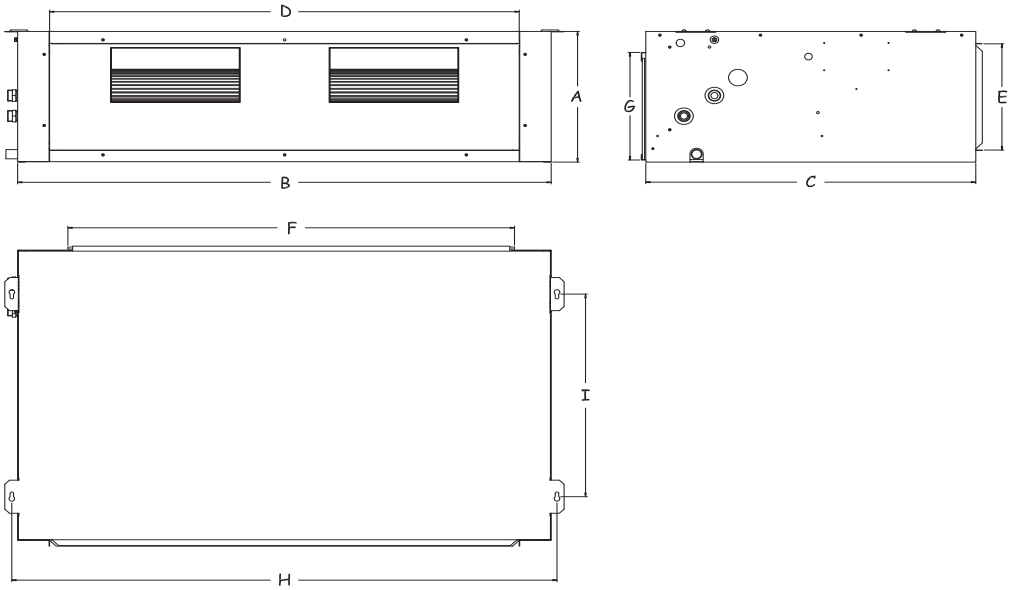
		05	07	11	13	17	19	21	23	
	Max.	5.042	7.909	9.111	10.326	13.327	16.375	20.943	23.118	W
Cooling Capacity *	Med.	4.882	7.423	8.667	9.393	11.847	12.839	20.472	22.502	W
	Min.	4.478	6.208	7.171	8.302	10.163	9.369	19.355	21.063	W
Water flow rate*		870	1.364	1.573	1.782	2.304	2.826	3.613	3.988	L/h
Water pressure drop *		39	38	34	40	40	39	38	34	Kpa
	Max.	5.598	8.158	9.379	10.598	13.571	17.222	22.037	23.950	W
Heating Capacity **	Med.	5.330	7.643	8.766	9.403	11.769	12.440	21.376	23.095	W
	Min.	4.981	6.330	6.855	7.984	9.634	8.508	19.784	21.178	W
Water flow rate **		963	1.404	1.614	1.823	2.335	2.963	3.791	4.120	L/h
Water pressure drop **		36	34	28	36	35	35	34	28	Kpa
	Max.	11.460	16.444	18.906	21.357	27.348	34.741	44.455	48.277	W
Heating Capacity ***	Med.	10.843	15.399	17.660	18.931	23.693	25.033	43.111	46.542	W
	Min.	10.201	12.736	13.785	16.057	19.367	17.082	39.876	42.652	W
Water flow rate ***		986	1.414	1.626	1.837	2.352	2.988	3.823	4.152	L/h
Water pressure drop ***		33	28	26	33	32	33	29	26	Kpa
Nº row coil		3	4	4	4	4	4	4	4	N
Supply		230/1/50								V-F-Hz
	Max.	840	1.200	1.260	1.430	1.700	2.400	3.050	3270	m³/h
Air flow rate	Med.	780	1.016	1.153	1.233	1.436	1.606	2.932	3115	m³/h
	Min.	724	807	868	1.015	1.130	1.039	2.667	2790	m³/h
External static pressure	Max.	90	90	90	90	90	90	90	90	Pa
Nº fans		1				2				n°
n° fan speed					3					n°
Power input motor		230	240	290	332	348	652	683	698	W
Max input current		1,8	1,8	1,8	2,1	2,1	3,7	4,8	4,8	A
	Max.	46	49	50	52	53	55	57	58	dB(A)
SPL - Sound pressure level	Med.	42	45	46	47	48	50	52	53	dB(A)
	Min.	36	38	39	41	41	43	45	45	dB(A)
Connexions de l'eau		3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	“
Water content		1,11	2,63	3,11	3,34	4,45	4,67	6	7,51	l
Weight		24	44	47	52	56	66	73	81	kg

NOTES:
* Room Air T=27°C D.B. / 19°C W.B. , IN/OUT water 7°/12°C, nominal air flow-rate; For medium and minimum fan speed, water delivery as in maximum speed.
** Room Air T=20°C D.B. , IN/OUT water 70°/60°C, nominal air flow-rate; for medium and minimum fan speed, water delivery as in maximum speed.
** lace with reverberation time of 0.5 seconds.

Dimensions



Mod		A	B	C	D	E	F	G	H	I
05	mm	290	640	475	550	235	475	260	665	320
07 - 11	mm	290	1005	650	915	235	950	260	1030	430
13 - 17	mm	315	1135	700	1000	260	950	260	1160	480
19 - 21	mm	360	1330	765	1200	300	1300	320	1355	540
23	mm	360	1635	765	1200	300	1300	320	1660	540

> TCD

HIGH HEAD, DOUBLE PANEL DUCTED FAN COIL

Units Series

Unit type

TCD-H horizontal unit

TCD-V vertical unit

Configuration

2R	with 2-row coil
4R	with 4-row coil
6R	with 6-row coil
4-2R	for 4 pipes system with 4+2-row coil
6-2R	for 4 pipes system with 6+2-row coil

Unit specifications

High head, double panel ducted fan coil units, complying with Machine Directive 89/392 EEC and amendments 91/368 EEC, 93/44 EEC, 93/68 EEC, Low-Voltage Directives 72/23 EEC and Electromagnetic Compatibility Directives EMC 89/36 EEC.

Unit terminal for the treatment of room air in the summer season (coil supplied with cold water) and in winter (coil supplied with hot water).

These units are suitable for indoor installation, very compact and amply configurable to meet the requirements of highly qualified designers.

The careful design of the main components, refined styling and the versatility of the product make it suitable for any type of installation in the residential, commercial or industrial context.

Installation therefore only requires the electrical and hydraulic connections.

Construction characteristics of versions

- SUPPORT STRUCTURE: the frame of the units is in UNI9006/1 Anticorodal 63 extruded aluminium alloy profiles, connected with three-way joints in preloaded nylon and sandwich closure panels, with exposed side in white-grey pre-painted steel and internal side in galvanised steel sheet; unit thermal insulation/soundproofing is obtained through the injection of polyurethane of density not less than 45 kg/m^3.
- AIR FILTER: easily removed from side, it can be cleaned simply by washing with water, and is G3 efficiency class.
- HEAT EXCHANGE COIL: made with copper pipes arranged in staggered rows to increase heat exchange and aluminium fins, locked by mechanical expansion of the pipes. Complete with water inlet/outlet manifolds.
- CONDENSATE TRAY: in stainless steel sheet, complete with section for connection to the discharge line.
- FAN MOTOR: a directly coupled type, the unit is equipped with dual-intake centrifugal fans and directly coupled three-speed motor with internal thermal protection and startup capacitor always on, with wheel statically and dynamically balanced to minimise noise and vibration. All the electric fans are removable by removing the side panel.
- ELECTRICAL CONNECTIONS: The unit comes complete with protected electrical terminal block for making the connection to the various available adjustment controls.

Main accessories/Options

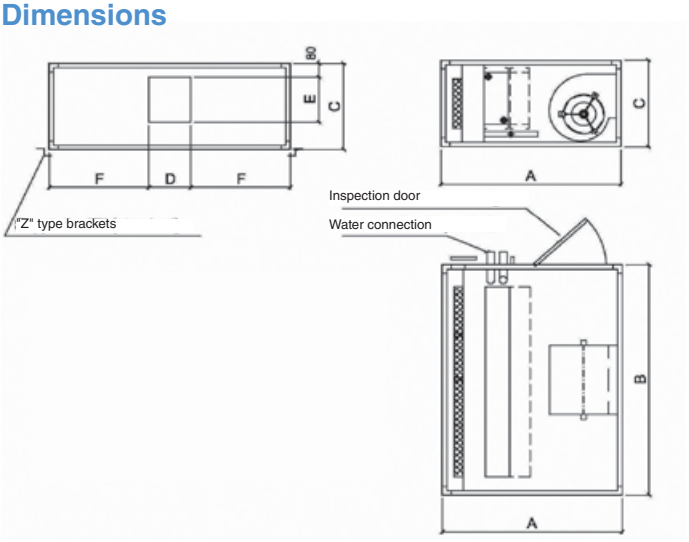
Remote switch
Remote standard thermostat
Remote advanced thermostat
Hot-start consent thermostat
4XUT system
Relay Kit
Air inlet damper
Inlet plenum for vertical execution
Inlet grill
Plenum with 1 damper
Plenum with 2 damper
Outlet plenum
Remote COM3 switch
Remote PCO thermostat

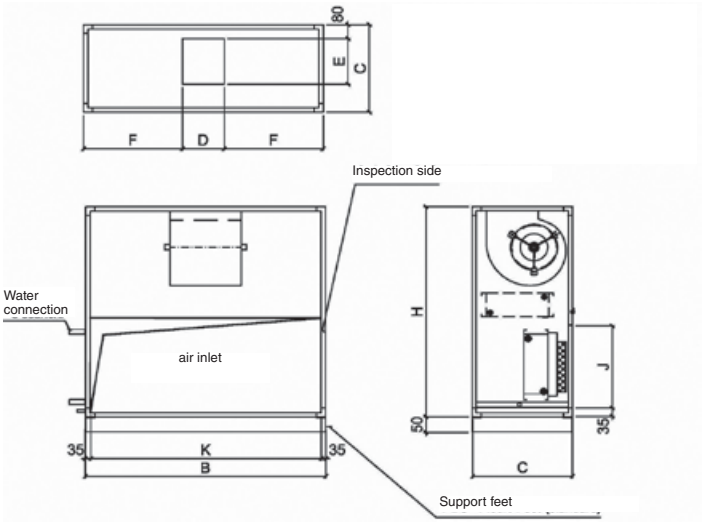
NB: In case of electrical connection of the unit to Ferroli thermostats, the unit must be fitted with the relay kit accessory (KR).

Model	11	21	31	41	
Air flow rate (max speed)	1150	2100	3100	4100	m³/h
External static pressure (Δ)	185	320	330	280	Pa
Sound presssure level (***)	45	55	51	67	dB(A)
Horizontal unit weight TCD-H	97	102	129	168	kg
Vertical unit weight TCD-V	102	106	134	173	kg
Fan					
Power input	240	370	550	550	W
Max input current	2,3	3,5	4,7	4,7	A
n° speed / poles/ Poli	3 / 4	3 / 4	3 / 4	3 / 4	n°
Enclosure protection / Insulation class		20 - B			IP
Power supply		230 / 1 / 50			V / ph / Hz
Filter	G3	G3	G3	G3	classe
Filter medium pressure drop	25	35	40	30	Pa
TCD 2R	**11**	**21**	**31**	**41**	
Heating capacity (**)	8,64	13,8	20,9	27,7	kW
Water flow rate	0,76	1,21	1,84	2,44	m³/h
Water pressure drop	9,4	4,5	4,7	9,8	kPa
Air pressure drop	17	27	25	27	Pa
Water connections	1/2”	3/4”	3/4”	1”	Gas
TCD 4R	**11**	**21**	**31**	**41**	
Heating mode					
Heating capacity (**)	13,3	21,5	32,9	43,9	kW
Water flow rate	1,17	1,89	2,9	3,86	m³/h
Water pressure drop	5,9	3,2	3,6	6,5	kPa
Air pressure drop	35	56	51	55	Pa
Cooling mode					
Cooling capacity total/sensible	6,40 / 4,73	8,54 / 7,25	14,4 / 11,5	20,1 / 15,7	kW
Water flow rate	1,1	1,46	2,47	3,44	m³/h
Water pressure drop	7,3	3	3,2	7,3	kPa
Air pressure drop	42	60	60	62	Pa
Water connections	3/4”	1”	1”	1” 1/4	Gas
TCD 6R	**11**	**21**	**31**	**41**	
Cooling capacity total/sensible	8,18/ 5,72	13,2 / 9,63	19,2 / 14,2	26,5 / 19,0	kW
Water flow rate	1,4	2,26	3,29	4,54	m³/h
Water pressure drop	5,5	4,4	2,6	5,9	kPa
Air pressure drop	49	78	72	83	Pa
Water connections	1”	1”1/4”	1”1/4	1”1/2	Gas

NOTE:
(*) Cooling capacity Room air 27°C D.B. UR 48% - water IN/OUT 7/12°C - Nominal air flow rate
(**) Heating capacity Room air 20°C D.B. - water IN/OUT 70/60°C - Nominal air flow rate
(***) Sound pressure level referred to 1 metre from inlet in free field

Dimensions





Modell		A	B	C	D	E	F	Model		B	C	D	E	F	H	K	J
TCD-H 11	mm	1000	850	500	232	261	309	**TCD-V 11**	mm	850	500	232	261	309	1100	780	430
TCD-H 21	mm	1000	1100	500	232	261	434	**TCD-V 21**	mm	1100	500	232	261	434	1100	1030	430
TCD-H 31	mm	1100	1350	560	265	289	542	**TCD-V 31**	mm	1350	560	265	289	542	1200	1280	490
TCD-H 41	mm	1100	1700	560	232	261	320	**TCD-V 41**	mm	1700	560	232	261	309	1200	1630	490
TCD-H 54	mm	1100	1700	560	265	289	292	**TCD-V 54**	mm	1700	560	265	289	292	1200	1630	490

> TCX

MODULAR HIGH HEAD DUCTED FAN COIL

Units Series

Unit type

TCX horizontal unit

Configuration

TCX 2R only heat with 2-row coil (fig. A)

TCX 4R heat and cool with 4-row coil (fig. A)

TCX 6R heat and cool with 6-row coil (fig. A)

TCX 4+2R 4 pipes systems with 4+2-row coil (fig. B)

TCX 6+2R 4 pipes systems with 6+2-row coil (fig. B)

TCX 6R+S* 4 pipes systems with 6+4-row coil (fig. B)

TCX 4R+S* with 4-row coil + drop separator (fig. C)

Unit specifications

Modular high head ducted fan coil, complying with Machine Directive 89/392 EEC and amendments 91/368 EEC, 93/44 EEC, 93/68 EEC, Low-Voltage Directives 72/23 EEC and Electromagnetic Compatibility Directives EMC 89/36 EEC.

Fan coil unit terminal for the treatment of room air in the summer season (coil supplied with cold water) and in winter (coil supplied with hot water).

These units are suitable for indoor installation, very compact and amply configurable to meet the requirements of highly qualified designers. The careful design of the main components, refined styling and the versatility of the product make it suitable for any type of installation in the residential, commercial or industrial context.

Installation therefore only requires the electrical and hydraulic connections.

Construction characteristics of versions

- STRUCTURE: in steel profiles and panels with double shell in prepainted steel sheet, insulated internally with 10 mm thick sound-absorbing material for versions 10 to 40 and 20 mm thick for versions 50 and 60. Inspection and servicing are guaranteed by the door located in the bottom part of the unit.
- FILTER: made with corrugated synthetic septum cells class G3 (ponderal efficiency 85% - EU3).
- HEAT EXCHANGER: copper/aluminium type and copper manifolds.
- CONDENSATE TRAY: in galvanised steel, equipped with a system enabling very easy removal directly from the inspectionable side, without having to disassemble the unit.
- FANS: dual-intake centrifugal and forward wheel blades, statically and dynamically balanced, directly coupled to three-speed single-phase motor and mounted on vibration-mounting hard rubber supports.
- ELECTRICAL CONNECTION PANEL: positioned on the unit, it comes fully wired and complete with relay card for power control of electric fans.

Main accessories/Options

Remote COM3 switch

Remote PE+PC thermostat

Inlet grill

Air inlet damper

Mixing chamber 2 dampers

Air inlet silencer

Soft pocket filter

Pack humidification thick. 100 mm, complete with water distributor and drip separator

Prearrangement for steam humidification

Water post-heating coil

Electric post-heating coil

Air outlet silencer

Air outlet plenum with circular connections

Air outlet plenum

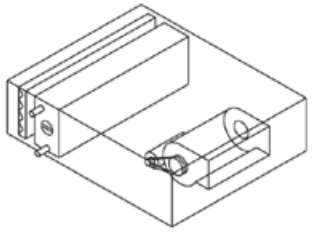


fig.A

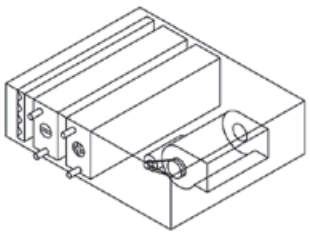


fig. B

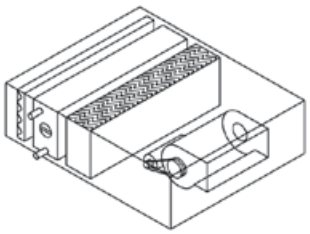


fig. C

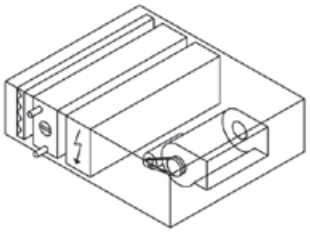
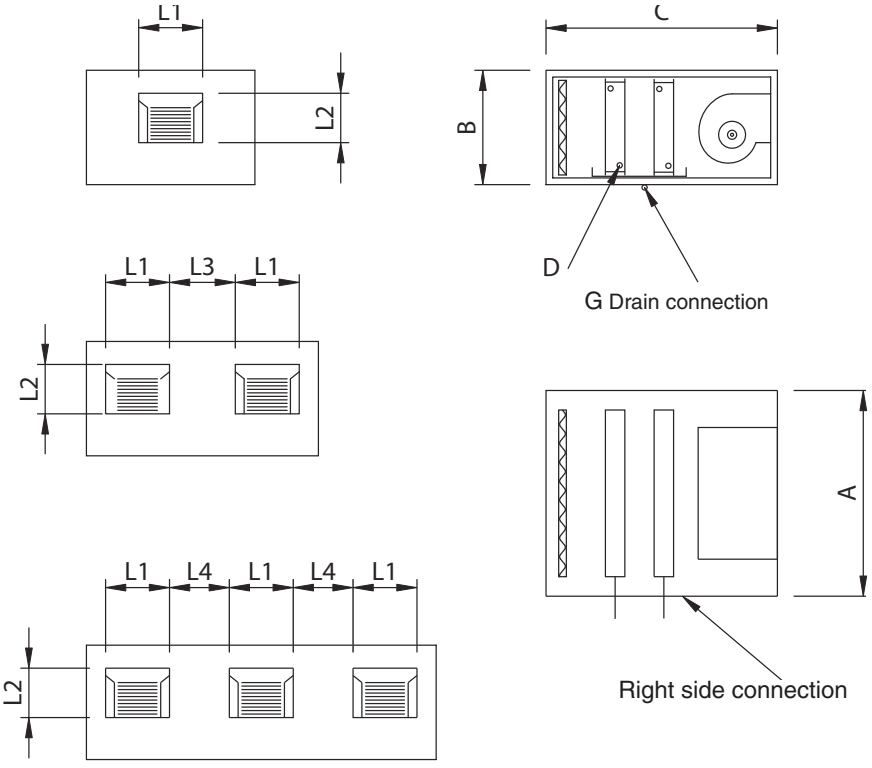


fig. D

	10	20	25	30	40	50	60	
Air flow rate	1040	2150	2740	3360	3950	5070	6450	m³/h
Sound pressure level(****)	51	55	55	57	58	57	59	dB(A)
Power input motor	147	350	700	700	700	840	1260	W
Power supply				230 / 1 / 50				V/ph/Hz
Fan speed / Poles	3/4	3/4	3/4	3/4	3/4	3/4	3/4	
Enclosure protection / Insulation class	20 / B	55 / F	55 / F	55 / F	55 / F	20 / B	20 / B	IP /
TCX 2R	**10**	**20**	**25**	**30**	**40**	**50**	**60**	
Air flow rate	1040	2150	2740	3360	3950	5070	6450	m³/h
External static pressure	174	183	179	191	188	175	181	Pa
Heating								
Heating Capacity (**)	9,5	18,5	24,2	27,7	33,3	34,9	41,2	kW
TCX 4R	**10**	**20**	**25**	**30**	**40**	**50**	**60**	
Air flow rate	1040	2150	2740	3360	3950	5070	6450	m³/h
External static pressure	150	150	150	150	150	150	150	Pa
Cooling								
Cooling capacity Total(*)	6,04	12,1	15,7	18,2	21,6	24,1	32,5	kW
Sensible cooling capacity (*)	4,45	8,9	11,6	13,6	16,1	19,7	25,6	kW
Heating								
Heating Capacity (**)	13,8	27,7	35,8	42,5	50,3	58,1	71,3	kW
Heating Capacity (***)	8,04	16,1	20,9	24,6	29,2	33,4	41,5	kW
TCX 6R	**10**	**20**	**25**	**30**	**40**	**50**	**60**	
Air flow rate	1040	2150	2740	3360	3950	5070	6450	m³/h
External static pressure	125	119	125	115	121	128	123	Pa
Cooling								
Cooling capacity Total(*)	7,08	14,3	18,5	21,9	26,2	34,3	42,1	kW
Sensible cooling capacity (*)	5,04	10,2	13,2	15,7	18,7	24,6	30,6	kW
Heating								
Heating Capacity (**)	14,9	30,5	39,1	47,1	55,7	67	83,3	kW
Heating Capacity (***)	8,85	18	23,2	27,8	33	39,7	49,4	kW

NOTE:
(*) Cooling capacity Room air 27°C D.B. RH 48% - water IN/OUT 7/12°C - Nominal air flow rate
(**) Heating capacity Room air 20°C D.B. - water IN/OUT 70/60°C - Nominal air flow rate
(***) Heating capacity Room air 20°C D.B. - water IN/OUT 50°C wtare flow rate like cooling mode - Nominal air flow rate
(***) Sound pressure level referred to 1 metre from inlet in free field

Dimensions



Model	10	20	25	30	40	50	60
A	710	1070	1400	1400	1680	1780	2000
B	390	390	390	390	390	480	480
C	850	850	850	850	850	960	960
D 2 R	3/4"	3/4"	3/4"	3/4"	1"	1"	1"
D 4 R	3/4"	3/4"	1"	1"	1"	1"	1 1/4"
D 6 R	3/4"	1"	1"	1"	1 1/4"	11/4"	1 1/4"
G	20	20	20	20	20	20	20
L1	240	306	240	240	306	306	306
L2	216	270	216	270	270	270	270
L3	-	-	400	300	400	435	-
L4	-	-	-	-	-	-	285
N1	670	1030	1360	1360	1640	1720	1940
N2	350	350	350	350	350	420	420

> TCT
LARGE CAPACITY FAN COIL

Units Series

Unit type

TCT-H horizontal unit

TCT-V vertical unit

Configuration

2R	with 2-row coil
4R	with 4-row coil
6R	with 6-row coil
4-2R	4 pipes systems with 4+2-row coil
6-2R	4 pipes systems with 6+2-row coil

Unit specifications

Large capacity fan coil, complying with Machine Directive 89/392 EEC and amendments 91/368 EEC, 93/44 EEC, 93/68 EEC, Low-Voltage Directives 72/23 EEC and Electromagnetic Compatibility Directives EMC 89/36 EEC.

Fan coil unit terminal for the treatment of room air in the summer season (coil supplied with cold water) and in winter (coil supplied with hot water).

These units are suitable for indoor installation, very compact and amply configurable to meet the requirements of highly qualified designers. The careful design of the main components, refined styling and the versatility of the product make it suitable for any type of installation in commercial or industrial context.

Installation therefore only requires the electrical and hydraulic connections.

Construction characteristics of versions

- SUPPORT STRUCTURE: the frame of the units is in UNI9006/1 Anticorodal 63 extruded aluminium alloy profiles, connected with three-way joints in preloaded nylon and sandwich closure panels, with exposed side in white-grey pre-painted steel and internal side in galvanised steel sheet; unit thermal insulation/soundproofing is obtained through the injection of polyurethane of density not less than 45 kg/m^3.
- AIR FILTER: removable sideways, it can be regenerated simply by washing, and is G3 efficiency class.
- HEAT EXCHANGE COIL: made with copper pipes arranged in staggered rows and with corrugated aluminium finning, locked by mechanical expansion of the pipes. Complete with water inlet/outlet manifolds. The coil holding section provided for on the TCT units is arranged to house heating and/or cooling coils: the section is designed to hold two coils in horizontal and vertical models. The hot water coils are 2-row or 4-row whereas for cooling they can be 4-row or 6-row with chilled water. The standard executions provide for oblique fitting of the cooling coil in vertical models and horizontal fitting of the heating coil, and vertical fitting of both coils in horizontal models.
- CONDENSATE TRAY: in stainless steel sheet, complete with section for connection to the discharge line.
- FAN MOTOR: ventilating section designed to limit fan noise as much as possible. The motor-fan assembly is isolated from the structure by means of suitable shock-absorbers on the base and is complete with neoprene vibration-mounting joint. The centrifugal fans installed are dual-intake with forward blades, statically and dynamically balanced. Coupled-type fans are installed for sizes 100, 130 and 175. Motor-fan coupling is by means of variable-pitch pulleys and V belts for all sizes. Careful selection has enabled high efficiencies to be obtained. The electric motors are 4-pole, externally ventilated and class F isolated with IP55 protection rating, fixed on special guides enabling belt tension adjustment. The use of variable-pitch drive pulleys enables the number of revolutions and therefore the pressure to be adjusted to system requirements.

Main accessories/Options

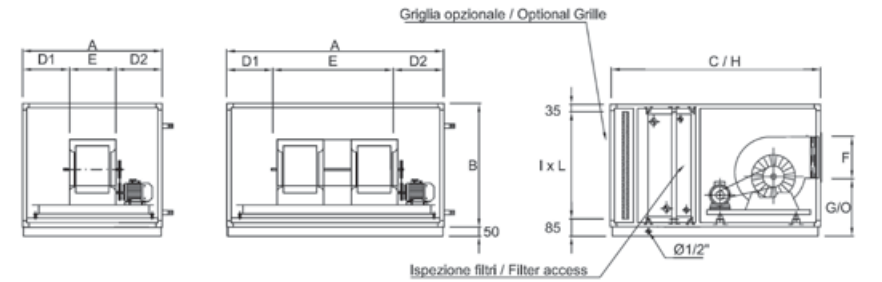
Inlet grill
Air inlet damper
Inlet plenum for vertical execution
Plenum with 1 damper
Plenum with 2 dampers
Outlet plenum

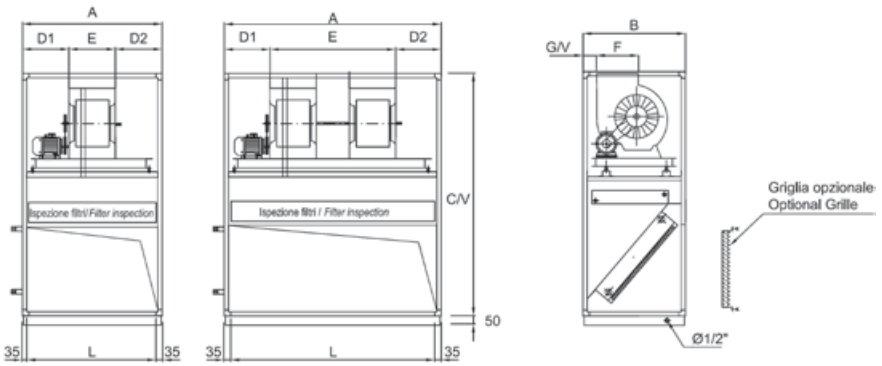
UNIT TCT/H - TCT/V	30	50	70	100	130	180	
Air flow (MIN – MAX)	2300-3800	3900-6700	6300-8100	8200-11000	11000-15000	15000-20000	m³/h
Air flow rate nominal	3000	5300	7200	9600	13000	17500	m³/h
Total static pressure (Δ)	150-370	180-350	250-340	250-375	260-350	250-400	Pa
Sound pressure level(*)	58	73	70	68	71	69	dB(A)
Horizontal unit weight TCT-H	197	240	260	360	380	580	kg
Vertical unit weight TCT-V	220	268	290	380	410	550	kg
Fan							
Power input	0,75	1,5	2,2	2,2	4	5,5	kW
N° Fans / Poles	1/4	1/4	1/4	1/4	1/4	1/4	n°
Power supply			400 / 3 / 50				V/ph/Hz
TCT 2R	**30**	**53**	**72**	**95**	**130**	**175**	
Heating Capacity (*)	35,2	53	69,9	95,8	130	178	kW
Water flow rate	3,09	4,66	6,13	8,42	11,3	15,6	m³/h
Water pressure drop	9	4	8	10	12	23	kPa
Air pressure drop	18	32	38	35	35	39	Pa
Water connection	1”1/2	1”1/2	1”1/2	1”1/2	1”1/2	1”1/2	Gas
TCT 4R	**30**	**50**	**70**	**100**	**130**	**180**	
Heating							
Heating Capacity (*)	52,7	84,8	112	153	206	283	kW
Water flow rate	4,63	7,44	9,91	13,4	18,1	24,8	m³/h
Water pressure drop	15	15	27	33	41	45	kPa
Air pressure drop	32	52	57	51	53	58	Pa
Cooling							
Cooling capacity total/sens (**)	31,2 / 17,8	46,5 / 27	62,7 / 36,4	86,9 / 50,5	117 / 68,1	161 / 91,8	kW
Water flow rate	5,2	7,8	10,5	14,5	19,6	26,9	m³/h
Water pressure drop	24	20	35	40	45	80	kPa
Air pressure drop	51	75	90	82	85	86	Pa
Water connection	1” 1/2	1” 1/2	1” 1/2	1” 1/2	1” 1/2	1” 1/2	Gas
TCT 6R	**30**	**50**	**70**	**100**	**130**	**180**	
Cooling capacity total/sens (**)	36,2 / 19,9	60,7 / 34	78,3 / 43,9	108 / 60,6	146 / 81,8	200 / 110	kW
Water flow rate	6	10,1	13,1	18,1	24,4	33,5	m³/h
Water pressure drop	15	42	27	35	44	71	kPa
Air pressure drop	60	90	95	95	96	90	Pa
Water connection	1” 1/2	1” 1/2	1” 1/2	1” 1/2	1” 1/2	2”	Gas

(•) Inlet air 0 °C, water IN/OUT 70/60 °C. max speed air flow.
(••) Inlet air 32 °C, RH 50%. water IN/OUT 7/12 °C. max speed air flow.
(*) Referred to the fan: deduct the pressure drop of the selected components in order to get the external static pressure.

(**) Sound pressure level: data referred to 1,5 metres from inlet in free field. The actual operation noise level generally differs from the values shown in the table, depending on operating conditions, reflected noise and surrounding noise.

Dimensions

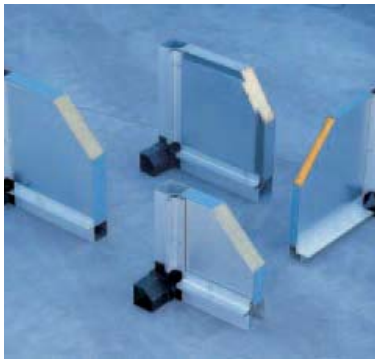




Model		30	50	70	100	130	180
A	mm	1180	1420	1660	1780	1940	2300
B	mm	770	770	770	920	1100	1100
C/H	mm	1290	1290	1290	1290	1290	1290
C/V	mm	1540	1540	1540	1830	2010	2090
D1	mm	418	505	625	222	383	392
D2	mm	418	505	625	428	427	568
E	mm	344	410	410	1130	1130	1340
F	mm	304	354	354	354	354	417
G/H	mm	360	390	390	390	390	410
G/V	mm	150	150	150	105	105	105
I	mm	700	700	700	850	1030	1030
L	mm	1110	1350	1590	1710	1870	2230

> FTP
AIR HANDLING UNITS

The FTP-type handling units represent an important contribution to improving our working environments.
The result of FERROLI's professionalism and many years' experience, they make an important reference point.
The Quality of construction and the components guarantees reliability, functionality and efficiency. Designed to work at low, medium and high pressure, FERROLI FTP units are built with a modular system providing for 18 sizes for a wide range of capacities.



■ STRUCTURE: Made with strong framework in extruded UNI 9006 anodised aluminium sections, joined with angle joints in die-cast aluminium or nylon panels with double shell and insulated with high density (80-100 kg/m^3) mineral wool or polyurethane foam with thickness 23 or 50 mm, with normal profiles or a heat barrier. The panels can be:
- galvanised steel sheet
- prepainted
- peraluman
- AISI 304 stainless steel sheet.

The panels are fixed to the frame with galvanised steel or stainless steel screws and are equipped with self-adhesive type seals. The inspection panels are fitted on hinges and provided with double closing handles (internal and external).

■ BASE: With a continuous beam in heavy galvanised steel sheet, press bent with sections with a high structural rigidity which ensure safe transport and handling on site.

■ ELECTRIC COILS: The electric coils have immersion-type heaters with one or more stages, complete with connection panel and safety thermostat.

■ COLLECTION TRAYS: These can be in galvanised steel or AISI 304 stainless steel sheet, provided with one or more threaded load/discharge manifolds.

■ AIR FILTERS: This selection is all-important to ensure the high Quality of the treated air. The types available:
- roll filters
- pleated filter cells
- soft or rigid pocket filters
- absolute filters
- activated carbon filters

Efficiency certified in conformity with the main standards(EUROVENT, AFI, ASHRAE, NSB etc.).

■ RECUPERATOR: static-type cross flow with sealed aluminium (or stainless steel) plates in order to guarantee no contact between the expelled air and that introduced inside the plant, so as to enable easy servicing. Complete with equalising dampers for creating mixing chambers or bypass for operation with outside air introduction, recirculation or free-cooling. Rotary type, with rotating drum, are available on request complete with devices for controlling rotation speed.

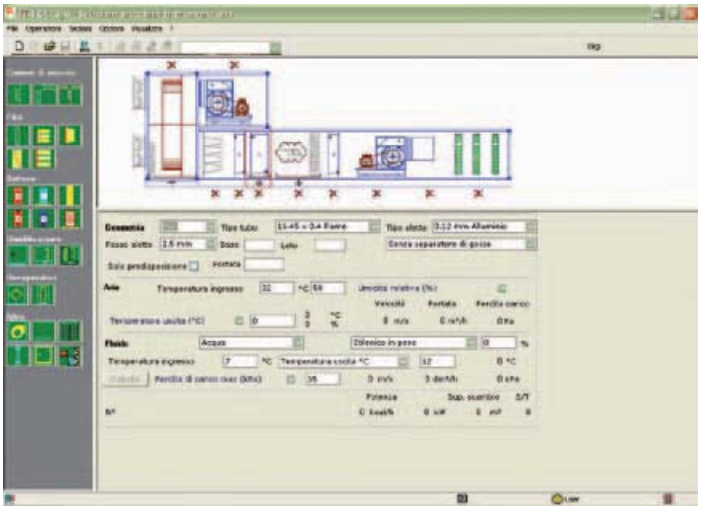
■ DAMPERS: As a standard version they have a galvanised sheet frame and extruded aluminium fins, complete with seal, moved by nylon wheels located inside the damper and provided with shaft for applying the servo control. Single dampers for outside air intake, mixing chambers with two dampers and mixing chambers with three dampers can be specified.

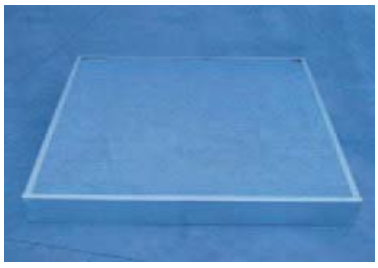
Service

AIR FTP

The FERROLI design engineers team have prepared the FTP 2010 AIR selection and design software to quickly and easily obtain an operational, construction layout and financial data of the air treatment system.
There is also the selected choice of accessories the printing of the description of the units pecifications and a complete technical data sheet.
A sales tool much appreciated by professionals for its easy use and prompt answers.

For further information, contact your local Ferroli Industrial Climate Control Branch.





- HEAT EXCHANGE COILS: Removable-type for operation with water, mixture with glycol, direct expansion or steam, made with frame in pressed steel sheet, tested at a pressure of 30 Ate. In the standard version they are made with copper pipes and aluminium finned pack, mechanically expanded. Available on request:
  - steel pipe
  - stainless steel pipe
  - copper finned pack
  - tinned copper finned pack.

- HUMIDIFICATION: Sections for humidification systems are provided for as follows:
  - WITH STEAM: created through the installation of an independent steam producer or the assembly of distributors for system steam.
  - WITH NOZZLES: commonly called "washer", humidification is created with a system of self-cleaning spray nozzles, fitted on one or two trains. The system provides for a double sealed chamber and can be supplied with expendable water or with a recirculating pump.
  - WITH PACK: created with a honeycomb pack in cellulose impregnated with phenolic resins of thickness 100 or 200 mm, complete with metal holding frame and distributor for water in the upper part. It can be with expendable water or with a recirculating pump with filler valve, overflow or bleed-off.

- FANS: Dual-intake centrifugal type with forward or backward blades, with the wheel statically and dynamically balanced manufactured to the values required by the specification. They normally use bearings lubricated for a service life of at least 50,000 hours.

- MOTORS: Three-phase induction with cage rotor, IP55 protection rating and class F windings. Conforming to Standards IEC 34-1 and IEC 72 (CEI 2 - 3 no. 355 - UNEL 131132-71-B3 UNEL 13118-71); they also meet the national prescriptions (VDE, NFC, NBNC, BS, SEV, NEN, etc.). Mounted on a slide enabling fixing of the drive belt tension. The motor-fan assembly is mounted on hard rubber supports to absorb rotation vibrations.

- DRIVES: By means of belts and V pulleys with taper lock bush. All the pulleys, with one or more races, balanced, are in cast iron with galvanic surface treatment. Variable diameter pulleys can be fitted on request.

- VIBRATION-MOUNTING JOINTS: They are normally fitted between the fan mouth and the delivery panel, but can also be arranged on all the channel connection flanges; the fabric used is “class 1” self-extinguishing.

- SILENCERS: They can be installed inside or outside the unit located in delivery or intake and are essential for suppressing the noise mainly produced by the fan. Supplied in different lengths of 750 to 2000 mm, they have sound-absorbing septums, made with multiple layers of mineral wool held by a perforated metal sheet; the outer surfaces of the septums (in direct contact with the air) are covered with a glass fibre film to prevent flaking.

> RFA

PACKAGED AIR CONDITIONERS AND HEAT PUMPS ROOF TOP FOR OUTDOOR INSTALLATION

Available range

Unit type

PC Heat pump
(reversible on the refrigerant side)

Constructive configurations

VB Base version
V1 1 damper version
V2 2 dampers version
V2 3 dampers version

Acoustic setting up

AB Base setting up
AS Low noise setting up

Unit description

This series of packaged air conditioners and heat pumps (roof top) satisfies the cooling and heating requirements of medium and large buildings (commercial centres, ipermarkets, cinemas, outlets, offices, canteens, restaurants ...)

All the units are suitable for outdoor installation and can be applied to plants realized with various type of air ducts.

Each model is available in various constructive configurations and can be equipped with a large range of accessories in order to fit the different installation requirements.

The region in contact with the treated air, easily accessible, is realized with perfectly washable metal surfaces, externally insulated in order to minimize the thermal losses and to avoid condensate generation both on the internal part and the external part of the structure.

The refrigerant circuit, contained in a compartment protected by the air flow to simplify the maintenance operations, is equipped with scroll compressors mounted on damper supports. Each compressor is placed on an independent refrigerant circuit in order to keep a constant ratio between the sensible cooling power and total cooling power also at partial loads and to guarantee a better treatment of the air besides a greater reliability.

Each refrigerant circuit is equipped with thermostatic expansion valves, reverse cycle valve, axial fans with safety protection grilles, finned coils made of copper pipes and aluminium louvered fins and high and low pressure switches.

All the units can be equipped with variable speed fans control that allows the units to operate with low outdoor temperatures in cooling and high outdoor temperature in heating and permits to reduce noise emissions in such operating conditions.

The low noise acoustic setting up (AS) is obtained, starting from the base setting up (AB), mounting sound jackets on the compressors and the technical compartment is clad with soundproofing material of suitable thickness.

All the units are supplied with an outdoor temperature sensor, already installed on the unit.

All the units are provided with a phase presence and correct sequence controller device.

All the units are accurately built and individually tested in the factory. Only electric, aeraulic and hydraulic connections are required for installation.

Options

Air flow position
- upwards / frontal
- downwards

Internal fan
- standard
- upsized
- reduced

Heating integration
- hot water coil
  (2 or 3 rows with pipes or 3 way valve)
- electrical heater coil
  (standard or upsized)
- condensing gas heating module
  (standard or upsized)

Air flow silencers

External fans control
- on-off control
- modulating control (condensation / evaporation control)

Enthalpic free cooling

Air quality control (CO_2)

Special filters
- rigid pockets filters (F6 - F7 - F8 - F9)
- rigid pocket filters with active carbons

Filters differential pressure switch

Droplets separator

Accessories

Spring vibration dampers

External coils protection grilles

High and low pressure gauges

Remote thermostat

Remote control

Modbus serial interface on RS485

Programmer clock

Phase sequence and voltage controller

Roof curb

NOMINAL performances

PC	Base setting up (AB) / Low noise setting up (AS)	35.1	45.1	55.1	70.2	90.2	110.2	140.2	180.2	220.2	
A35A27	Total cooling capacity	35,5	46,3	57,7	71,0	92,3	113	142	184	226	kW
	RST *	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	0,70	-
	Power input	10,9	14,0	17,7	22,5	28,8	36,6	46,6	59,5	73,7	kW
	EER	**3,26**	**3,31**	**3,26**	**3,16**	**3,20**	**3,09**	**3,05**	**3,09**	**3,07**	**-**
	Air flow rate plant side	6200	8100	10000	11000	14500	17000	22500	29000	35000	m³/h
	Available static head plant side	200	200	200	200	200	200	200	200	200	Pa
A7A20	Heating capacity	36,7	47,8	59,5	73,9	95,9	118	148	192	236	kW
	Power input	11,2	14,4	18,2	23,0	29,5	37,5	47,7	60,9	75,5	kW
	COP	**3,28**	**3,32**	**3,27**	**3,21**	**3,25**	**3,15**	**3,10**	**3,15**	**3,13**	**-**
	Air flow rate plant side	6200	8100	10000	11000	14500	17000	22500	29000	35000	m³/h
	Available static head plant side	200	200	200	200	200	200	200	200	200	Pa

Data declared according to **EN 14511**. The values are referred to units without options and accessories operating with 100% return air.
* RST = ratio between sensible cooling capacity and total cooling capacity.

A35A27 = source : air in 35°C d.b. / plant : air in 27°C d.b. 19°C w.b.
A7A20 = source : air in 7°C d.b. 6°C w.b. / plant : air in 20°C d.b.

Acoustic performances

	Base setting up (AB)	35.1	45.1	55.1	70.2	90.2	110.2	140.2	180.2	220.2	
	Sound power level	84	85	85	87	87	88	90	92	93	dB(A)
	Sound pressure level at 1 metre	67	67	68	69	69	70	71	73	74	dB(A)
	Sound pressure level at 5 metres	58	58	59	60	61	61	63	65	66	dB(A)
	Sound pressure level at 10 metres	53	53	54	55	56	56	58	60	61	dB(A)
	Low noise setting up (AS)	**35.1**	**45.1**	**55.1**	**70.2**	**90.2**	**110.2**	**140.2**	**180.2**	**220.2**	
	Sound power level	81	82	82	84	84	85	87	89	90	dB(A)
	Sound pressure level at 1 metre	64	64	65	66	66	67	68	70	71	dB(A)
	Sound pressure level at 5 metres	55	55	56	58	58	59	60	62	63	dB(A)
	Sound pressure level at 10 metres	50	50	51	53	53	54	55	57	58	dB(A)

Performances referred to units with VB constructive configuration (base version) operating in cooling mode at NOMINAL conditions A35A27 with STANDARD air flow rate and available static head.
Unit placed in free field on reflecting surface (directional factor equal to 2) with air inlet and outlet connections ducted for 2 metres.
The sound power level is measured according to ISO 3744 standard.
The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 metres from the external surface of the unit.

		Cooling		Heating		
OPERATING LIMITS	**Unit type**	**min**	**max**	**min**	**max**	
Outdoor air inlet temperature	PC	10	50	-10	22	°C
Return air inlet temperature	PC	15	37	5	22	°C

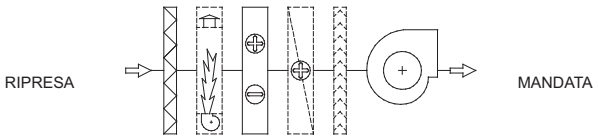
TECHNICAL DATA	35.1	45.1	55.1	70.2	90.2	110.2	140.2	180.2	220.2	
Power supply	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	400 - 3N - 50	V-ph-Hz
Compressor type	scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll	-
N° compressors / N° refrigerant circuits	1 / 1	1 / 1	1 / 1	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	n°
Plant side heat exchanger type	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	-
Source side heat exchanger type	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	finned coil	-
External fans type	axial	axial	axial	axial	axial	axial	axial	axial	axial	-
N° external fans	2	2	2	4	4	4	4	4	4	n°
Internal fans type	centrifugal	centrifugal	centrifugal	centrifugal	centrifugal	centrifugal	centrifugal	centrifugal	centrifugal	-
N° internal fans	2	2	2	2	2	2	2	2	2	n°

HEATING INTEGRATION		35.1	45.1	55.1	70.2	90.2	110.2	140.2	180.2	220.2	
Electrical heater coil	standard	9,0	9,0	9,0	18,0	18,0	18,0	36,0	36,0	36,0	kW
	upsized	18,0	18,0	18,0	31,5	31,5	31,5	63,0	63,0	63,0	kW
Condensing gas heating module	standard	44,8	44,8	44,8	93,4	93,4	93,4	186,8	186,8	186,8	kw
	upsized	54,0	54,0	54,0	145,0	145,0	145,0	290,0	290,0	290,0	kW

CONSTRUCTIVE CONFIGURATIONS

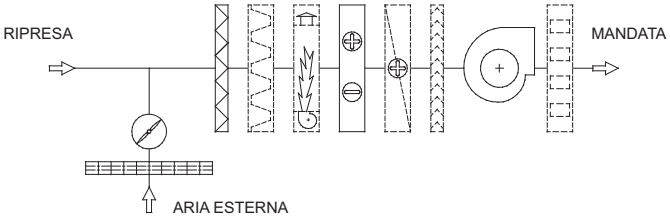
Each model can be supplied in different constructive configurations in order to satisfy the application requirements that can be necessary for the plants. The various versions, obtained adding to the base version some modules, are always supplied already assembled, wired and tested in the factory. All the versions can be arranged with standard air flow position (frontal for the models of frame 1 and 2 and upwards for the models of frame 3) or with downwards air flow position. The dotted components are accessories.

VB - Base version



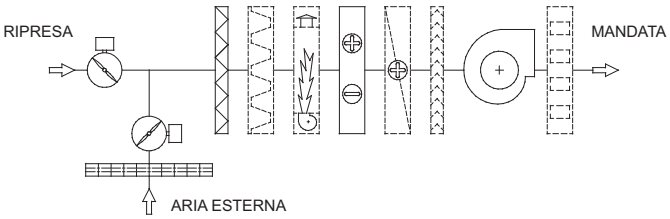
It only allows to operate with all return air. It contains the standard filtering section and the air-refrigerant exchange coil that allows the heating, cooling and dehumidification processes to be performed.
It is possible to add a further heating section (hot water coil or electrical heater coil) and the droplets separator. Instead of such heating section it is possible to add a gas heating module, placed between the filtering section and the air-refrigerant exchange coil.

V1 - 1 damper version



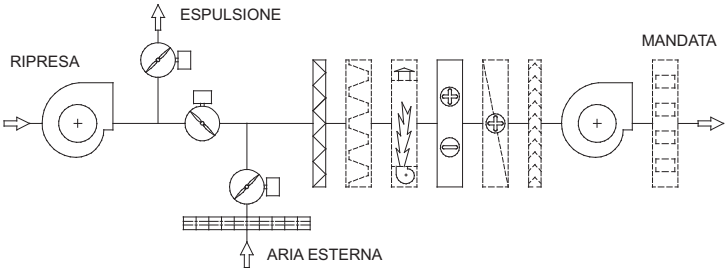
It allows to operate with a percentage of outdoor fresh air, adjustable manually setting the damper placed on the adding module. The outdoor air inlet is equipped with a rain protection cap and a metal safety grille. The expulsion from the conditioned ambient of an air flow rate equal to the outdoor fresh air flow rate must be realized independently from the unit by means of overpressure openings or other extraction devices.
In the adding module can be placed various type of special filters in order to complete the standard filtering section.
Also in this version it is possible to add a further heating section (hot water coil or electrical heater coil) and the droplets separator. Instead of such heating section it is possible to add a gas heating module, placed between the filtering section and the air-refrigerant exchange coil.
Downstream the internal fans, air flow silencers can be installed to reduce the noise transmitted to the conditioned ambients through the air ducts (only for the models of frame 1 and 2).

V2 - 2 dampers version



The presence of two motorized dampers managed by the controller of the unit allows to operate with a minimum percentage of outdoor fresh air (adjustable through the user interface) and to perform thermal free cooling.
The outdoor air inlet, equipped with a rain protection cap and a metal safety grille, is designed for 100% of the total air flow rate and allows to operate in free cooling with all outdoor air.
The expulsion from the conditioned ambient of an air flow rate equal to the outdoor fresh air flow rate must be realized independently from the unit by means of overpressure openings or other extraction devices.
In the adding module can be placed various type of special filters in order to complete the standard filtering section.
It is possible to add a further heating section (hot water coil or electrical heater coil) and the droplets separator. Instead of such heating section it is possible to add a gas heating module, placed between the filtering section and the air-refrigerant exchange coil.
It is also possible to perform enthalpic free cooling by means of the installation of the humidity sensors. Downstream the internal fans, air flow silencers can be installed to reduce the noise transmitted to the conditioned ambients through the air ducts (only for the models of frame 1 and 2).

V3 - 3 dampers version



The presence of three motorized dampers managed by the controller of the unit allows to operate with a minimum percentage of outdoor fresh air (adjustable through the user interface), to perform thermal free cooling and to manage the air expulsion.
The outdoor air inlet, equipped with a rain protection cap and a metal safety grille, is designed for 100% of the total air flow rate and allows to operate in free cooling with all outdoor air.
The expulsion from the conditioned ambient of an air flow rate equal to the outdoor fresh air flow rate is realized through the return air fan and the expulsion damper placed inside the unit.
In the adding module can be placed various type of special filters in order to complete the standard filtering section.
Also in this version it is possible to add a further heating section (hot water coil or electrical heater coil) and the droplets separator. Instead of such heating section it is possible to add a gas heating module, placed between the filtering section and the air-refrigerant exchange coil. It is also possible to perform enthalpic free cooling by means of the installation of the humidity sensors.
Downstream the internal fans, air flow silencers can be installed to reduce the noise transmitted to the conditioned ambients through the air ducts (only for the models of frame 1 and 2).

CONTROL SYSTEM

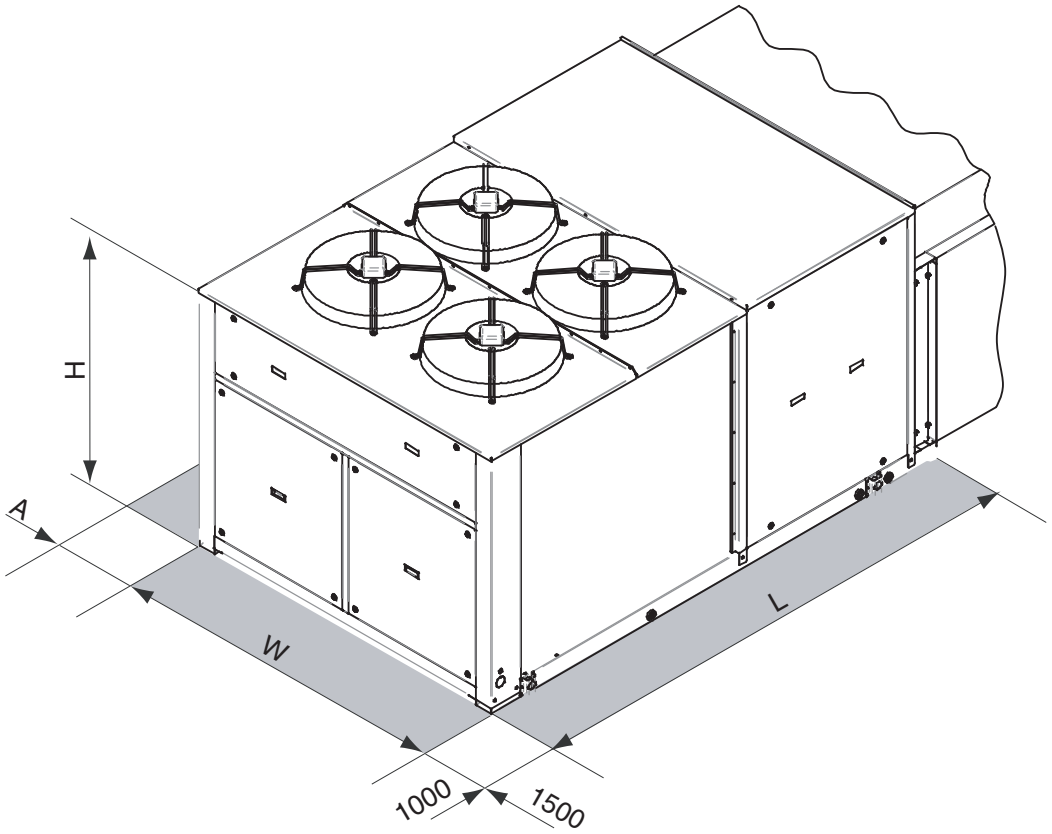
The unit is managed by a microprocessor controller to which, through a board placed inside the electrical panel, all the electrical loads and the control devices are connected. The user interface, accessible removing the protection panel of the electrical board, is realized by a display and two buttons that allow to view and, if necessary, modify all the operating parameters of the unit.

Are available, as accessories, a remote control, that reports all the functionalities of the user interface placed on the unit, or a remote thermostat.

The main functions available are :

- treated air temperature management (through set point adjustment)
- treated air humidity management (only with enthalpic free cooling option)
- treated air quality management (CO_2)
- thermal or enthalpic (option) free cooling
- external fan management by means of continuos rotational speed control (option)
- internal fan management
- return air fan management
- integrative heating sources management (electrical heater coil, hot water coil, gas heating module)
- defrost cycle management
- dampers management (outdoor air, return air and expulsion air)
- compressor and internal fan operating hours recording
- serial communication through Modbus protocol
- remote on-off
- remote cooling-heating
- active alarms visualization
- general alarm digital output

DIMENSIONS AND MINIMUM OPERATING AREA



		35.1	45.1	55.1	70.2	90.2	110.2	140.2	180.2	220.2	
L	VB	2900	2900	2900	3100	3100	3100	3900	3900	3900	mm
	VB with gas heating module	3830	3830	3830	4300	4300	4300	5100	5100	5100	mm
	V1 e V2	4000	4000	4000	4200	4200	4200	5000	5000	5000	mm
	V1 e V2 with gas heating module	4930	4930	4930	5400	5400	5400	6200	6200	6200	mm
	V3	4800	4800	4800	5000	5000	5000	6600	6600	6600	mm
	V3 with gas heating module	5730	5730	5730	6200	6200	6200	7800	7800	7800	mm
W		1400	1400	1400	2000	2000	2000	2200	2200	2200	mm
H		1600	1600	1600	1600	1600	1600	2350	2350	2350	mm
A		1000	1000	1000	1500	1500	1500	1500	1500	1500	mm

> Main specification of heat recovery terminal units

UT REC / UT REC C
UT REC R
UT REC DP / UT REC DP F
RECOVERY EFFICIENCY IN WINTER MODE
RECOVERY EFFICIENCY IN SUMMER MODE

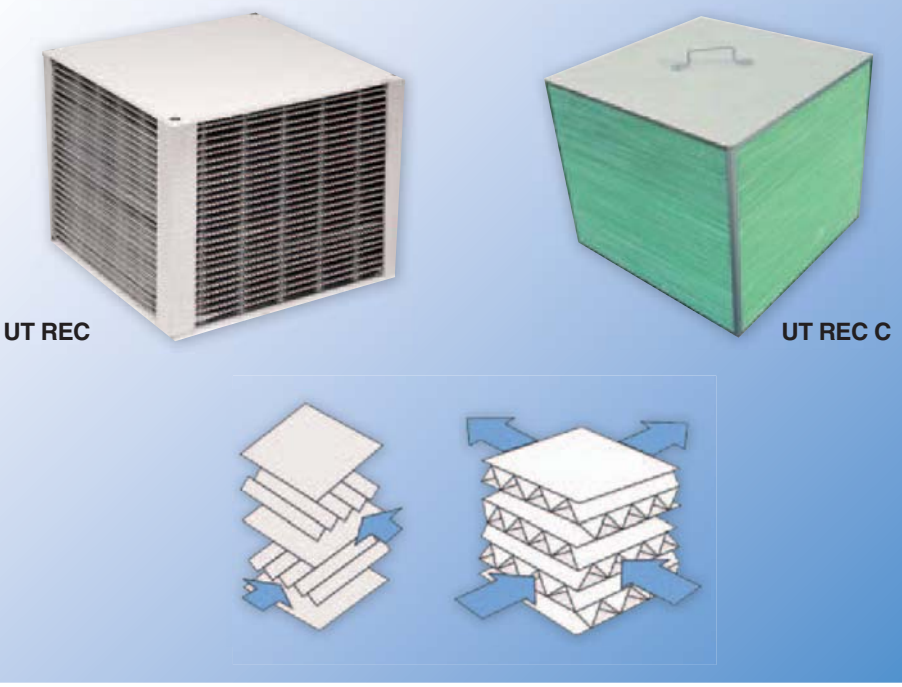
FERROLI offers a complete range of heat recovery terminal units, to meet all system requirements.

> UT REC

available in two versions:

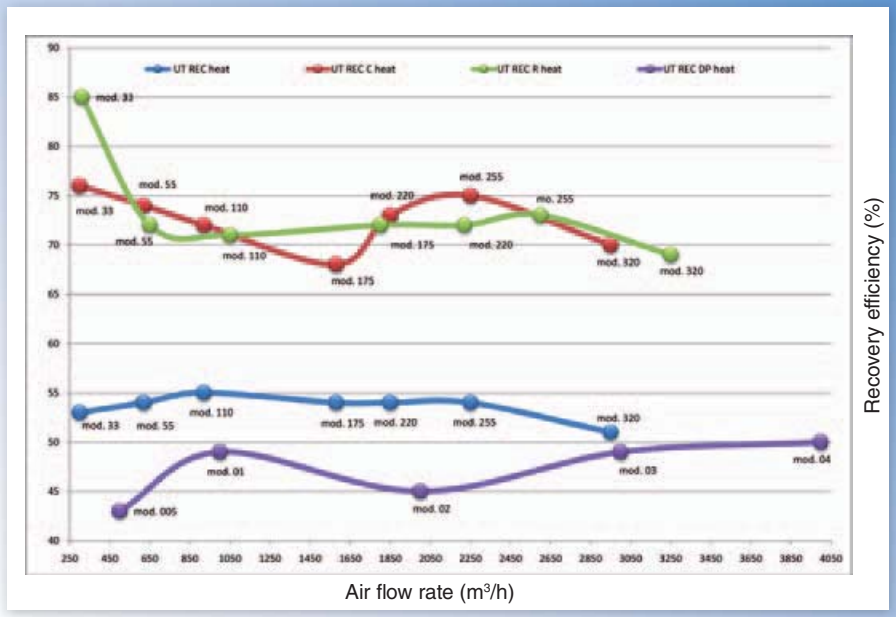
UT REC with static heat recuperator in ALUMINIUM; enables recovery of the sensible heat otherwise lost.

UT REC C with PAPER PACK static heat recuperator: in special treated self-extinguishing stiff paper. The structure consists of a pair of sheets with an interposed corrugated third sheet separating these and creating a triangular air channel (drawing opposite). The paper sheets are permeable to steam, enabling recovery of the sensible as well as latent heat. In this way limited air side pressure losses are obtained, as well as a high exchange area and therefore higher recovery are achivied to values higher than 55-60%.



> UT REC R

Available with a high efficiency rotary-type heat recuperator.
Made in aluminium with a hygroscopic surface.
Exchange efficiency is guaranteed by the quality of the seals that isolate the two air flows.
The rotor consists of alternate flat and corrugated aluminium sheets wrapped around each other.
This creates a "honeycomb" structure in whose channels the two air flows run in an opposed direction.
The surface, made porous by special treatments, allows the humidity to be absorbed, enabling recovery of the sensible and latent heat of the expelled air, resulting in recovery efficiency values above 85-90%.



>>> INDUSTRIAL AIR-CONDITIONING <<<

Ferroli
i migliori gradi centigradi

> UT REC DP and DP F

Available with static-type heat recuperator in ALUMINIUM enabling recovery of the sensible heat otherwise lost. These units have a structure that enables outdoor installation, after application of a covering and suitable positioning.

The **UT REC DP** range features compact sizes < and the available accessories include a 2-row exchanger for heating only (acc. fitted).

The **UT REC DP F** range comes complete with a 4-row exchanger for cooling the air coming out the recovery exchanger. It therefore has larger dimensions than the previous version to enable lower speeds through the coil.

NB: The unit is designed to integrate the room air and ensure its change in a system. Cooling only, and not conditioning, is guaranteed.

> RECOVERY EFFICIENCY IN WINTER MODE

The graphs clearly show how recovery efficiency varies according to the period of operation and even of the type of recuperator.

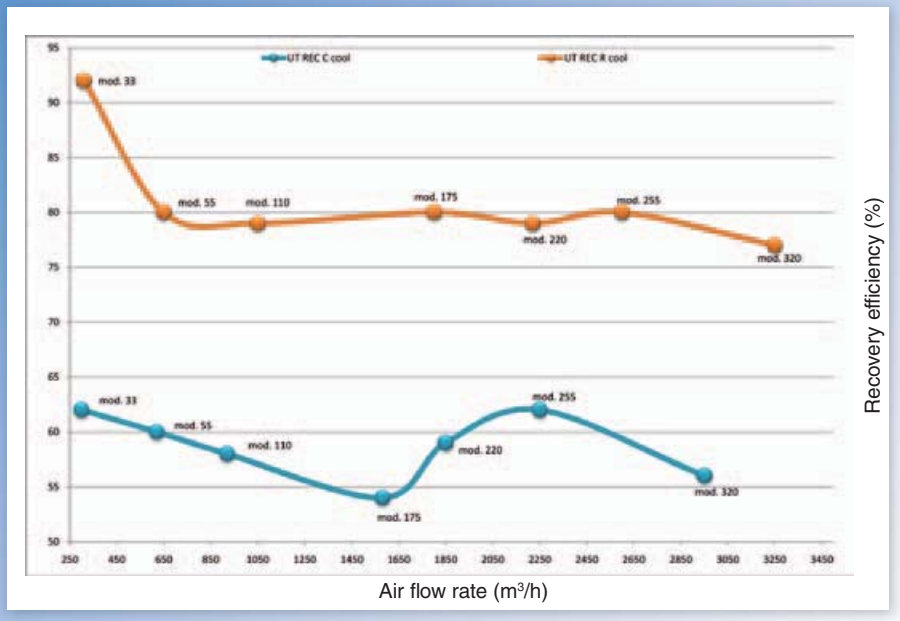
Graph A shows how recovery efficiency increases according to the type of exchanger.

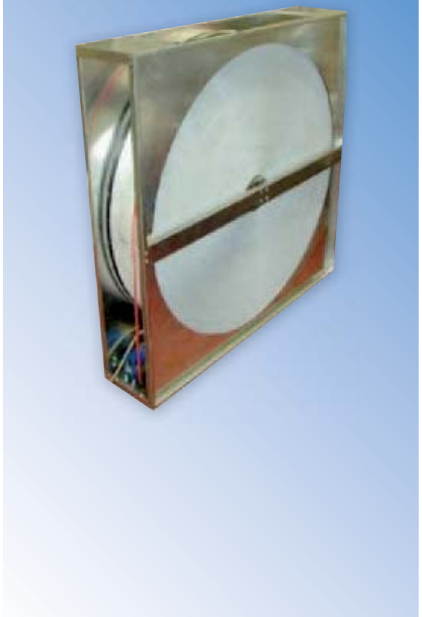
Reference conditions:
Outside Air T=- 5°C 80% R.H.
Room air T= 20°C 50% R.H.
max. speed.

> RECOVERY EFFICIENCY IN SUMMER MODE

In particular, Graph B shows how rotary heat recovery exchangers and paper pack heat recovery exchangers make an important contribution to energy-saving even in summer mode and therefore all year.

Reference conditions:
Outside Air T= 32°C 50% R.H.
Room air T= 26°C 50% R.H.
max. speed.





> UT REC

SINGLE-PANEL HEAT RECOVERY UNITS

Units Series

Unit type

UT REC with recuperator in aluminium

UT REC C with paper pack recuperator

Unit specifications

- STRUCTURE: in strong aluzink sheet, lined with a suitable thickness of polyethylene and polyester to prevent heat loss, condensation and for increased soundproofing.
- CONDENSATE TRAY: in ABS, it is placed under the recuperator to collect condensate during summer and winter operation.
- AIR FILTER: situated inside the unit, it is easily removed from side and made from recycable materials, cleanable by washing.
- FAN MOTOR: a directly coupled type, the unit is equipped with a three-speed motor/fan assembly (single-speed for models 33 and 55) with internal thermal protection and startup capacitor always on, with wheel statically and dynamically balanced to reduce noise and vibration.
- ELECTRIC BOARD: situated on the unit, it consists of a relay power board to facilitate electrical connections and the control of fans with possible remote controls (not present for models 33 and 55).
- HEAT RECUPERATOR:

ALUMINIUM: static-type, it only enables recovery of the sensible heat otherwise lost (picture below).

WITH PAPER PACK: Static-type, it enables recovery of the sensible heat and latent heat. In this way a high efficiency is obtained.

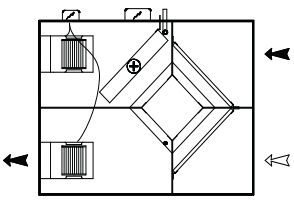
Main accessories/Options

Servo motor for damper motorisation
Pressure switch for dirty filter signalling
Antifreeze thermostat
Hot water post-heating coil providing for the use of a 2-row coil.
External section with 3-row water coil for heating or cooling
Equalising damper with fins, arranged for servo control.
1-stage electric post-heating section.
Remote COM3 switch
Remote PE+PC thermostat
Single-phase speed variator

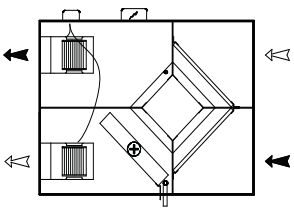
CONFIGURATION

Depending on the configuration of the plant duct are available four possible configuration of recovery.

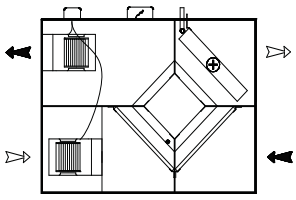
CONFIGURATION 01



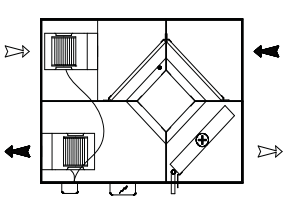
CONFIGURATION 02



CONFIGURATION 03



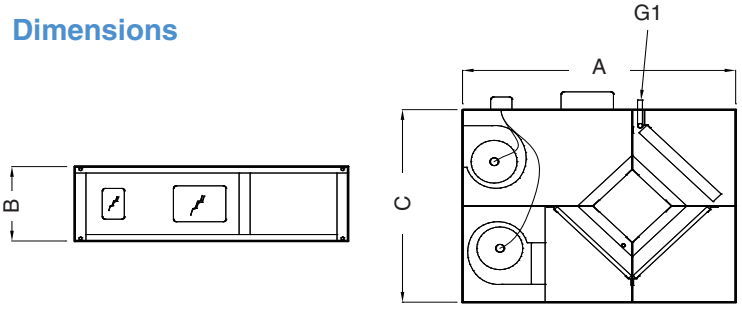
CONFIGURATION 04



ESP
MAND

Supply fan	33	55	110	175	220	255	320	410	
Power supply				230 / 1 / 50				400 / 3 / 50	V/ph/Hz
Air flow rate	300	620	920	1580	1850	2250	2950	3920	m³/h
External static pressure	45	55	65	70	77	80	100	100	Pa
Sound pressure level 1,5m	40	48	47	46	50	48	50	54	dB(A)
max. input current	0,75	1,8	2,2	4,4	4,8	5,2	8,3	5	A
n° speed	3	3	3	3	3	3	3	1	n°
Performance UT-REC	33	55	110	175	220	255	320	410	
Recovery type/ Recuperator				cross flow and static / Aluminum plate exchanger					
Winter									
P.A.I. (Room air)	20	20	20	20	20	20	20	20	°C
P.A.E. (Ambient air)	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	°C/%
MAND (Fresh air)	8,3	8,5	8,8	8,15	8,5	8,5	7,8	9,3	°C
REC (Heating recovery capacity)	1,50	3,10	4,70	7,90	9,20	11,2	13,9	20,6	kW
Efficiency recovery (sensible/latent)	53	54	55	54	54	54	51	57	%
Performance UT-REC C	**33**	**55**	**110**	**175**	**220**	**255**	**320**	**410**	
Recovery type/ Recuperator				cross flow and static / hygroscopic paper pack					
Winter									
P.A.I. (Room air)	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	°C
P.A.E. (Ambient air)	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	°C
MAND (Fresh air)	14,0/39,5	13,5/39,7	13,0/36,7	12,0/42,0	13,3/49,4	13,8/48,8	12,5/50,2	11,0/47,6	°C/%
REC (Heating recovery capacity)	2,60	5,20	7,20	12,2	16,9	21,1	25,6	30,8	kW
Efficiency recovery (sensible/latent)	76/62	74/60	72/56	68/55	73/65	75/67	70/62	66/56	%
Summer									
P.A.I. (Room air)	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	°C/%
P.A.E. (Ambient air)	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	°C/%
MAND (Fresh air)	28,3/51,2	28,4/51,2	28,5/51,5	28,8/50,8	28,5/50,5	28,3/50,5	28,6/51,0	28,9/50,9	°C/%
REC (Heating recovery capacity)	1	2	2,9	4,7	6,1	7,9	9,1	11,3	kW
Efficiency recovery (sensible/latent)	62/60	60/58	58/55	54/53	59/59	62/62	56/55	52/51	%
Accessories									
BW	**33**	**55**	**110**	**175**	**220**	**255**	**320**	**410**	
Coil type	N.A.				Cu/Al				
n° rows			2	2	2	2	2	2	n°
Coil connection			3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"
Winter									
Inlet/outlet air temperature			8,0 / 33,4	8,0 / 30,8	8,0 / 30,2	8,0 / 33,2	8,0 / 31,3	8,0 / 29,7	°C
Water temperature IN/OUT			70 / 60	70 / 60	70 / 60	70 / 60	70 / 60	70 / 60	°C
Heating capacity			8,2	12,2	14,4	20,3	24,2	29,9	kW
Air pressure drop			25	32	35	24	36	36	Pa
BFW	**33**	**55**	**110**	**175**	**220**	**255**	**320**	**410**	
Coil type	N.A.				Cu/Al				
n° rows			3	3	3	3	3	3	n°
Coil connection			3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"
Winter									
Inlet/outlet air temperature			8,0 / 45	8,0 / 43,4	8,0 / 45	8,0 / 46,5	8,0 / 43,7	8,0 / 41,5	°C
Water temperature IN/OUT			70 / 60	70 / 60	70 / 60	70 / 60	70 / 60	70 / 60	°C
Heating capacity			12	19,6	23,7	30,5	37	46,2	kW
Air pressure drop			28	41	39	27	40	53	Pa
Summer									
Inlet air / UR			30 / 50	30 / 50	30 / 50	30 / 50	30 / 50	30 / 50	°C / %
Outlet air temperature			19,2	18,9	18,2	17,3	18,3	19,1	°C
Water temperature IN/OUT			7 / 12	7 / 12	7 / 12	7 / 12	7 / 12	7 / 12	°C
Cooling capacity total/sensible			5/3,3	8,8/5,8	11,1/7,2	14,7/9,4	17,4/11,4	20,9/13,9	kW
Air pressure drop			38	50	53	45	48	60	Pa

Dimensions



Mod.	33	55	110	175	220	255	320	400	
A	990	990	1140	1300	1380	1650	1650	1750	mm
B	290	290	410	500	500	600	600	600	mm
C	750	750	860	860	960	1230	1230	1230	mm
G1 BW			3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"
Connection BFW			3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"

> UT REC R

SINGLE PANEL ROTARY HEAT RECOVERY UNITS

Units Series

Unit type

UT REC R Horizontal unit

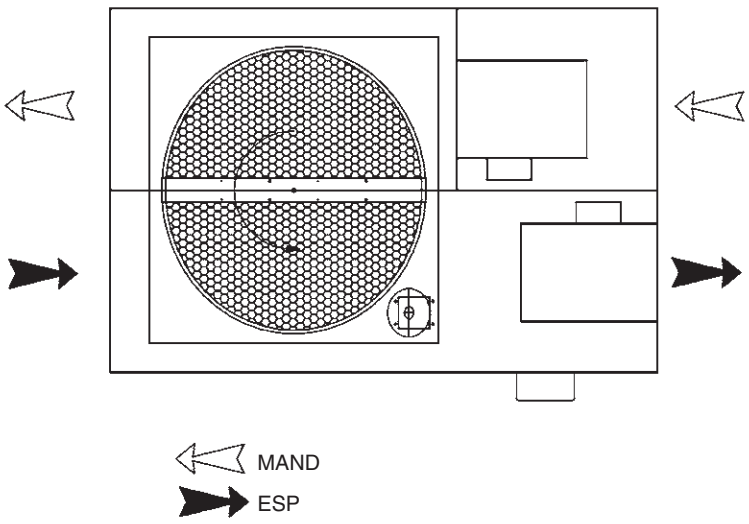
Unit specifications

- STRUCTURE: in strong aluzink sheet, lined with polyethylene and polyester sheets of 20 mm average thickness to prevent heat loss, condensation and for increased soundproofing.
- HEAT RECUPERATOR: high-efficiency rotary type, enabling recovery of the sensible and latent heat of the expelled air. Complete with condensate tray.
- AIR FILTER: situated inside the unit, it is easily removed from side and made from recyclable materials, cleanable by washing (efficiency EU3).
- FAN MOTOR: a directly coupled type, the unit is equipped with a three-speed fan/motor assembly with internal thermal protection and startup capacitor always on, with wheel statically and dynamically balanced to minimise noise and vibration.
- ELECTRIC BOARD: situated on the unit, it consists of a relay power board to facilitate electrical connections and the control of fans and wheel motor with remote controls.

Main accessories/Options

Servo motor for damper motorisation
Pressure switch for dirty filter signalling
Antifreeze thermostat
Hot water post-heating coil providing for the use of a 2-row coil.
External section with 3-row water coil for heating or cooling
Equalising damper with fins, arranged for servo control.
1-stage electric post-heating section.
Remote COM3 switch
Remote PE+PC thermostat
Single-phase speed variator

CONFIGURATION



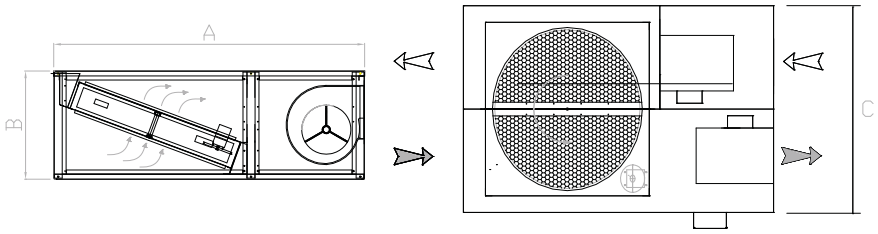
Supply fan	33	55	110	175	220	255	320	410	
Power supply				230 / 1 / 50				400 / 3 / 50	V/ph/Hz
Air flow rate	310	650	1050	1800	2220	2600	3250	4290	m³/h
External static pressure	50	65	80	130	100	110	125	130	Pa
Sound pressure level 1,5m	40	48	47	46	50	48	50	54	dB(A)
Motor input power	92	170	147	350	350	350	550	750	W
max. input current	1	2	2,5	4,8	5,2	5,6	8,7	5,4	A
n° speed / Poles	1/4	1/4	3/4	3/4	3/4	3/4	3/4	2/4	n°
Enclosure protection / Insulation class	44 / F	44 / F	44 / F	44 / F	44 / F	55 / F	44 / F	55 / F	IP
Performance UT-REC R	**33**	**55**	**110**	**175**	**220**	**255**	**320**	**410**	
Recovery type/ Recuperator				Hentalpic rotary / