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Water Indoor Units

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AIR CONDITIONING

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FLAT fan coil units

FLAT by Galletti represents a new generation of fan coil units and has been engineered to offer performance and design features placing it at the top of its category.

FLAT means innovation also in terms of engineering: it combines a guarantee of excellent low-noise performance with the advantage of an exclusive design that fits well with both residential and commercial settings.

The construction concept allows to standardize the models for vertical mounting and those for horizontal mounting: 2 versions for floor, wall or ceiling installation.

The uniqueness of FLAT lies both in the use of extremely high quality materials - which contribute to making this product exceptionally robust - and the assurance of constant performance over time.

> **CABINET WITH A REFINED DESIGN**
Colour RAL9010
Front panel made of sheet steel
Side panels, upper grill and side doors manufactured from UV-stabilised ABS to maintain the colour intact over time.
Upper grill made of adjustable louvers and flap.
The flap features a microswitch that automatically shuts down the unit when the flap itself is closed.
The side doors provide access to the control panel and compartment housing the plumbing connections. The doors may be secured by screws to prevent opening.

> **BEARING STRUCTURE**
Made of thick galvanized steel sheet, insulated withself-extinguishing Class 1 heat-insulating panels.
Both versions are suitable for either vertical or horizontal installation thanks to the dual condensate collection and drainage system.

> **HEAT EXCHANGER**
High-efficiency heat exchanger, made of copper pipe and aluminium fins fixed to the pipes by means o mechanical expansion, equipped with brass manifoldsand air purge valve.
The units normally come with water connection on left side,butthe heat exchanger, and can be turned, on the field, by 180°.
On request it is possible to install an additional 1 row heat exchanger, for the connections to the hot water circuit in 4 pipe system.

> **FAN MOTOR ASSEMBLY**
Thanks to the new fan-drive assembly, FLAT ranks at the top of the category of indoor air-conditioning units in terms of low-noise operation.
The fan motor assembly Includes 1 ore 2 centrifugal fans with staggered airfoil-shaped blades, manufactured from anti-static ABS.
The fans are housed in a low-noise ABS volute distinguished by a compact, high-efficiency profile.
The 3-speed electric motor is directly coupled to the centrifugal and installed on vibration-damping supports; it comes complete with built-in capacitor and thermal protection for the windings. Six speed motor available on request.

> **AIR FILTER**
Washable air filter made of beehive polypropylene, installed on galvanized sheet frame with safety grille, easy to remove for maintenance. The filter may be secured to the unit by means of screws.
in the "**U**" version the air filters are inserted in the intake grilles on the front panel of the cover cabinet.

> **CONTROL PANELS**
New control panels for controlling and regulating the temperature by means of a microprocessor-based system, which adapts the operation of the fan coil automatically when room conditions change.

FLAT fan coils units can be connected to ERGO network.

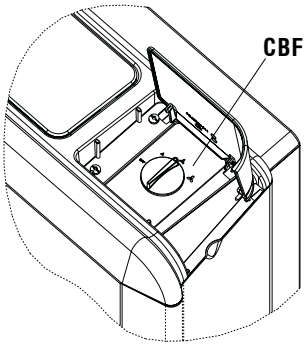
Bioxigen

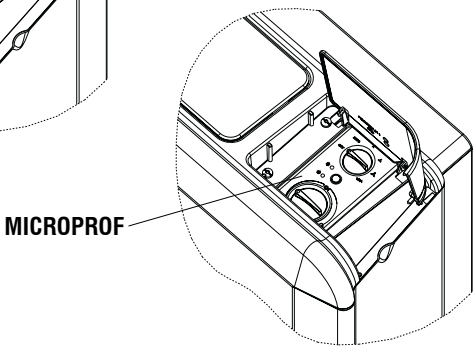
The innovative BIOXIGEN system, applicable on all units, guarantees high standards of quality and purification of interior air as well as of the fan coil unit itself.

FLAT > ACCESSORIES

> CONTROL PANELS

- **CB**: Speed switch, installation on the unit
- **MICRO**: Microprocessor control on the unit: automatic control of fan coil unit
- **MICROPRO** Microprocessor control on the unit: automatic control of fan coil unit and valves
- **SW** Water temperature electronic sensor for MICRO, MICROPRO-D and MICRO-D controls
- **KP** Power interface for connecting in parallel up to 4 fan coil units to one control
- **CD** Recess wall-mounted speed switch
- **CDE** Wall-mounted speed switch
- **MICROD** Wall-mounted microprocessor control: automatic control of the fan coil unit
- **MICROPROD** Wall-mounted microprocessor control: automatic control of the fan coil unit and valves
- **MICRONET** Microprocessor control ERGO solution



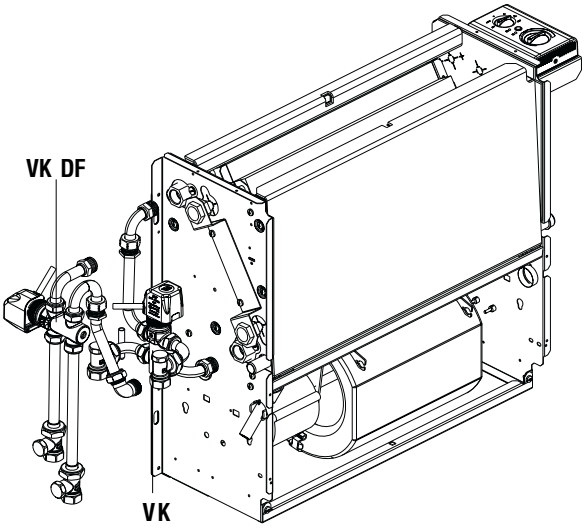


> MOTORISED VALVES

- **VK** 2/3-way valve with ON/OFF electrothermal motor and hydraulic kit for standard heat exchanger
- **VKDF** 2/3-way valve with ON/OFF electrothermal motor and hydraulic kit for DF heat exchanger
- **BV** Auxiliary water drip tray for vertical installation fan coil units
- **BH** Auxiliary water drip tray for horizontal installation fan coil units

> ADDITIONAL HEAT EXCHANGER

- **DF** 1 row additional heat exchanger for 4-pipe systems (hot water circuit)

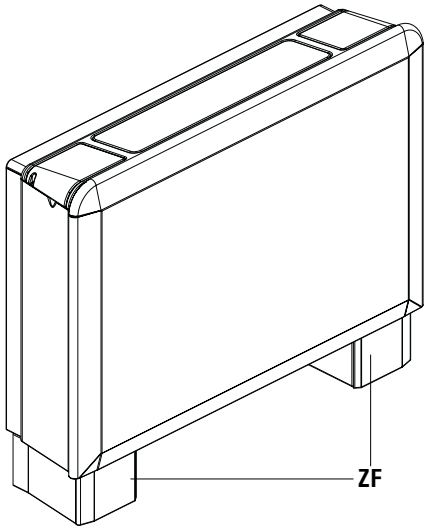


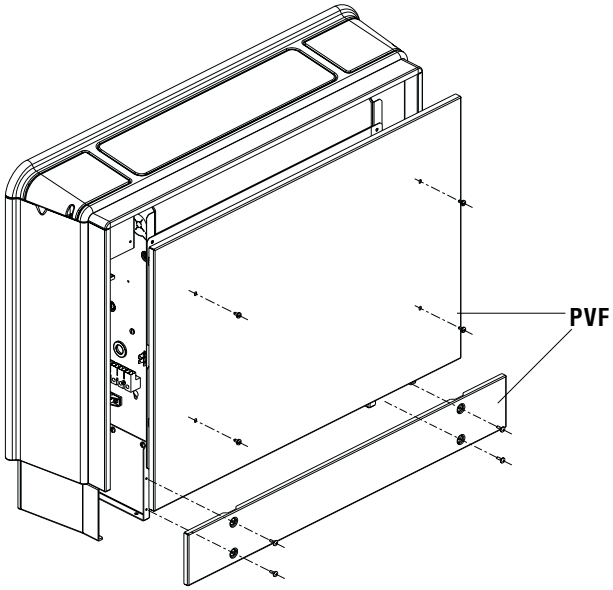
> FEET AND COVERING PANELS

- **Z** Two support covering feet
- **PV** Rear painted panel for vertical installation fan coil units with cabinet
- **PH** Rear painted panel for horizontal installation fan coil units with cabinet

> BIOXIGEN

Bioxigen is an innovative "air ionisation" system that exploits an oxidation-reduction process to clean the air of germs, bacteria, spores, pollen and mould and mitigate the presence of harmful polluting airborne substances and compounds.

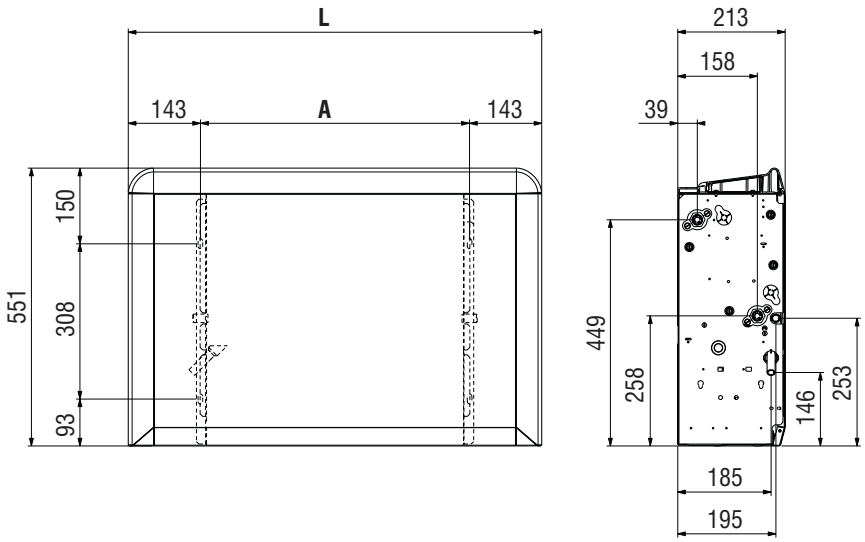




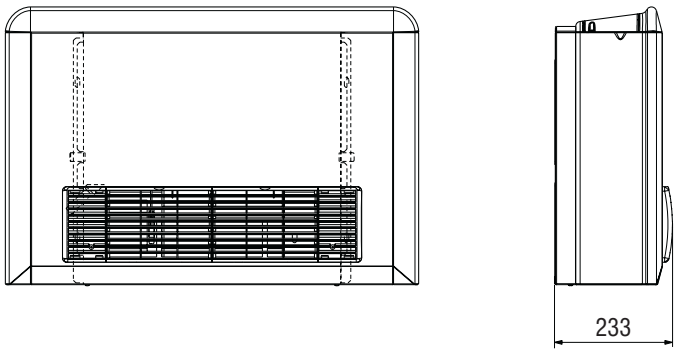
FLAT > DIMENSIONS

FLAT - OVERALL DIMENSIONS

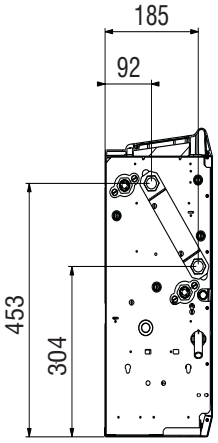
> FLAT L



> FLAT U



> DF COIL WATER CONNECTIONS



FLAT		10	20	30	40	50	60	70
A	mm	534	534	704	704	874	874	874
L	mm	820	820	990	990	1160	1160	1160
Water connection female	gas	1/2”	1/2”	1/2”	1/2”	1/2”	1/2”	1/2”
Drain connection for vertical installation	mm	16	16	16	16	16	16	16
Drain connection for horizzontal installation	mm	17	17	17	17	17	17	17
L version net weight	kg	17,5	17,5	21,5	21,5	24	24	24
U version net weight	kg	18,5	18,5	23	23	25,5	25,5	25,5

FLAT> TECHNICAL DATA

2 PIPE MODELS RATED TECHNICAL DATA

FLAT	Fan speed		10	20	30	40	50	60	70
Total cooling capacity [1]	(High)	kW	1,93	2,27	2,71	2,92	3,32	4,16	4,46
Sensible cooling capacity [1]	(High)	kW	1,40	1,72	2,09	2,26	2,60	3,37	3,70
Water flow		l/h	330	390	465	501	569	714	765
Pressure drop		kPa	10	13	7	10	6	8	11
Heating capacity [2]	(High)	kW	2,31	2,85	3,27	3,48	4,03	5,47	5,87
Water flow		l/h	332	389	465	501	570	714	765
Pressure drop		kPa	8	12	6	8	5	7	10
Coil water content		dm^3	0,78	0,78	1,07	1,07	1,36	1,36	1,36
Hydraulic connections		inches	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Air flow	(High)	m^3/h	305	378	467	520	593	800	911
	(med)	m^3/h	226	284	344	407	466	552	659
	(low)	m^3/h	197	216	240	283	370	406	482
Power supply		V/ph/Hz	230 / 1 / 50						
Max. current absorbed	(High)	A	0,17	0,21	0,26	0,27	0,33	0,42	0,43
Max. power input	(High)	W	38	47	59	61	67	95	99
Sound power [4]	(High)	dB(A)	44	50	44	48	50	56	58
	(med)	dB(A)	36	44	38	42	42	48	51
	(low)	dB(A)	32	38	28	33	36	42	43

4 PIPE MODELS RATED TECHNICAL DATA

FLAT DF	Fan speed		10	20	30	40	50	60	70
Total cooling capacity [1]	(High)	kW	1,79	2,09	2,57	2,75	3,12	3,90	4,18
Sensible cooling capacity [1]	(High)	kW	1,31	1,60	1,99	2,14	2,47	3,19	3,50
Water flow		l/h	307	359	440	472	535	668	717
Pressure drop		kPa	9	12	7	9	6	7	9
Heating capacity [3]	(High)	kW	2,01	2,24	2,95	3,11	3,84	4,47	4,77
Water flow		l/h	176	197	259	273	337	392	418
Pressure drop		kPa	6	7	15	17	4	5	6
Cooling coil water content		dm^3	0,8	0,8	1,1	1,1	1,4	1,4	1,4
DF heating coil water content		dm^3	0,2	0,2	0,3	0,3	0,4	0,4	0,4
Max. operating pressure		bar	10	10	10	10	10	10	10
Cooling coil hydraulic connections		inches	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
DF heating coil hydraulic connections		inches	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Air flow	(High)	m^3/h	289	359	451	502	569	768	873
	(med)	m^3/h	215	270	332	393	447	530	631
	(low)	m^3/h	187	205	232	273	356	390	462
Power supply		V/ph/H	230 / 1 / 50						
Max. current absorbed	(High)	A	0,17	0,21	0,26	0,27	0,33	0,42	0,43
Max. power input	(High)	W	38	47	59	61	67	95	99
Sound power [4]	(High)	dB(A)	44	50	44	48	50	56	58
	(med)	dB(A)	36	44	38	42	42	48	51
	(low)	dB(A)	32	38	28	33	36	42	43

1 Water temperature 7/12°C, air temperature 27°C dry bulb, 19°C wet bulb (47% relative humidity)
2 Inlet water temperature 50°C, water flow rate same as in cooling mode, inlet air temperature 20°C
3 Water temperature 70/60°C, inlet air temperature 20°C
4 Sound power measured according to ISO 3741 and ISO 3742.

