047159	106.8	400 ; 3 ; 50	65	2 1/2"	A++	A+++	R407c	34	FV68S	98	56	25	160

- 1) According to DIN EN 14511
- 2) Please consider enough space for the connections
- 3) energy efficiency space heaters
- 4) energy efficiency package of space heater and temperature control
- 5) Import from German

>> Energy efficiency of EU-Journal No.811/2013,average climate conditions-temperature(W55 or W35)

SPARTEK —Fresh air purification and humidity control unit

Core technology



High-efficiency wet film humidification technology

Evaporative humidification mode, low energy consumption, warm and dry in winter



Constant temperature and humidity control technology

Accurate control algorithm, accurate and adjustable outlet temperature
Strong dehumidification ability, dry and dry in summer



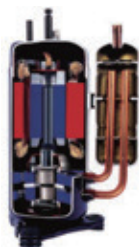
G4+H13 double HEPA filter element

Dual filter element, more fine filtration
Filter more than 99% of PM2.5



High efficiency hydrophilic aluminum foil heat exchanger

Red copper internal thread pipe+aluminum foil fin, anti-corrosion, high heat exchange efficiency



two-spool variable frequency compressor

Stable dehumidification ability, low noise, wide speed adjustment range, energy saving



EC centrifugal fan

EC constant air volume fan,
Compared with traditional fan energy saving 15%-35%,
Higher anti-interference, life, energy efficiency, noise reduction and other advantages.



Ultraviolet sterilization +Negative ion generation

Keep the chamber in aseptic environment and increase the negative oxygen ion of fresh air



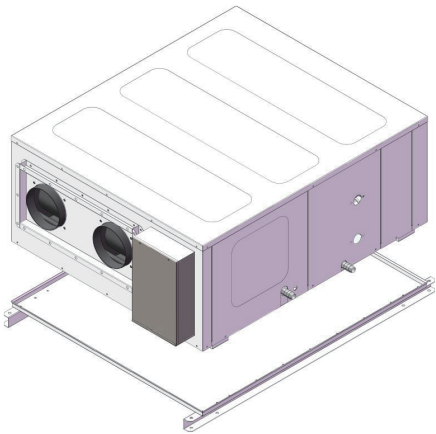
High efficiency plate heat exchanger

High energy efficiency heat transfer channel, improve energy efficiency

Product characteristics

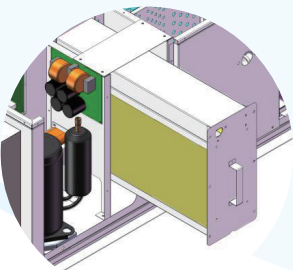
Compact structure design :
Reasonable layout of internal structure, lighter and thinner than the same type of products in the market, convenient for use and installation, and saving installation space.

Layout of independent air chamber :
Air side independent chamber seal, avoid air leakage and other refrigeration and electrical parts of the chamber. Consider structural cold bridge and insulation to ensure that the outer sheet metal does not condensation.

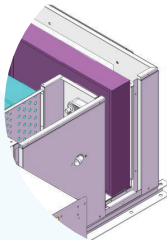


Double layer insulation and sound insulation bottom plate design:
Double layer bottom plate, the inner and outer layer bottom plate is filled with heat insulation layer, to ensure that the bottom area is most likely to produce heat leakage insulation effect. And in the case of ceiling installation, the acoustic insulation effect at the bottom of the equipment is also very obvious.

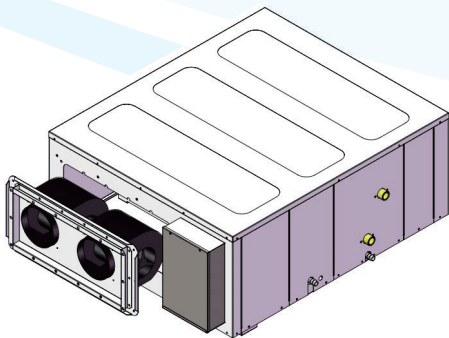
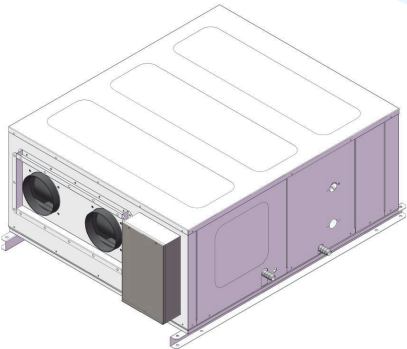
Laboratory measurement results: under condensation conditions, ensure sheet metal without any condensation phenomenon!



Removable humidifying module:
A removable humidifying module for wet film is designed to facilitate the replacement, cleaning and maintenance of wet film materials after long-term use. Avoid peculiar smell of wet film after long-term use.



Direct extraction filter screen replacement:
Open the side plate of the filter screen, users can directly and easily extract the filter screen for replacement, which is convenient and quick.



Side dismantling fan maintenance:
The fan maintenance mode in the direction of connecting the main air duct is designed. Subsequent maintenance and replacement can be carried out from the side only by disassembling the fan mounting plate, so as to avoid the need to remove the top cover and the ceiling for traditional fresh air fan maintenance.

Model		SPYZ / 350	SPYZ / 500	SPYZ / 1000	SPYZ / 1500
Fresh air volume	m ³ /h	350	500	1000	1500
Machine pressure	Pa	130	150	160	160
Air supply power	W	65	122	259	428
Cooling power	W	694	1052	1796	2963
Water supply temp.	°C	17	17	17	17
Return water temp.	°C	21	21	21	21
Water flow	m ³ /h	1.5	2.05	3.6	5.8
Water side resistance	Kpa	36	38	42	38
Length	mm	1030	1060	1160	1320
Width	mm	650	750	890	990
Height	mm	360	360	470	600
Connection size		DN20	DN20	DN25	DN25
Power cord size		2.5	2.5	2.5	4
Air supply	°C	15~25	15~25	15~25	15~25
Air supply dew point	°C	≤11	≤11	≤11	≤11
Filter screen grade		G4+ H13	G4+ H13	G4+ H13	G4+ H13
Weight	kg	67	88	130	178

SPARTEK Comfort System

—Premium edition

For 200m² flat floor apartment

System characteristics and adaptation area:

- For large flat-floor customers, high-efficiency variable-frequency air-cooled heat pump unit is selected to replace the ground-source heat pump, which is convenient to install, does not occupy the effective area of the building, and is perfectly suitable for large flat-floor houses
- The dual-air air-source heat pump unit imported from Germany, with independent operation of the two systems, and its own dehumidification fresh air fan
- The system is highly integrated, easy to install, and does not need to be equipped with a secondary water mixing center. The COP value is extremely high indoor comfort, and the temperature and humidity can be adjusted independently
- It can save installation space and can be installed in a concealed way to perfectly match the decoration design
- The system is easy to operate and free of maintenance costs





FAN
EBM



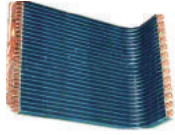
Display
Carel



Controller
Carel



Inverter
Carel



Heat exchanger
Alfa Laval

SPARTEK aero 028i/2 dual-output air source heat pump

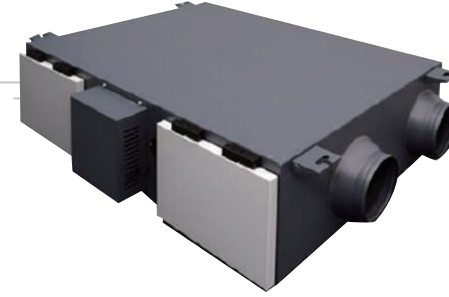
System diagram:



SPARTEK aero 028i/2 dual-output air source heat pump

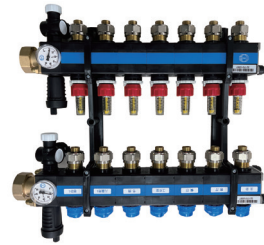
- Imported from Germany, quality guaranteed
- Dual compressor, dual system
- High COP value, up to the highest energy efficiency level in Germany
- Multi-stage shock absorption, low noise, accurate water temperature control

Refrigerant dehumidification

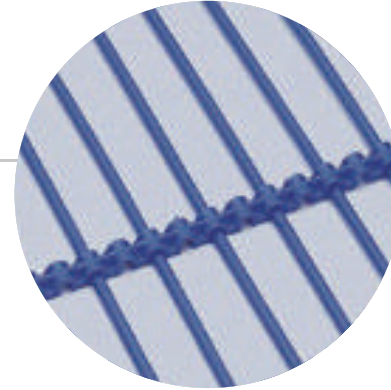


SPARTEK heat pipe heat recovery Dehumidifying Ventilation System

16°C/19°C
(Adjustable water temperature)



Germany Clina distribution manifold



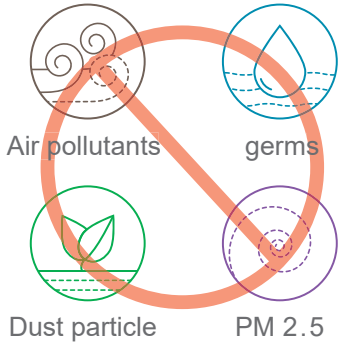
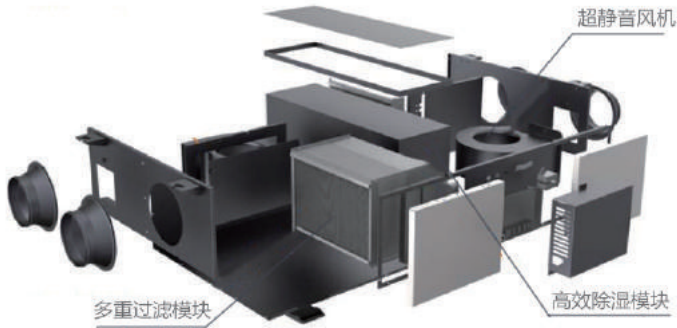
Germany Clina capillary radiation terminal

Model		Aero 028i/2	
Applicable ambient temperature		-15~43°C	
Power Specifications		220V50Hz	
Operating parameters	Capillary radiation cooling capacity	KW	13.2
	Capillary radiation cooling input power	KW	2.65
	EER (A35/W16)		4.98
	Ventilation system cooling capacity	KW	10.45
	Ventilation system cooling input power	KW	2.66
	EER (A35/A11)		3.93
	Capillary radiation heating capacity	KW	11.02
	Capillary radiation heating input power	KW	2.29
	COP (A7/W35)		4.81
	Ventilation system heating capacity	KW	11.42
	Ventilation system heating input power	KW	1.97
	COP(A7/A26)		5.80
Unit parameters	Heat exchanger brand	/	Alfa laval
	Inlet and outlet waterpipe joint	/	1
	Fan brand	/	Ebmpapst
	Noise	db(A)	60
	Heat exchanger type	/	Copper fin
	Dimensions	mm	1455*1105*530
	Refrigerant (R410A)	Kg	1.7+3.3
	Weight	Kg	160

Indoor Comfort System

Fresh air purification and humidity control module

- Built-in high efficiency filter to ensure indoor clean air
 - Low-speed air supply, low indoor noise, no impact on life and sleep
 - After dehumidification, fresh air is reheated by heat recovery to prevent supercooling
 - Ensure indoor comfort and capillary operation safety in summer, and control humidity below 60%
 - Adopt heat pipe heat recovery patented technology , with high heat exchange efficiency
- Pre-cooling and preheating of fresh air reduce machine power consumption
 - Two-stage filtration purification, effective filtration of PM2.5
 - Made in Germany, safe and stable operation
 - No secondary pollution such as ozone



Dimensions	800x1300x300 mm
Filtering level	G4/H11
Max. cooling capacity	10.5 kW
Max. fresh air cooling capacity	4.3 kW
Max. fresh air volume	800 m³/h
Electric machinery	DC brushless
Air supply temp.	≥16℃
Dehumidification capacity	Moisture content <8.5 g/kg



SPARTEK fresh air conditioning system solves the problem of ventilation and ventilation in the residence, and effectively adjusts the room humidity to 40% - 60% comfortable range, providing you with a breathing house.

In China, domestic air purifiers cannot solve the fundamental problem of outdoor air pollution, and the concept of fresh air purification has been deeply rooted in the hearts of the people. The special fresh air dehumidifier for the SPARTEK Comfort System cooperates with the replacement air supply, which is one-step, energy-saving and comfortable, and comprehensively solves the two major problems of air cleaning and indoor humidity control.



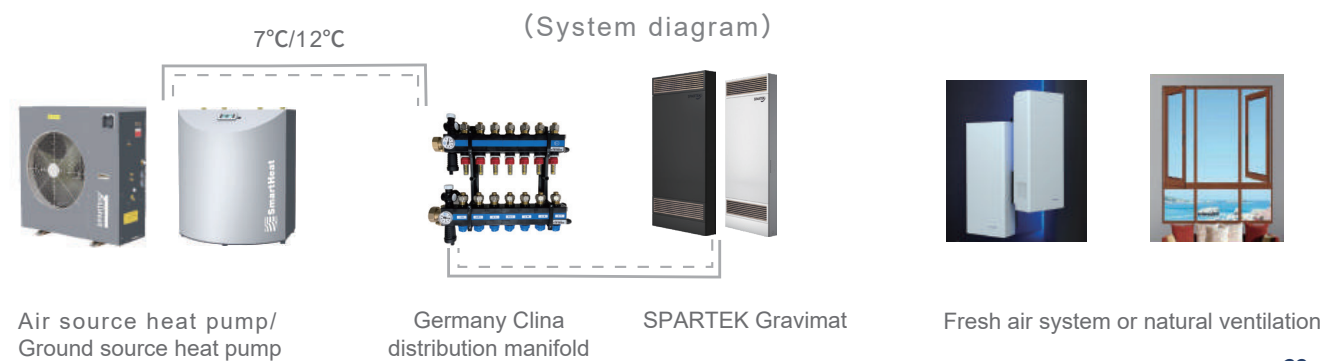
SPARTEK Comfort System —Universal edition

High-end residence/hotel/senior health center



System characteristics and adaptation area:

- No risk of dew condensation
- Easy installation
- Unlimited use



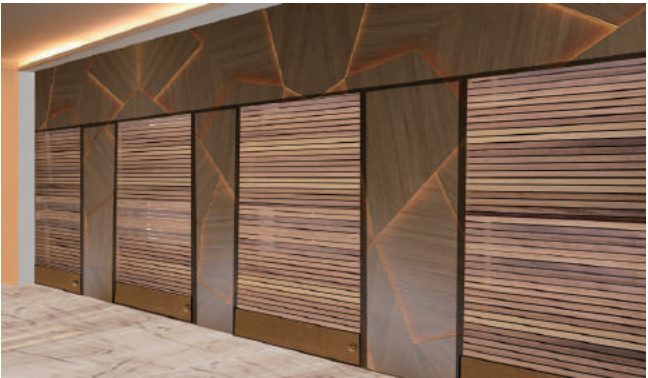
Advantages of Gravimat

Combination of installation and design of gravimat

The surface decoration design and installation size are extremely flexible and can adapt to any decoration style and room use.



- Low operating energy consumption: relying on the principle of pure natural convection, no fan energy consumption
- System energy saving: based on the principle of natural convection and displacement ventilation, compared with traditional air conditioners (such as fan coil units), under the same output power condition, the gravimat can meet the cooling and heating load of a larger room (about 2 times), that is, under the same indoor load condition, the heat pump with gravimat at the end can have twice less output than the heat pump with traditional indoor units at the end, which reduces the system energy consumption
- Self-regulating characteristics: if the indoor temperature is high, the large temperature difference between air and water will speed up the air flow in the cabinet, thus increasing the cooling power



- Quiet operation: pure natural circulation, no fan noise
- High integration: it integrates cooling, heating and dehumidification functions
- Easy installation: the size of the equipment can be customized, and different forms of decorative panels can be combined; Flexible installation, use of various new and modified occasions, can be combined with interior decoration design
- Long service life: no mechanical moving parts, with the same service life as the building, and can be moved later

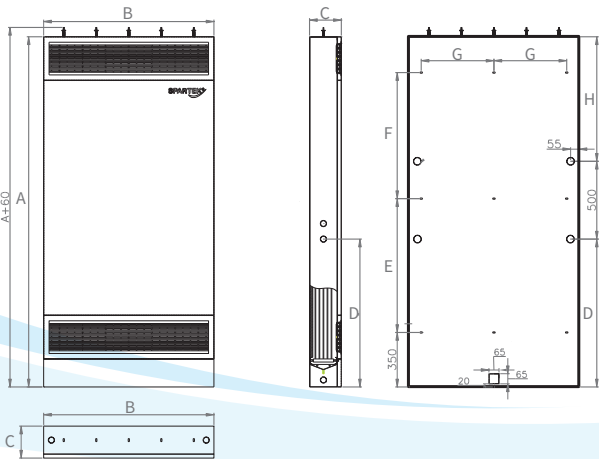
Gravimat



Installation steps

- 1.Preparation
- 2.Remove the panel
- 3.Gravimat is in place and fixed
- 4.Connected to condensate pipe
- 5.Connect the water supply and return pipe
- 6.Clean water injection and exhaust
- 7.Test the pressure
- 8.Install all panels

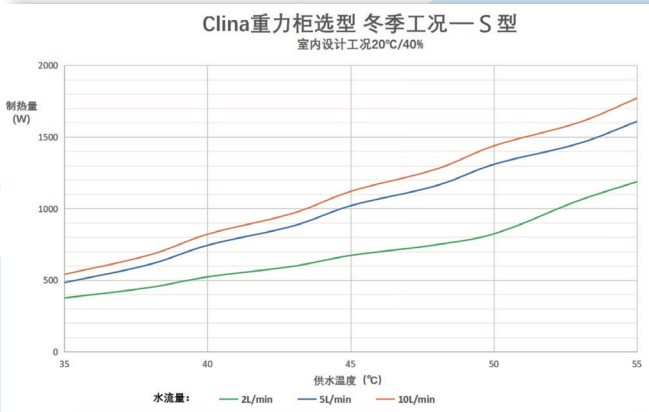
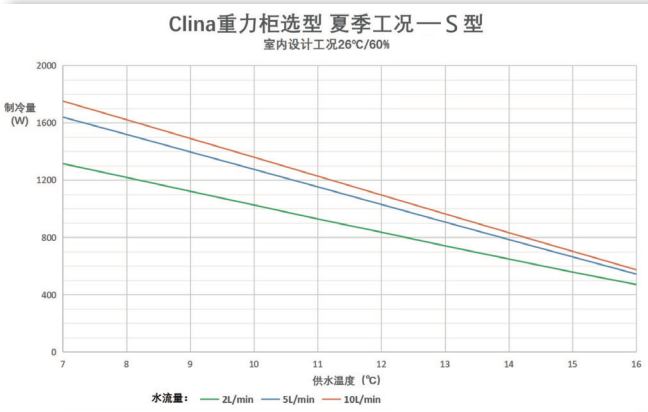
Type/Size	GS-T/5	GS-S/5	GS-H/5	GS-T/3	GS-S/3	GS-H/3
A mm	2000	2250	2500	2000	2250	2500
B mm	700	1100	1100	700	1100	1100
C mm	205	205	205	155	155	155
D mm	700	950	950	700	950	950
E mm	760	860	860	760	860	860
F mm	660	810	1060	660	810	1060
G mm	270	470	470	270	470	470
H mm	800	800	1050	800	800	1050



Design and selection

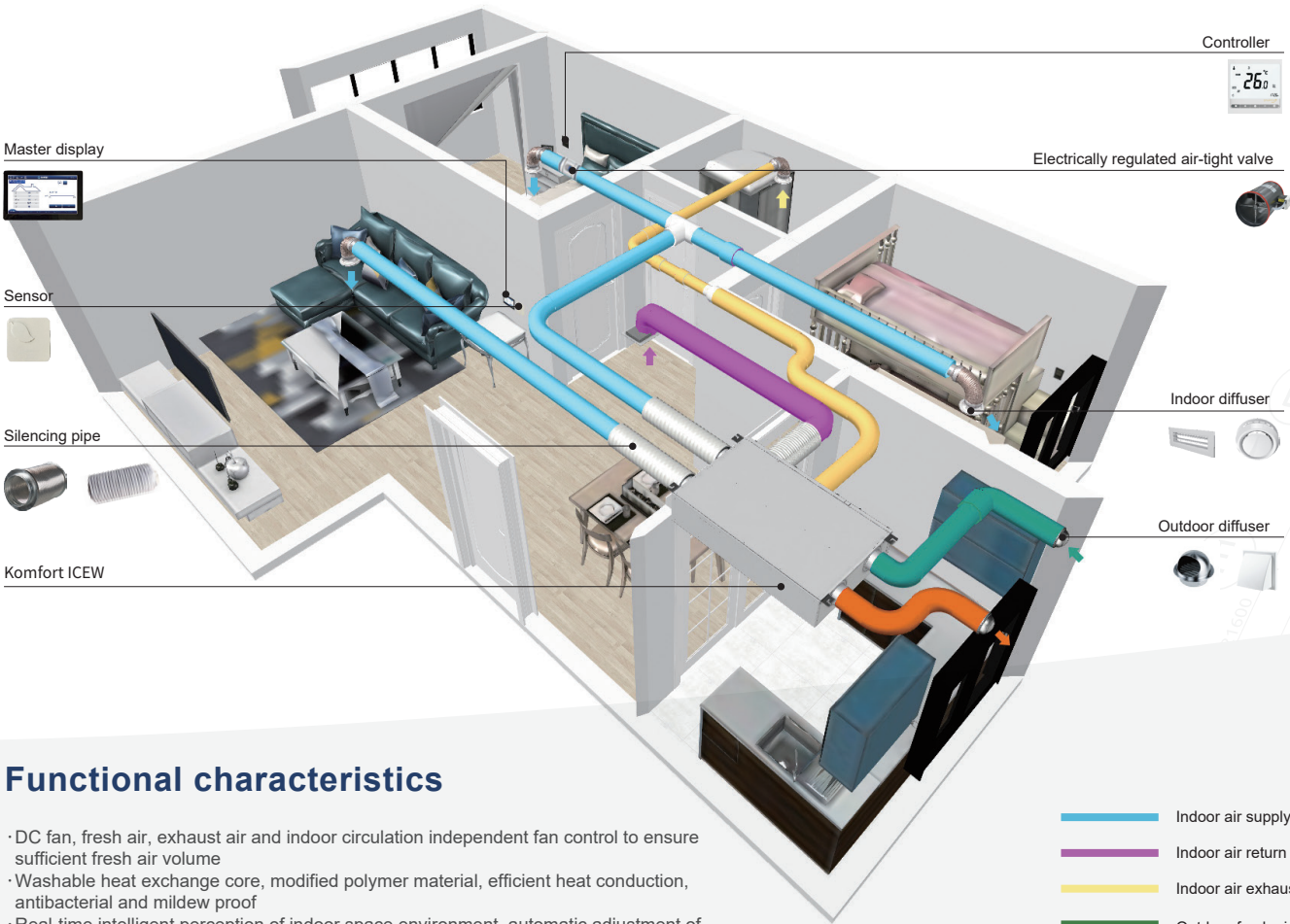
Type	GS-T/5	GS-S/5	GS-H/5
Gravimat net size(mm)	2000x700x205	2250x1 100x205	2500x1100x205
Capillary size (mm)	1 750x600	2000x1000	2250x1000
Number of slices	5	5	5
Cooling capacity(7℃,5L/min,w)	958	1640	1804
Dehumidification capacity(26℃/60%.g/h)	569	959	1041
Heating capacity(45℃,5L/min*W)	707	1020	1096
Recommend matching area (m²)	10~16	16~27	18~30

Type	GS-T/3	GS-S/3	GS-H/3
Gravimat net size(mm)	2000x 700x155	2250x1100x155	2500x1100x155
Capillary size (mm)	17. 50x600	2000x1000	2250x1000
Number of slices	3	3	3
Cooling capacity(7℃,5L/min,w)	692	1247	1374
Dehumidification capacity(26℃/60%.g/h)	402	713	775
Heating capacity(45℃,5L/min*W)	561	910	990
Recommend matching area (m²)	7~12	12~21	13~23



SPARTEK Comfort System —passive house

Low energy building/passive house/heating and cooling



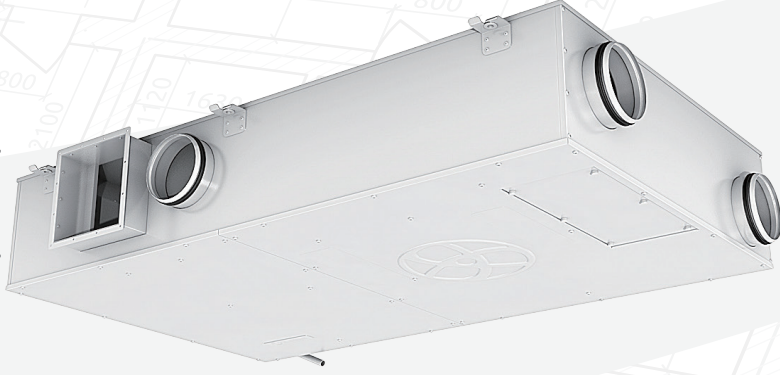
Functional characteristics

- DC fan, fresh air, exhaust air and indoor circulation independent fan control to ensure sufficient fresh air volume
- Washable heat exchange core, modified polymer material, efficient heat conduction, antibacterial and mildew proof
- Real-time intelligent perception of indoor space environment, automatic adjustment of temperature and humidity
- Double-layer sheet metal combined with composite sound-absorbing and thermal insulation materials ensures quiet operation
- Separate room control, improve comfort and eliminate energy waste

- Indoor air supply
- Indoor air return
- Indoor air exhaust
- Outdoor fresh air
- Outdoor air exhaust

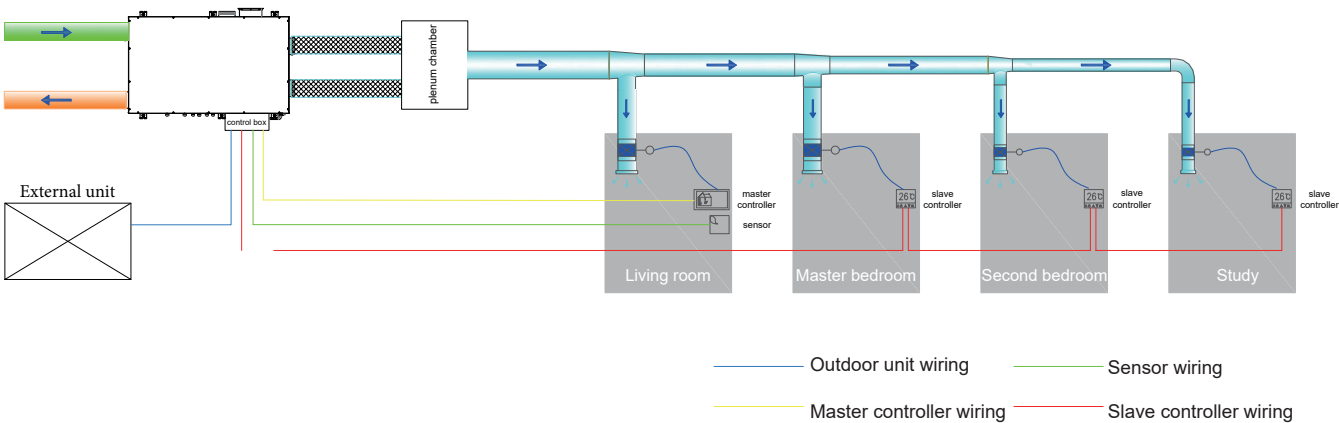


External unit



Fresh air internal unit

System control

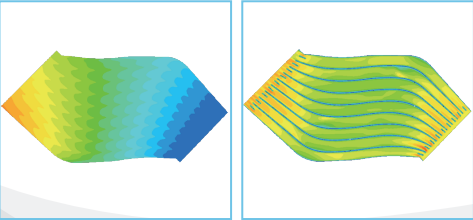


Core components

Washable heat exchange core

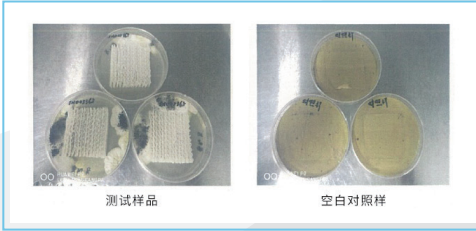


Temperature field simulation



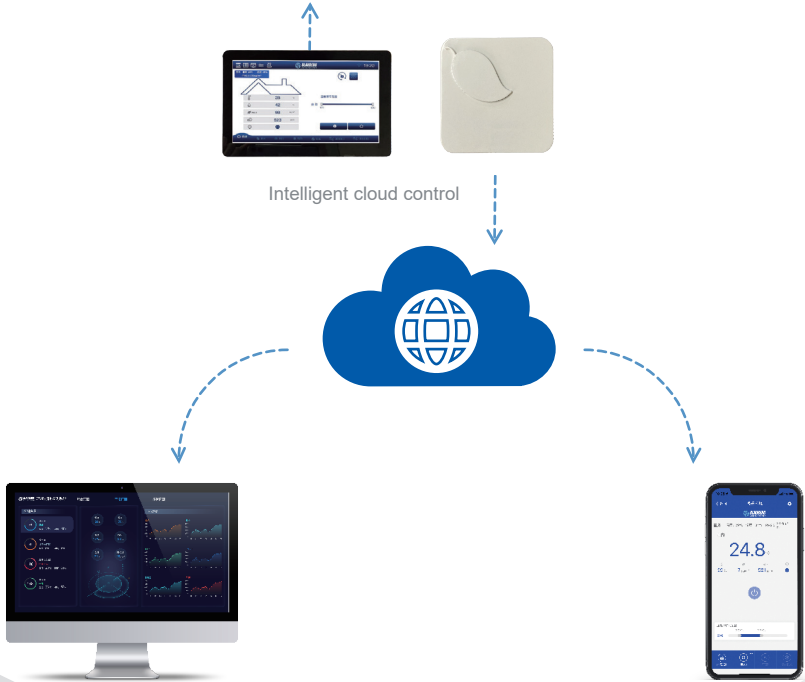
- Extended air duct design and polymer membrane material ensure positive and efficient temperature exchange, and the heat exchange efficiency reaches more than 90%
- The high hydrophilicity of the membrane material and the high permeability of water molecules greatly improve the wet exchange efficiency and ensure the total heat exchange rate of the equipment

Anti-bacterial and anti-mildew test



- The heat exchange material is the polymer matrix composite material jointly developed with the School of Materials Engineering of the University of Toronto, and the surface is added with antibacterial and anti-mildew coating. It has passed the German HY and EU REACH certification. At the same time, domestic antibacterial tests were carried out.

System control



Provide the project environment in real time, feedback the owner's usage habits remotely, and provide potential value-added services

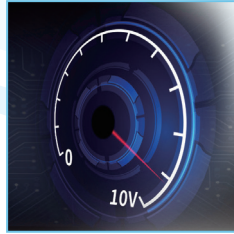
Know the indoor air quality at any time, adjust the temperature environment remotely, change the filter screen and other reminder settings



Core components

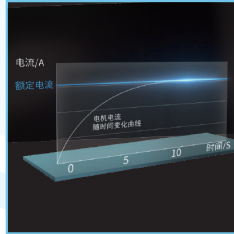


Intelligent control



1-10V/PWM stepless speed regulation with wide speed regulation range

Soft start



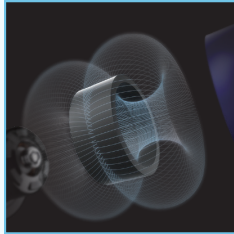
Start slowly to avoid current surge

Motor self-protection



Dual thermal protection (control board high temperature protection, motor physical temperature control protection), over voltage, over current and other protection functions to protect the safety of equipment in emergencies

High-efficiency motor



Compared with AC fan, the efficiency is increased by 30%, and the motor efficiency period is longer

Healthy fresh air duct system



The pipeline system has been comprehensively upgraded. The pipes and connectors are made of environmentally-friendly new materials. The pipes have passed many strict environmental protection tests such as anti-bacterial, anti-bacterial durability, anti-mildew, weatherability and pollution-free in the authoritative laboratory.



Star design installation

The star layout of the pipeline not only saves the installation space, but also provides a more flexible design scheme for the fresh air in the whole house and can reduce the wind loss of the pipeline.



Glue-free installation

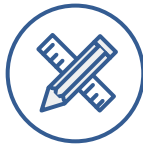
The device and the air duct are connected with a hose clamp or a reducing fitting, and the pipe is connected with a snap and a sealing ring, without a drop of glue.

Five core advantages



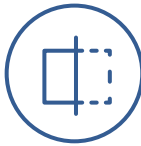
New material

The main pipe round pipe and connectors are made of raw materials. Where the wind touches, it is new material.



Customized

The SPARTEK pipeline system is customized for the fresh air system, which is more closely coordinated with the fresh air, and the system installation is more standardized.



Glue-free installation

Glue-free installation process, the whole process of snap type, throat type connection, without a drop of glue.



Efficient ventilation

Double-leaf butterfly valve can carefully adjust the air volume; Connection gradient design to reduce wind resistance; The inner wall of the pipe is flat, effectively improving the ventilation efficiency of the system.

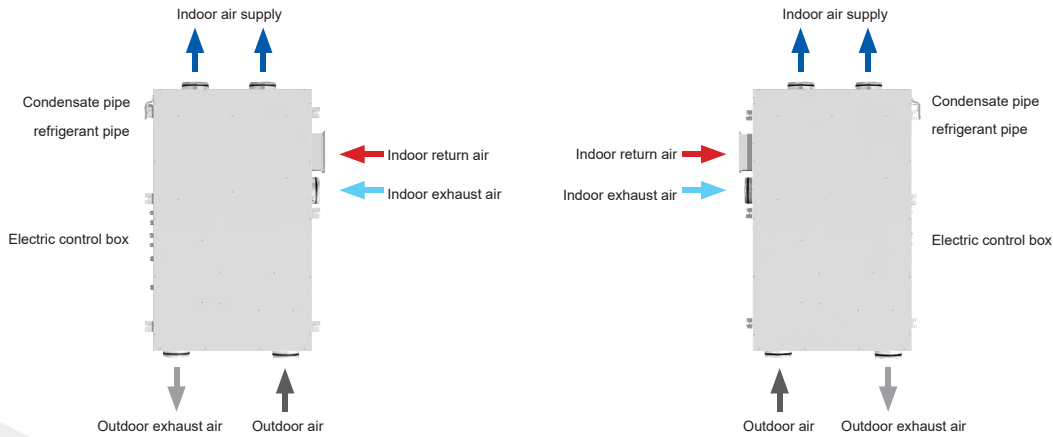


Environmentally friendly

The round tube is made of HDPE food grade material, with antibacterial coating on the inner wall, which is not easy to breed bacteria with residual dust; Whole system buckle installation, no glue sealing.

Model and size

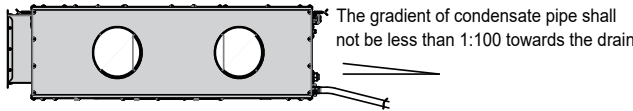
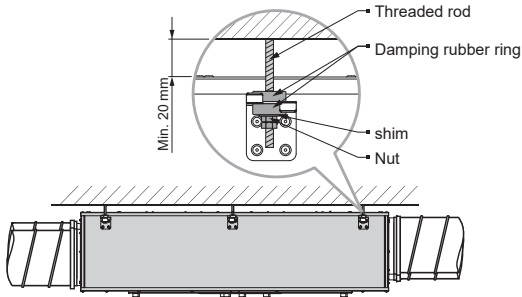
Model	SP150/26	SP200/35	SP250/50	SP300/70
Fresh air volume [m³/h]	150	200	250	300
Exhaust air volume [m³/h]	145	190	240	290
Circulating air volume [m³/h]	350	500	650	780
Air supply volume [m³/h]	500	700	900	1080
Air supply pressure [Pa]	100	100	120	120
Exhaust air pressure [Pa]	50	50	50	50
Dehumidification capacity [Kg/h]	2.1	2.8	3.37	4.43
Humidity exchange rate [%]	80.6	77.9	76	75
Enthalpy exchange rate [%]	74.7	71.4	71.3	70.9
Cooling capacity [W]	2600	3500	5000	7000
Heating capacity [W]	3400	4400	6300	7500
Outdoor temp. range [°C]	-15~43	-25~43	-25~43	-25~43
Refrigerant pipe	Steam pipe [mm]	Ø6.35	Ø6.35	Ø6.35
	Liquid pipe [mm]	Ø9.53	Ø9.53	Ø12.7
Drain pipe [mm]	Φ20	Φ20	Φ20	Φ20
Outdoor unit dimensions L x W x H	800x325x550	800x325x550	800x325x550	912x375x712
Indoor unit dimensions L x W x H	1455x880x275	1455x880x275	1480x880x275	1480x880x275
Indoor unit weight [Kg]	95	95	100	100
Outdoor unit weight [Kg]	30	32.5	35.5	55
Power Supply	AC 220V/50Hz	AC 220V/50Hz	AC 220V/50Hz	AC 220V/50Hz



Overlooking the unit, along the direction of air supply, the refrigerant pipe on the left side is left type

Overlooking the unit, along the direction of air supply, the refrigerant pipe on the right side is right type

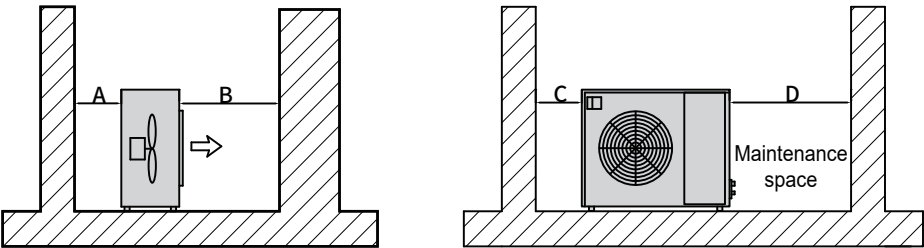
Indoor unit installation



The indoor unit needs ceiling installation. The installation requires hanging feet, hanging bars, nuts and shock washers. Fastening parts are not included in the packing list and need to be purchased separately. When selecting fastening parts, it is necessary to consider the load on the mounting surface and the weight of the unit.

The indoor unit shall be installed horizontally, and the gradient of condensate pipe shall not be less than 1:100.

Outdoor unit installation

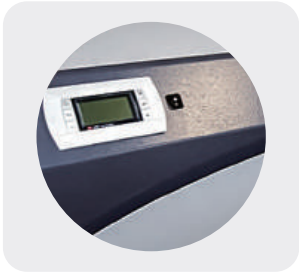
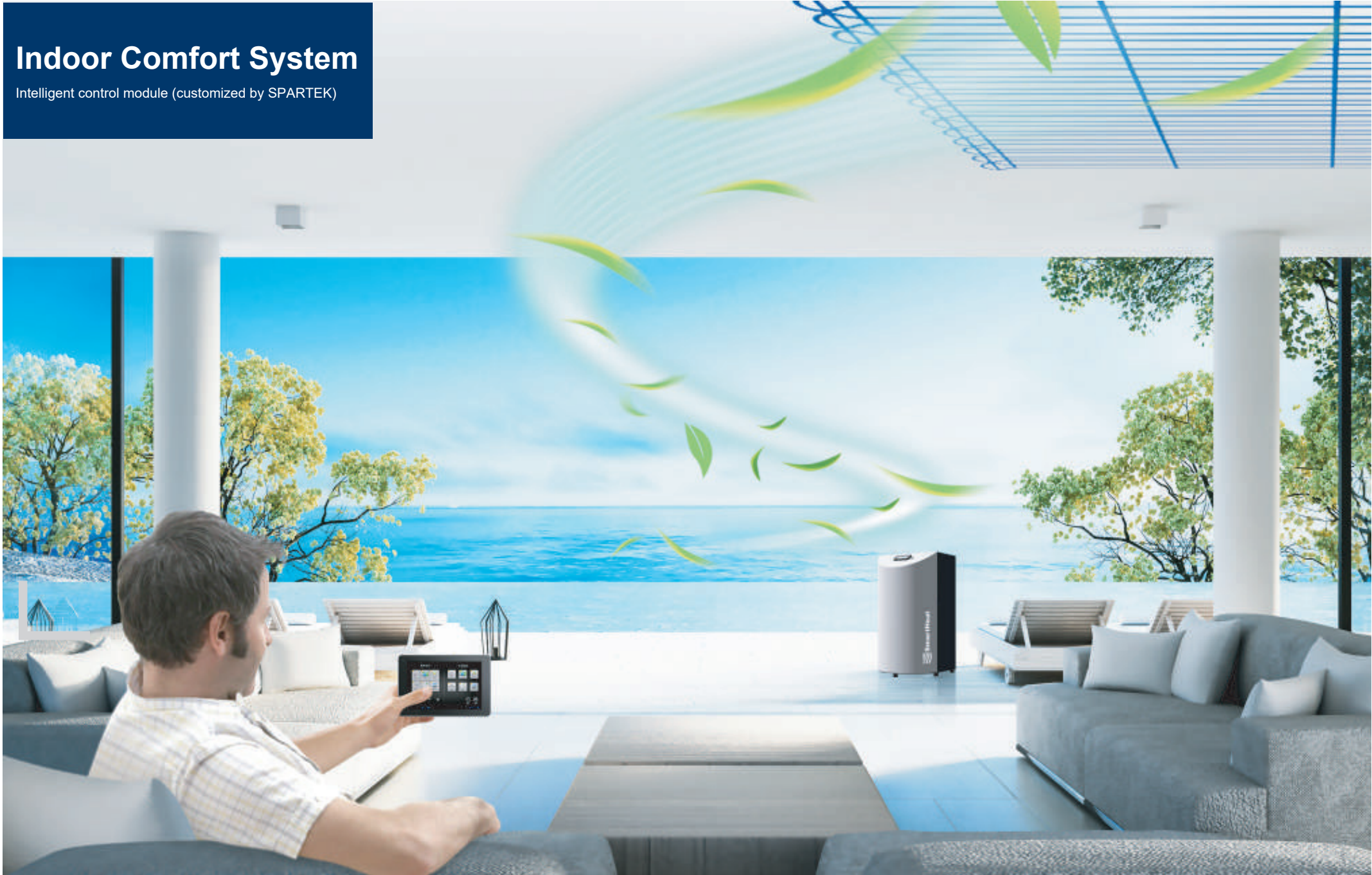


Attention requirements: A > 300mm B > 1500mm C > 300mm D > 500mm

- Before installing an outdoor unit, ensure that the bearing capacity of the roof or support on which the outdoor unit is to be installed and the position where the support is to be installed is sufficient, and take waterproof measures.
- The appropriate length of foundation bolts should exceed the foundation surface by 20mm and firmly secure outdoor units; Avoid styling with only four feet to support outdoor units.
- The installation point must be well ventilated, so that the machine can inhale and discharge enough air. After selecting the site, reserve enough space according to the requirements in the figure above before installation, so as to ensure the requirements of ventilation and maintenance space of the outdoor unit.

Indoor Comfort System

Intelligent control module (customized by SPARTEK)



1. Dew point safety control
2. Customized design to meet individual needs
3. Simple operation
4. Mobile phone and iPad download APP to remotely control the system
5. Perfect match with smart home
6. Remote monitoring, real-time information collection, 24h monitoring
7. Scalability, corresponding functions can be added or reduced

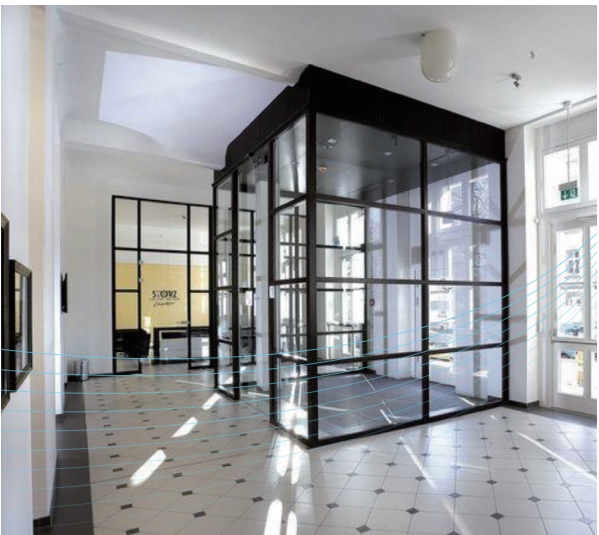
Application

Capillary comfort system can be applied to many occasions of houses and buildings. Over the past two decades, the project has covered the world, including office buildings and public buildings, hotels, schools, high-end technology residential buildings, pension real estate, hospitals, clean rooms and other indoor comfort system solutions.



■ Intelligent residence and care home, school

The high comfort and low energy consumption of capillary greatly promote the development of green buildings and intelligent residence, save floor height, make the room have more space, provide fresh air, quiet operation, constant temperature, constant humidity and constant oxygen, and perfect integration with intelligent residence, providing maximum comfort for the elderly and children.



■ Hospital and clean room

Capillary comfort system is a special and sanitary air conditioning system for hospitals and clean rooms. It is applicable to infectious disease wards in hospitals. It is silent and has no draft sensation. It will not cause infection due to the exchange of air between wards, creating a comfortable environment for patients' rehabilitation.



■ Office

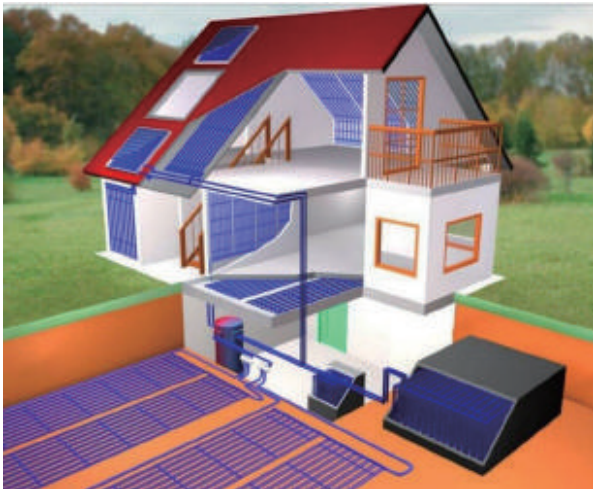
Capillary metal radiation ceiling built-in modular capillary grid, simple installation, perfect combination of decorative requirements, beautiful and elegant, quiet operation; Meet the high-end office, meeting comfort requirements, improve work efficiency.



■ Hotel

Capillary comfort system can not only keep indoor air comfort but also satisfy the effect of energy saving. No noise, no draft sensation, clean fresh air system for guests to provide high-quality sleep, suitable for high-end hotels.

SPARTEK Indoor Comfort System advantage



Comfort

Capillary indoor comfort system creates an indoor environment with constant temperature, humidity and oxygen, without draft sensation and noise, and all environmental indicators (temperature, humidity, PM2.5 concentration) in the system can be monitored in real time to maintain the indoor environment within the range of human comfort; The system heating and cooling in the most natural way of radiation, just like giving you a breathing house, which solves the annoying draft sensation of traditional air conditioners and the local heat imbalance.

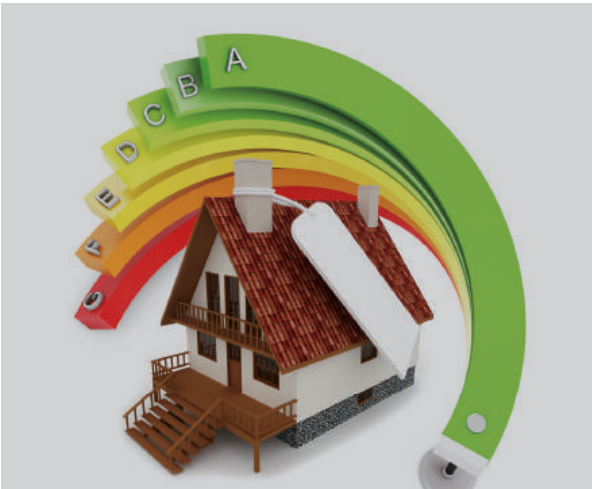
- No noise running, sleep is never disturbed
- Balanced control of temperature and humidity
- Clean fresh air, isolation of haze, no longer wet



Health

Capillary indoor comfort system can provide users with a healthy living and working environment. The capillary radiation system ensures zero wind sense, uniform temperature and humidity field, and greatly reduces the circulation of dust and pollutants in the room, avoiding the occurrence of air conditioning diseases and respiratory diseases; The fresh air supply system makes the indoor environment clean and sanitary; Displacement ventilation ensures high air quality in the working area.

- Keep away from air conditioning diseases and pollutants
- No annoying draft sensation
- Uniform temperature field ensures comfort and health
- Indoor environment health, filter net no dust



Saving

Capillary indoor comfort system can quickly respond (half an hour) to the comfortable temperature required in the room, and each room can be controlled individually, which can be used as soon as it is opened, greatly reducing energy consumption; Reduce carbon dioxide emissions; It can use low-grade energy, greatly improve the COP value of the machine through the low temperature difference between high temperature cold water and low temperature hot water, and save energy and environmental protection.

- Room can be controlled individually
- Quick response to indoor comfortable temperature
- Use renewable energy to ensure indoor comfort
- Increased the COP value of the machine



Safety

All the capillaries used by SPARTEK Indoor Comfort system are imported from Clina (the inventor of the world's capillaries) in Germany. Its capillaries are produced by the world's first-class equipment assembly line and have been successfully applied in more than 2000 projects around the world. In addition, the well-known German company makes a 15-year global quality guarantee for Clina capillary grid. SmartHeat full frequency heat pump made in Germany, and all the parts are made in Germany.

- Imported from Germany with original packaging
- Clina Capillary 15-year global quality guarantee
- All main component are made in Germany

Office block (international)

German Parliament Building
Brandenburg Parliament
BMW Sauber Switzerland Headquarters
Mercedes-Benz Milan Center
VW Volkswagen City
AUDI Audi Design Center
Volvo
Siemens
Microsoft Center
BfN
Nestle Switzerland Headquarters
TIFFANY Luxembourg Headquarters
DEXIA-Tower (CIR)
Panda WWF
Luxembourg Central Bank
Bank of Slovakia
World Island
Tokyo Shibuya Subway Station
BOSCH
Berlin Brandenburg Airport
IBM Berlin Office Center
ThyssenKrupp
TÜV Rheinland Japan Center
DOSB
Volksbank
NordLB
German Foreign Ministry
ESA

Hotel and apartment (international)

V-Towel
ADREMA Hotel
Grand Hotel
The FONTENAY Hotel
Westin Hotel
Lindner Hotel
Diehl's Hotel
Vienna Marriott Hotel
Hotel Elite
City Garden Hotel
Hotel Van der Valk
Le Dome Hotel (Espace Petrusse)
Lauriers Roses Hotel
Hotel Iveria Hotel
LAGADAS Hotel
Royal Olympic Hotel
Balvanyos Hotel
Concord Hotel
Wellington Hotel
Clifftop

Hospital (international)

WeisserHirsch Clinical Center
Ardenne Clinical Center
Zittau dialysis Center
University of Science and
Technology Dental Clinic
Kemnez Clinical Center
Berlin Dialysis Center
German Heart Institute Berlin
NRW Children's Hospital
Heart and Diabetes Center
Dardenne Clinic
Ansbach Kamilus Clinic
Ham St. Barbara Clinic
Bruchsal Eye Clinic
Murnau Emergency Hospital
Groshadern Clinical Center
Ependorf Emergency Clinical Center
ZMK Stomatology - University
Medical Center
Hanusch Hospital
Amstetten Hospital
Doebblingen Hospital
Gosley Clinical Hospital
Asch Clinical Hospital
Medical center

China

CEG Black Forest, Shanghai
Fengshangguoji, Nanjing
Kingjee, Nanjing
REIGNWOOD Golf, Beijing
Landsea Xinxijiao, Shanghai
ZED pavilion of expo shanghai
CITIC Guoan , Beijing
Vanke Ruyuan, Beijing
Huazhou junyue, Shanghai
Weihai International Haiyu
Kaisa, Shanghai
Gubei, Shanghai
Liren Garden, Ningbo
Lakeville Shanghai
Jinmaofu
Gezhouba China palace, Nanjing
PACIFIC CARE HOME
Baoye Idoban, Shanghai
PK lihu Manor, Wuxi
Po industryfour
seasonsgarden, Shaoxing



The temperature you need

