

# SETTING UP CORRECT TECHNOLOGIES FOR THE AIR CIRCULATION

Among the leading causes of discomfort in an air conditioned environment we can detected:

- too high air flow, generating drafts;
- uneven distribution of the incoming air volume;
- non homogeneous temperature distribution in the room.

To avoid these drawbacks, it is necessary to generate **a proper diffusion of the air**, which guarantees the right temperature, relative humidity, speed and purity corresponding to the environmental comfort desired.

The **Eurapo UCS cassette units** are able to give a balanced response to all these needs: the outlet air is spread like a classic four-way ceiling diffuser, with distribution from two to four orthogonal directions.

This system takes full advantage of the **Coanda effect**, greatly reducing the air flow direct to people, with positive consequences for their comfort.

### THE COANDA EFFECT: THE PERFECT ALLY FOR A SOFT AIR DIFFUSION

When the air is diffused in contact with a flat surface such as a dropped ceiling, it determines a depression between the flow and the surface, which causes the tendency of the fluid to adhere to the surface avoiding its immediate dropping below. This phenomenon, known as the **Coanda effect**, is of great interest for the correct diffusion of cold air.

For this reason, Eurapo has developed solutions that maximize the **Coanda effect**, by using small quantities of air but at the fastest possible speed and with the widest air throw.

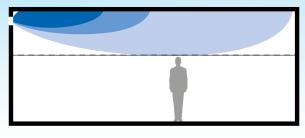


Fig. 1 - Air throw with Coanda effect in cooling mode

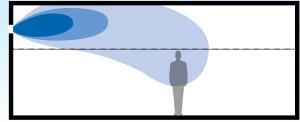
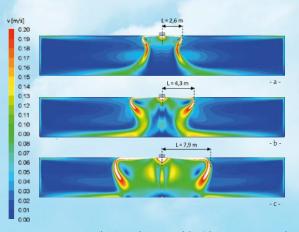


Fig. 2 - Air throw without Coanda effect in cooling mode

### INDUSTRIAL PARTNERSHIP WITH THE UNIVERSITY OF UDINE: THE IMPORTANCE OF R&D

**Eurapo** has involved the **University of Udine** in an industrial research project on the UCS600 cassette units. As a result, it was found that the UCS600 cassette has a much more homogeneous air distribution than other similar products available on the market, as determined be previous tests of all units in the Eurapo laboratories. This result is closely connected to the **considerable wide air throw in transverse direction**, with a consequent beneficial effect on the uniform temperature distribution and more generally on the room comfort.





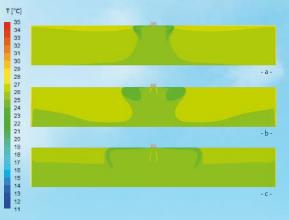
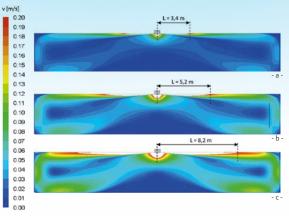


Fig. 3 UCS600: Distribution of air speed [m/s] in summer mode, on a vertical plane that divides the room in two parts, at MIN (a), MED (b) and MAX (c) speed.

Fig. 3a UCS600: Distribution of air temperature [°C] in summer mode, on a vertical plane that divides the room in two parts, at MIN (a), MED (b) and MAX (c) speed.





occupied by people.

Figures 3 and 3a show, in a summer scenario, the extreme uniform temperature distribution in the area

Fig. 4 UCS600: Distribution of air speed [m/s] in winter mode, on a vertical plane that divides the room in two parts, at MIN (a), MED (b) and MAX (c) speed.

Fig. 4a UCS600: Distribution of air temperature [°C] in winter mode, on a vertical plane that divides the room in two parts, at MIN (a), MED (b) and MAX (c) speed.

Even in wintertime, the Eurapo UCS600 cassette ensures a homogeneous distribution of the temperature, assuring the greatest comfort in the room. The temperature in the occupied area remains always in a very narrow range around the set-point value (typically 20 °C), with a percentage of dissatisfied persons (PPD) well below the threshold of 10%, considered acceptable by the regulations for rooms used as offices (UNI EN ISO 7730).





## **UCS600**

Cassette fancoil, for heating and cooling mode, 2 and 4 pipe systems, capacity from 1,12 kW to 5,43 kW.

EURAPO has designed a new range of hydronic cassette units thanks to the recent investments in the new technical laboratories. The new **UCS600** series has been planned in accordance with quality standards that characterize the complete EURAPO production since years and it is distinguished by an increased capacity with a low noise level, by a further improvement in the quality of the components, by a new design of the air intake/air supply grilles that also improves air distribution. **Power consumption is reduced** by more than **50%** in the EST version and thanks to the new production process, UCS600 can deeply penetrate the market with **extremely** aggressive and **competitive prices**.

The UCS600 cassette units are available in 6 asynchronous models and in 4 EST models, for 2 and 4 pipe systems; their external dimensions allow easy installation in modular dropped ceilings (600x600), while the hydraulic and electrical connections, located on the same side, facilitate the maintenance operations. The unit in basic configuration is equipped with a condensate pump, and it is pre-arranged for the connection to an additional air outlet duct and/or to an external air intake. The air intake/outlet grilles are designed in order to avoid that people are directly invested by the air flow (thanks to the Coanda effect), by reaching the maximum levels of comfort.





# UCS/M 600

Cassette fancoil, for heating and cooling mode, for 2 and 4 pipe system, capacity from 1,12 kW to 5,43 kW.

The **UCS/M 600** presents all the new features of the basic model UCS600 and is characterized by the microdrilled air intake grill and its air diffusion frame entirely realized in painted metal sheet, perfectly adaptable to modular false ceilings.

Similarly to the standard UCS600 models, the metallic grill has been designed to obtain the **Coanda effect**, that guarantees an uniform and pleasant air diffusion, by avoiding that people are directly invested by outgoing air flow.

The UCS/M 600 is not provided with air outlet flaps for the deviation of the air flow, therefore the air diffusion is homogeneous on all the four sides of the cassette.

The micro-drilled air intake grill is perfectly integrated in the outer frame, which contains the air filter, easily accessible to make the cleaning operation extremely comfortable.







Cassette fancoil without condensate pump, for heating and cooling mode, 2 and 4 pipe systems, capacity from 1,12 kW to 5,43 kW.

**UCS/H 600** cassette unit has been designed to allow a natural condensate water discharge, for gravity; in this way, condensate pump is not necessary.

UCS/H 600 unit is particularly indicated when reduced maintenance operations are required, for safety or sanitary locations (banks, police stations, hospitals, sanitary rooms), or if very low sound levels are tolerated.

Similarly to the standard UCS600 models, the grill has been designed to obtain the Coanda effect, that guarantees an uniform and pleasant air diffusion, avoiding that people are directly invested by outgoing air flow.

The absence of the condensate pump allows a **greater silence**, reduced electric consumptions and limited maintenance operations.

The accessories range has been implemented with the new **"antiallergic" F7 filter, with a very high filtration capacity, which ensures purification and air quality improvement by filtering pollen particles and powders having dimensions less than 0,4 microns.** The F7 filter can be combined with a **pressure switch** that highlights the filter clogging, warning of the need to replace the filter, in order to keep its characteristics unchanged and to avoid to affect the air flow of the unit.





# **UCS900**

Cassette fancoil 900x900, for heating and cooling mode, 2 and 4 pipe system, capacity from 3,90 kW to 10,15 kW.

With an innovative, essential and clean design, which fits in every kind of environment, the **UCS900** water cassette unit is the result of the stylist research to present an innovative product in terms of performance, low sound level, comfort and regulation flexibility.

The aesthetics of this unit is accurate in every detail, planned in accordance with the EURAPO experience, appreciated by architects and designers from all over the world.

The UCS900 water cassette unit can be used for heating and cooling applications; it has been designed to fit into modular or not modular false ceilings, in 2 and 4 pipe systems.

The 900x900mm dimension of the cassette unit permits to satisfy the cooling demand of ambient having quite big volumes. The UCS900 units in basic configuration are equipped with a condensate pump and they are prearranged for the connection to an additional air outlet duct and/or to an external air intake, by using the specific collars, supplied as standard in a kit.

The particular shape of the air outlet plenum is designed specifically in order to obtain the **Coanda effect**, a phenomenon for which the air outlet flow tends to adhere to the ceiling and falls down smoothly, without blowing directly towards people in the room: the optimal solution for an uniform and pleasant air diffusion.

The UCS900 cassette unit can be managed by the complete range of EURAPO regulators: from the standard electro-mechanical and microprocessor controls to the digital controls, compatible to BMS Systems.

**OMNIBUS 360** 



# **OPower**, the technology

### TECHNOLOGICAL INTELLIGENCE AT THE HEART OF AN ADVANCED SYSTEM

The mind of the system is located in the OPower card, an exceptionally versatile hardware installed on board of the water terminal units. OPower is able to receive and process a large amount of input and output data. It is equipped with a very performing microprocessor and 3 independent MODBUS lines. It can be easily programmed and configured according to the user requests and on the basis of the type of system where the unit is installed.



**OPower can measure the following input values:** 

- room temperature;
- water temperature;
- air outlet temperature;
- Economy/Occupancy contact status;
- failure status;
- window contact status.

#### **OPower can manage the following outputs:**

- opening/closing of modulating water valves;
- fan operation in "thermostated" or "continuous" mode;
- integration of a radiant system with a hydronic terminal unit;
- control of a primary electric heater;
- · activation of the water circulation pump;
- control of other OPower cards in slave mode.

### FLEXIBILITY AT THE SERVICE OF ALL-INCLUSIVE SYSTEMS

The flexibility of Omnibus 360 is based on a specific combination of inputs and outputs. It not only ensures comfort and energy saving, but favours also all-inclusive system architectures: management of stand-alone units by use of analogue and digital consoles, centralized management of small systems with digital regulation and management of large remote systems according to advanced home automation criteria.



### MANAGEMENT OF EC BRUSHLESS MOTORS (EST TECHNOLOGY)

A dedicated OPower card is designed for running EC brushless motors. By setting a specific voltage for each fan speed (Low-Med-High), it allows to modulate the fan in automatic (0-10V) or manual mode.

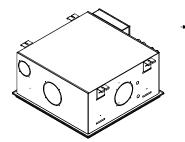


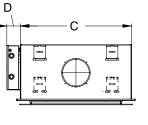


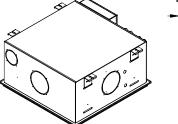
### UCS600

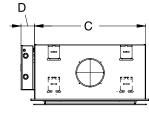
UCS/M 600

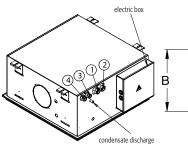


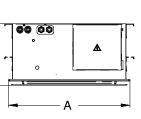


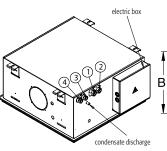


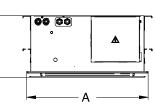








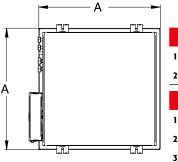




_		
	2 pipes installation	
1	Water inlet	3/4″ F
2	Water outlet	3/4″ F
	4 pipes installation	
1	Cooling water inlet	3/4" F
1 2	Cooling water inlet Cooling water outlet	3/4" F 3/4" F
		,

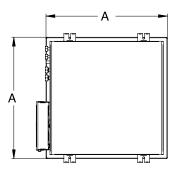
4	Heating water outlet	1/2″ F
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Dimensions (r	nm) and weights for UCS600
Α	615
В	328
C	575
D	75
Kg	24÷25,6



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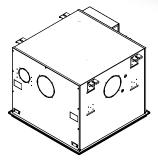
	2 pipes installation	
1	Water inlet	3/4″ F
2	Water outlet	3/4″ F
	4 pipes installation	
1	Cooling water inlet	3/4″ F
2	Cooling water outlet	3/4″ F
3	Heating water inlet	1/2″ F
4	Heating water outlet	1/2″ F

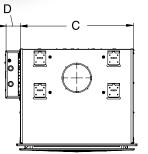


Dimensions (mm) and weights for UCS/M 600									
Α	615								
В	328								
C	575								
D	75								
Kg	26÷27,6								

### UCS/H 600

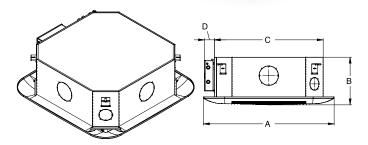


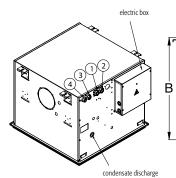


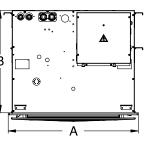


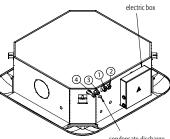
**UCS900** 

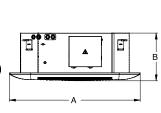




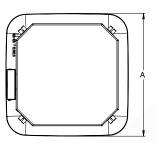








condensate discharge



	2 pipes installation	
1	Water inlet	3/4″ F
2	Water outlet	3/4″ F
	4 pipes installation	
1	Cooling water inlet	3/4" F
2	Cooling water outlet	3/4″ F
3	Heating water inlet	1/2″ F
4		

Dimensions (	mm) and weights for UCS/H 600
A	615
В	525
C	575
D	75
Kg	33,1÷34,7

	2 pipes installation	
1	Water inlet	3/4″ F
2	Water outlet	3/4″ F
	4 pipes installation	
1	Cooling water inlet	3/4″ F
2	Cooling water outlet	3/4″ F
3	Heating water inlet	1/2″ F
4	Heating water outlet	1/2″ F

Dimensions (mm) and weights for UCS900								
A	985							
В	360							
C	820							
D	75							
Kg	45							

### **GENERAL FEATURES UCS600 AND UCS900**

The **main structure** is made of galvanised steel, completely insulated inside with closed cell thermal insulation material.

On three of the four sides, there are prearranged holes for the connection to an air supply duct. Furthermore, there is a prearranged hole for the connection to an external air intake.

The relevant collars for an easy connection to the air duct are always supplied as standard.

The finned 3 row **heat exchangers for UCS600** are made of copper pipes and surface treated aluminium fins.

The surface treatment on the fins permits to have a better condensing water discharge from the fins themselves and a perfect air passage through the heat exchanger, with reduced pressure drops and a high dehumidification and efficiency of the coil.

2 and 3 row coils are available (for UCS900 only 3 row coils). Water connections have diameter  $\frac{3}{4}$  G female on the cooling coil and diameter  $\frac{1}{2}$  G female on the heating coil (4 pipe system).

The **fan deck**, installed in central position, is composed by a centrifugal fan and plastic impeller.

The electric motor is single phase and is provided with six speeds, three of them are factory wired as standard. In the EST version, the motor is equipped with an integrated inverter and it is managed by a modulating signal 0-10Vdc.

The **electric panel** (QECO0) consists of a galvanized metal box, which contains the terminal board for the electrical connections, the earth protection terminal, the autotransformer and the capacitor (in the asynchronous version). The electric panel is located on the side of the unit, at the same side of the water connections.

UCS600 EURAPO Cassette units (except UCS/H) are supplied with a built-in **condensate pump** having a no-return valve on the outlet. The pump is activated by a floating switch and a second switch is used for

closing the cooling valve in case of too high water level in the condensate tray, due to some problems in the water evacuation system.

The **air filter** is composed by a black pre-varnished metal frame and by a honeycomb polypropylene fibre filtering septum.

The filter is immediately accessible by removing the external air intake grill.

The **air intake grill** is realized in heat-resistant ABS plastic material\*, white colour, with a very discreet design, covering the air outlet flaps. This particular combination of air intake and air outlet grilles avoids having direct air flow against the people in the room.

A perfect internal insulation with closed-cell insulating material guarantees not to have problems of water condensation on the grilles.

The **air outlet plenum** is made by heat-resistant ABS plastic material\* in white colour. It permits to distribute the air on the 4 sides of the unit. On each side of the cassette unit there are white flaps which can be totally closed on one or two (max.) sides of the unit, particularly used in case of an air discharge into an adjacent room.

Two levers fix the grill to one side of the air supply plenum; this permits, thanks to a hinge system, to facilitate maintenance operations, as the grill remains hooked to the plenum itself.

\* For UCS/M model, the micro-drilled intake grill and the diffusion frame are made in painted metal sheet.

### ACCESSORIES

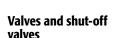
#### Electric heater

Stainless steel 1,5 kW (UCS600) or 3 kW (UCS900) electric heater supplied with 2 safety thermostats, one with automatic resetting and the other one with manual resetting and a power relay card (QEC20). When the electric heater is installed, the cassette unit is internally insulated with heat resistant insulating material.



#### **EXTRA RAL**

Special painting colour of the grill, available in all RAL range.





2 or 3 way valves, factory fitted, 230V or 24V, with ON-OFF or modulating actuator. The standard kit is composed by the auxiliary drain pan and by shut-off ball valves, supplied loose.

#### F7 filter with pressure switch . (UCS/HM 600)



Air filter with filtration grade F7. It consists of a plastic frame (ABS V0) and a fiberglass filtering media with M1 self-extinguishing class. It can be combined with a pressure switch that highlights with an alarm any anomalies that cause a variation of pressure.

### **CONTROLS**

#### **OMNIBUS**\*\*



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#### **Round Analog**

Interface for remote installation, suitable for the selection of the main functions of the unit. It allows to set the ON/Off status, the room temperature setpoint, the fan speed and the Summer/Winter changeover.



#### **Round Display**

Digital remote interface with 3.5-inch backlit screen, which allows to set the functions of the unit (setpoint, fan speed, status, etc.). It permits to visualize and modify the setting of the main parameters of the system.



#### **Round Clima**

Mobile application for the remote management of the system. It is compatible with Android and iOS operating systems. It is available only in presence of one of the OSuper devices: Round Manager, Round Master.



#### **Round Inside**

Interface for built-in installation, with an ergonomic design. It allows to set the ON/Off status, the room temperature setpoint, the fan speed and the Summer/ Winter changeover.



#### **Round Touch**

Digital interface with backlit touch screen (4.3 inches), which allows to set the functions of the unit, to visualize and modify the setting of the main parameters of the system and in addition can set also daily and weekly programs.

21,0" at 21,5"



**OPower card + Infrared receiver** Infrared receiver built-in the suction grill. It is possible to regulate the Cassette unit through the remote control (OIR30).





### Round Cabin

Simplified interface for remote installation, which permits to set the On/Off status and the room temperature setpoint. It is particularly suitable for installations where a simplified user interface is required, such as naval cabins and hotel rooms.

**OMNIBUS**\*\*

#### **Round Master**

Supervisor for medium-size systems with a 7-inch screen and capacitive touch. It allows to manage up to 100 OPower cards connected to the network via the MODBUS RTU serial bus. With Round Master it is possible to configure complex scenarios and set up seasonal system programming



Remote microprocessor control, for "on wall" installation, designed for water terminal units equipped with Brushless motors (EST Inverter Technology).

### TECHNICAL DATA UCS600, UCS/M 600, UCS/H 600 and UCS900

### TECHNICAL DATA (EST)



										Energy Saving Tech			
						2	pipes			4 pi	pes		
					621	622	624 NEW	922.1	641	642	644 NEW	942.1	
				MAX	2,85	4,85	5,43	10,15	1,87	3,52	4,30	9,10	
	ċ	Total cooling capacity [kW]	CERTIFIED	MED	2,37	3,64	3,99	7,61	1,68	2,75	3,30	6,85	
	Air temperature 27 °C d.b, 19 °C w.b. Water temperature 7/12 °C			MIN	1,63	2,56	2,76	4,66	1,22	2,03	2,32	4,32	
	19 °C 2 °C			MAX	2,42	3,79	4,17	7,87	1,73	3,32	3,53	7,34	
50	a 1/1 2/1	Sensible cooling capacity [kW]	CERTIFIED CERTIFIED	MED	1,93	2,69	2,98	5,66	1,52	2,50	2,58	5,33	
Cooling	°C o			MIN	1,26	1,85	1,99	3,34	1,08	1,73	1,71	3,21	
8	e 27 nper			MAX	491	835	935	1747	322	678	740	1566	
U	r ten	Water flow [l/h]		MED	408	627	687	1310	289	530	568	1179	
	Nate			MIN	281	441	475	802	210	391	399	744	
	ir ter			MAX	9,2	17,2	40,5	23,2	7,9	17,0	19,80	24,3	
	<	Pressure drop [kPa]		MED	6,9	10,6	23,2	13,9	6,6	11,0	12,50	14,5	
				MIN	3,9	6,1	12,3	5,8	4,1	6,7	7,30	6,3	
	U			MAX	2,99	4,91	5,44	10,31	-	-	-	-	
	40 °	Heating capacity [kW]	PERFORMANCE	MED	2,38	3,52	3,98	7,51	-	-	-	-	
	Air temperature 20 °C vater temperature 45/			MIN	1,59	2,33	2,62	4,45	-	-	-	-	
Heating 2 pipes	ature 2			MAX	515	845	936	1775	-	-	-	-	
Pip	erati	Water flow [l/h]		MED	410	606	686	1293	-	-	-	-	
∽ Ř	emp			MIN	274	401	455	766	-	-	-	-	
	Air temperature 20 °C Inlet water temperature 45,40 °C	Pressure drop [kPa]		MAX	9,0	16,2	35,7	21,0	-	-	-	-	
			CERTOFICION ANCE	MED	5,9	8,9	20,4	12,0	-	-	-	-	
				MIN	2,9	4,2	9,5	4,5	-	-	-	-	
				MAX	-	-	-	-	2,11	3,30	3,72	7,48	
	ů	Heating capacity [kW]	CERTIFICATION AND	MED	-	-	-	-	1,84	2,64	2,98	6,13	
	Air temperature 20 °C Water temperature 65/55 °C			MIN	-	-	-	-	1,37	2,04	2,23	4,41	
B S S				MAX	-	-	-	-	190	284	320	644	
Heating 4 pipes	eratu	Water flow [l/h]		MED	-	-	-	-	158	227	256	528	
4 I	adma			MIN	-	-	-	-	118	176	192	380	
	4ir te er te	Pressure drop [kPa]		MAX	-	-	-	-	7,1	15,6	19,6	26,2	
	Wat		CERTIFIED	MED	-	-	-	-	5,2	10,5	13,4	18,5	
				MIN	-	-	-	-	3,0	6,6	8,1	10,2	
				MAX	605	734	809	1411	605	734	809	1411	
		Air flow [m³/h]		MED	425	492	536	944	425	492	536	944	
				MIN	235	314	326	515	235	314	326	515	
				MAX	55,0	59,0	62,0	62,0	57,0	59,0	62,0	62,0	
		Sound power level [db(A)]	CERTIFIED	MED	47,0	49,0	51,0	51,0	49,0	49,0	51,0	51,0	
	ta			MIN	32,0	39,0	39,0	34,0	35,0	39,0	39,0	34,0	
	ier data			MAX	45,6	49,6	52,6	52,6	47,6	49,6	52,6	52,6	
		Sound pressure level [db(A)] $^{(1)}$		MED	37,6	39,6	41,6	41,6	39,6	39,6	41,6	41,6	
	Fu T			MIN	22,6	29,6	29,6	24,6	25,6	29,6	29,6	29,6	
	Ē.	Power input [W] (2)		MAX	27	42	54	97	27	43	53	98	
		AL 1		MAX	0,25	0,38	0,47	0,80	0,25	0,39	0,46	0,80	
		Absorbed current [A] (2)											
		Water content [I]			1,34	2,12	2,15	4,26	1,34	2,12	2,12	4,26	
									(0,3)(3)	(0,3)(3)	(0,3)(3)	(0,6)(3)	

Sound pressure level in a 100 m<sup>3</sup> room, 1.5 m distance and reverberating time of 0.3 s.
 Electrical supply: 230-1-50/60 [V-ph-Hz].
 Additional row.

Eurapo take part in EUROVENT certification program. Above mentioned models are in the FC section of the website.

In order to select the cassette with calculating conditions differing from the standard ones and in presence of the F7 filter (UCS/HM 600), please use the selection software or contact EURAPO staff.

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# TECHNICAL DATA (asynchronous)

					<b></b>		2 pipes			I		4 pipes		
					621	622	623	921	922	641	642	643	941	942
		Tatal as alian and alian fland		MAX	2,52	3,68	4,72	8,63	9,99	1,76	3,11	3,88	7,49	9,04
	v.b.	Total cooling capacity [kW]		MED	1,78	2,84	3,82 2,51	6,49 3,86	8,24 5,65	1,34 1,10	2,48	3,23 2,25	5,67 3,41	7,50 5,20
	0 0 0			MAX	2,12	2,79	3,70	6,10	7,64	1,62	2,04	3,24	5,98	7,46
	b., 1! 7/12	Sensible cooling capacity [kW]	CERTIFIED	MED	1,40	2,06	2,89	4,49	6,20	1,17	1,91	2,61	4,42	6,08
Cooling	Áir temperature 27 °C db, 19 °C wb. Water temperature 7/12 °C	01 / 1	(magazine the second se	MIN	1,08	1,63	1,81	2,61	4,13	0,94	1,52	1,73	2,58	4,08
00	e 27			MAX	434	633	812	1485	1719	303	535	668	1289	1556
U	ratur er ten	Water flow [l/h]		MED	306	489	657	1117	1418	231	427	556	976	1291
	mpe Wate			MIN	244	391	432	664	972	189	351	387	587	895
	Vir tei			MAX	7,8	10,9	16,5	20,1	26,0	7,5	11,2	16,7	23,2	32,0
	4	Pressure drop [kPa]	PERFORMANCE	MED	4,6	7,3	11,5	12,3	19,0	4,8	7,8	11,9	14,1	23,0
				MIN	3,2	5,2	6,0	4,5	9,0	3,6	5,7	6,6	5,0	12,0
	U			MAX	2,66	3,65	4,89	8,33	10,18	-	-	-	-	-
	Air temperature 20 °C Inlet water temperature 45/40 °C	Heating capacity [kW]	CERTIFIED REFFORMANCE	MED	1,78	2,70	3,80	5,70	7,91	-	-	-	-	-
	temperature 20 °C er temperature 45//			MIN	1,38	2,09	2,39	3,25	5,04	-	-	-	-	-
Heating 2 pipes	ure 2 ature			MAX	458	628	841	1433	1751	-	-	-	-	-
pip	Derat	Water flow [l/h]		MED	306	464	654	980	1361	-	-	-	-	-
ΝŤ	er ter			MIN	237	359	411	559	867	-	-	-	-	-
	Air	Pressure drop [kPa]	UROVINT	MAX	7,0	9,4	14,9	12,1	17,4	-	-	-	-	-
	Inlet		<b>ATTACK</b>	MED	3,4	5,3	9,5	6,1	11,0	-	-	-	-	-
				MIN	2,2	2,0	4,1	2,2	4,9	-	-	-	-	-
				MAX	-	-	-	-	-	2,01	2,69	3,31	6,66	7,86
	с, С	Heating capacity [kW]	CERTORNAL	MED	-	-	-	-	-	1,47	2,20	2,84	5,32	6,75
	Air temperature 20 °C Water temperature 65/55 °C			MIN	-	-	-	-	-	1,23	1,82	2,01	3,49	4,95
Heating 4 pipes	ture (			MAX	-	-	-	-	-	173	231	285	573	676
Heating 4 pipes	berat	Water flow [l/h]		MED	-	-	-	-	-	126	189	244	458	581
Η 4	tem			MIN	-	-	-	-	-	106	157	173	300	426
	Air later		O. ABATTATA	MAX	-	-	-	-	-	5,8	10,6	15,2	25,0	33,2
	\$	Pressure drop [kPa]	PERFORMANCE	MED	-	-	-	-	-	3,3	7,4	11,8	15,9	25,6
				MIN	-	-	-	-	-	2,4	5,2	6,3	7,9	14,7
				MAX	495	495	717	1255	1530	495	495	717	1255	1530
		Air flow [m³/h]		MED	269	351	525	813	1175	269	351	525	813	1175
				MIN	182	269	308	410	677	182	269	308	410	677
			OAHMAN	MAX	52,0	49,0	58,0	54,0	61,0	52,0	49,0	58,0	54,0	63,0
		Sound power level [db(A)]	PERFORMANCE	MED	38,0	40,0	50,0	45,0	53,0	37,0	43,0	50,0	45,0	55,0
-	ata			MIN	33,0	34,0	37,0	30,0	40,0	32,0	37,0	37,0	30,0	40,0
	er data	Sound pressure level [db(A)] (1)		MAX	42,6	39,6 30,6	48,6 40,6	44,6 35,6	51,6 43,6	39,6 24,6	39,6 30,6	48,6 40,6	44,6 35,6	53,6 45,6
	5			MIN	23,6	24,6	27,6	20,6	30,6	24,0	24,6	27,6	20,6	30,6
,			O CERTIFIED	MAX	53	52	85	129	161	52	52	86	127	161
		Power input [W] (2)	CERTONMANCE				-					-		
		Absorbed current [A] (2)		MAX	0,25	0,25	0,38	0,62	0,71	0,25	0,25	0,41	0,61	0,71
		Water content [l]			1,34	2,12	2,12	4,26	4,26	1,34 (0,3) <sup>(3)</sup>	2,12 (0,3) <sup>(3)</sup>	2,12 (0,3) <sup>(3)</sup>	4,26 (0,6) <sup>(3)</sup>	4,26 (0,6) <sup>(3)</sup>
										(0,5)**	(0,5)	(0,5).7	(0,0)	(0,0)

Sound pressure level in a 100 m<sup>3</sup> room, 1.5 m distance and reverberating time of 0.3 s.
 Electrical supply: 230-1-50/60 [V-ph-Hz].
 Additional row.

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