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ESTRO fan coil units

ESTRO is the new fan coil range of Galletti designed to optimize the performance in terms of acoustic comfort, integrated controls and air quality.

Thanks to the new fan's group ESTRO reach the top level (on the fan coils) in its category in terms of sound pression .

ESTRO can be integrated in the ERGO supervision system.

The innovative BIOXIGEN system suitable for any versions guarantee high quality level in the air purification and in the sanification of the unit itself.

To carry out the ESTRO project, high quality materials have been selected, that together with the great care dedicated to the assembly of the main components grant the performances reliability and acoustic confort of the Galletti fan coil.

The construction concept allows to standardize the models for vertical mounting and those for horizontal mounting.
The range consitsts of versions for wall installation at sight, floor /cealing, recessed wall/cealing and floor recessed installation.

> COVER CABINET made of thick steel sheet panel, ABS side panels, air outlet grilles (orientable 180°) and air suction grilles (versions FU and FB) made of ABS.
The side doors allow access to the technical space and to the control panel (accessory).

> The used ABS has been treated with UV rays to mantain the colour in the time.

> BEARING STRUCTURE made of thick galvanized steel sheet, insulated withself-extinguishing Class 1 heat-insulating panels. The models for horizontal-installation include a large tray for collecting the condensate.

> HIGH-EFFICIENCY HEAT EXCHANGER, made of copper pipe and aluminium fins fixed to the pipes by means o mechanical expansion, equipped with brass manifoldsand air purge valve. The units normally come with water connection on left side,but the heat exchanger, and can be turned, on the field, by 180°.

> 3-speed ELECTRIC MOTOR installed on vibration-damping supports, complete with built-in capacitor and thermal protection for the windings.

> Double-intake CENTRIFUGAL FANS, statically and dynamically balanced and coupled directly to the electric motor; made of:
- antistatic ABS oversized diameter, with wing profile propeller integrated in an ABS-volute designed to reduce the noise emission.
- aluminium (models 10, 11 and 12)

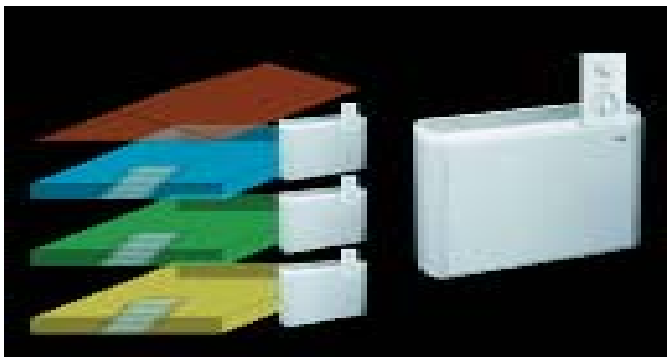
> WASHABLE AIR FILTER made of beehive polypropylene, installed on galvanized sheet frame with safety grille, easy to remove for maintenance.
In the FU - FB versions the air filters are inserted in the intake grilles on the front panel of the cover cabinet.

New CONTROL PANELS for controlling and regulating the temperature by means of a microprocessor-based system, which adapts the operation of the fan coil automatically when room conditions change.

The performance of ESTRO units are certified by EUROVENT

The ESTRO fan coil units can be fitted with BIOXIGEN system

ESTRO fan coils can be connected to ERGO network



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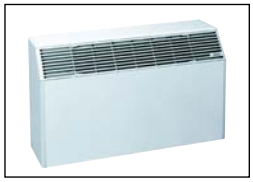
ESTRO >VERSIONS AND ACCESSORIES

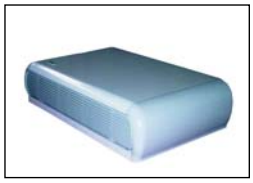
ESTRO FL
Wall-mounted, with cabinet, vertical air outlet

ESTRO FA
Wall-mounted, with cabinet, inclined air outlet



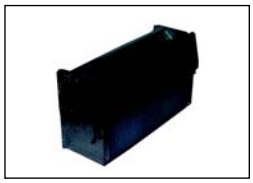
ESTRO FU
Floor standing and ceiling-mounted, with cabinet complete with air outlet grilles and air intake grilles with filter

ESTRO FP
Ceiling mounted, cabinet with air outlet grilles and rear air intake with filter.

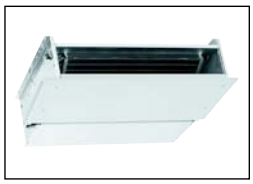


ESTRO FB
Low-body floor standing, height 438 mm, cabinet with air outlet grilles and air intake grilles with filter.

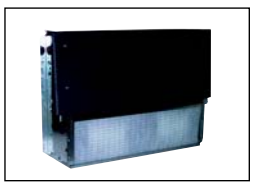
ESTRO FBC
low body vertical and horizontal recess-mounted, height 412 mm, front air intake, bearing structure made of thermally insulated galvanized steel sheet



ESTRO FC
Vertical and horizontal recessed, bearing structure made of thermally insulated galvanized steel sheet.

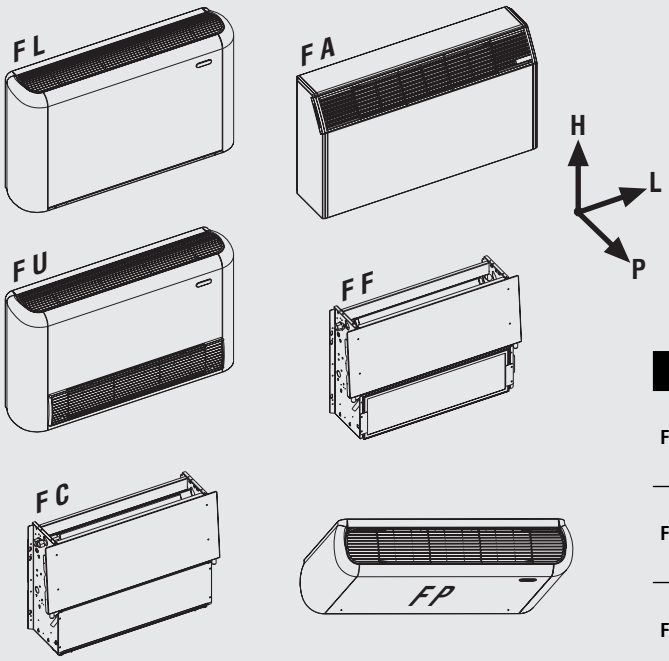


ESTRO FF
Vertical and horizontal recess mounted, front air intake, bearing structure made of thermally insulated galvanized steel sheet

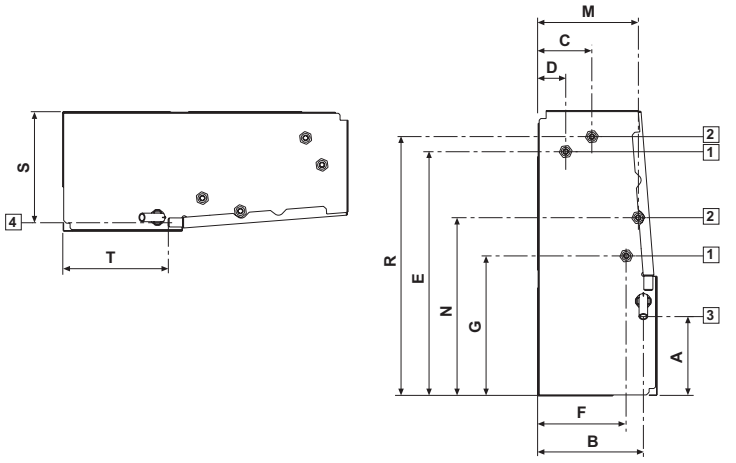


- Speed switch, installation on the unit
- Speed switch mounted on the unit and electromechanical thermostat
- Speed switch mounted on the unit, thermostat and summer/winter selecting switch
- Microprocessor control on the unit: automatic control of fan coil unit
- Microprocessor control on the unit: automatic control of fan coil unit, valves and electric heating element
- Water temperature electronic sensor for MICRO, MICROPRO-D and MICRO-D controls
- Control mounted on the unit for opening and closing the SM motor-driven regulating louver
- Electromechanical thermostat for minimum water temperature in heating mode, mounted on the heat exchanger
- Power interface for connecting in parallel up to 4 fan coil units to one control
- Recess wall-mounted speed switch
- Wall-mounted speed switch
- Wall-mounted speed switch, electromechanical thermostat and summer-winter selecting switch
- Wall-mounted speed switch and electromechanical thermostat
- Wall-mounted speed switch, electromechanical thermostat and summer-winter selecting switch for 2 or 4-pipe systems with valves
- Wall-mounted microprocessor control: automatic control of the fan coil unit
- Wall-mounted microprocessor control: automatic control of the fan coil unit, valves and electric heating element
- Wall-mounted control for opening and closing the SM motor-driven regulating louver
- Electromechanical room thermostat
- Electromechanical room thermostat with summer/winter selecting switch
- Microprocessor control ERGO solution
- 1 row additional heat exchanger for 4-pipe systems (hot water circuit)
- Two support covering feet
- Two support covering feet with front grille
- Support spacers
- Rear painted panel for vertical installation fan coil units with cabinet
- Rear painted panel for horizontal installation fan coil units with cabinet
- 3-way valve with ON/OFF electrothermal motor and hydraulic kit for standard heat exchanger
- 3-way valve with ON/OFF electrothermal motor and hydraulic kit for DF heat exchanger
- valve stem insulation shell
- Auxiliary water drip tray for vertical installation fan coil units
- Auxiliary water drip tray for horizontal installation fan coil units
- Drain pump kit
- Electric heating element complete with installation kit, safety devices, power relay box, heat resistant grilles
- Anodised aluminium grille for external air intake, complete with subframe
- Anodised aluminium grille for external air intake, complete with filter and subframe
- Anodised aluminium double-row finned air outlet grille, complete with subframe
- Angular connector for air outlet
- Straight connector for air outlet
- Angular connector for air inlet
- Straight connector for air inlet
- Manual external air intake louver
- Motor driven external air intake louver

ESTRO > DIMENSIONS



		1/4	5/6	7/9	95	10/11	12
	H	564	564	564	564	564	564
FL - FU - FP	L	774	984	1194	1194	1404	1614
	P	226	226	226	251	251	251
	H	556	556	556	556	556	556
F A	L	774	984	1194	1194	1404	1614
	P	228	228	228	253	253	253
	H	535	535	535	535	535	535
FC - FF	L	584	794	1004	1004	1214	1424
	P	224	224	224	249	249	249
	H	438	438	438	ND	ND	ND
FB	L	774	984	1194	ND	ND	ND
	P	251	251	251	ND	ND	ND
	H	413	413	413	ND	ND	ND
FBC	L	584	794	1004	ND	ND	ND
	P	250	250	250	ND	ND	ND



FL - FA - FU - FP - FC - FF | **FB - FBC**

	1/4	5/6	7/9	95	10/11	12	1 / 4	5 / 6	7 / 9
A	149	149	149	155	155	155	125	125	125
B	198	198	198	220	220	220	197	197	197
C	99	99	99	120	120	120	ND	ND	ND
D	51	51	51	48	48	48	38	38	38
E	458	458	458	497	497	497	371	371	371
F	163	163	163	185	185	185	212	212	212
G	263	263	263	259	259	259	228	228	228
M	187	187	187	195	195	195	ND	ND	ND
N	335	335	335	348	348	348	ND	ND	ND
R	486	486	486	478	478	478	ND	ND	ND
S	208	208	208	234	234	234	237	237	237
T	198	198	198	208	208	208	187	187	187

ESTRO > TECHNICAL INFORMATION

ESTRO RATED TECHNICAL DATA

ESTRO	Fan speed		1	2	3	4	5	6	7	8	9	95	10	11	12
Total cooling capacity [1]	(High)	kW	1,15	1,54	1,74	2,09	2,42	2,93	3,51	4,33	4,77	5,50	6,71	8,02	10,95
Sensible cooling capacity [1]	(High)	kW	0,87	1,20	1,30	1,51	1,88	2,11	2,75	3,15	3,65	3,96	4,91	6,38	8,07
Water flow		l/h	197	264	298	359	415	503	602	743	818	944	1152	1494	1879
Pressure drop		kPa	7	13	14	13	16	11	12	12	14	21	12	19	31
Heating capacity [2]	(High)	kW	1,55	2,14	2,20	2,57	3,20	3,81	4,78	5,30	6,20	6,90	7,83	11,10	14,50
Water flow		l/h	197	264	298	359	415	503	602	743	818	944	1152	1494	1879
Pressure drop		kPa	5	9	11	10	12	9	10	9	12	17	9	13	25
Coil water content		dm^3	0,5	0,5	0,5	0,7	0,7	1	1	1,4	1,4	1,7	2,1	2,1	2,6
Hydraulic connections		inches	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"	3/4"
DF Coil heating capacity [3]		kW	1,89	2,23	1,97	2,07	3,27	2,91	4,80	4,51	5,30	5,62	7,91	9,30	11,50
DF coil water flow		l/h	166	196	204	202	287	286	421	396	465	493	694	816	1010
DF coil pressure drop		kPa	5	7	8	8	5	5	9	10	10	15	27	36	50
DF heating coil water content		dm^3	0,20	0,20	0,20	0,20	0,30	0,30	0,40	0,40	0,40	0,50	0,60	0,60	0,90
Air flow	(High)	m^3/h	231	319	344	344	442	442	640	706	785	814	1011	1393	1850
	(med)	m^3/h	189	233	271	271	341	341	450	497	605	615	771	1022	1317
	(low)	m^3/h	149	178	211	211	241	241	320	361	470	488	570	642	1010
Power supply		V/ph/Hz	230 / 1 / 50												
Max. current absorbed	(High)	A	0,15	0,17	0,24	0,24	0,25	0,25	0,44	0,44	0,44	0,44	0,80	1,12	1,52
Max. power input	(High)	W	32	37	53	53	57	56	98	98	98	99	182	244	310
Sound power [4]	(High)	dB(A)	40	45	49	50	48	47	51	52	56	57	61	66	71
	(med)	dB(A)	32	39	44	44	42	41	43	43	49	50	54	59	64
	(low)	dB(A)	27	33	38	38	34	33	34	35	43	44	47	49	60

TECHNICAL DATA LOW BODY VERSION ESTRO FB - FB C

	Fan speed		1	2	3	4	5	6	7	8	9
Total cooling capacity [1]	(High)	kW	1,07	1,33	1,62	1,81	2,25	2,72	3,26	4,03	4,44
Sensible cooling capacity [1]	(High)	kW	0,81	1,05	1,21	1,35	1,79	1,97	2,61	2,95	3,49
Water flow		l/h	184	245	278	291	386	467	559	692	762
Pressure drop		kPa	7	11	13	13	14	10	11	11	13
Heating capacity [2]	(High)	kW	1,27	1,67	2,01	2,33	2,97	3,54	4,44	5,23	5,12
Water flow		l/h	184	245	278	291	386	467	559	692	762
Pressure drop		kPa	5	9	10	11	12	8	9	9	10
Coil water content		l	0,5	0,5	0,5	0,7	0,7	1	1	1,4	1,4
Hydraulic connections		inches	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Air flow	(High)	m^3/h	231	319	344	344	442	442	640	706	785
	(med)	m^3/h	189	233	271	271	341	341	450	497	605
	(low)	m^3/h	149	178	211	211	241	241	320	361	470
Power supply		V/ph/Hz	230 / 1 / 50								
Max. current absorbed	(High)	A	0,15	0,17	0,24	0,24	0,25	0,25	0,44	0,44	0,44
Max. power input	(High)	W	32	37	53	53	57	56	98	98	98
Sound power [4]	(High)	dB(A)	40	45	49	50	48	47	51	52	56
	(med)	dB(A)	32	39	44	44	41	41	43	43	49
	(low)	dB(A)	26	34	38	38	34	33	34	35	43

The performance of ESTRO units are certified by EUROVENT

1 Water temperature 7/12°C, air temperature 27°C dry bulb, 19°C wet bulb (47% relative humidity)
2 Inlet water temperature 50°C, water flow rate same as in cooling mode, inlet air temperature 20°C
3 Water temperature 70/60°C, inlet air temperature 20°C
4 Sound power measured according to ISO 3741 and ISO 3742.

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2 x 1 Units for air conditioning system

2X1 GALLETTI: THE EVOLUTION IN AIR CONDITIONING SYSTEMS

Only who is designing and manufacturing indoor air terminals for air conditioning and heating since 45 years could conceive a product which is able to overcome the limitation of the exhisting technologies.

2X1 IS AN INDOOR AIR TERMINAL FOR HEATING AND COOLING HYDRONIC SYSTEMS WHICH COMBINE IN ONE SOLUTION TWO DIFFERENT OPERATING PHYLOSOPHY

GALLETTI 2X1: THE HEATING AS YOU ALWAYS DESIRED!

Heating system with radiators? 2x1 Galletti

> Faster air warming up, thanks to the ventilated heating with "superminimum" speed.
> In the same unit you have air conditioning and dehumidification.
> High efficiency even with low water temperature: reduced running costs.

Heating and cooling system with fan coils? 2x1 Galletti

> No ventilation = no sound emission in heating mode.
> Heating with all the benefit of the natural convection.
> Compact dimensions (17 cm width) and high level design.
> Compatibility with 4 pipes systems.

Floor heating systems? 2x1 Galletti

> It allow the summer dehumidification.
> It is reaching the comfort conditions in a shorter time.
> Independent air temperature control in each rooms.
> It is filtering the air even in heating operation with superminimum speed.
> Easier installation and one unique solution.

Heating system with radiating units? 2x1 Galletti

> No risk of burning: low temperature of the cabinet due to natural convection.
> The centrifugal fans allow the comfort conditions in any area of the rooms with a better air distribution.

THE EXCLUSIVE PATENTED SOLUTION

2x1 Galletti: the benefits of static heating with natural convection

> Thanks to the exclusive patented system, based on the presence of 2 heating exchangers, with only one move from an air conditioning fan coil, 2x1 become a thermoconvector for the static heating.
> 2x1 is heating with natural convection by simply opening the frontal deflector.

With 2x1 in winter time it is possible to have the following benefits:

> High air quality
With the use of Bioxigen system (optional), it is possible to deionise the air with the consequent reduction of air dust, air microbic content like bacteria, germs, bad smelling
> Comfort and reduced running costs
The high efficiency even with low water temperatures, allow to use as heating sources air condensed water heat pumps, geothermal heat pumps and condensation boilers. The reduced air supply temperature, avoid also the wall blackenening.
> Short time to reach the comfort conditions
Thanks to the use of the superminimum fans speed, the room reach the comfort conditions in a shorter time.
> Safe and easy installation
Reduced weight and reduced cabinet temperature compared with standard radiator, allow an easier installation.

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2 x 1 > TECHNICAL DATA

HEATING MODE

3 operations levels, 5 heating capacity levels:

> 1° level - thermoconvector mode, fans off, deflector open.
The thermostat, control the room temperature acting on water valve (option) which stop the water flow. The heating capacity can be adjusted, by changing the position of the air supply FLAP. The heating operation will stop as soon as the FLAP is closed.

> 2° level - thermoconvector mode, fans ON with superminimum speed", deflector open. The thermostat, control the room temperature acting on fans and on the water valve (option) which stop the water flow.
The heating operation will stop as soon as the FLAP is closed or moving the control selector to OFF position.

> 3°/4°/5° levels - thermoconvector mode, fans ON with min/med/max speed", deflector closed. The thermostat, control the room temperature acting on fans and on the water valve (option) which stop the water flow. The heating operation will stop as soon as the FLAP is closed or moving the control selector to OFF position

COOLING MODE

1 operation level, 4 heating capacity levels:

> 1° level - fan coil mode, fans with superminimum speed, deflector closed.
The thermostat, control the room temperature acting on fans and on the water valve (option) which stop the water flow
The cooling operation will stop as soon as the FLAP is closed or moving the control selector to OFF position.

> 2°/3°/4° levels - fan coil mode, fans with min/med/max speed", deflector closed.
The thermostat, control the room temperature acting on fans and on the water valve (option) which stop the water flow.
The cooling operation will stop as soon as the FLAP is closed or moving the control selector to OFF position.

THE HEATING AS YOU PREFER!

Thanks to the exclusive patented solution, 2x1 maintain the comfort conditions even without ventilation but with natural convection.

THE COOLING AS YOU PREFER!

In the summer season, 2x1 is giving all the benefit of the best fan coils: ventilated air conditioning, silent operations, air filtration,sanifications and dehumidification.

RATED TECHNICAL DATA

			COOLING water 7/12°C, air dry bulb 27°C humid bulb 19°C)					HEATING water 75/65°C, air 20°C)				
MODEL	Ventilation	Air flow rate m3/h	Total capacity kW	Sensible capacity kW	Dehum. Capacity l/h	Water flow rate l/h	Pressure drop kPa	Capacity kW	water flow rate l/h	Pressure drop kPa	Electrical input watt	Sound power dB A
124	convection	-	-	-	-	-	-	0,93	80	0,5	-	-
	extra-low	80	0,56	0,39	0,24	95	1,5	1,74	80	0,5	11	27
	minimum	110	0,74	0,52	0,32	125	2,0	1,86	165	2,5	12	29
	medium	135	0,90	0,64	0,37	155	3,0	2,24	195	3,0	17	34
	maximum	170	1,17	0,95	0,32	200	5,0	2,89	255	3,5	23	40
224	convection	-	-	-	-	-	-	1,30	115	1,1	-	-
	extra-low	100	0,70	0,49	0,30	120	1,2	1,95	115	1,1	12	31
	minimum	135	0,87	0,64	0,34	150	1,9	2,30	205	3,0	14	33
	medium	170	1,14	0,80	0,49	190	2,6	2,85	250	4,5	20	37
	maximum	225	1,62	1,34	0,40	275	4,5	3,54	310	6,5	27	43
324	convection	-	-	-	-	-	-	1,49	130	1,1	-	-
	extra-low	140	1,04	0,70	0,48	175	2,7	2,74	130	1,1	22	32
	minimum	200	1,48	1,00	0,68	250	5,0	3,38	295	6,0	23	34
	medium	250	1,82	1,24	0,84	305	7,0	4,13	365	9,0	28	39
	maximum	340	2,38	1,82	0,80	410	13,5	5,10	450	13,0	37	46
424	convection	-	-	-	-	-	-	1,49	130	1,1	-	-
	extra-low	175	1,28	0,89	0,56	225	4,0	3,34	130	1,1	22	33
	minimum	250	1,82	1,17	0,94	305	7,0	4,13	365	9,0	25	34
	medium	310	2,17	1,50	0,97	375	10,0	5,00	440	13,0	31	40
	maximum	420	3,13	2,32	1,17	540	20,0	5,89	520	18,0	42	47

Heating capacity referred to the following conditions:
- water inlet temperature 75°C
- water outlet temperature 65°C
- air inlet temperature 20°C

Cooling capacity referred to the following conditions:
- water inlet temperature 7°C
- water outlet temperature 12°C
- Dry bulb air inlet temperature 27°C
- Wet bulb air inlet temperature 19°C

OPTIONALS

> Microprocessor terminal control, for the fans speed automatic control and the connectivity to the Ergo supervision systems.
> Supporting feet to cover the piping coming from the floor.
> On/off water valve.
> Air deionising and sanification BIOXIGEN system.
> Auxiliary drain pan
> Painted back panel
> 4 speed selector switch

2x1> CONSTRUCTIVE FEATURES

> CABINET WITH A REFINED DESIGN

- Front panel made of sheet steel, colour RAL9010. The front panel incorporates an exclusive air flap which activates the convection heating mode. The flap is opened and closed manually.
- Side panels manufactured from UV-stabilised ABS to maintain the colour intact over time.
- Upper grill made of ABS (UV stabilised), adjustable louvers and flap. The flap features a microswitch that automatically shuts down the unit when the flap itself is closed. The side doors provide access to the control panel and compartment housing the plumbing connections.
  The doors may be secured by screws to prevent opening.

> FAN ASSEMBLY

Including centrifugal fans with staggered airfoil-shaped blades, manufactured from anti-static ABS.
The fans are housed in a low-noise ABS volute distinguished by a compact, high-efficiency profile.
Four-speed electrical motor, mounted on vibration damping couplings, directly connected to the fans, with permanently activated capacitor and winding thermal protection .



> HEAT EXCHANGERS

2X1 incorporates 2 heat exchangers for 2 distinct operating modes.

- 4-row convector exchanger made up of copper tubing and aluminium fins secured to the tubing by mechanical expansion, complete with brass manifolds and air vent valve. The wide spacing between fins optimises the draught effect during natural convection.
- Fan coil exchanger, made up of copper tubing and high-efficiency aluminium fins submitted to a hydrophilic surface treatment, secured to the tubing by mechanical expansion. The exchanger comes complete with air vent valves.
- The heat exchangers are normally connected in series, so that the 2x1 unit will be ready for installation in 2-pipe systems.
  By removing the connecting pipe, 2x1 can be immediately converted for installation in a 4-pipe system, where the convector exchanger will be connected to the heating circuit and the fan coil exchanger to the cooling circuit.
- The plumbing connections are normally provided on the left side but may be switched over to the other side (180°) during unit installation.

> BEARING STRUCTURE

Bearing structure built from galvanised sheet steel of adequate thickness, insulated by means of Class 1 self-extinguishing panels, supplied with an installation kit (wall screws).
A support terminal board for electrical connections is located on the bearing structure, on the opposite side of the plumbing connections.

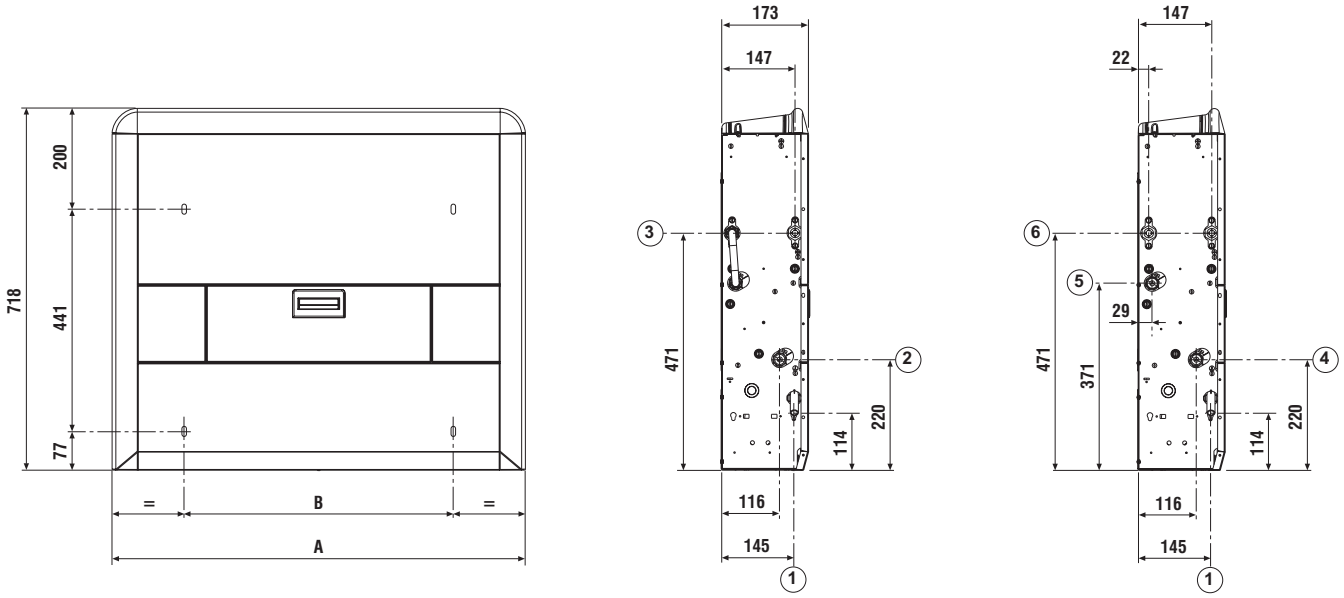
> AIR FILTER

Honey-comb polypropylene washable air filter, mounted on a galvanised sheet frame protected by a net, easily removable for maintenance operations. The filter may be secured to the unit by means of screws.

2 x 1 > DIMENSIONES

DIMENSIONS

1 Drain pipe diameter Φ 17 mm
2 Water inlet, 2 pipe system, Φ 1/2" gas female
3 Water outlet, 2 pipe system, Φ 1/2" gas female
4 Chilled water inlet, 4 pipe system, Φ 1/2" gas female
5 Chilled water outlet, 4 pipe system, Φ 1/2" gas female
6 Hot water circuit connections, Φ 1/2" gas female



	A	B	Weight	Lenght	Height	Width	H_2O content		
							cooling coil	heating coil	Total
	mm	mm	kg	mm	mm	mm	dm³	dm³	dm³
124	820	534	21	820	712	172	0,49	0,73	1,22
224	990	704	25	990	712	172	0,65	0,97	1,62
324	1160	874	29	1160	712	172	0,81	1,20	2,01
424	1160	874	29	1160	712	172	0,81	1,20	2,01

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Thermoconvectors KAIMAN

On the occasion of its hundredth year Galletti presents KAIMAN, an innovative indoor unit which revives the tradition of convective heating for which it has been a market leader since the beginning of the Sixties.

Over 40 YEARS OF EXPERIENCE and new technologies in the production of heat exchangers have enabled it to develop a product that is up to date with the new forms of installation and makes use of the principle of natural air convection.

The principle of NATURAL AIR CONVECTION enables the room to be heated more quickly compared to traditional static convectors.

The correct temperature of the water in the system is also reached extremely quickly thanks to the low quantity of water in the heat exchanger.

The heat exchanger has also been designed to work at LOW WATER TEMPERATURES, typically produced by condensation boilers or heat pumps.

The surface temperature of KAIMAN, therefore, never exceeds 40°C, eliminating the risk of scorching.

The air outlet temperature of KAIMAN is such as to reduce wall blackening above the unit to a minimum.

The innovative rounded design of the cabinet also makes KAIMAN safe for children.

With KAIMAN the regulation of the room temperature can be carried out by means of the air outlet flap which, when set in the closed position, almost completely annuls the heat exchange interrupting the effect of natural convection.

If required KAIMAN can be fitted with an ON/OFF valve that regulates the room temperature and is connected to an interior thermostat which in turn can be installed on the wall or unit. A microswitch located on the air outlet flap interrupts the water flow in the heat exchanger when the flap is completely closed.

With the KAIMAN static convectors it is also possible to guarantee a high standard of quality of the air by using the BIOXIGEN technology, an air sanification and ionization system.

> CABINET with new rounded design made up of a thick sheet steel panel; side frames and air outlet grille made of ABS. The side doors enable access to be gained to the technical compartments and, if required, to the regulating thermostat of the ON-OFF valve.

> AIR OUTLET GRILLE with 2-row fins with air outlet heat flow regulation flap made of ABS.

> The ABS used is of the UV stabilised type so that the colour is not altered with the passing of time.

> INDOOR UNIT made of galvanized sheet steel of suitable thickness and particularly shaped so as to increase natural air convection (chimney effect). The unit is supplied with 4 screw anchors for wall installation.

> HEAT EXCHANGER with high efficiency rate, made of copper tube and aluminium fins that are blocked to the tubes by means of mechanical expansion. It is equipped with brass manifolds and air vent valve and is available in the 4 or 6 row version. The wide fin pitch optimises the chimney effect and simplifies the cleaning of the exchanger. The heat exchanger, which is usually supplied with water connections mounted on the left, can be rotated 180° during installation.

ACCESSORIES

> FEET so as to hide the tubes if they lead out from the floor.
> BIOXIGEN air purifying system

GALLETTI designed its first static convector in 1962. With over 2.5 million items produced, Galletti heats up Italian houses with its **CONDOR**, **FALCON** and **FALCON 80** models.

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KAIMAN > TECHNICAL DATA

RATED TECHNICAL DATA

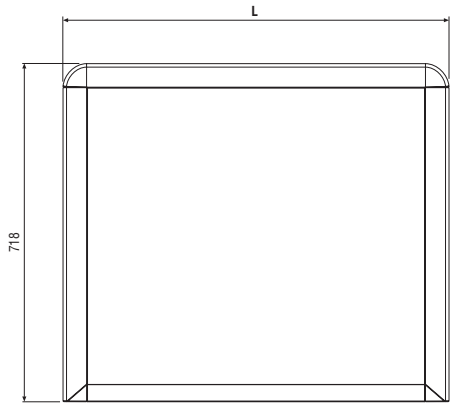
KAIMAN		K 14	K 16	K 24	K 26	K 34	K 36
Heating output	kW	1,08	1,22	1,40	1,60	1,73	1,99
Water flow	l/h	92	105	120	138	149	171
Water pressure drop	kPa	0,2	0,2	0,3	0,3	0,5	0,4
Heat exchanger number fo rows		4	6	4	6	4	6
Heat exchanger water content	dm^3	0,74	1,16	0,98	1,51	1,22	1,87
Female gas water connection	inches	1/2	1/2	1/2	1/2	1/2	1/2
Exponent		1,32	1,29	1,31	1,28	1,31	1,28
Weight	kg	14,5	15	16,5	17	20	21

Air room temperature 20°C
Water inlet temperature 75°C
Water outlet temperature 65°C
(1) Formula for performance calculation out of nominal warning conditions

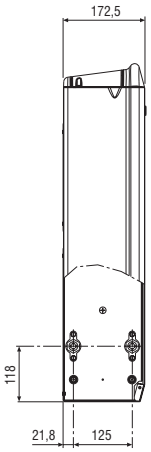
$$P(\Delta T_{WA}) = P_0 \times \left(\frac{\Delta T_{WA}}{50} \right)^n$$

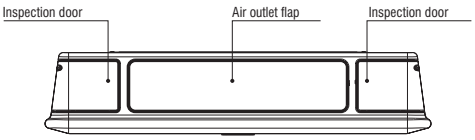
DIMENSIONS

FRONT VIEW



LEFT SIDE





TOP VIEW

Dimensions in mm

KAIMAN	L
K14 - K16	820
K24 - K26	990
K34 - K36	1160

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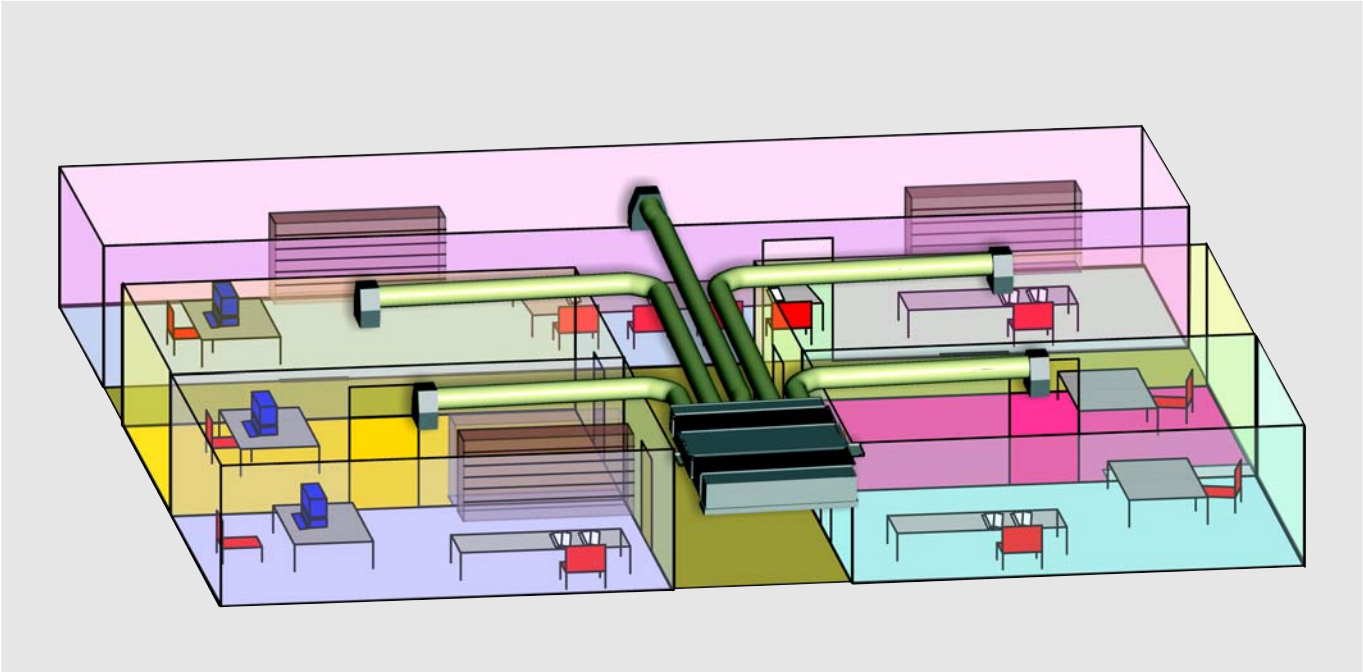
PWN ducted units



The range of PWN, ducted units, has been designed for conditioning rooms that require the false ceiling installation with medium head (60Pa) particularly versatile and silent.

Proposed in 9 models with air flows from 400 to 1200 m³/h, available pressure head 60 Pa and cooling capacity from 2,6 to 10,3 kW.

The special constructive solution allows to expand the basic model thanks to a wide range of modular accessories and permit the installation of PWN units in shopping centre, hotel rooms, meeting rooms, etc:

The peculiar constructive features are:

> Horizontal installation in false ceiling
> Reduced height (240 mm) on the whole range
> Standard 7 speed motors
> Big capacity condensate drip tray which is extended beyond the hydraulic connections allowing the collection of condensate also from the control valves.
> Possibility of connection to the circular flexible ducts (Φ 200 mm) or to rectangular ducts
> The wide range of accessories to respond effectively to any installation requirements.:
  - electromechanical and microprocessor wall-mounted controls;
  - possibility of connection to the Ergo-nets;
  - accessories for air duct connection: air inlet and outlet cassettes, inlet and outlet grilles;
  - inlet plenum;
  - air inlet and outlet silencer
  - additional heat exchanger for post-heating in 4 pipe units
  - additional electric heating elements

CONSTRUCTIVE FEATURES

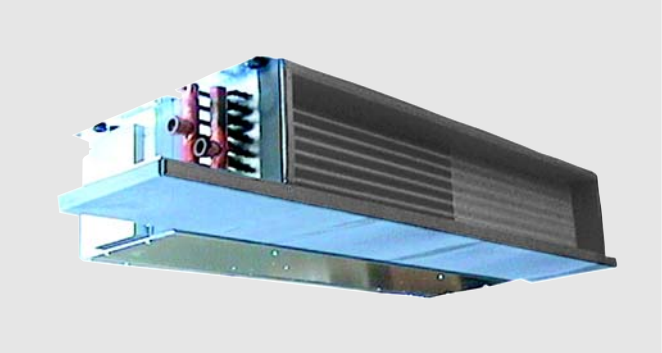
> Bearing structure made of galvanized steel, duly insulated with anti-condensing material and self-extinguishing class 1.
The unit is completed by the following:
  - big capacity condensate drip tray for the collection of condensate from the heat exchanger and from any eventual control valves;
  - wiring box positioned on the hydraulic connection side to reduce the installation spaces;
  - slots for fast mounting.

> Dual intake centrifugal fans made of aluminium, forward blade profile, with statically and dynamically balanced impellers , coupled directly to the electric motor.

> 7 speed electrical motor, with permanent fitted condenser and thermal protection, mounted on vibration damping support.

> High efficiency heat exchanger with 3,4 or 6 rows, made of copper tube and aluminium fins secured to the tubes by mechanical expansion. It is fitted with brass manifolds and air valves .
The heat exchanger, usually supplied with left hand water connections, can be turned by 180°.

> Air filter made of acrylic fibre, filter class EU2, positioned on air inlet, removable from the bottom drawer.



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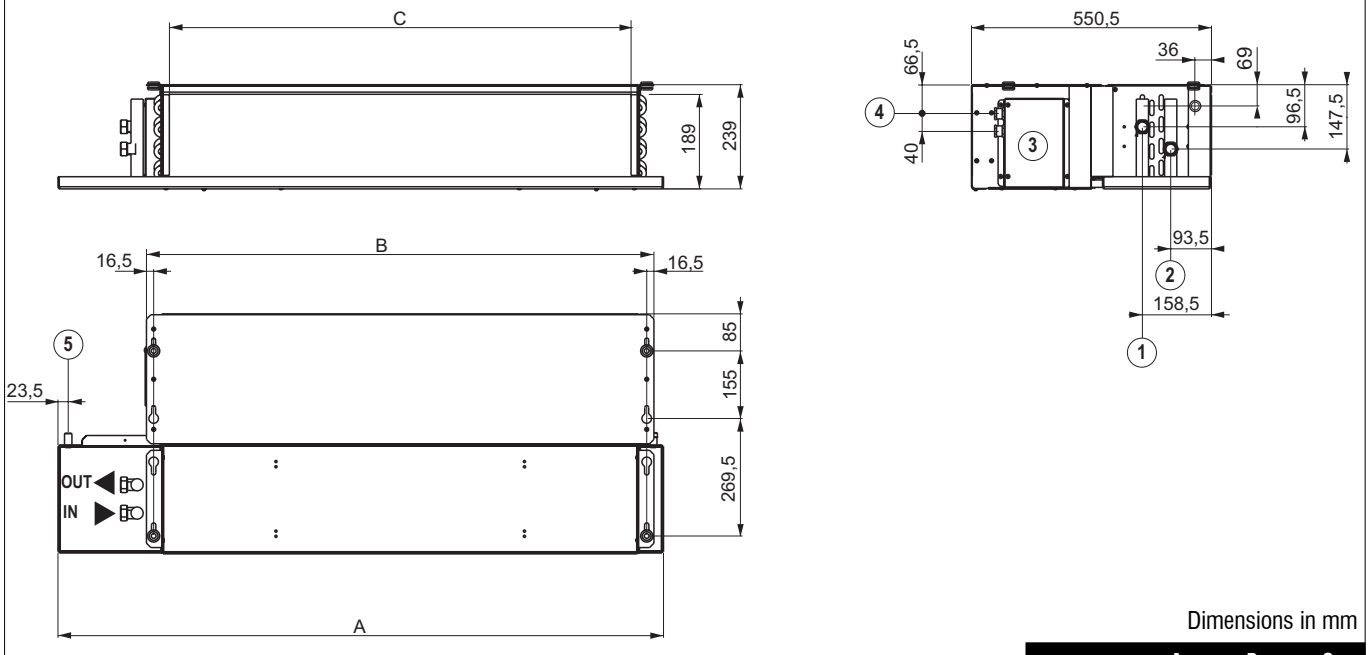
PWN > TECHNICAL DATA

RATED TECHNICAL DATA

PWN		13	14	16	23	24	26	33	34	36
Rated air flow	m^3/h	400	400	400	800	800	800	1200	1200	1200
Available external static pressure	Pa	71	71	71	65	65	65	59	59	59
Power supply	V - ph . Hz					230 - 1 - 50				
Max. power input	W	117	117	117	200	200	200	325	325	325
Max current absorbed	A	0,56	0,56	0,56	1,10	1,10	1,10	1,40	1,40	1,40
Total cooling capacity	kW	2,61	3,14	3,49	5,08	5,45	6,47	7,57	8,67	10,34
Sensible cooling capacity	kW	1,88	2,16	2,34	3,60	3,87	4,40	5,23	5,96	6,90
Water flow	l/h	448	539	598	873	936	1111	1299	1488	1774
Water pressure drop	kPa	8	14	11	15	8	14	21	21	26
Heating capacity	kW	5,47	6,01	6,47	10,31	11,39	12,28	15,00	16,90	18,80
Water flow	l/h	480	527	567	904	999	1077	1319	1479	1647
Water pressure drop	kPa	7	10	8	12	7	10	16	15	18
MDF heating capacity (4 pipe system)	kW	3,14	3,14	3,14	5,99	5,99	5,99	12,80	12,80	12,80
MDF water flow	l/h	275	275	275	526	526	526	1123	1123	1123
MDF water pressure drop	kPa	3	3	3	5	5	5	8	8	8
Standard coil - number of rows	n°	3	4	6	3	4	6	3	4	6
Standard coil - water connection	inches	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Standard coil - water content	liters	1,1	1,5	2,2	1,6	2,1	3,2	2,1	2,8	4,2
MDF coil - number of rows	n°	1	1	1	1	1	1	2	2	2
MDF coil - water connections	inches	3/4	3/4	3/4	3/4	3/4	3/4	1	1	1
MDF coil - water content	liters	0,4	0,4	0,4	0,6	0,6	0,6	1,7	1,7	1,7
Electric heating element power input	kW	2,0	2,0	2,0	2,5	2,5	2,5	3,0	3,0	3,0
Electric heater current absorbed	A	8,7	8,7	8,7	10,9	10,9	10,9	13,0	13,0	13,0
Electric heater power input	V - ph - Hz					230 - 1 - 50				
Sound power level	dB A	58	58	58	60	60	60	69	69	69
Weights	kg	25,9	26,9	28,6	35,1	36,6	38,5	47,5	49,3	52,6

The aforesaid performance is related to the following conditions.
Air flow:related to the rated usable static pressure, at max. speed (7)
Cooling:rated air flow,water inlet temperature 7°C,water outlet temperature 12°C,air temperature with dry bulb 27°C,air temperature with moist bulb 19°C (47% relative humidity)
Heating:- rated air flow,water inlet temperature 70°C, water outlet temperature 60°C,air temperature 20°C

PWN dimensions



Dimensions in mm

	A	B	C
PWN 1	1039	814	709
PWN 2	1389	1164	1059
PWN 3	1739	1514	1409

1	water outlet, 3/4" gas female
2	water inlet, 3/4" gas female
3	electrical connections box
4	cable-pressing for power supply
5	drain outlet, ϕ17 mm

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UTN high pressure fan coil units

The new range of UTN high pressure fan coil units was implemented for conditioning rooms that require the installation of ducted units.
Proposed in 12 models with air flows from 600 to 3000 m³/h, cooling capacity from 2,8 to 18,3 kW and heating capacity from 7,2 to 45 kW the UTN units are characterized by a wide applicative flexibility thanks to the special constructive solutions:

- possibility of installation both in horizontal and vertical position thanks to the special conformation of the condensate discharge system;
- Unit that can be connected to circular flexible ducts (Φ 200mm) or to rectangular section ducts
- the air intake direction may be modified during installation;
- reduced height (280 mm up to model 16A);
- pre-sheared element for the recycle of external air, standard on all models (Φ 100 mm);
- wide range of accessories for effectively meeting any installation requirement
  - electromechanical and microprocessor control panels for wall installation
  - air suction modules with filters
  - accessories for the connection to air ducts: air inlet and outlet box, air inlet and outlet grilles, dampers
  - motor driven 3 way ON/OFF valves
  - additional electric heaters

VERSIONS

UTN	high pressure fan coils setup for 2-pipe systems
UTNDF	high pressure fan coils setup for 4-pipe systems (2 heat exchangers)

Both versions may be manufactured, on request, with pre-painted panels.

> **Load-bearing structure** made of galvanized steel sheet of suitable thickness, duly insulated with noise-proof/anticondensing material, self-extinguishing in Class 1; the insulating material is characterized by a thickness of 10 mm and a density of 90 kg/m³.
> The unit is completed by the following:
> - inspection panels
> - setup for external air inlet
> - fast-coupling slots.

> Dual intake **centrifugal fans** made of aluminium, with statically and dynamically balanced impellers, coupled directly to the electric motor.

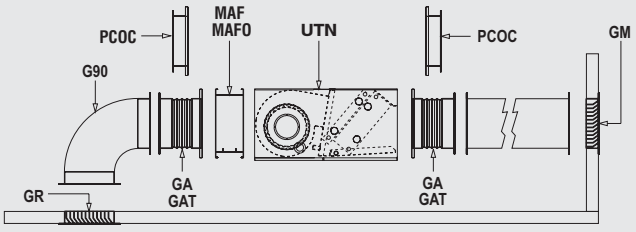
> 3-speed **electric motor**, equipped with permanently fit condenser and thermal safety device, installed on vibration-damping supports.

> **Heat exchanger**: high-efficiency, made of copper tube and aluminium fins secured to the tubes by mechanical expansion.
> It is fitted with brass manifolds and air valves. The heat exchanger, normally supplied with left-hand attachments, may be turned 180°.

> **System for collecting and discharging condensate** setup either for horizontal or vertical installation.

> **Terminal strip** for fast-on electrical connection.

UTN installation example - Air distribution with rectabgular ducts



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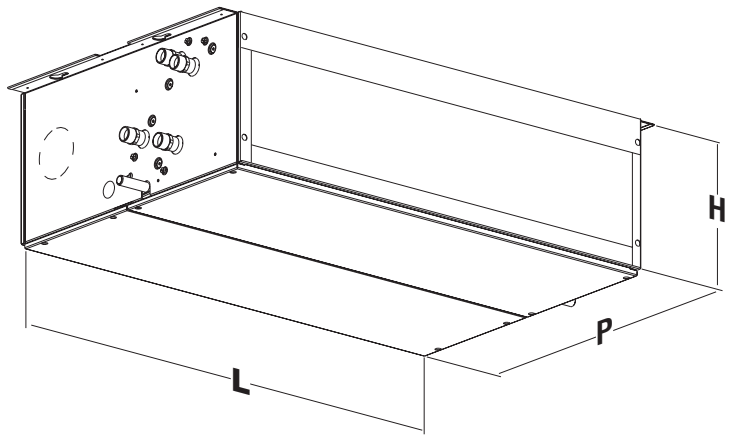
UTN> TECHNICAL DATA

RATED TECHNICAL DATA

UTN			0 6	0 6A	0 8	08A	12	12A	16	16A	22	22A	30	30A
Air flow	High	m^3/h	600	600	800	800	1250	1250	1600	1600	2200	2200	3000	3000
Available static pressure	High	Pa	80	75	90	85	88	82	100	95	130	110	185	175
Total cooling capacity		kW	2,80	3,20	3,90	4,80	6,20	7,00	7,80	8,82	11,90	13,70	16,40	18,30
Sensible cooling capacity		kW	2,15	2,46	3,08	3,71	4,65	5,36	6,52	7,16	9,36	10,50	12,80	14,10
Water flow		l/h	484	553	674	829	1071	1209	1339	1514	2056	2367	2833	3140
Water pressure drop		kPa	10	8	17	15	24	20	24	16	26	22	34	45
Heating capacity	High	kW	7,20	8,30	10,10	12,10	16,10	18,50	19,60	22,40	30,00	33,70	40,90	45,00
Water flow		l/h	634	731	890	1066	1418	1630	1726	1974	2642	2970	3603	3695
Water pressure drop		kPa	12	10	20	17	29	26	28	19	30	24	38	50
DF heating capacity (4 pipes)	High	kW	4,01	4,01	5,63	5,63	8,24	8,24	11,50	11,50	19,70	19,70	26,20	26,20
Water flow		l/h	353	353	496	496	726	726	1013	1013	1735	1735	2309	2309
Water pressure drop		kPa	10	10	13	13	21	21	19	19	17	17	22	22
Standard heat exchanger - rows		n°	3	4	3	4	3	4	3	4	3	4	4	5
Standard heat exchanger - hydraulic connections		in	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"	1"	1"
Standard heat exchanger - water content		l	1,06	1,41	1,06	1,41	1,42	1,90	1,79	2,38	2,50	3,34	4,02	5,03
DF heat exchanger - rows		n°	1	1	1	1	1	1	1	1	2	2	2	2
DF heat exchanger - hydraulic connection		in	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"	1"	1"
DF heat exchanger - water content		l	0,35	0,35	0,47	0,47	0,59	0,59	1,42	1,42	1,42	1,42	1,72	1,72
Power supply		V/ph/Hz	230 / 1 / 50											
Maximum current absorption		A	0,718	0,718	0,954	0,954	1,575	1,575	1,971	1,971	3,210	3,210	5,370	5,370
Maximum power input		W	175	175	234	234	349	349	443	443	714	714	1197	1197
Sound power		dB(A)	63	63	66	66	69	69	72	72	74	74	78	78
Sound power - air outlet component		dB(A)	59,3	59,3	62,5	62,5	65,2	65,2	68,9	68,9	70,7	70,7	74,5	74,5
Sound power - transmitted component		dB(A)	54,7	54,7	58,0	58,0	60,3	60,3	64,0	64,0	65,7	65,7	69,4	69,4
Sound power - air inlet component		dB(A)	59,3	59,3	62,5	62,5	65,2	65,2	68,9	68,9	70,7	70,7	74,5	74,5
Weight 2 pipe models (UTN)		Kg	31,5	32,5	32,5	33,3	40,6	41,7	47,3	48,7	65,3	67,2	77,0	79,5
Weight 4 pipe models (UTN DF)		Kg	33,7	34,7	34,7	35,5	43,2	44,3	50,3	51,7	70,9	72,8	83,4	85,9

AIR FLOW: related to the rated usable static pressure, at max. speed, COOLING: rated air flow, water inlet temperature 7°C, water outlet temperature 12°C, air temperature with dry bulb 27°C, air temperature with moist bulb 19°C (47% relative humidity) ,HEATING:rated air flow, water inlet temperature 80°C, water outlet temperature 70°C, air temperature 20°C, Sound power read conforming to ISO 3741 and ISO 3742.

DIMENSIONES



UTN	06	08	12	16	22	30
H	280	280	280	280	351	351
L	676	676	886	1096	1096	1096
P	579	579	579	579	737	737

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CSW water cassette

Available in 6 models 2 pipes system , and 4 models 4 pipes system, the water cassettes series CSW has the modularity 600x 600 and 900x900 suitable for the standard concealed installation

> HEAT EXCHANGER with high efficiency, made with copper piping and high efficiency aluminum fins, complete with an air vacuum valve and draining tube, connected to the auxiliary drip tray for the condensate collection.

> AUXILIARY DRIP TRAY ,supplied as a standard , collects the water regulation valve condensation.

> ELECTRICAL MOTOR : 3 speeds with low Rpm ,and thermal protection for the windings.

> CENTRIFUGAL FAN with backward blades extremely silent, statically and dynamically balanced and coupled directly to the 3 speeds electric motor.

> BEARING STRUCTURE with internal and external acoustic and thermal insulation.
The basic unit is complete with pre-sheared holes for fresh air intake and air ducting installation.

> CONDENSATE DRAINAGE PUMP: complete with a flow switch for the collection of the drip tray condensation.
The drainage pump is complete with one way valve and timer to delay the switch off, after receiving the flow switch signal to insure an adequate drainage of the condensate present in the drip tray

> ELECTRICAL COMPONENTS:
- Timer for the drainage pump
- Electrical connection board to the wall mounted panel for the automatic control of the water cassette and water regulation valve.

> ADJUSTABLE DIFFUSER. The diffusers inclination on the air outtake is manually adjustable for all models

> FILTER : washable made of synthetic material, inserted in the intake grilles on the front panel ,and is easy to remove for maintenance.

OBBLIGATORY ACCESSORIES

3 ways valves with hydraulic kit for 2 pipes and/or 4 pipes systems.
The water regulation valve are 3 ways / 4 connections ,motorized On/Off , 230 V and intercept the hot and cold water after receiving the thermostat signal .
The valves are complete with a hydraulic kit to connect it to the coil.

ACCESSORIES ON REQUEST

> MICROPROD
Wall mounted panel with microprocessor for the automatic control and regulation of the water cassette according to the room conditions changing.

> SW
water probe for the microprocessor panel controls

> MICRONET
Control panel with advanced microprocessor complete with gateway RS 485 for the ERGO system connection

> KP
power interface to manage up to 4 units with one control only.

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CSW> TECHNICAL DATA

CSW RATED TECHNICAL DATA

CSW			136	186	246	249	369	489
Total cooling capacity	High	kW	2,88	3,83	4,85	6,50	7,45	8,84
Sensible cooling capacity		kW	2,38	3,11	3,90	5,15	6,11	6,97
Water flow		l/h	494	658	832	1115	1278	1517
Water pressure drop		kPa	9	14	22	28	17	28
Heating capacity	High	kW	6,99	9,07	10,82	13,20	15,86	17,04
Water flow		l/h	613	795	949	1158	1391	1496
Water pressure drop		kPa	10	15	21	18	11	21
Female gas water connection		inches	3/4	3/4	3/4	3/4	1	1
Power supply		V - ph - Hz	230 - 1 - 50					
Drain pump		mm	22	22	22	25	25	25
Drain pump available head		m	0,50	0,50	0,50	0,50	0,50	0,50
Power imput	High	W	43	66	104	80	126	145
Current absorbed	High	A	0,17	0,25	0,44	0,36	0,56	0,65
Air flow	High	m^3/h	550	710	870	1140	1380	1610
	Med	m^3/h	420	520	630	890	1140	1290
	Low	m^3/h	240	260	340	770	850	1010
Sound power	High	dB(A)	49	53	61	55	58	60
	Med	dB(A)	40	43	51	51	55	57
	Low	dB(A)	33	33	42	47	53	55
Grille dimensions	H x L x P	mm	40x720x720			20x953x953		
Unit dimensions	H x L x P	mm	310x570x570			300x835x835	365x835x785	
Net weight		kg	22	22	22	37	43	45

CSW DF RATED TECHNICAL DATA

CSW DF			136	246	249	489
Total cooling capacity	High	kW	2,64	3,82	4,71	7,24
Sensible cooling capacity		kW	2,15	3,24	3,76	6,18
Water flow		l/h	453	656	808	1243
Water pressure drop		kPa	6	11	8	8
Female gas water connection		inches	3/4	3/4	3/4	1
Heating capacity	High	kW	3,67	5,45	7,18	9,7
Water flow		l/h	322	478	630	851
Water pressure drop		kPa	15	31	9	7
Female gas water connection		inches	1/2	1/2	1/2	3/4
Power supply		V - ph - Hz	230 - 1 - 50			
Drain pump		mm	22	22	25	25
Drain pump available head		m	0,5	0,5	0,5	0,5
Power imput	High	W	43	104	80	145
Current absorbed	High	A	0,17	0,44	0,36	0,65
Air flow	High	m^3/h	550	870	1140	1610
	Med	m^3/h	420	630	890	1290
	Low	m^3/h	240	340	770	1010
Sound power	High	dB(A)	49	61	55	60
	Med	dB(A)	40	51	51	57
	Low	dB(A)	33	42	47	55
Grille dimensions	H x L x P	mm	40x720x720		20x953x953	
Unit dimensions	H x L x P	mm	310x570x570		300x835x835	365x835x785
Net weight		kg	22	22	37	45

COOLING MODE: water temperature 7/12°C, air temperature with dry bulb 27°C, air temperature with moist bulb 19°C (47% relative humidity)
HEATING MODE: water temperature 70/60°C, water flow rate same as in cooling mode, inlet air temperature 20°C
SOUND POWER: measured according to ISO 3741 and ISO 3742.

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WH high wall fan coil units

WH high wall mounted fan coils, proposed in three models with cooling capacities ranging from 2,3 to 4,3 kW, make the ideal indoor unit for air conditioning systems in public buildings, shops and hotels.

Coupled with Galletti water chillers and heat pumps, they provide an environmentally friendly alternative to direct expansion systems.

WH fan coils are hallmarked by the quality of their components and their versatility of use:

> High efficiency heat exchanger made with copper piping and aluminium fins, low pressure drop on the water side. The heat exchanger comes complete with manual air valves and hoses for connection to the system or to the rear valve-fitted panel (optional accessory).

> Extremely quiet tangential fan connected to a 3-speed electric motor with a low number of revolutions.

> Motorised air outlet buffle for adjusting the direction of the airflow from the fan coil.

> The high quality plastics used allow operation with hot water up to a temperature of 75°.

> Microprocessor controlled operation with control of air intake temperature and that of the water inside the heat exchanger that regulates the heating function according to the temperature of the water (from 38°C to 75°C).
The auto restart function makes it possible to automatically restore unit management after blackouts.

> Pilot lights on the front panel indicate unit operation.

> Air filter easily extractable for cleaning.

Infra-red remote control that when combined with the microprocessor control allows simple, versatile management of the fan coil:

- temperature setting
- manual or automatic fan speed selection
- manual or automatic operating mode selection
  - cooling
  - ventilation
  - heating
- automatic air outlet buffle oscillation with position control
- night mode setting
- Automatic 24-hour on-off timer
- Clock
- LCD for displaying all fan coil functions

Rear panel complete with 3-way ON/OFF valve for even more accurate regulation of room temperature.

Electrothermal ON-OFF valve motor, suitable for 230 volt power supply and connection to the unit's terminal board.

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WH > TECHNICAL DATA

RATED TECHNICAL DATA

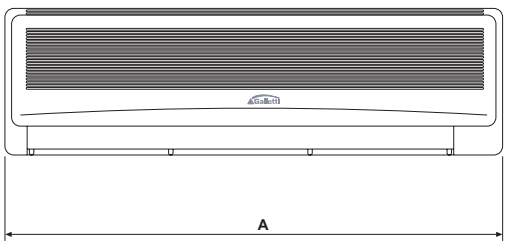
	Fan speed		WH10	WH20	WH30
Total cooling capacity	High	kW	2,27	3,06	4,28
Sensible cooling capacity	High	kW	1,72	2,41	3,15
Water flow		l/h	389	524	734
Water pressure drop		kPa	15	13	18
Heating capacity	High	kW	5,34	7,87	9,96
Water flow		l/h	468	685	873
Water pressure drop		kPa	15	18	19
Water connection		"	1/2	1/2	1/2
Drain connection		mm	22,00	22,00	22,00
Water content		dm^3	0,50	1,10	1,80
Air flow	High	m^3/h	415	515	750
	Med	m^3/h	360	460	630
	Low	m^3/h	335	420	570
Power supply		V / f / Hz	230 /1 / 50	230 /1 / 50	230 /1 / 50
Current absorption	High	A	0,15	0,17	0,24
Power input		W	34	39	51
Sound power level	High	dB(A)	54	54	60
	Med	dB(A)	50	51	55
	Low	dB(A)	48	49	51
Sound pressure level	High	dB(A)	46	46	52
	Med	dB(A)	42	43	47
	Low	dB(A)	40	41	43
Overall dimension: height		mm	276	320	330
Overall dimension: lenght		mm	870	1020	1160
Overall dimension: depth		mm	183	185	213
Approx. weight		kg	12	15	18

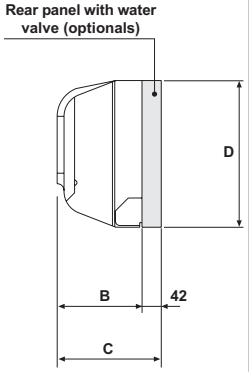
- Cooling mode: water temperature 7/12°C, air temperature 27°C dry bulb, 19°C wet bulb (47% relative humidity)
- Heating mode: water temperature 70-60°C, air temperature 20°C
- Sound pressure calculated for 1 meter distance, directional factor equal to 2

WH OVERALL DIMENSIONS

Dimensions in mm

WH	A	B	C	D
10	870	183	225	276
20	1020	185	227	320
30	1160	213	255	330





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AREO air conditioning fan heaters

In line with recent HVAC trends, **Galletti** offers a universal unit for medium-sized and large industrial and commercial buildings which combines year-round heating and air-conditioning functions

Distinguishable by its original rounded shape, **AREO** stands out above all for its technical features (all models are equipped with three-speed motors and configured for operation with chilled water) and one of the lowest noise levels you will find in the market.

The **AREO** series comprises **18** models, all designed to be wall mounted (horizontal air flow) and to operate with hot water and chilled water, thanks to an innovative condensate collection and drainage system.

If used for heating only, **AREO** can also be ceiling mounted (vertical air flow).

MAIN CONSTRUCTION FEATURES

> A pre - painted sheet steel **cabinet** complete with **ABS** corner trim, internally insulated to prevent conden sate from forming on the cabinet during operation with chilled water.

> The cabinet is complete with **adjustable** aluminium **louvers** (spring - operated) placed on the air outlet which enable an optimal distribution of air within the air conditioned room.

> On the rear of the cabinet there are 4 **brackets** for suspending the fan heater from the ceiling or joining it to the mounting board for installation on the wall (accessory).

> High conductivity **heat exchanger** made with coppper piping and aluminium fins assuring higher heat exchange than standard iron piping exchangers. The heat exchanger is set back in relation to the air outlet, an auxiliary drip tray is fitted on to the front to guarantee complete collection of condensate.

> Galvanised sheet steel **drip tray** insulated with closed - cell polyurethane, connected to the auxiliary tray.

> **Motor**
Two Speeds, 4/6 poles or 6/8 poles, in the three - phase 400V version.
3 speeds in the single - phase 230V (1400, 900 e 700 rpm), available for the complete range.
Upon request, the following equipment is available:
- Polarity different from standard ones (example 4/8 poles).

- **Axial Fan** with statically balanced sickle blades housed in a specially designed compartment that enhances ventilation and reduces noise emissions.

- **Safety grille** made of electrogalvanised steel wire: it supports the motor and is fixed to the cabinet by means of vibration - damping supports

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AREO > TECHNICAL DATA

RATED TECHNICAL DATA

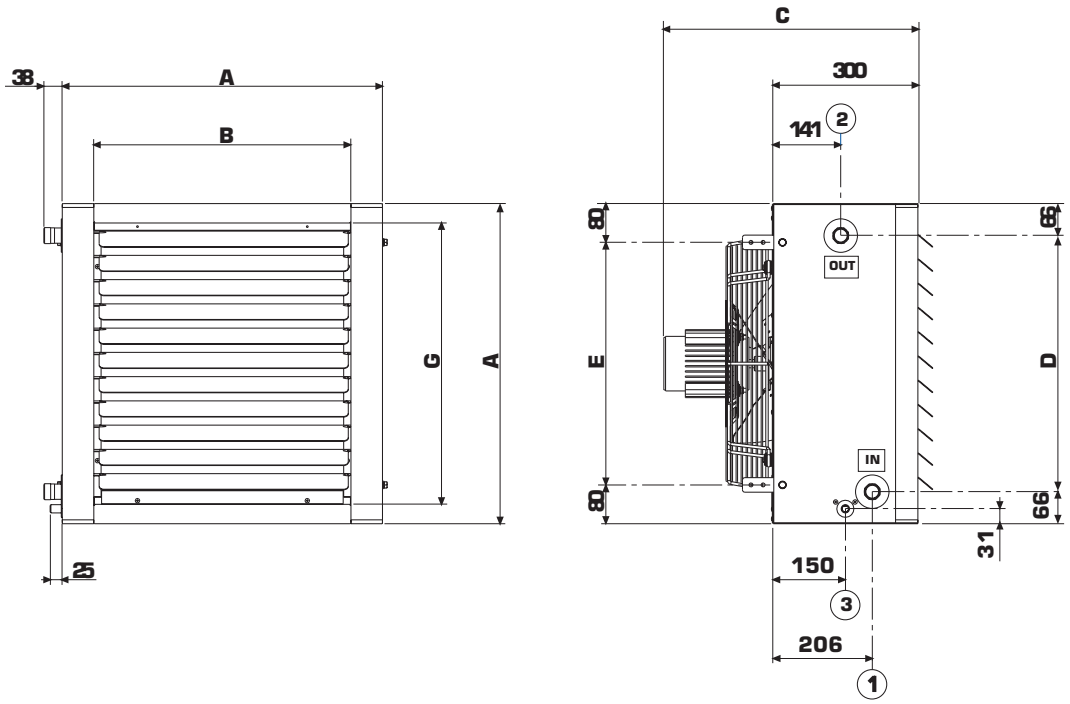
Model	Fan speed	Air flow	Heating capacity	Total cooling capacity	Sensible cooling capacity	Max installation height	Sound power	Sound Pressure	Weight	Standard coil water content
		m3/h	kW	kW	kW	m	dB A	dB A	kg	dm3
AREO 12	4P	1260	8,89	-	-	3,0	66	44	19,4	0,88
	6P	788	6,77	3,08	1,77	3,0	62	40		
	8P	630	5,92	2,68	1,55	3,0	56	34		
AREO 13	4P	1208	11,81	-	-	3,0	66	44	19,8	1,18
	6P	735	8,62	3,92	2,25	3,0	62	40		
	8P	599	7,53	3,40	1,97	3,0	56	34		
AREO 14	4P	1155	13,93	-	-	3,0	66	44	20,4	1,47
	6P	683	9,72	4,41	2,55	3,0	62	40		
	8P	578	8,62	3,92	2,29	2,5	56	34		
AREO 22	4P	2835	17,62	-	-	3,5	69	47	25,1	1,33
	6P	1785	13,57	5,88	3,48	3,5	63	41		
	8P	1418	11,85	5,12	3,02	3,5	57	35		
AREO 23	4P	2730	23,98	-	-	3,5	69	47	26,0	1,81
	6P	1733	18,15	8,33	4,82	3,5	63	41		
	8P	1365	15,59	7,12	4,12	3,5	57	35		
AREO 24	4P	2678	27,03	-	-	3,5	69	47	27,0	2,29
	6P	1701	20,22	9,11	5,23	3,5	63	41		
	8P	1334	17,19	7,70	4,43	3,5	57	35		
AREO 32	4P	4620	33,14	-	-	4,5	74	52	33,7	2,15
	6P	2940	25,46	10,64	6,42	4,0	65	43		
	8P	2310	22,02	9,08	5,49	3,5	59	37		
AREO 33	4P	4463	37,83	-	-	4,5	74	52	34,5	2,86
	6P	2835	28,72	12,56	7,45	4,0	65	43		
	8P	2231	24,69	10,71	6,39	3,5	59	37		
AREO 34	4P	4358	43,28	-	-	4,0	74	52	36,1	3,58
	6P	2783	32,54	15,31	8,66	3,5	65	43		
	8P	2174	27,63	12,96	7,30	3,0	59	37		
AREO 42	4P	6510	47,45	-	-	4,5	77	55	39,1	2,84
	6P	4095	36,17	-	-	4,0	69	47		
	8P	3255	31,48	14,10	8,15	3,5	62	40		
AREO 43	4P	6195	53,61	-	-	4,5	77	55	40,8	3,83
	6P	3938	40,67	-	-	3,5	69	47		
	8P	3098	34,91	16,23	9,29	3,5	62	40		
AREO 44	4P	6090	60,59	-	-	4,0	77	55	43,1	4,82
	6P	3885	45,52	-	-	3,5	69	47		
	8P	3045	38,72	17,69	10,25	3,0	62	40		
AREO 52	4P	9450	55,49	-	-	5,0	84	62	49,6	4,16
	6P	5985	42,99	-	-	4,0	73	51		
	8P	4620	37,02	16,22	9,48	4,0	67	45		
AREO 53	4P	9240	70,64	-	-	4,0	84	62	52,0	5,48
	6P	5880	54,09	-	-	4,0	73	51		
	8P	4515	45,98	21,08	12,10	4,0	67	45		
AREO 54	4P	9083	79,16	-	-	4,5	84	62	55,0	6,80
	6P	5775	60,01	-	-	4,0	73	51		
	8P	4463	50,93	24,11	13,73	3,5	67	45		
AREO 62	6P	8820	79,74	-	-	5,5	77	55	57,8	5,09
	8P	6930	68,83	28,89	16,99	5,0	71	49		
AREO 63	6P	8505	94,34	-	-	5,5	77	55	61,0	6,79
	8P	6563	79,67	37,30	21,25	5,0	71	49		
AREO 64	6P	8295	97,62	-	-	5,0	77	55	63,2	8,48
	8P	6405	82,18	39,69	22,48	4,5	71	49		

Heating mode: water temperature 85/75°C, air temperature 20°C
Cooling mode:water temperature 7/12°C,dry bulb air temperature 28°C, 55% relative humidity
Installation height referred to a difference between air inlet and outlet temperature of 15°C
Sound pressure calculated for 5 meters distance and directional factor equal to 2
Fan speed:
4 p= 4 poles, 1400 $^{Revolution}/_{min}$
6 p= 6 poles, 900 $^{Revolution}/_{min}$
8 p= 8 poles, 700 $^{Revolution}/_{min}$

ATTENTION!
To prevent phenomena of condensate dripping, it is recommended to use AREO fan heaters during the cooling phase only at the speeds shown on the table (6-8 poles for sizes from AREO 12 to AREO 34; 8 poles for sizes from AREO 42 to AREO 64)

AREO > DIMENSIONS

Dimensions AREO



							①	②	③
AREO	A	B	C	D	E	G	water inlet connection (male gas coupling)	water outlet connection (male gas coupling)	condensate drainage connection
12 - 13 - 14	460	330	500	328	300	380	$^{"}3/_{4}$	$^{"}3/_{4}$	17
22 - 23 - 24	560	430	500	428	400	480	$^{"}3/_{4}$	$^{"}3/_{4}$	17
32 - 33 - 34	660	530	525	528	500	580	1	1	17
42 - 43 - 44	760	630	515	628	600	680	1	1	17
52 - 53 - 54	860	730	535	728	700	780	$1"\,^{1}/_{4}$	$1"\,^{1}/_{4}$	17
62 - 63 - 64	960	830	535	828	800	880	$1"\,^{1}/_{4}$	$1"\,^{1}/_{4}$	17

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AREO > ACCESSORIES

AREO is complete with a wide range of accessories as control panels usually associaded with fan coils, thanks to the use of 230V single-phase three speed motors, a standard arrangement for all models and the operation system with chilled water.

Accessories

Sigle	Description	AREO on applicability		
		single-phase	three-phase	air curtain
Control panels				
CD	Recess wall-mounted speed switch	☑		
CDE	Wall-mounted speed switch	☑		
TD	Wall-mounted speed switch, electromechanical thermostat and summer-winter selecting switch	☑		
TDC	Wall-mounted speed switch and electromechanical thermostat	☑		
MICROD	Wall-mounted microprocessor control: automatic control of the fan coil unit	☑		
SW	Water temperature electronic sensor for **MICRO-D** controls	☑		
MICRONET	Microprocessor control **ERGO** solution	☑		
IPM	Power interface for **MICROD** and **MICROPROD**	☑		
KP	Power interface for connecting in parallel up to 4 fan coil units to one control	☑		
TA	electromechanical room thermostat	☑	☑	☑
TA2	electromechanical room thermostat with summer winter selector	☑	☑	☑
CST	delta/star selector for installation in electric panels		☑	☑
CSTP	delta/star selector with box for wall installation		☑	☑
CSD	wall mounted control panel for opening and closing of the motor driven air inteake louver **PAEMM**	☑	☑	
Mounting boards				
DFP	wall mounting board	☑	☑	
DFC	column mounting board	☑	☑	
DFO	adjustable wall/column mounting board	☑	☑	
Fresh air intake				
PAE	fresh air intake louver	☑	☑	
PAE M	manual mixing fresh air intake louver	☑	☑	
PAE MM	motor driven mixing air intake louver, modulating motor, 24V IP 54, with spring return	☑	☑	
GR	fresh air intake grille	☑	☑	
Air diffusers				
DO	Two-row fin diffuser	☑	☑	
R	Protection grille for gymnasium	☑	☑	
LA	Air curtain diffuser			☑

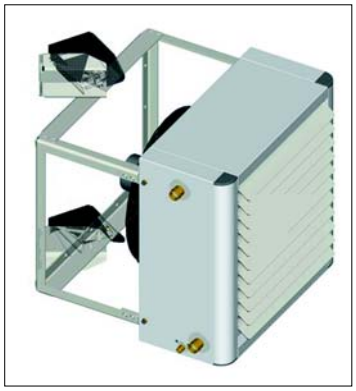
MICRO D

Wall mounted microprocessor control panel, automatically controls the operation of the **AREO** unit :

- manual or automatic fan speed setting and according to the difference between set point and room temperature
- manual or automatic heating cooling operating mode according to the water temperature.
- regulating thermostat with different operating fields for heating mode (14 - 26°C) and cooling mode (18 - 31°C)

PAE MM

Motor driven mixing louver for the fresh air and room air intake, supplied with a modulating motor 24V (transformer included)with spring return for the automatic closing of the louver in case of black out.
The motor can be connected to auxiliary contacts for the automatic opening and closing of the louver (extractor, antifreeze thermostat etc.)
The motor driven mixing air intake louver has to be matched to the **CSD** control panel for the proportional opening and closing.
The kit includes also the the fixing brakets for wall installation



DFO

The DFO option (made in steel of adequate thickness) allows to orient the fan heater as needed (towards left or right), during the installation on indoor columns or walls. The fan heater is connected to the wall mounting board by mean of the four brackets in the back panel of the unit (connection and option mounting screws supplied).

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myCOMFORT LCD control panel

THERMO HYGROMETRIC COMFORT AND INTERCONNECTIVITY

The air conditioning control now is simple and immediate: with the new control panel **my COMFORT,** connection point of the integrate Galletti systems.

The newest microprocessor control panel , with large crystal display (3") , allowed the regulation of the hydronic indoor units to obtain the best Comfort, and the complete control of the air conditioning installation.

The available functionalities complete perfectly the proposal of Galletti for the hydronic indoor units.

With **myCOMFORT ,** now is possible to realize ERGO LARGE network without personal computer, making the package usable for the consumer and more cheap.

> **Immediate utilization**
The new control panel has a large crystal liquid display, rear side illuminated with built in key board to set and to read the operation parameters of the indoor units and the water chillers /heat pump connected.

> **Managing and economizing**
Automatic control of the cooling and heating operations of the unit, based on the air and water temperature

> **Effective Comfort**
MyCOMFORT is able to control and to maintain the hygrometric comfort thanks to a probe measuring the air humidity and allowed to make dehumidification cycles , acting on the valves, ventilation, and water temperature set point

> **Control**
With the software realized by Galletti, the ERGO system has been renovated and simplified.
The total displaying of all the functions is immediate and the programming menu access is possible through the crystal liquid display.
With **MyCOMFORT** it is possible to realize small and large Networks by means of a simple BUS connections between the indoor units (up to 256) and the out door one.

> **Managing and opportunity**
The managing of :
- 3 and 2 ways valves , both ON/OFF and modulating
- Auxiliary devices control (chillers, boiler, zone valve, circulating pumps etc) is carried out by means of free voltage ON/OFF, based on the operation parameters, like water and room temperature and air humidity, and on the time table programming through the weekly timer

> **Easy installation /start-up**
The fast connection terminal boards allowed an easy wiring, the programmability of the function and address is simplified as it occurs directly from the key board and display.

> **Versions**
MyCOMFORT is available for wall mounting or on board of the unit, proposed in 3 different versions, for input, output and possibility for the regulation:
- **Base :**indoor units and regulation valves management based on the temperature
- **Medium** : indoor units management (4 ventilation speeds), Ergo system connection, realisation of network small with slave modality
- **Large** : indoor units management (4 ventilation speeds), and regulation vaves based on temperature, humidity , weekly timer, Ergo system connection , realisation of networks small with master modality, rear illuminated display, management of modulating devices

> **Compatibility**
The different versions of **My COMFORT** are suitable for the following indoor units:
- ESTRO
- FLAT
- 2x1
- CSW
- WH
- PWN
- UTN
- Areo singlephase

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myCOMFORT LCD control panel

COMPATIBILITY

myComfort control panels are ready for wall installation , complete with probes built in the electronic card. For installation on board of **ESTRO**, **FLAT** and **2x1** , it is necessary to consider the built in installation kit complete with the probes for air temperature and relative humidity reading.

MyComfort can be matched with the following Galletti indoor units								
terminali di impianto	**EYMCB**	**EYMCM**	**EYMCL**	**EYKB2X1**	**EYKBEST**	**EYKBFLA**	**EYMCSW**	**EYMCSU**
ESTRO+ MYCOMFORT BASE on board	☑				☑		☑**	
ESTRO+ MYCOMFORT MEDIUM on board		☑			☑		☑**	☑**
ESTRO+ MYCOMFORT LARGE on board			☑		☑		☑**	☑**
FLAT+ MYCOMFORT BASE on board	☑					☑	☑**	
FLAT+ MYCOMFORT MEDIUM on board		☑				☑	☑**	☑**
FLAT+ MYCOMFORT LARGE on board			☑			☑	☑**	☑**
2X1+ MYCOMFORT BASE on board	☑			☑			☑**	
2X1+ MYCOMFORT MEDIUM on board		☑		☑			☑**	☑**
2X1+ MYCOMFORT LARGE on board			☑	☑			☑**	☑**
Unità terminale*+ MYCOMFORT BASE wall installation	☑						☑**	
Unità terminale*+ MYCOMFORT MEDIUM wall installation		☑					☑**	
Unità terminale*+ MYCOMFORT LARGE wall installation			☑				☑**	

* = ESTRO, FLAT , 2X1, CSW, WH, PWN, UTN,AREO single-phase
** = Optional

Mycomfort operation mode			
	BASE	**MEDIUM**	**LARGE**
3 speeds fan control	☑	☑	☑
4 speeds fan control	☑	☑	☑
Valves control	☑	☑	☑
Modulating valves control / 0-10V			☑
DIGITAL ON/OFF / INPUT	☑	☑	☑
DIGITAL ON/OFF / OUTPUT			☑
Air temperature probe	☑	☑	☑
Water temperature probe	☑	☑	☑
Air humidity probe		☑	☑
BUS RS485 connection		☑	☑
Weekly timer			☑
Rear illuminated display			☑

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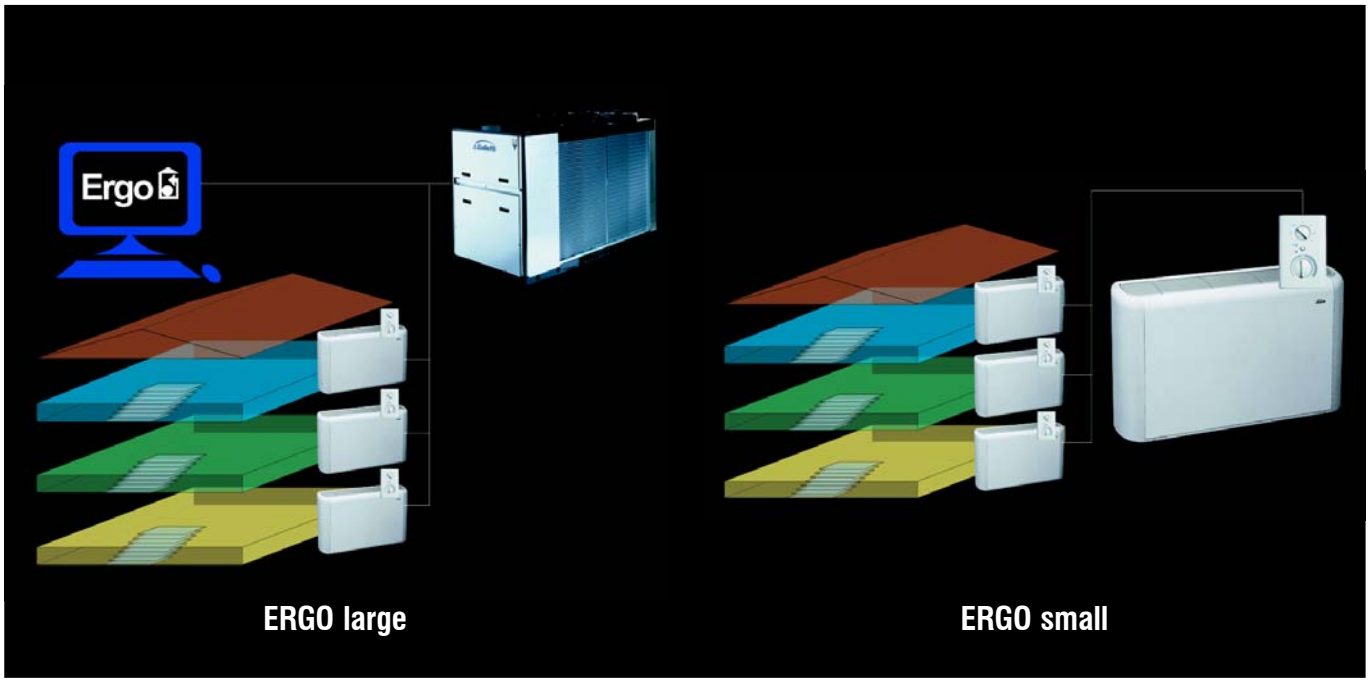
ERGO solution



The Ergo solution, possible as a result of Galletti's extensive experience in offering climate control solution, responds to the demand for a simpler management system fo ari conditioning installation, as well as the need to control system components intelligently in terms of overall systems power consumption.
Specifically designed for:
- hotel application
- control centre / office application
- residential application
- community / institutional application

Ergo is an innovative management system for air conditioning installation, comprising customised software and microprocessor control for indoor units.
Ergo by Galletti is aimed at owners, building designers and installer, to whom it offers a control strategy that adapts the operation of chiller and indoor nutis to the real thermal load requirements.
The benefits include:
- energy saving in the production of chilled qater
- simplicity and low cost installation
- reduction in operating costs
- user friendly operation
- advanced system monitoring capabilities
- centralised system management

The management software is the heart of Ergo.
The software analyzes in real time, the operatiuon of the indoor units to determine the real and istantaneous load of the single user. This monitoring of the individual indoor units enables an adaptive control strategy, minimising operating energy costs by maximising the efficiency in each air conditioned space.

The intelligent system adapts itself to the istantaneous load by performing the following

MONITORING
the operation of the indoor untis

ADAPTING
the overall system control to suit the prevailing conditions.

DECIDING
the most appropriate control strategy

CHECKING
the system again (per valutare gli effetti dela decisione)

Ergo by Galletti can control up to 126 rooms, maintaining the temperatures required by individual users, whilst effecting overall control over the whole system. In doing so, significant energy saving are possible.
The programme is configurable to satisfy numerous requirements, from the automatic temperature setting of the single user through to the hourly/week programming of different temperature setting in different areas.
The system is set up with two different access level:

USER level access
("base" level dedicated to the end user) enables the adjustment of the main parameters.

SERVICE level access
("advanced" level dedicated to the installer and to the maintenance operator) enables free access to the global system parameters.
The user interface presents a visual display of the general operational condition of the system, both for the individual rooms and for the water chuiller or heat pump.

The following :
- average air temperature set point
- average indoor unit working time
- average air temperature
- prevailing fan speed
- **COMFORT INDEX**

These enables the performance of the air conditioning system to be monitored effectively
In each conditioned space, the water and air temperatures, the selected set-point, the working time and the **COMFORT INDEX** are constantly monitored
Meanwhile, the system simultaneously monitors the operational parameters of the water chiller / heat pump, including alarm status, and above all the **ADAPTIVE FUNCTION**.

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ERGO solution

COMFORT INDEX

One of the real innovations introduced by Ergo is the **COMFORT INDEX**, a new system to control the comfort conditions in an air conditioned room. The comfort index is defined as the time period as a percentuage of the total measured interval time that the room air temperature remains within a fixed tolerance around the selected set-point
The comfort index performs two functions:
the real-time monitoring of the status of the air conditioning system which enables the **ADAPTIVE FUNCTION** to operate.
the detection of any operational problems at each of the individual indoor units.

ADAPTIVE FUNCTION

By monitoring the operation of each single indoor units it is possible to calculate the actual internal cooling or heating load, enabling the load of the water chiller or heat pump to be adjusted so that it is aligned with the room's cooling or heating load.

The adaptive function therefore makes corrections to the set-point, which leads to an improvement in the refrigerant efifciency.

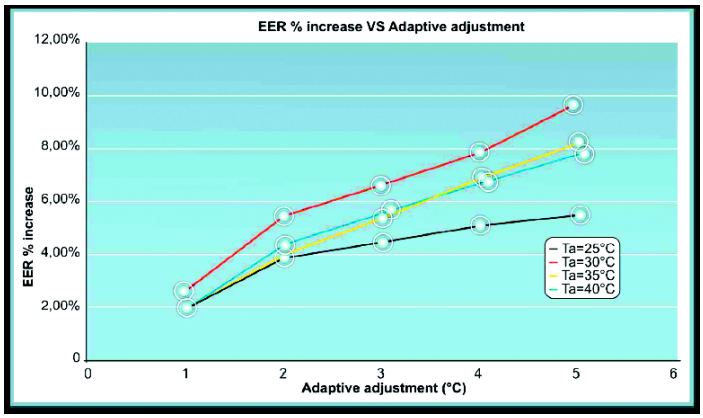
The set-point adjustment is a simultaneous function of :

- prevalent speed = the most frequently used fan speed of the possible three, over a particular time interval. The higher the prevalent speed, the smaller will be the corrections to the set-point of the water chiller / heat pump.

- comfort index = the higher the comfort index value, the greater will be the corrections to the set-point of the water chiller / heat pump.

The amplitude of the correction is a configurable parameter, adjustable during the system commissioning

The efficiency improvement due to the set-point correction is particularly effective during heat pump operation, where the nadaptive set-point correction leads to a reduction in the condensing pressure



THE ERGO LARGE STANDARD CONFIGURATION COMPRISES THE FOLLOWING ITEMS:

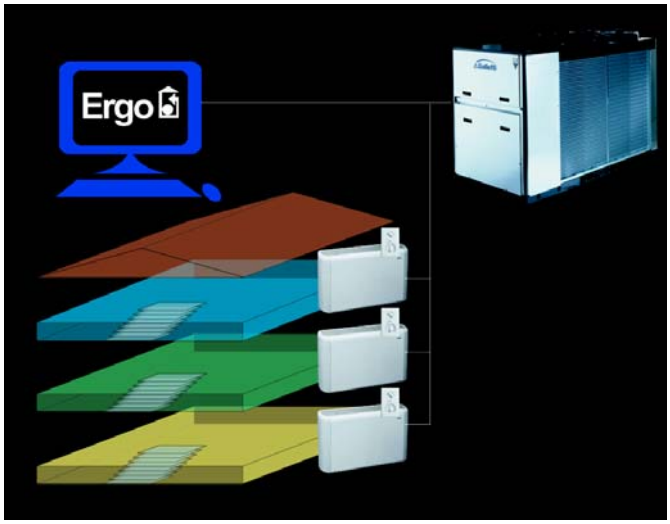
- The whole control system which controls all the operational functions of each indoor unit, including automatic fan speed control, summer/ winter changeover, water valve operation, electric heater. Each control panel is provided with a RS485 serial board

- The data bus: a 2-wire shielded telephone cable: A water chiller / heat pump may also be connected to the same data bus.

- The core o f the system, the **Ergo** software, which can be installed in a normal PC (usually already present in the Hotel/office block technical room) or, on request, on a "touch screen" PC.

- The software is provided by **Galletti** with all the necessary components, including the RS 232-485 converter or USB-RS485 converter.

- During the configuration of the system, each individual indoou unit is identified with a specific address. This means that is possible to monitor the operation of each single indoor unit and adjust the control parameter of each single user identi



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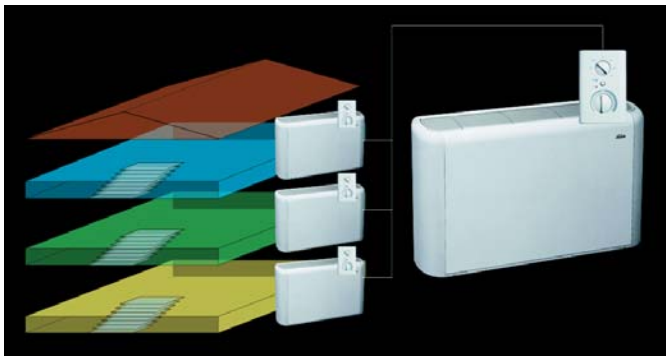
ERGO solution

MICRONET, THE "SMALL" SOLUTION



The installed microprocessor is the same as that used in the standard Ergo system.

The small solution is a master - slave system, in which up to 127 Micronet control are connected together, one of which is assigned the role of **MASTER**.

In the **SMALL** solution, the control of water valves and electric heater is the responsibility of the local **MICRONET** control

The control assigned as **MASTER** selects the working mode (heating-cooling) and the temperature set-point for then whole system.

The user, through the local control (**SLAVE**), is able to adjust the variation (within a limited range) of the room temperature around the set-point, and also the fan speed.

THE ADVANTAGES OF THE ERGO SOLUTION

01 **Simple solution**
The data bus is a simple "twisted pair"cable. The supervision system can be installed in a PC without any specialist knowledge

02 **Interconnectivity**
The "active components" are all connected together in the system, enabling communication between each of them

03 **Supervision**
It is possible to define different levels of authority for the centralised control, with further different levels of authority for the local control

04 **Strategy of control**
The operation of the whole system is kethe different roomseping pace with the real time internal loads present in the different rooms, and adapting itself to changes which occur. This all happens without compromising the operation and control of the water chiller / heat pump.

05 **Low investment costs**
The Ergo system os inexpensive in terms of software kit and its configuration. The extra investment compared with a classic system is very low.

06 **Reduced running costs**
The adoptions of the Ergo integrated supervision system, with its innovative control strategy, results in a reduction in energy consumption, a consequent reduction in running costs and a very short payback period .

@
°C = Ergo
€

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ERGO solution

Ergo Solution can be matched with the following Galletti unit

Indoor units: controlled by MICRONET control panel for wall installation or on board the unit

water indoor unit	wall mounted	built-in
• **ESTRO** fan coil units*	☑	☑
• **Units for air conditioning system 2x1**	☑	☑
• Design fan coil units **FLAT**	☑	☑
• Water cassettes **CSW**	☑	
• **WH** high wall fan coil units	☑	
• **PWN** ducted units	☑	
• **UTN** high pressure ducted unit	☑	
• **AREO** single-phase fan heaters	☑	

* **FL**, **FA**, **FU**, **FB** estro models

Water chiller and heat pumps with advanced microprocessor controller

water chiller	standard	option
• **MCA**		☑
• **LCA**		☑
• **LCS**	☑	
• **LCC**		☑
• **MCC**		☑
• **LSS**	☑	
• **MCW**		☑
• **LCW**		☑

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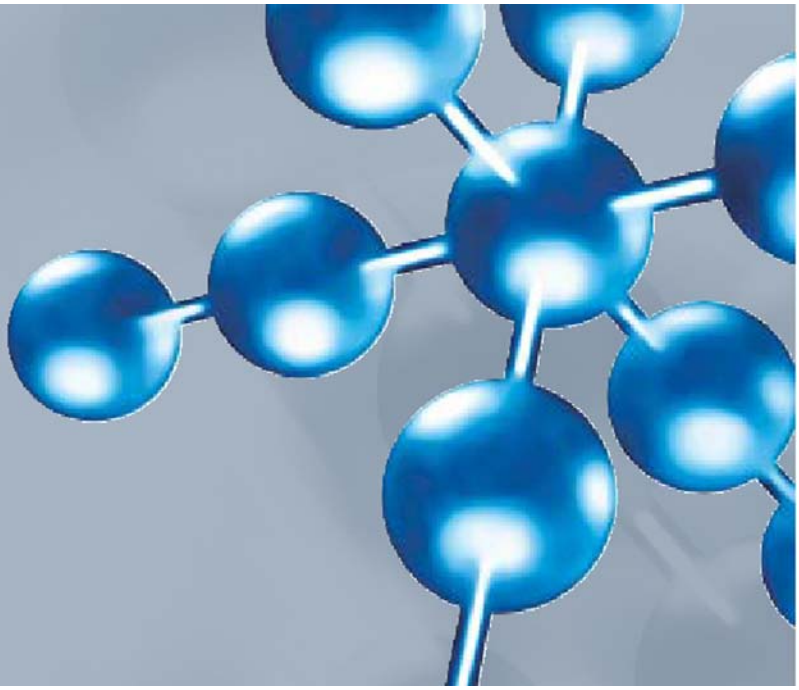
BIOXIGEN system

- Stale or polluted air made to pass through the patented Bioxigen system is enriched with activated oxygen ions.
- This has the effect of neutralising: germs - bacteria - viruses - spores - pollen - dust mites - mould - unpleasant odours of organic or chemical origin.
- Bioxigen is an innovative system for purifying stale and polluted indoor air in: doctors' surgeries - clinics - hospitals - offices - shops and public establishments - home interiors.
- It does not use UV rays or chemical products.
- It improves people's general well-being, concentration and performance.
- It is guaranteed to work around the clock.
- It uses a certified patented technology



Galletti completes it range of air conditioning units with an advanced indoor purification and sanitisation system, new to the Italian market but in use for over forty years in northern European countries, which have always been concerned about well-being in indoor environments.

The "product" is called Bioxigen and it is an innovative air "regeneration" and sanitisation system that exploits an oxidation-reduction process to clean the air of germs, bacteria, spores, pollen and mould and mitigate the presence of harmful polluting airborne substances and compounds.

Reducing the quantity of germs and bacteria also provides a significant deodorising effect: annoying and unpleasant odours of varying nature, present and perceived to a greater degree in indoor environments, are rapidly neutralised.

The application of Bioxigen serves to improve air quality in terms of chemical composition, bacterial activity, electrostatic equilibrium and a total absence of suspended particulates.

What distinguishes Bioxigen from other commercially available ionisers is research and the development of a truly effective solution devoid of side effects such as the production of ozone (O3).

The Bioxigen mission is to ensure healthier living and working environments better suited for human occupancy: with Bioxigen we can finally create an environment in which a correct ion balance can be re-established and maintained.

The result will be a healthier indoor environment, thanks to the drastic reduction in bacterial and microbial contamination, and simply a better environment, since basic human activities will benefit from an enhanced ability to concentrate and perform.

RESEARCH

The research leading to the design of Bioxigen drew inspiration from a process occurring in nature and was aimed at restoring a natural dimension to our habitat and recreating ideal bioclimatic conditions in the environments we live in.

Bioxigen is an ecological, energy efficient, environmentally safe machine.

THE BIOXIGEN SYSTEM

The Bioxigen system is founded on the theory of light absorption formulated by Albert Einstein in 1910. It is a low-energy-consuming, ecosystem-friendly system that reproduces the natural processes of sunlight, which activates the oxygen molecules present in the air by means of electromagnetic energy. Like the sun's rays in the uncontaminated biosphere, Bioxigen "frees" activated oxygen ions inside homes and workplaces and is effective in reducing indoor pollutants and germs by 80-85%.

In especially critical working situations where hygiene is of utmost importance, the application of Bioxigen can be boosted so as to achieve up to a 99% reduction in bacteria.

TECHNOLOGY

The basic technology employed by Sital Klima to design and manufacture Bioxigen revolves around a special condenser called an "ionising tube".

It comprises a quartz cylinder and special metal meshes and works with a single-phase AC power supply at a low rate of energy consumption.

The electric field generated between the special meshes of the ionising tube "frees" small negative or positive oxygen ions that easily form molecular ion "clusters" endowed with a high oxidising power.

COMPATIBILITY

Galletti is committed to applying Bioxigen technology in all of its indoor units, both current and future, which thus combine the benefits of air purification and deodorisation with the efficiency, durability and quiet operation typical of Galletti fan coil and duct units.

- ESTRO
- FLAT
- 2X1
- PWN
- UTN
- KAIMAN

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BIOXIGEN system

BENEFICIAL EFFECTS

In optimal bioclimatic conditions (in the mountains, at the seaside or near rivers and streams), negative ions are present in greater quantity than positive ions.

Negative ions are fundamental for life: they perform an important therapeutic function in that they make air breathable and light. In such conditions all human activities are enhanced: by increasing oxygenation in blood, they improve physical capacities and endurance.

But negative ions also have the effect of neutralising germs and bacteria: thus they help to prevent disease and alleviate lung and bronchial congestion.

Activated oxygen clusters are strongly attracted by gases and particles, which - like the majority of organic and inorganic substances present in the air - are characterised by a positive electric charge.

Upon contact, these harmful substances are oxidised within a few seconds.

Positive ions, too, have an important role to play in the degraded bioclimatic situation in which we live as they contribute to reducing the polluting volatile compounds and gases present in the atmosphere.

RESULT

The application of Bioxigen results in a significant improvement in the quality of air, indoor home and work environments and physical well-being; that is to say, a substantial improvement in the quality of life.

ANTI-BACTERIAL AND DEODORISING ACTION

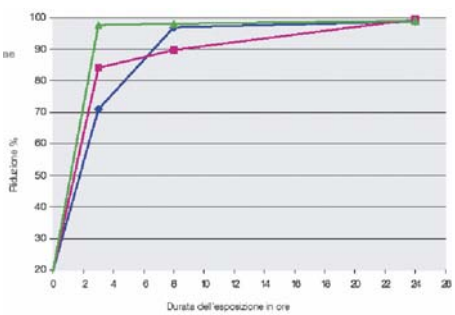
Thanks to the strong oxidising power of negative oxygen ions, Bioxigen can guarantee an effective action against odours of an organic nature and microbial and bacterial contamination present in indoor environments, as was demonstrated by trials conducted on three microbial strains (Staphylococcus Aureus ATCC 29213, Escherichia Coli ATCC 25922 and Saccharomyces Cerevisiae) at the Department of Environmental Medicine and Public Health, Hygiene section, University of Padua.

	hours of exposure		
Microbial strain exposed	3 h	8 h	24 h
Staphylococcus aureus	70,9	97,02	98,8
Escherichia coli	84,07	89,77	99,53
Saccaromyces cerevisiae	97,71	98,14	99,05

Percentage reduction in microbial content inoculated into culture plates exposed to the effect of Bioxigen air ionisers.

Percentage reduction in known microbial content in culture plates exposed to the effect of Bioxigen air ionisers.

- Staphilococcus aureus
- Escherichia coli
- Saccaromices cerevisiae



As may be seen from the data reported here, Bioxigen can effectively reduce the bacterial count by approximately 99% in the space of 24 hours.

ION BALANCE

Modern bioclimatology has clearly demonstrated that the ideal ambient condition for the mental and physical well-being of human beings corresponds to an ionic concentration of 1,800 small ions per cm^3 of air, with positive and negative ions present in a ratio of 80 to 100.

In indoor environments, where the natural ionisation processes catalysed by sunlight cannot take place and human activities make their negative effects felt, it is fundamental to restore an ion balance artificially.

By freeing gauged quantities of negative oxygen ions, the Bioxigen system makes it possible to re-establish a correct air ion balance, which is a necessary condition for recreating an optimal habitat.

ENVIRONMENT	positive ions per cm^3	negative ions per cm^3	ion ratio + / -
Therapeutic environment	1000	9000	0.1 / 1
Mountain air	2500	2000	1.25 / 1
Rural environment	1800	1500	1.2 / 1
Urban environment	600	500	1.2 / 1
Atmosphere before a thunderstorm	3000	800	3.75 / 1
Atmosphere after a thunderstorm	800	2500	0.32 / 1
Light industry	400	250	1.6 / 1
Office / apartment	200	150	1.33 / 1
Small rooms	80	20	4 / 1
Closed moving vehicles	80	20	4 / 1
Optimal situation	**800**	**1000**	**0.8 / 1**

PARTICULATE REDUCTION

The particles present in the air represent a vehicle for the transmission of a large number of pathogenic agents, such as viruses and bacteria, which are harmful to human beings: by emitting negative and positive ions Bioxigen is able to form clusters of oxygen molecules which in turn reduce suspended particulates by means of an electrostatic and gravitational effect.

AN EXAMPLE

Radon progeny. Radon is a noble gas and it is present in the majority of living and working environments as a decay product of Radium.
The progeny of Radon are non-gaseous elements, namely Polonium, Lead and Bismuth: the radioactive isotopes of Polonium are the most dangerous due to the specific nature of their radioactivity.
These isotopes can be found dispersed in indoor environments in the form of large ions and for this reason they readily bind to suspended particulates.
Once inhaled, the isotope can easily reach large organic molecules such as the nucleic acids - DNA or RNA - and manifest all of its feared carcinogenic action.

TECHNOLOGY AT NATURE'S SERVICE

Bioxigen is an innovative air purification system capable of significantly reducing germs, bacteria, spores, pollen and mould, chemical fumes and vapours by means of an oxidation-reduction process.

Reducing the quantity of germs and bacteria also provides a significant deodorising effect: annoying and unpleasant odours of varying nature, perceived to a greater degree in indoor environments, are neutralised by the oxidising action of negative oxygen ions.

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