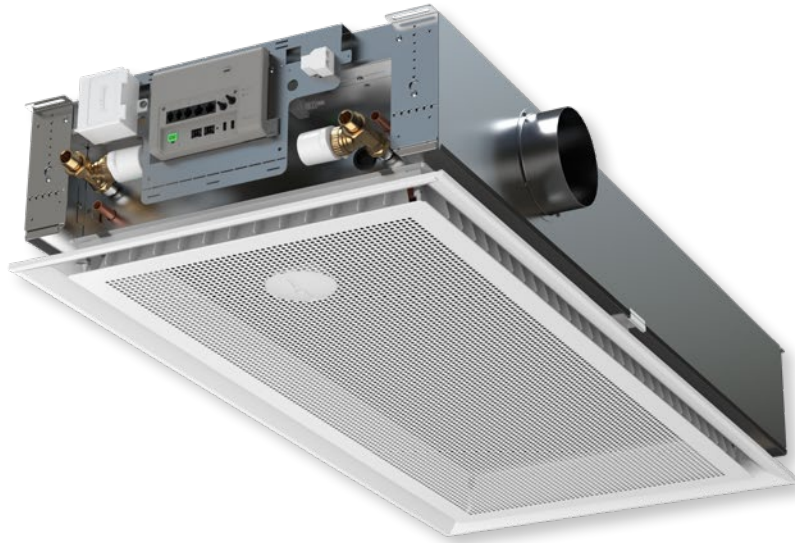


WISE Parasol

Comfort modules for Swegon's WISE System for demand-controlled ventilation



QUICK FACTS

- Comfort module for demand-controlled indoor climate, integrated in Swegon's control platform WISE.
- Complete product with all components fitted at the factory and where all room accessories are easily connected with the help of a scanner and hand-held terminal.
- Energy-efficient operation since the room is ventilated, heated and cooled exactly as called for by the load, neither more or less.
- Highest possible comfort with provision for individual control on a product or room level.
- Simple installation and connection to the WISE system.
- Waterborne cooling and heating.
- Draught-free indoor climate, 4-way air distribution and Swegon's ADC (Anti Draught Control) provide maximum comfort and flexibility, both today and for future needs.

Primary air flow l/s	Pressure range Pa	Total cooling capacity W	Heating capacity, water W	Size* mm
≤ 85	50 - 150	≤ 2055	≤ 2700	600, 1200

** with adaptations for several ceiling systems*

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Technical description

WISE system

Demand-controlled ventilation with the new WISE system has never been easier. For a description of the WISE system, see the WISE System Guide at www.swegon.com

Communicates wirelessly

The WISE system's intelligent room products/nodes communicate wirelessly with the built-in radio transmitter. Products that have a power supply work both as a transmitter and receiver and in some instances, can be used to boost/repeat the system's radio communications. Products powered by a battery act only as transmitters.

WISE supports different combinations of indoor climate systems.

The option is now given to combine waterborne and airborne within the building, right down to floor level to zone and room level. WISE makes it possible to combine a number of system solutions at the same time.

Comfort module WISE Parasol

Comfort module WISE Parasol is a part of the WISE system and demand-controlled air flow and cooling and heating for the best energy efficiency and comfort.

WISE Parasol can be adapted and combined to meet comfort requirements in most projects, both now and in the future. WISE Parasol is a complete and fully flexible product with an adjustable air distribution pattern – the possibility of factory mounted accessories.

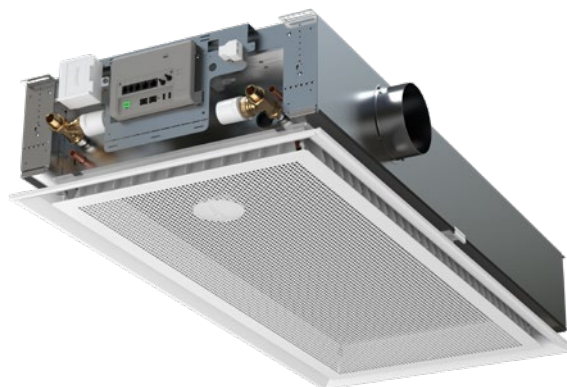
WISE Parasol is available as single and double module units:

Sizes:	600x600; 600x1200
Modules:	Supply air and cooling Supply air, cooling and heating (water)
Installation:	Flush mounting for suspended ceilings

WISE Parasol PlusFlow

When there is a need of a high cooling capacity and high airflows, WISE Parasol 600/1200 PF is the right choice. For example, WISE Parasol PF can be installed in conference rooms, reducing the number of installed products by up to 50%.

WISE Parasol PF can manage large airflows and at the same time has the same high cooling and heating capacity as a regular WISE Parasol, of course, while retaining a level of high comfort in the room.



Project design / Typical room

See separate documentation "WISE System Guide", which is available for download via www.swegon.com.

Maintenance

The product does not require any maintenance/service, except for any cleaning when necessary. See separate Instructions for Use, available at www.swegon.com.



www.eurovent-certification.com
www.certiflash.com

Compact plug & play unit

WISE Parasol is supplied with control equipment including a radio unit for pairing with the WISE system. Only a 24 V supply needs to be routed to units, which are then easily paired to the main wireless system SuperWISE and allocated functions.

Wise Parasol can also be equipped with numerous different accessories that are fitted to the product at the factory.

WISE Parasol sends its values continuous to SuperWISE and you can see the current flow and pressure in real time. The integrated radio node in the product's control unit communicates with the room's setpoint selector switch or any temperature sensor and sensors in the room.

WISE Parasol works individually and can be easily allocated new functions and setpoint values to realise the demanded room functions or if new functions are required then these can be an easy introduced via our new software IC Design and our new well-designed web interface SuperWISE. This gives major advantages, for example, in the event of modifications and changes in floor layout such as switching from an open-plan office to individual offices.

Also see the WISE System Guide on www.swegon.com

Factory fitted components

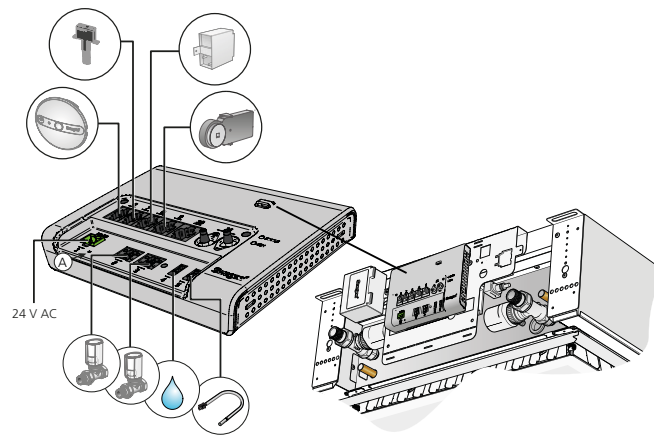


Figure 1. Components that are factory fitted on WISE Parasol
A: Commissioning button

WISE Parasol as standard is equipped with the following components:

- WISE CU with built-in pressure sensor and 2 inputs for WISE sensors which communicate over Modbus, it also features a general Modbus input/output for e.g. to accept pressure data from extra external pressure sensors. You can also connect sensors for the function, WISE dewpoint monitoring.
- Pressure sensor

Factory fitted components as an option:

- The air quality sensor WISE SMA measures temperature, RH and VOC is factory fitted.
- Presence detection sensor WISE SMB measures temperature and detects occupancy.
- Valves and actuators

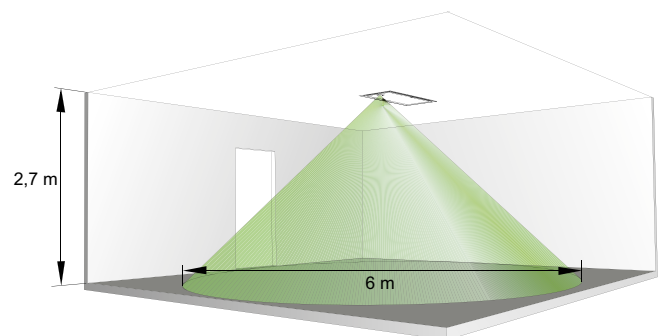


Figure 2. WISE Parasol with WISE SMB, Detection range

Simple to adjust

WISE Parasol provides optimal comfort through the built-in nozzle adjustment and with numerous setting options it can be easily adapted if the size of the premises or business changes. The comfort module can be set so that different amounts of air can be distributed on each side and for both high and low air flow.

Easy to install

WISE Parasol's small compact units fit most common modular dimensions making it easy to install. The small dimensions result in simpler handling, especially in when handling the products on the site, which gives less handling damage and a better working environment.

Market-based module dimensions

The order range includes module dimensions to fit the standardised ceiling measurement c-c 600, 625 and 675 mm. In addition, there is a mounting frame for drywall ceilings and ceiling solutions of the clip-in-type.

High capacity

WISE PARASOL with its high capacity, occupies 40-50% less roof space to handle the cooling requirement in a normal office, compared with a traditional climate beam.

Range of Application

WISE Parasol is especially suitable for use in the following premises:

- Conference rooms with a need of demand controlled regulation and normal to high cooling load. There are demands on occupancy control to save energy when the room is vacant. The users must be able to influence and regulate the room temperature for the best comfort.
- Offices with a need of demand controlled regulation and normal to high cooling load. There are demands on occupancy control to save energy when the user is not in the room during the day and after office hours. The user must be able to influence and regulate the room temperature for the best comfort.

WISE Parasol is also well suited for use in other premises such as:

- Classrooms
- Hotels
- Restaurants
- Hospitals
- Shops
- Shopping centres

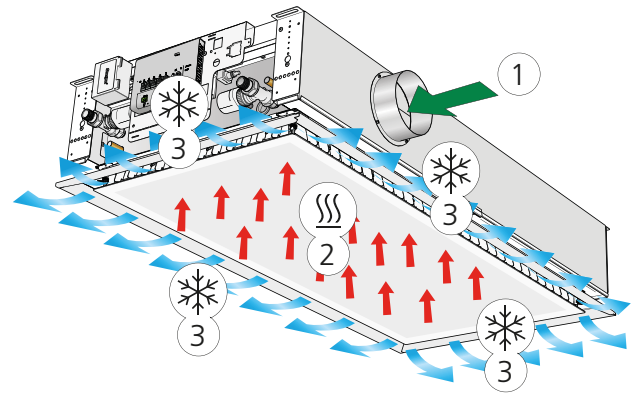


Figure 3. Variant A: Cooling and supply air function
 1 = Primary air
 2 = Induced room air
 3 = Primary air mixed with chilled room air

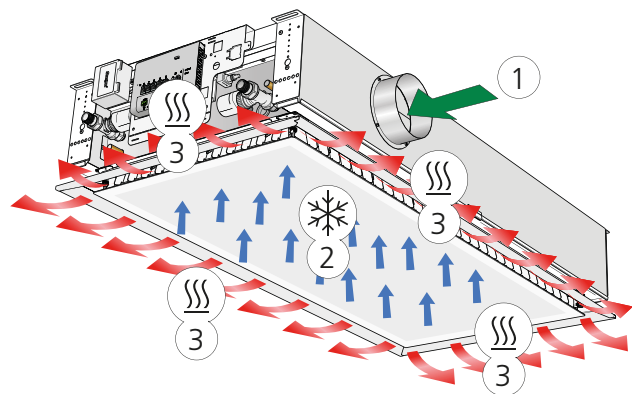


Figure 4. Variant B: Heating and supply air function (also including cooling function)
 1 = Primary air
 2 = Induced room air
 3 = Primary air mixed with heated room air

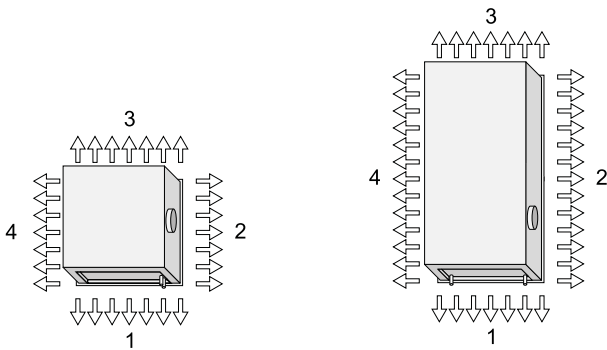
Nozzle setting

The unique built-in nozzle control in the WISE Parasol means that each of the four sides can be set individually. Depending on the unit's location and the room's primary air requirement, the primary air can be guided in all desired directions. The direction of the air flow can be easily optimized using the Swegon IC Design sizing program available at www.swegon.com.

The required nozzle setting is made at the factory, but can if necessary be easily changed on site.

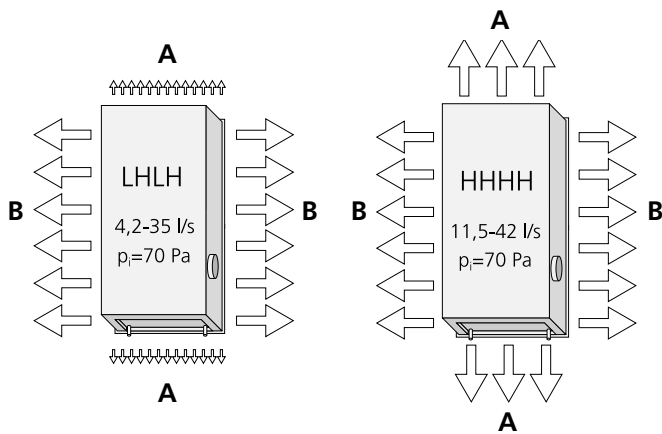
Specific nozzle settings

To specify optimized nozzle settings, always begin from the side with the water connection. From there, specify side after side in anticlockwise order, see the figure below. If you like, you can order the units preset from the factory (does not apply to units held in stock).



Top view, page 1-4
WISE Parasol 600

Top view, page 1-4
WISE Parasol 1200

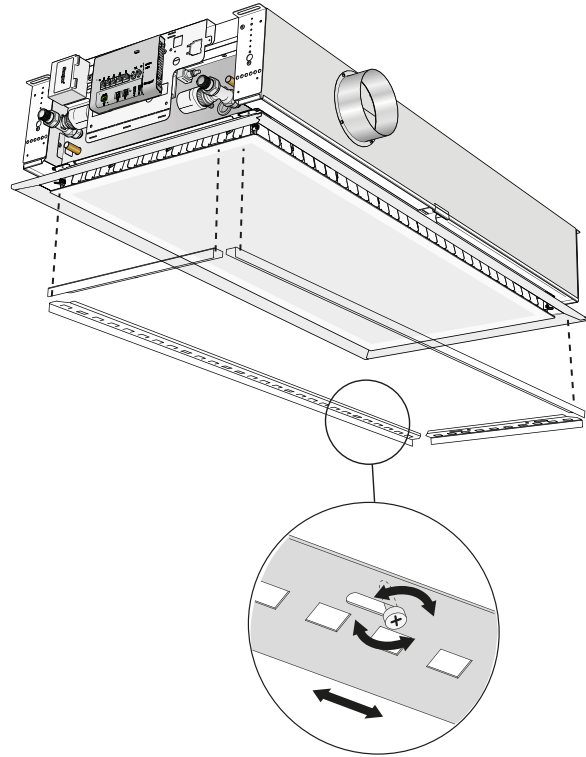


Example 1.
A = 2.1 l/s, B = 15.4 l/s

Example 2.
A = 5.7 l/s, B = 15.25 l/s

k-factor

Each nozzle setting has a specific K-factor. A total K-factor for the unit can be determined by adding together the K-factors for the nozzle settings on each side. The relevant K-factor for optimized nozzle setting can also be obtained in IC-Design.



Figur 5. Nozzle settings

Example 1:

Nozzle setting LHLH gives the lowest possible absence flow (side 1 + 3 open). This provides a minimum flow/absence flow of 4.2 l/s and a maximum flow of 35 l/s at $p_i = 70$ Pa

Example 2:

If it instead is more important to get the highest possible maximum flow/output, the nozzles are set to position HHHH, i.e. fully open all around. A higher maximum flow is then obtained, but with the consequence of a slightly higher absence flow.

These adjustments are only different settings on the same physical product, which means a very flexible and adaptable unit, in particular, together with the integrated software.

In IC-Design you can easily reference K-factors for each side and quickly test different variants.

ADC

All the comfort modules are supplied with the ADC air deflector.

ADC stands for Anti Draught Control, which enables you to set the diffusion pattern of the air being distributed to avoid risk of draught. A number of ADC sections with four air deflectors per section are arranged on each side of the unit. Each section is adjustable from a straight setting to 40° air deflection to the right or left in increments of 10°. This provides great flexibility and can be easily adjusted without having to affect the system as a whole.

The ADC does not affect the noise level or static pressure at all. The water capacity is reduced by 5 - 10 % if the ADCII is adjusted to "fan-shape".

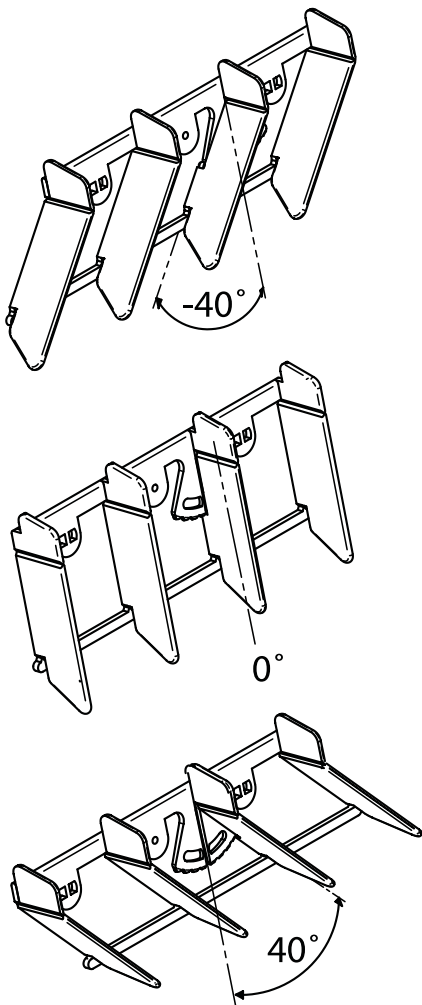


Figure 6. ADC, setting range from -40° to +40° in increments of 10°.

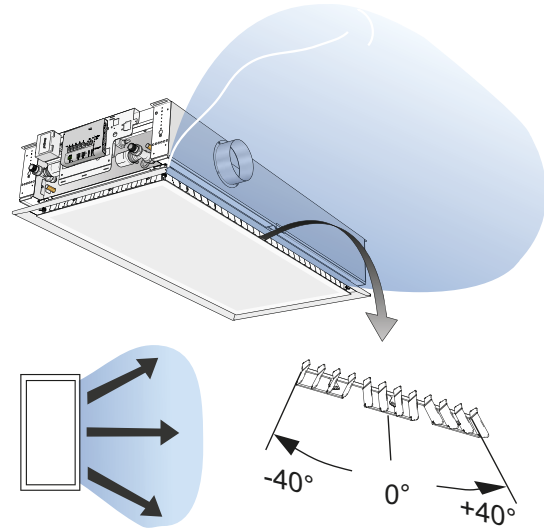


Figure 7. Possible settings for the ADC, Fan-shape

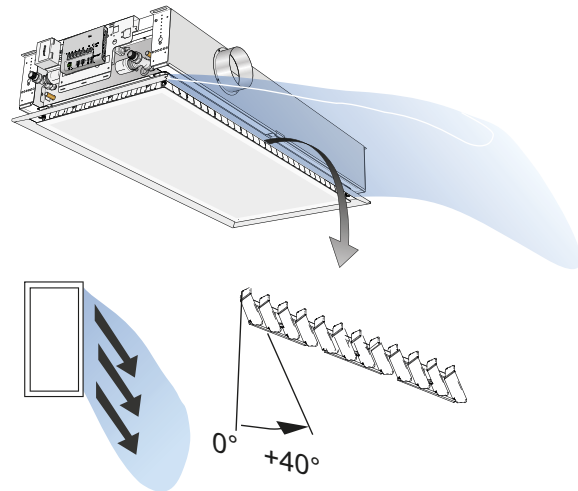


Figure 8. Possible settings for the ADC, X-shape

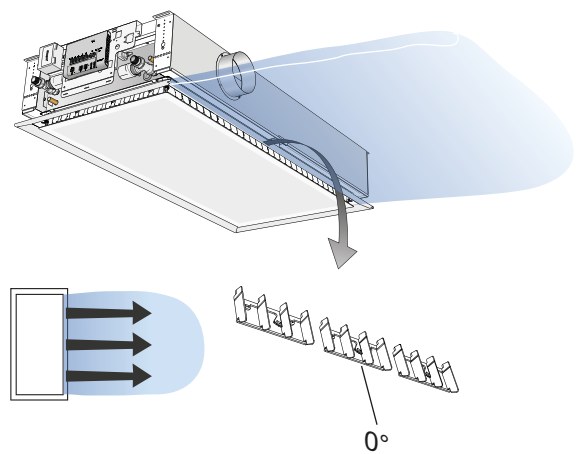


Figure 9. Setting options ADC, Straight setting

Installation

Recommended ceiling types

WISE PARASOL is designed for use in most T-bar and clip-in ceiling systems both in terms of length and width. In order to guarantee a good fit in T-bar systems, we recommend T sections with a width of 24 mm.

Suspension

WISE Parasol has four mounting brackets for their suspension, and are installed using one threaded rod in each mounting bracket (Figure 10). A double threaded rod with a thread lock should be used if there is substantial distance between the overhead slab and the unit.

Threaded drop rods and assembly fitting SYST MS M8 (Figure 11) are ordered separately.

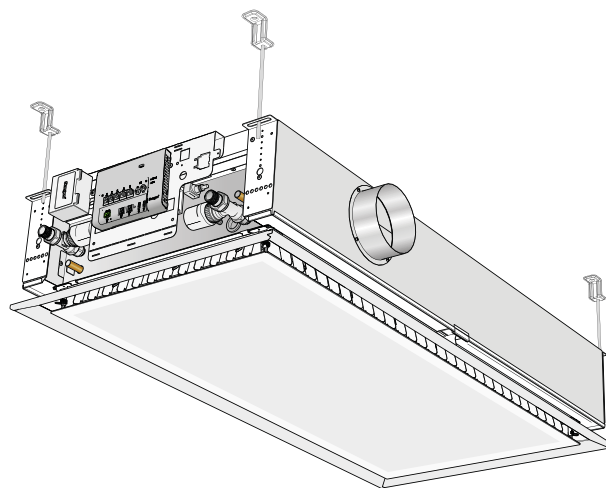


Figure 10. Suspension double-module units

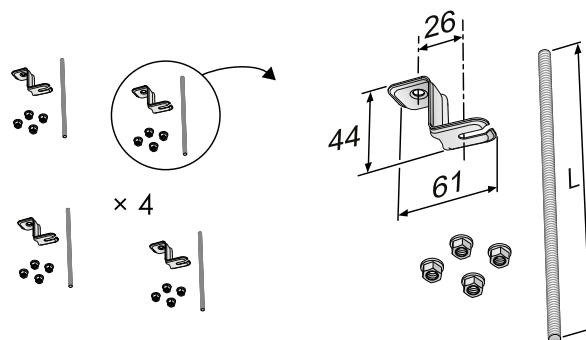


Figure 11. Assembly piece SYST MS M8-1, ceiling mount and threaded rod

Connection sizes

Water

Without valves:

Cooling, plain pipe ends (Cu) \varnothing 12 x 1.0 mm

Heating, plain pipe ends (Cu) \varnothing 12 x 1.0 mm

With factory fitted valves:

Cooling Male thread DN15 (1/2")

Heating Male thread DN15 (1/2")

Air

Connecting fitting \varnothing 125 mm

Connecting fitting, variant PF \varnothing 160 mm

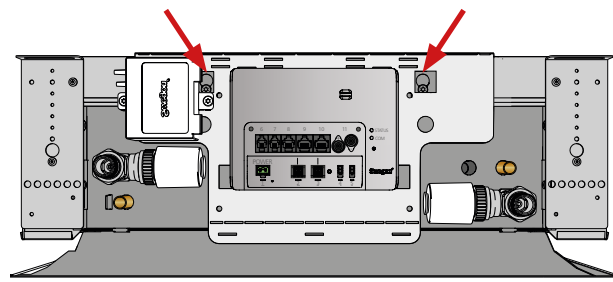


Figure 12. All control equipment is collected on the same short side to facilitate work during installation and service.

Control units and pressure sensors are mounted on a plate, which can be removed if necessary by loosening two screws, see arrows.

Connecting the water

Connect the water pipes using push-on couplings or compression ring couplings when the product is ordered without valves. Note that compression ring couplings require support sleeves inside the pipes.

Do not use solder couplings to connect the water pipes. High temperatures can damage the unit's existing soldered joints.

Flexible connection hoses for water are available for plain pipe ends and valves and are ordered separately.

To connect the air

WISE Parasol is supplied as standard with an open air connection on the right-hand side (viewed from the end where the water is connected).

The air connection piece is mounted on delivery so that it later can be connected to the primary air duct (see Figure 13).

A cover is factory-fitted to the left-hand air connection, however it can be easily moved to the other side if the air connection piece is to be fitted to the left.

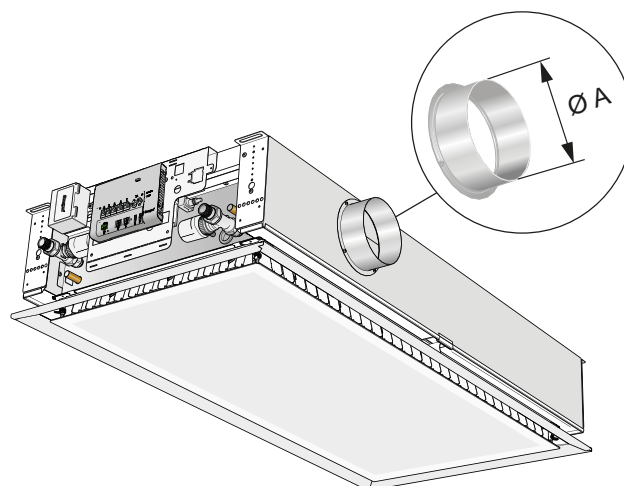


Figure 13. Air connection

For further information, see the relevant documentation at www.swegon.com

WISE Parasol Instructions for Use

WISE Project Planning Guide - VS & Cooling,

WISE Project Planning Guide - Electric & Control and

WISE Project Planning Guide - Ventilation

WISE System Guide

Technical data

Total cooling capacity, max.	2055 W
Heating capacity, water, max.	2700 W
Air flow	
Single-module units	7-34 l/s
Double module unit	7-85 l/s
Length	
Single-module unit	584; 592; 598; 617; 623; 642; 667 mm
Double module unit	1184; 1192; 1198; 1242; 1248; 1292; 1342 mm
Width	
	584; 592; 598; 617; 623; 642; 667 mm
Height WISE Parasol MF 600 ø125 220 mm	
	WISE Parasol PF 600 ø160 250 mm
	WISE Parasol HF 1200 ø125 220 mm
	WISE Parasol PF 1200 ø160 250 mm

Dimensions of the units have a tolerance of (±2) mm.

Electrical data

Power supply:	24V AC ±15% 50 - 60Hz
Connections pipe dim.	
Power:	Screw terminal max. 2.5mm ²
Valve actuator:	Push-in spring force connections, max. 1.5 mm ²
Max. power consumption:	See table below

WISE Parasol in standard version:	VA / unit	Standard VA total
WISE CU	2.3	5.1
WISE DPS Modbus	0.8	
Damper motor (315C)	2	

Option:	VA / unit		
	1 pcs	2 pcs	3 pcs
Valve actuator, ACTUATORc	6	12	18*
WISE SMA	0.8		
WISE SMB	0.6		

*Applies to products with CU ver. 2, delivered from 01.10.2019

Example:

WISE Parasol in standard version with the following options: Actuator for cooling and heating as well as WISE SMA, gives a total power consumption of 5.1 + 6 + 0.8 = 11.9 VA

Recommended limit values

Pressure levels

Coil working pressure, max.	1600 kPa *
Coil test pressure, max.	2400 kPa *
* Applicable without control equipment mounted	

Nozzle pressure

Recommended min. nozzle pressure if coil heating is used, p _i	50-150 Pa
Recommended minimum nozzle pressure with face plate in the high output mode, p _i	70 Pa

Water flow

Ensures evacuation of any air pockets in the system.	
Cooling water, min.	0.030 l/s
Heating water, min.	0.013 l/s

Temperature differentials

Cooling water, temperature increase	2-5 K
Heating water, drop in temperature	4-10 K
Temperature differences are always expressed in Kelvin (K).	

Supply flow temperature

Cooling water	**
Heating water, max.	60 °C

** Cooling water must always be kept at a level that ensures that no condensation is formed.

Designations

P	Capacity (W)
t _i	Temperature of primary air (°C)
t _r	Temperature of room air (°C)
t _m	Mean water temperature (°C)
ΔT _m	Temperature difference t _r - t _m (K)
ΔT _i	Temperature difference t _i - t _r (K)
ΔT _k	Temperature difference of cooling water flow and return (K)
ΔT _v	Temperature difference of heating water flow and return (K)
v	Water velocity (m/s)
q	Flow (l/s)
p	Pressure (Pa)
Δp	Pressure drop (Pa)

Supplementary index: k = cooling, v = heating, l = air, i = commissioning, corr = correction

Nozzle pressure (commissioning pressure)

$$p_i = (q_i / k_{pi})^2$$

p _i	Nozzle pressure (pa)
q _i	Flow of primary air (l/s)
k _{pi}	Pressure drop constant for nozzle setting, see Tables 1-4

Cooling

Default

The cooling capacities have been measured in conformance with EN 15116 Standard and have been recalculated for a constant water flow according to Diagram 2/3.

Calculating Formulae - Cooling

Below are some formulae that enable the user to calculate which comfort module selection is best suited for the application. The values for the calculations can be taken from the tables.

Pressure drop in cooling coil

$$\Delta p_k = (q_k / k_{pk})^2$$

Δp_k Pressure drop in cooling coil (kPa)

q_k Flow of cooling water (l/s), see Diagram 1

k_{pk} Pressure drop constant for cooling coil, see Tables 1-4

Cooling capacity of the air

$$P_1 = 1,2 \cdot q_1 \cdot \Delta T_1$$

P_1 Primary air's cooling capacity (W)

q_1 Flow of primary air (l/s)

ΔT_1 Temperature difference between primary air (t_1) and room air (t_r) (K)

Cooling capacity of the water

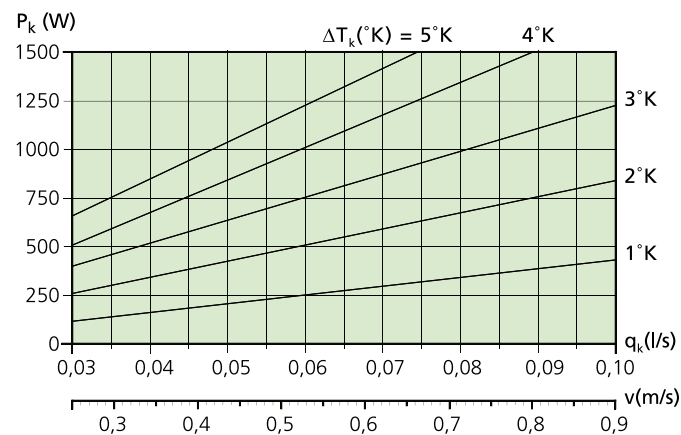
$$P_k = 4186 \cdot q_k \cdot \Delta T_k$$

P_k Cooling capacity of the water (W)

q_k Cooling water flow (l/s)

ΔT_k Temperature difference of cooling water flow and return (K)

Diagram 1. Water flow - cooling capacity



Corrected capacity – water flow

Different water flow rates to some extent have effects on the capacity output. By checking calculated water flow against Diagrams 2 or 3, the capacity indicated in Tables 1-4 may need to be slightly adjusted up or down.

$$P_{corr} = k \cdot P_k$$

P_{corr} Corrected capacity (W)

k Correction factor

P_k Cooling capacity of the water

Diagram 2. Corrected capacity – water flow, WISE Parasol 600

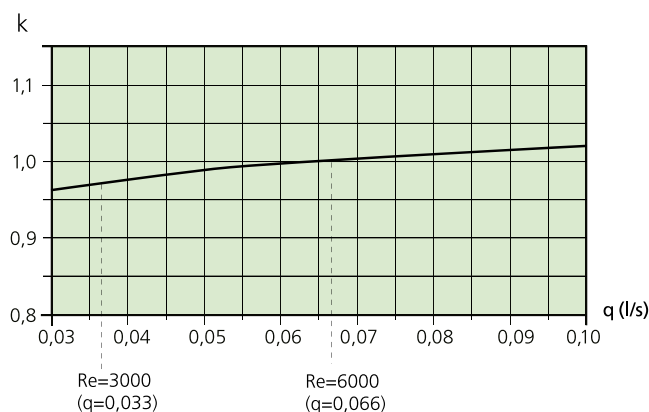


Diagram 3. Corrected capacity – water flow, WISE Parasol 1200

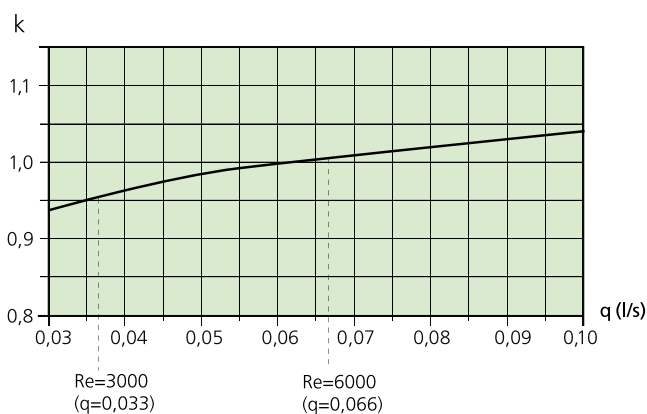


Diagram 4. Pressure drop – water flow, cooling

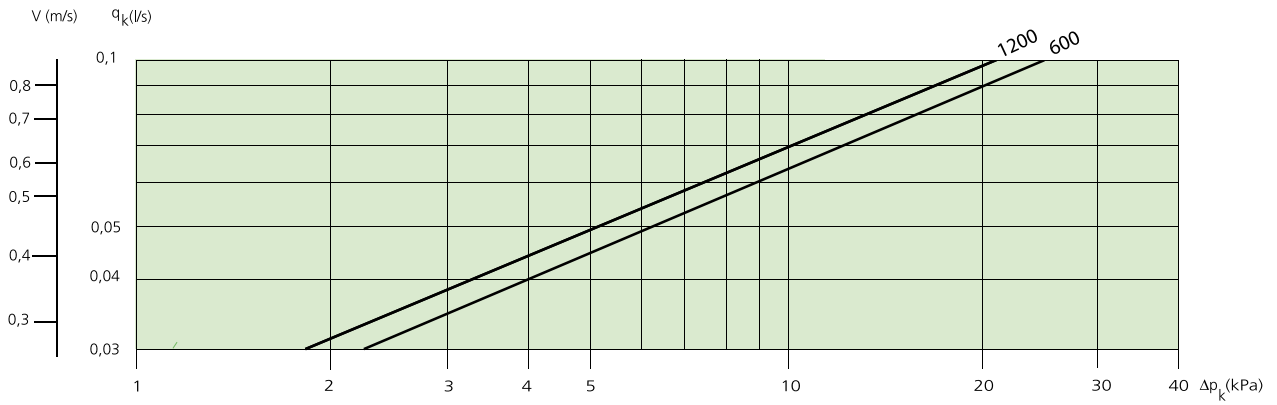


Table 1. Cooling capacity WISE Parasol 600 MF

Nozzle pressure	Nozzle setting 1)	Primary air flow (l/s)	Sound level dB(A) 2)	Cooling capacity of primary air (W) for ΔT_1				Cooling capacity of the water (W) at ΔT_{mk} 3)						Pressure drop constant air/water	
				6	8	10	12	6	7	8	9	10	11	k_{pl}	k_{pk}
50 Pa	LLLL	7.2	<20	52	69	86	104	196	226	258	287	319	348	1.01	0.0200
	LHLH	13.4	<20	96	129	161	193	258	300	338	380	422	464	1.89	0.0200
	HHHH	19.6	20	141	188	235	282	278	324	370	415	461	502	2.77	0.0200
70 Pa	LLLL	8.5	<20	61	82	102	122	228	266	304	338	376	413	1.01	0.0200
	LHLH	15.9	24	114	153	191	229	303	352	396	444	492	540	1.89	0.0200
	HHHH	23.2	25	167	223	278	334	326	379	431	483	534	581	2.77	0.0200
90 pa	LLLL	9.6	20	69	92	115	138	255	297	335	377	418	460	1.01	0.0200
	LHLH	18,0	28	130	173	216	259	333	386	439	492	544	592	1.89	0.0200
	HHHH	26.3	29	189	252	316	379	363	420	477	534	590	636	2.77	0.0200

Table 2. Cooling capacity WISE Parasol 600 PF

Nozzle pressure	Nozzle setting 1)	Primary air flow (l/s)	Sound level dB(A) 2)	Cooling capacity of primary air (W) for ΔT_1				Cooling capacity of the water (W) at ΔT_{mk} 3)						Pressure drop constant air/water	
				6	8	10	12	6	7	8	9	10	11	k_{pl}	k_{pk}
50 Pa	LLLL	22.1	23	159	212	265	318	214	251	285	323	360	395	3.13	0.023
	LHLH	27.9	27	201	268	335	402	243	281	323	366	408	447	3.95	0.023
	HHHH	33.7	27	243	324	404	485	261	306	352	393	439	485	4.76	0.023
70 Pa	LLLL	26.2	28	189	252	314	377	263	308	352	392	437	481	3.13	0.023
	LHLH	33	31	238	317	396	475	288	337	386	436	485	534	3.95	0.023
	HHHH	39.8	32	287	382	478	573	310	362	415	467	520	573	4.76	0.023
90 pa	LLLL	29.7	31	214	285	356	428	301	351	395	445	494	543	3.13	0.023
	LHLH	37.5	35	270	360	450	540	325	380	434	488	543	597	3.95	0.023
	HHHH	45.2	36	325	434	542	651	342	400	462	520	578	636	4.76	0.023

1) For the sizing of alternative nozzle settings, use the Swegon ProSelect or IC Design sizing program that is available for use at www.swegon.com.

2) Room attenuation = 4 dB

3) The specified capacities are based on a high output mode. Operation with the face plate set to the normal position reduces the water capacity of WISE PARASOL 600 by about 5% and that of the WISE PARASOL 1200 by about 10 %. The water capacity can vary depending on the installation and how the air deflectors are set. The primary air capacity is not affected.

Note! The total cooling capacity is the sum of the airborne and waterborne cooling capacities.

Table 3. Cooling capacity WISE Parasol 1200 HF

Nozzle pressure	Nozzle setting 1)	Primary air flow (l/s)	Sound level dB(A) 2)	Cooling capacity of primary air (W) for ΔT_1				Cooling capacity of the water (W) at ΔT_{mk} 3)					Pressure drop constant air/water	
				6	8	10	12	6	7	8	9	10	k_{pl}	k_{pk}
50 Pa	LLLL	13.0	<20	94	125	156	187	383	444	504	570	630	1.84	0.0220
	LHLH	29.4	22	212	282	353	423	499	580	653	733	806	4.16	0.0220
	HHHH	35.6	26	256	342	427	513	520	596	678	753	827	5.04	0.0220
70 Pa	LLLL	15.4	20	111	148	185	222	432	500	574	641	708	1.84	0.0220
	LHLH	34.8	26	251	334	418	501	557	646	733	813	899	4.16	0.0220
	HHHH	42.2	29	304	405	506	608	580	663	753	842	922	5.04	0.0220
90 pa	LLLL	17.5	<20	126	168	210	252	471	544	624	696	768	1.84	0.0220
	LHLH	39.5	29	284	379	474	569	603	697	790	875	966	4.16	0.0220
	HHHH	47.8	32	344	459	574	688	627	715	810	904	989	5.04	0.0220

Table 4. Cooling capacity WISE Parasol 1200 PF

Nozzle pressure	Nozzle setting 1)	Primary air flow (l/s)	Sound level dB(A) 2)	Cooling capacity of primary air (W) for ΔT_1				Cooling capacity of the water (W) at ΔT_{mk} 3)					Pressure drop constant air/water	
				6	8	10	12	6	7	8	9	10	k_{pl}	k_{pk}
50 pa	LLLL	40.6	25	292	390	487	585	353	409	465	520	576	5.74	0.022
	LHLH	53.8	25	387	516	646	775	393	460	522	583	644	7.61	0.022
	HHHH	59.6	26	429	572	715	858	411	475	538	601	664	8.42	0.022
70 pa	LLLL	48.0	30	346	461	576	691	418	484	548	613	683	5.74	0.022
	LHLH	63.7	30	459	612	764	917	468	539	611	688	759	7.61	0.022
	HHHH	70.4	32	507	676	845	1014	481	554	634	707	787	8.42	0.022
90 pa	LLLL	54.5	33	392	523	654	785	469	541	612	690	760	5.74	0.022
	LHLH	72.2	34	520	693	866	1040	521	600	685	763	848	7.61	0.022
	HHHH	79.9	36	575	767	959	1151	535	615	703	791	870	8.42	0.022

1) For the sizing of alternative nozzle settings, use the Swegon ProSelect or IC Design sizing program that is available for use at www.swegon.com.

2) Room attenuation = 4 dB

3) The specified capacities are based on a high output mode. Operation with the face plate set to the normal position reduces the water capacity of WISE PARASOL 600 by about 5% and that of the WISE PARASOL 1200 by about 10 %. The water capacity can vary depending on the installation and how the air deflectors are set. The primary air capacity is not affected.

Note! The total cooling capacity is the sum of the airborne and waterborne cooling capacities.

Table 5. Cooling capacity for natural convection

Unit (mm)	Cooling capacity (W) for temperature difference, room - water ΔT_{mk} (K)						
	6	7	8	9	10	11	12
WISE Parasol 600	17	21	25	29	34	39	43
WISE Parasol 1200	41	51	61	72	83	95	107

Calculation example - cooling

A cellular office with dimensions $w \times d \times h = 2.4 \times 4 \times 2.7$ m is to be equipped with a comfort module. The total cooling requirement is estimated to 50 W/m^2 . In order to meet this cooling requirement one WISE Parasol VAV is needed that gives $50 \times 2.4 \times 4 = 480 \text{ W}$.

Design room temperature (t_r) 24°C , cooling water temperature (flow/return) $14/16^\circ\text{C}$ and the primary air temperature (t_p) 16°C produces:

$$\Delta T_k = 2 \text{ K}$$

$$\Delta T_{mk} = 9 \text{ K}$$

$$\Delta T_p = 8 \text{ K}$$

Required primary air flow for the room (q_p) has been set to 16 l/s . A zone damper ensures that the pressure in the duct is held constant at 70 Pa .

The sound from the unit must not exceed 30 dB (A) .

Solution

Cooling

The cooling capacity of the primary air can be calculated using the following formula: $P_i = 1.2 \cdot \Delta T_i \cdot q_i$

$$P_i = 1.2 \cdot 8 \cdot 16 = 154 \text{ W}$$

Accordingly, the comfort module WISE Parasol shall be able to give $480 - 154 = 326 \text{ W}$ in cooling capacity on the water side.

From Table 1 we can read that a WISE Parasol 592×592 mm with a nozzle setting LHLH for a primary air flow of 16 l/s gives 444 W in cooling capacity on the water side. Thus this is sufficient to meet the cooling requirement.

At the same time, this nozzle configuration means that a large amount of air can be saved for absence mode, which in this case gives 4.6 l/s .

Alternatively, nozzle HHHH can be set, it then gives more air for absence (minor saving), but an overcapacity in air flow and cooling is available if, for example, you visit the office often.

Cooling water

With a cooling capacity requirement of 326 W for cooling water, the necessary water flow can be obtained in Diagram 1. With the temperature increase $\Delta T_k = 2 \text{ K}$ the water flow will be 0.039 l/s .

In Diagram 2 we can read that a water flow of 0.039 l/s does not produce a fully turbulent outflow, but the capacity must be corrected by a reduction factor of 0.97 . The loss of capacity is compensated by calculating the comfort module's required cooling capacity as follows: $P_k = 326 / 0.97 = 336 \text{ W}$.

New water flow is obtained from Diagram 1, $q_k = 0.040 \text{ l/s}$. The pressure drop is calculated on the basis of a water flow of 0.040 l/s and the pressure drop constant $k_{pk} = 0.020$, which is taken from Table 1.

The pressure drop can now be read at 4.0 kPa from Diagram 4.

Heating

Heating function

As the comfort module is able to quickly mix the primary air with room the air, WISE Parasol is ideal to manage both cooling and heating. Heating spaces with air heated above room temperature discharged from the ceiling is a good alternative to conventional radiator heating solutions. The benefits achieved include lower installation costs, simpler installation and perimeter walls free from piping and radiators. When WISE Parasol maintains a high nozzle pressure even at low flow rates, there is a specific heating output even, for example, for weekend operations when the flow is reduced over a longer period.

Regardless of the type of heating system installed it is important to consider the operative temperature in a room. Most people are comfortable when the operative temperature in winter is in between $20\text{--}24^\circ\text{C}$, and the optimal comfort requirements are normally met when the room temperature is 22°C . This means that for a room with a cold perimeter wall, the air temperature must be higher than 22°C to compensate for the chilling effect of the wall. In new buildings with normal insulated perimeter walls and normal standards of window glazing, the difference between the room air temperature and the operative temperature is small. But for older buildings with worse windows, it may be necessary to raise the air temperature to compensate for the chilling effect. Different operating scenarios can be simulated easily using the Swegon ProClim Web software where both the room air temperature and operative temperature are specified.

Supplying heated air from the ceiling results in some stratification of the air. With a maximum supply flow temperature of 40°C , the stratification is non-existent, while at 60°C it can be around 4 K in the occupied zone. This only applies during the warming-up phase, when the room is unused and there is no internal load. When the room is being used and lighting, computers and people are present, the stratification is reduced or disappears depending on the heating load.

When heating with WISE Parasol, use of an external temperature sensor or additional sensor module in the room is recommended.

Calculation formulae - water-based heating

Below are some formulae that enable the user to calculate which comfort module selection is best suited for the application. The values for the calculations are in Tables 6-9.

The cooling or heating capacity of the air

$$P_i = 1,2 \cdot q_i \cdot \Delta T_i$$

P_i The cooling or heating capacity of the air (W)

q_i Flow of primary air (l/s)

ΔT_i Temperature difference between primary air (t_i) and room air (t_r) (K)

Pressure drop for heating coil

$$\Delta p_v = (q_v / k_{pv})^2$$

Δp_v Pressure drop in cooling coil (kPa)

q_v Flow of heating water (l/s), see Diagram 6

k_{pv} Pressure drop constant for heating coil, see Tables 6-9

Heating capacity of the water

$$P_v = 4186 \cdot q_v \cdot \Delta T_v$$

P_v Heating capacity of the water (W)

q_v Flow of heating water (l/s)

ΔT_v Temperature difference between the heating water's flow and return flow (K)

Diagram 5. Water flow - heating capacity

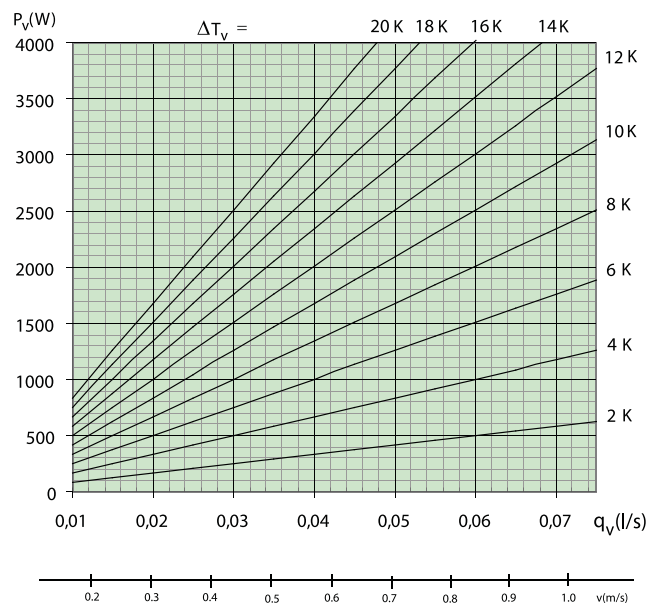


Diagram 6. Pressure drop – heating water flow

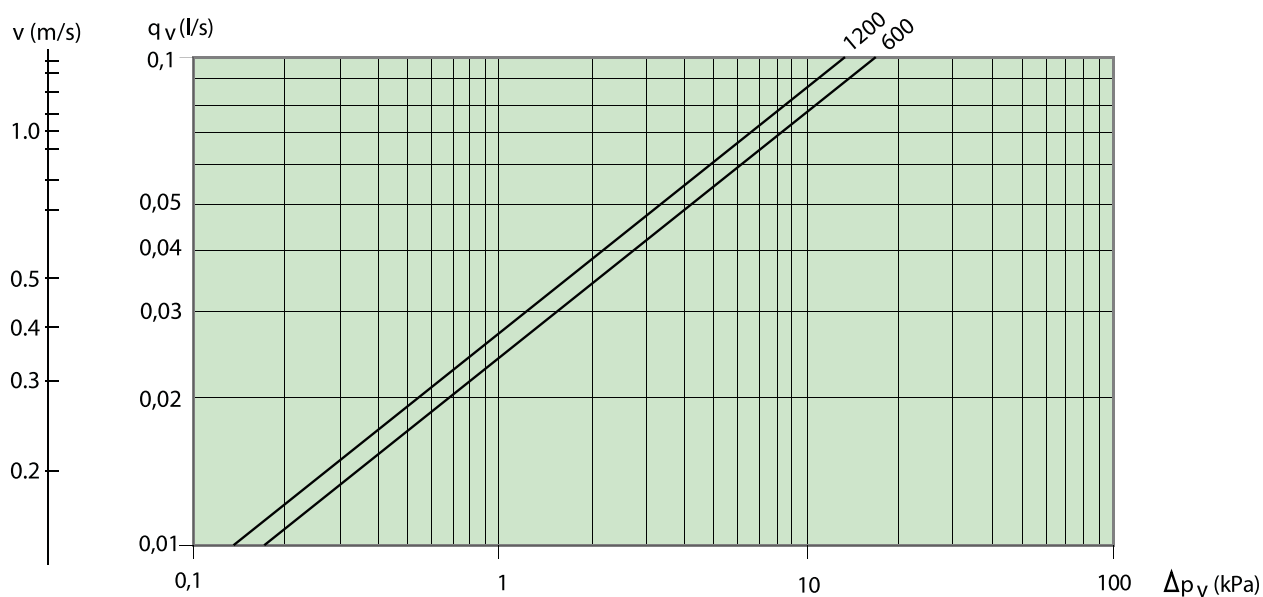


Table 6 - Heating capacity WISE Parasol 600 MF

Nozzle pressure	Nozzle setting 1)	Primary air flow (l/s)	Sound level dB(A) 2)	Heating capacity, water (W) for ΔT_{mv} 3)						Pressure drop constant air/water	
				5	10	15	20	25	30	k_{pl}	k_{pv}
50 Pa	LLLL	7.2	<20	101	202	303	401	501	601	1.01	0.0241
	LHLH	13.4	<20	132	264	388	515	637	762	1.89	0.0241
	HHHH	19.6	20	142	285	420	556	688	819	2.77	0.0241
70 Pa	LLLL	8.5	<20	116	235	350	466	583	698	1.01	0.0241
	LHLH	15.9	24	148	297	439	585	726	867	1.89	0.0241
	HHHH	23.2	25	161	320	471	626	775	924	2.77	0.0241
90 pa	LLLL	9.6	20	130	257	386	514	641	769	1.01	0.0241
	LHLH	18,0	28	163	323	480	635	788	943	1.89	0.0241
	HHHH	26.3	29	173	347	513	677	841	1002	2.77	0.0241

Table 7 - Heating capacity WISE Parasol 600 PF

Nozzle pressure	Nozzle setting 1)	Primary air flow (l/s)	Sound level dB(A) 2)	Heating capacity, water (W) for ΔT_{mv} 3)						Pressure drop constant air/water	
				5	10	15	20	25	30	k_{pl}	k_{pv}
50 Pa	LLLL	22.1	23	108	221	339	456	575	696	3.13	0.018
	LHLH	27.9	27	109	233	360	494	631	770	3.95	0.018
	HHHH	33.7	27	109	239	378	521	669	820	4.76	0.018
70 Pa	LLLL	26.2	28	126	255	390	527	665	804	3.13	0.018
	LHLH	33	31	129	269	414	562	713	867	3.95	0.018
	HHHH	39.8	32	131	277	429	588	747	911	4.76	0.018
90 pa	LLLL	29.7	31	137	282	429	581	731	882	3.13	0.018
	LHLH	37.5	35	142	294	453	611	775	939	3.95	0.018
	HHHH	45.2	36	146	306	468	635	805	977	4.76	0.018

1) For the sizing of alternative nozzle settings, use the Swegon ProSelect or IC Design sizing program that is available for use at www.swegon.com.

2) Room attenuation = 4 dB

3) The specified capacities are based on a high output mode. Operation with the face plate set to the normal position reduces the water capacity of the WISE Parasol 600 by about 5% and that of the WISE Parasol 1200 by about 10%. The water capacity can vary depending on the installation and how the air deflectors are set. The primary air capacity is not affected.

Note! The total heating capacity is the sum of the airborne and waterborne heating capacities. If the primary air temperature is lower than the room temperature, it causes a negative impact on the total heating capacity.

Table 8 - Heating capacity WISE Parasol 1200 HF

Nozzle pressure	Nozzle setting 1)	Primary air flow (l/s)	Sound level dB(A) 2)	Heating capacity, water (W) for ΔT_{mv} 3)						Pressure drop constant air/water	
				5	10	15	20	25	30	k_{pl}	k_{pv}
50 Pa	LLLL	13.0	<20	173	348	643	944	1117	1291	1.84	0.0273
	LHLH	29.4	22	221	446	823	1207	1432	1653	4.16	0.0273
	HHHH	35.6	26	227	457	850	1243	1475	1706	5.04	0.0273
70 Pa	LLLL	15.4	20	197	391	729	1063	1260	1453	1.84	0.0273
	LHLH	34.8	26	247	494	919	1345	1592	1826	4.16	0.0273
	HHHH	42.2	29	253	507	948	1384	1642	1873	5.04	0.0273
90 pa	LLLL	17.5	<20	212	424	787	1156	1368	1580	1.84	0.0273
	LHLH	39.5	29	263	532	990	1448	1717	1947	4.16	0.0273
	HHHH	47.8	32	274	544	1019	1487	1762	1994	5.04	0.0273

Table 9 - Heating capacity WISE Parasol 1200 PF

Nozzle pressure	Nozzle setting 1)	Primary air flow (l/s)	Sound level dB(A) 2)	Heating capacity, water (W) for ΔT_{mv} 3)						Pressure drop constant air/water	
				5	10	15	20	25	30	k_{pl}	k_{pv}
50 pa	LLLL	40.6	25	268	511	743	975	1200	1422	5.74	0.027
	LHLH	52.0	25	305	576	843	1100	1358	1608	7.61	0.027
	HHHH	59.6	26	315	599	874	1140	1406	1664	8.42	0.027
70 pa	LLLL	48.0	30	315	602	882	1157	1423	1691	5.74	0.027
	LHLH	63.7	30	354	677	992	1302	1607	1879	7.61	0.027
	HHHH	70.4	32	369	702	1026	1344	1659	1933	8.42	0.027
90 pa	LLLL	54.5	33	351	673	986	1294	1593	1868	5.74	0.027
	LHLH	72.2	34	392	758	1109	1450	1792	2063	7.61	0.027
	HHHH	79.9	36	402	778	1139	1501	1852	2119	8.42	0.027

1) For the sizing of alternative nozzle settings, use the Swegon ProSelect or IC Design sizing program that is available for use at www.swegon.com.

2) Room attenuation = 4 dB

3) The specified capacities are based on a high output mode. The water capacity for WISE Parasol 1200 PF is reduced by between 5% and 12% for operations with the face plate set to the normal position. The water capacity can vary depending on the installation and how the air deflectors are set. The primary air capacity is not affected.

Note! The total heating capacity is the sum of the airborne and waterborne heating capacities. If the primary air temperature is lower than the room temperature, it causes a negative impact on the total heating capacity.

Calculation Example - Heating

In a cellular office with dimensions $w \times d \times h = 2.4 \times 4 \times 2.7$ m (same room as in the example for cooling) there is also heating requirement during the winter of 450 W. The primary air flow must be the same as in the summer case, 16 l/s and the duct pressure is now also held constant. Design room temperature (t_r) 22 °C, the heating water temperature (supply/return) 45/39 °C and the primary air temperature (t_p) 20 °C give:

$$\Delta T_v = 6 \text{ K}$$

$$\Delta T_{mv} = 20 \text{ K}$$

$$\Delta T_i = -2 \text{ K}$$

Solution

Heating

The primary air flow of 16 l/s in combination with the primary air temperature of 20°C produces a negative impact on the heating capacity: $1.2 \times 16 \times (-2) = -38$ W. The heating capacity requirement from the heating water is thus increased to $450 + 38 = 488$ W. Table 6 gives at $\Delta T_{mv} = 20$ K and primary air flow 16 l/s, a heat capacity.

$P_v = 585$ W from a single-module unit with nozzle setting LHLH, which is enough to meet the heating requirement.

Heating water

With a heating requirement of 488 W and $\Delta T_v = 6$ K the requisite water flow is then obtained from Diagram 5: 0.019 l/s. The pressure drop for the heating water is calculated on the basis of a water flow of 0.019 l/s and pressure drop constant $k_{pv} = 0.0241$, which is taken from Table 6. The pressure drop will then be: $\Delta p_v = (q_v/k_{pv})^2 = (0.019 / 0.0241)^2 = 0.62$ kPa. Alternatively, the pressure drop can be read from Diagram 6.

Acoustics

Table 10. Cross-talk

Typical R_w values between offices with WISE Parasol where the partition wall finishes against the suspended ceiling (with good sealing properties). Assumes that the partition wall has at least the same R_w value as in the table.

Design	Suspended ceiling R_w (dB)	With WISE Parasol R_w (dB)
Light acoustic suspended ceiling. Mineral wool or perforated steel/ aluminium cassettes or screen.	28	28
Light acoustic suspended ceiling. Mineral wool or perforated steel/ aluminium cassettes or screen. The suspended ceiling is covered with 50 mm mineral wool*.	36	36
Light acoustic suspended ceiling. Mineral wool or perforated steel/ aluminium cassettes or screen. Upright 100 mm mineral wool slab used as acoustic insulation between the offices*.	36	36
Perforated plaster panels in T-bar system Acoustic insulation on the top side (25 mm).	36	36
Sealed plaster suspended ceiling with insulation on top side.	45	44
*Overview: Rockwool 70 kg/m, Gullfiber 50 kg/m.		

Natural attenuation and end reflection

Natural attenuation ΔL (dB) including end reflection.

**Table 11. Natural attenuation ΔL (dB)
WISE Parasol 600 MF**

Nozzle setting	Octave band (Hz)							
	63	125	250	500	1k	2k	4k	8k
LLLL	19	20	17	16	17	16	15	15
MMMM	17	18	15	14	15	14	13	13
HHHH	15	16	13	12	13	12	11	11

**Table 12. Natural attenuation ΔL (dB)
WISE Parasol 600 PF**

Nozzle setting	Octave band (Hz)							
	63	125	250	500	1k	2k	4k	8k
LLLL	19	20	17	16	17	16	15	15
MMMM	17	18	15	14	15	14	13	13
HHHH	15	16	13	12	13	12	11	11

**Table 13. Natural attenuation ΔL (dB)
WISE Parasol 1200 MF**

Nozzle setting	Octave band (Hz)							
	63	125	250	500	1k	2k	4k	8k
LLLL	16	17	14	13	14	13	12	12
MMMM	14	15	12	11	12	11	10	10
HHHH	12	13	10	9	10	9	8	8

**Table 14. Natural attenuation ΔL (dB)
WISE Parasol 1200 PF**

Nozzle setting	Octave band (Hz)							
	63	125	250	500	1k	2k	4k	8k
LLLL	16	17	14	13	14	13	12	12
MMMM	14	15	12	11	12	11	10	10
HHHH	12	13	10	9	10	9	8	8

Dimensions and weights

WISE Parasol 600

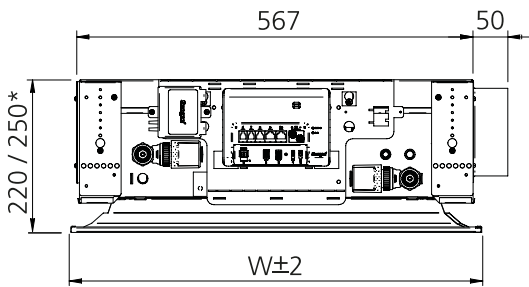


Figure 14. WISE Parasol 600, end view
 When WISE SMB is mounted in the face plate, the height measurement increase by 12 mm.
 * = WISE Parasol 600 PF

Table 15. Dimensions, WISE Parasol 600

Length L (mm)	Width W (mm)
584; 592; 598; 617; 623; 642; 667	584; 592; 598; 617; 623; 642; 667

Table 16. Weight, WISE Parasol 600

WISE Parasol	Dry weight (kg)	Water volume	
		cooling (l)	heating (l)
592-A-MF	16	1.1	
592-B-MF	16.5	1.1	0.2
592-A-PF	17.5	1.1	
592-B-PF	18	1.1	0.2

This is an example of the most common sizes of WISE Parasol. For the other variants, refer to IC Design at www.swegon.com.
 Excl. WISE SMB (0.1kg).

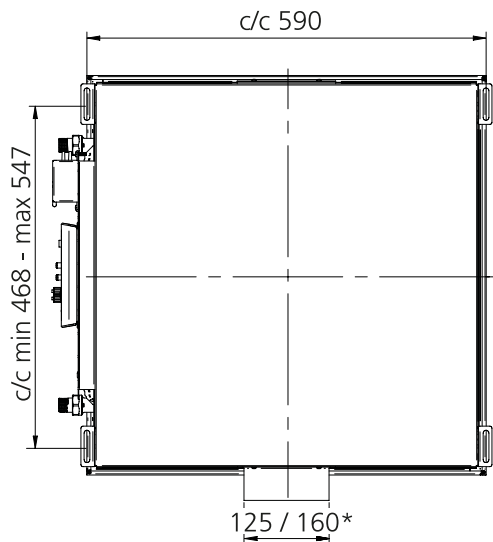


Figure 15. WISE Parasol 600, top view

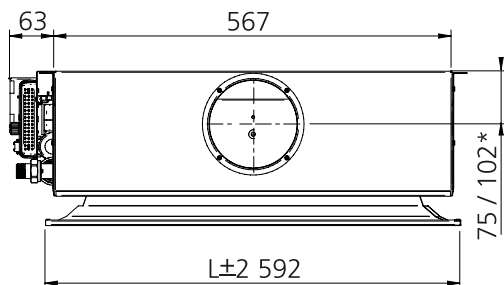


Figure 16. WISE Parasol 600, side view
 * = WISE Parasol 600 PF

WISE Parasol 1200

Table 17. Dimensions, WISE Parasol 1200

Length L (mm)	Width W (mm)
1184; 1192; 1198; 1242; 1248; 1292; 1342	584; 592; 598; 617; 623; 642; 667

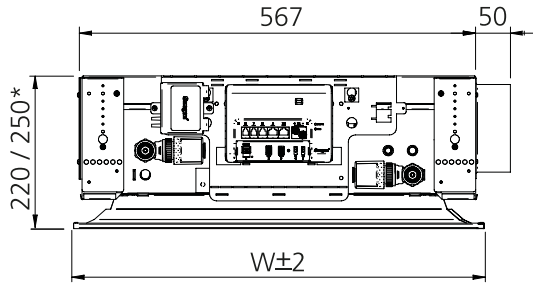


Figure 17. WISE Parasol 1200, end view
When WISE SMB is mounted in the face plate, the height measurement increase by 12 mm.
* = WISE Parasol 1200 PF

Table 18. Weight, WISE Parasol 1200

WISE Parasol	Dry weight (kg)	Water volume	
		cooling (l)	heating (l)
1192-A-HF	25.8	1.4	
1192-B-HF	29.8	1.4	0.9
1192-A-PF	28.1	1.4	
1192-B-PF	32.1	1.4	0.9
1192-X1-HF	30.2	1.4	
1192-X2-HF	30.5	1.4	

This is an example of the most common sizes of WISE Parasol. For the other variants, refer to IC Design at www.swegon.com.
Excl. WISE SMB (0.1kg).

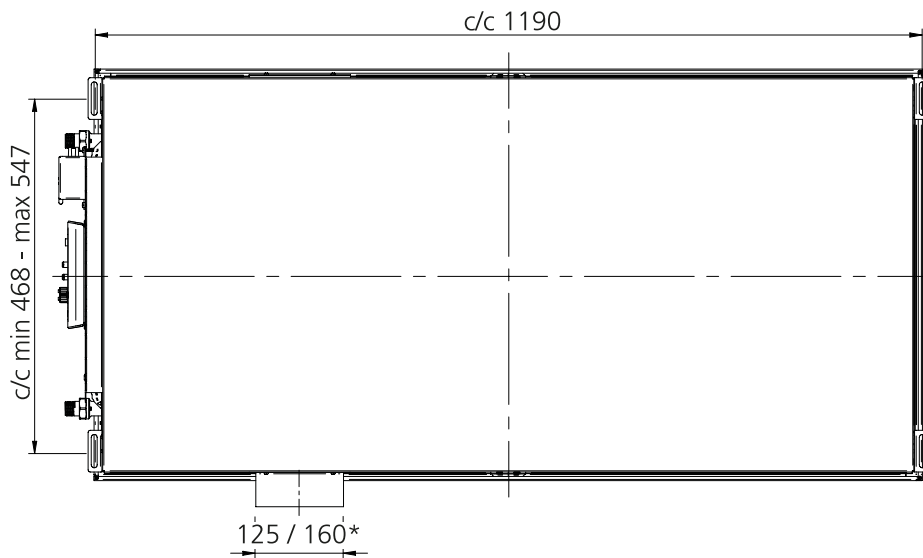


Figure 18. WISE Parasol 1200, top view
* = WISE Parasol 1200 PF

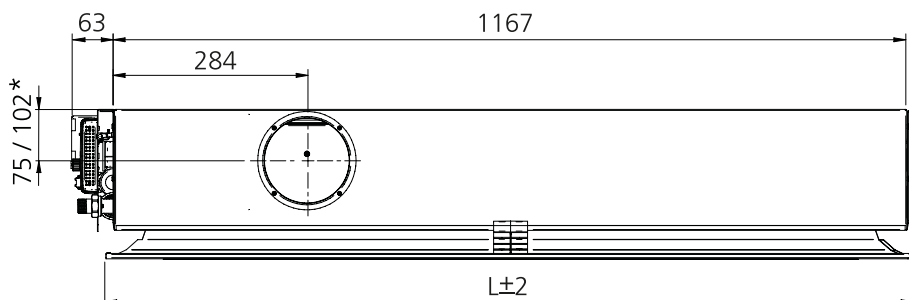


Figure 19. WISE Parasol 1200, side view
* = WISE Parasol 1200 PF

Accessories, factory-fitted

The air quality sensor, WISE SMA (Sensor Module Advanced)

WISE SMA is a sensor that measures temperature, RH and VOC.

WISE SMA can be factory fitted in climate products, dampers or air diffusers in the WISE system and which are equipped with a WISE CU. The unit is powered by a 5V DC from WISE CU and communicates via Modbus with this.



Presence detection sensor, WISE SMB (Sensor Module Basic)

WISE SMB measures temperature and detects occupancy and indicates status via its LED.

WISE SMB can be factory fitted in air diffusers or climate products in the WISE system and which are equipped with a WISE CU.

The unit is powered by a 5V DC from WISE CU and communicates via Modbus with this.



Valve, cooling & heating, VDN 215

Factory fitted valves for cooling and heating.

The valve is mounted on the product and preset fully open on K_v 0.89. DN15 (1/2") K_v -value can be set between 0.1 to 0.89 m³/h.

For more information about the valve, see the separate product data sheet on www.swegon.com.



Actuator, cooling & heating, ACTUATORc 24V NC

Factory fitted valve actuators for cooling and heating.

24V AC/DC, NC (Normally Closed).

For more information about the actuator, see the separate product data sheet on www.swegon.com.



Transformer, Power Adapt 20 VA

Transformer for the voltage supply of products.

Protective transformer with plug type F.

Input voltage 230 V 50-60 Hz

Output voltage 24 V AC

Power 20 VA

Double insulation

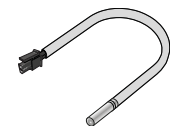
Enclosure IP33



WISE dewpoint monitoring

The PT1000 sensor measures the supply temperature on water pipes in order to give the function WISE dewpoint monitoring.

Note that other accessories that measure RH and temperature are needed in combination with the PT1000-sensor to realise this function.

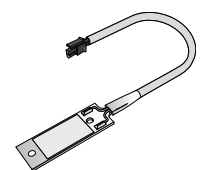


Condensation sensor, CG IV

The condensation sensor is supplied fitted and connected from the factory. The actual sensor element consists of a circuit board with gold plated conductive paths that react when condensation occurs between these. When condensation arises, the cooling valve closes the incoming water flow to the product. When the condensation on the conductive paths has been wiped off, the cooling valve is permitted to open again.

The sensor is positioned on the coil fins by the cooling supply.

For more information about the condensation sensor, see the separate product data sheet on www.swegon.com.



Optional perforation patterns, PARASOLc T-PP

The face plate of the unit is available with three different perforation patterns that make it easily adaptable to suit different types of ceiling components, e.g. light fittings and extract air diffusers that share the surface of a suspended ceiling. A ceiling containing different types of perforation patterns can be experienced as disturbing to the eye.

Other patterns are of course available on special order. For further details, get in touch with your nearest Swegon representative.

A. Face plate standard PB

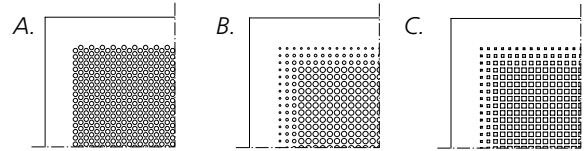
Circular holes arranged in a triangular pattern.

B. Face plate PD

Circular holes arranged in a square pattern with a graduated border.

C. Face plate PE

Square holes arranged in a square pattern with a graduated border.

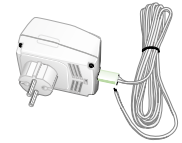


The aforementioned factory-fitted accessories, in addition to WISE SMA and WISE SMB, are available to order as loose items.

Accessories

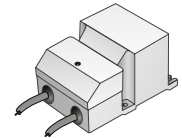
Transformer, Power ADAPT 20 VA (ARV)

Input voltage 230 V, 50-60 Hz
Output voltage 24 V AC
Power 20 VA
Enclosure IP33



Transformer, SYST TS-1

Double-insulated protective transformer 230 V, AC/24 V AC
Input voltage 230 V, 50-60 Hz
Output voltage 24 V AC,
Power 20 VA,
Enclosure IP33



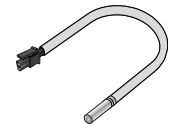
For more information, see the separate product data sheet on www.swegon.com.

Temperature sensor, TEMP. SENSOR PT-1000

The temperature sensor is used to measure the supply temperature on water pipes in order to give the function WISE dewpoint monitoring. NOTE! Other accessories that measure RH and temperature are needed in combination with the TEMP SENSOR PT-1000-sensor to realise the dewpoint monitoring function.

Can also be used to measure the temperature of the main pipe in change-over systems.

Length: 1000 mm



Valve, cooling & heating, SYST VDN 215

Factory fitted valves for cooling and heating.

The valve is preset fully open on K_v 0.89. DN15 (1/2") K_v -value can be set between 0.1 to 0.89 m³/h.

For more information about the valve, see the separate product data sheet on www.swegon.com.



Valve actuator, cooling & heating, ACTUATORc 24V NC

Valve actuators for cooling and heating.

24V AC/DC, NC (Normally Closed).

For more information about the actuator, see the separate product data sheet on www.swegon.com.

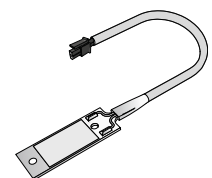


Condensation sensor KIT for subsequent fitting CONDENSATION SENS CG IV-KIT

Condensation sensor's sensor element consists of a circuit board with gold plated conductive paths that react when condensation occurs between these. When condensation arises, the cooling valve closes the incoming water flow to the product. When the condensation on the conductive paths has been wiped off, the cooling valve opens again.

The sensor is positioned on the coil fins by the cooling supply.

For more information about the condensation sensor, see the separate product data sheet and installation instructions on www.swegon.com.



Card switch, SYST SENSO II

Key card holder for hotel rooms.



Assembly fitting, SYST MS M8

For installation use the assembly fitting containing threaded rods, ceiling brackets and nuts to all four mounting brackets.



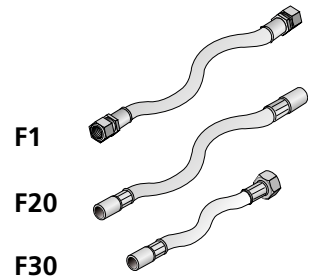
Flexible connection hoses, SYST FH

Flexible hoses are available with quick-fit, push-on couplings as well as clamping ring couplings for quick and simply connection. The hoses are also available in various lengths. Note that compression ring couplings require support sleeves inside the pipes.

F1 = Flexible hose with clamping ring couplings.

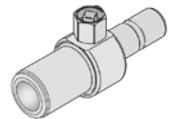
F20 = Flexible hose with quick couplings (push-on)

F30 = Flexible hose with quick couplings (push-on) on one end and the G20ID sleeve nuts on the other end.



Venting nipple, SYST AR-12

A venting nipple is available as a complement to the flexible hoses with push-on couplings. The venting nipple fits directly in the push-on hose coupling and can be fitted in an instant.



Connection piece, air – insertion joint, SYST AD1

SYST AD1 is used as an insertion joint between the WISE Parasol and the duct system. Available in two sizes: Ø125 and Ø160 mm.



Connection piece, air, SYST CA

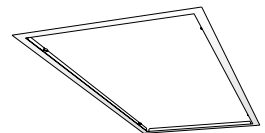
90° duct bend

Available in two sizes: Ø125 and Ø160 mm.



Drywall ceiling frame Parasol c T-FPB

Frame to create a neat transition between WISE Parasol and holes in drywall ceilings.



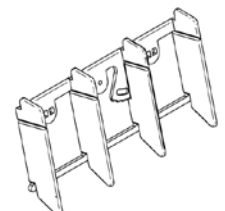
Tool for nozzle adjustment, SYST TORX-6-200

Tools to facilitate adjustment of nozzle strips.



ADC for subsequent installation, SYST ADC-2-105

Air deflector for comfort guarantee



Specification

Table 19. Dimensions, different ceiling types

Ceiling type	Dimensions of the face plate (mm)	
	600 module	1200 module
T-bar system	600 module	1200 module
c-c 600	592x592	1192x592
c-c 600 SAS130/15	584x584	1184x584
c-c 625	617x617	1242x617
c-c 650	642x642	1292x642
c-c 675	667x667	1342x667
Clip in/metal cassette	600 module	1200 module
c-c 600	598x598	1198x598
c-c 625	623x623	1248x623

The tolerance is ± 2 mm.

Function	The units can be ordered in various functional versions: A = Cooling and supply air B = Cooling, heating and supply air
ADC	Factory-fitted ADC supplied as standard
Air flow variant	Single-module unit: WISE Parasol 600 MF WISE Parasol 600 PF* Double module unit: WISE Parasol 1200 HF WISE Parasol 1200 PF* *(PF = Plus flow, extra high air flow)
Software configuration	The product is supplied unconfigured from the factory. When commissioning it is paired with SuperWISE and is allocated functions and setpoint parameters that have been set up via IC Design.
Nozzle setting	Each side can be set in three different ways L, M or H L = Low air flow M = Medium air flow H = High air flow
Colour	The units are supplied painted in Swegon's standard shade of white, RAL 9003, gloss ratio 30 \pm 6%
Communication	Modbus RTU

Contractor demarcation

Swegon's delivery ends at the connection points for water and air and the connection of the room control equipment, see Figures 14, 15, 16 as well as 17, 18 and 19.

For further information, see also the relevant documentation at www.swegon.com

WISE Parasol Instructions for Use
WISE Project Planning Guide - VS & Cooling,
WISE Project Planning Guide - Electric & Control and
WISE Project Planning Guide - Ventilation

- The pipe contractor connects the connections points for water to the plain pipe ends and fills the system, bleeds it and tests the pressure. When the room control equipment is installed at the factory, the cooling and heating water's return line is connected to the valve. (Male thread, DN 1/2").
- The ventilation contractor connects ducting to the air connecting piece.
- The electrical contractor connects the power (24V) and signal cables to the connection terminals with spring-loaded snap-in connections. Maximum cable cross section 2.5 mm². For safe operation, we recommend cable ends with ferrules.

Specification text

Example of a specification text according to VVS AMA.

KB XX

Comfort module WISE Parasol for Swegon's system WISE, for integrated installation in suspended ceilings, with the following functions:

- Cooling
- Heating, water (optional)
- Ventilation
- Integrated functionality for demand-controlled ventilation
- Adjustable air direction
- Comfort guarantee ADC¹
- Integrated circulating air opening in face plate
- Enclosed version for circulating air
- Cleanable air duct
- Fixed measurement tapping with hose
- Painted in standard shade of white RAL 9003
- Suitable for T-bar system with modular dimensions: 600; 625; and 675 mm; T-profile 24 mm (optional)
- Contractor demarcation at the connection points for water and air according to dimensional drawings
- The contractor demarcation for electric connection point according to dimension print
- At connection points the pipe contractor connects to ø 12 mm plain pipe ends (cooling) or to ø 12 mm plain pipe ends (heating). As the unit is equipped with in-built room control equipment, the pipe contractor connects to male threads DN 1/2". The ventilation contractor connects to connection spigots ø125 mm (PF = ø160 mm).
- The pipe contractor fills, vents, tests the pressure and assumes responsibility for the design water flows reaching each branch of the system and the index unit
- The ventilation contractor conducts initial commissioning of the airflows

Factory fitted room control and accessories

- Control unit
 - WISE CU
- Transformer
 - Power ADAPT 20 VA (optional extra)
- Valves and actuators for cooling and heating
 - Straight valve, VDN 215 (optional extra)
 - Actuator, 24V NC (optional extra)
- Sensors
 - Air quality sensor, WISE SMA (optional extra)
 - Presence detection sensor, WISE SMB (optional extra)
 - WISE dewpoint monitoring (optional extra)
 - Condensation sensor, CG IV (optional extra)
 - Temp. sensor (WISE DPS Modbus)
- Optional perforation patterns PARASOLc T-PP

Room accessories

- Hand-held terminal, TuneWISE, xx items
- Dongle for hand-held terminal, ConnectWISE USB, xx items
- Scanner, Scanner TuneWISE xx items
- Temp. sensor (WISE DPS Modbus)
- Setpoint selector switch with integrated temperature sensor, WISE RTA, xx items
- Sensor (VOC, CO2, RH, Temp), WISE IAQ MULTI, xx items
- Sensor (CO2, RH, Temp), WISE IAQ CO2, xx items
- Sensor (VOC, RH, Temp), WISE IAQ VOC, xx items
- Temperature sensor (IR) WISE IRT, xx items
- Occupancy sensor (Occupancy, RH, Temp), WISE OCS, xx items
- Control unit Input/output radio extender, WISE IORE, xx items
- Window/door contact WISE WCS, xx items
- Temperature sensor WISE RTS, xx items
- Sensor, Input radio extender for junction boxes, (analogue/digital) WISE IRE, xx items
- Sensor for wall mounting, Input radio extender (analogue/digital) WISE IRE-W, xx items

Product accessories

- Transformer, POWER Adapt 20 VA (ARV), xx items
- Transformer, SYST TS-1, xx items
- Temperature sensor, TEMP. SENSOR PT-1000, xx items
- Condensation sensor KIT for subsequent fitting CONDENSATION SENS CG IV-KIT, xx items
- Card switch, SYST SENSO II, xx items
- Assembly fitting, SYST MS M8 aaaa-b-cccc, xx items
- Flexible connection hose, SYST FH aaa- bbb-12, xx items
- Venting nipple, push-on, SYST AR-12, xx items
- Connection piece, air – nipple, SYST AD1-aaa, xx items
- Connection piece, air (90°elbow), SYST CA-aaa-90, xx items
- Mounting frame for drywall ceilings PARASOLc T-FPB-aaaa xx items
- Tool for nozzle adjustment, SYST TORX-6-200, xx items
- ADC for subsequent installation, SYST ADC-2-105, xx items
- Valve actuator, ACTUATORc 24V NC, xx items
- Valve straight, SYST VDN 215, xx items

Further information is available for download from www.swegon.com

WISE System Guide

WISE Project Planning Guide - VS & Cooling,

WISE Project Planning Guide - Electric & Control and

WISE Project Planning Guide - Ventilation

WISE Parasol Instructions for Use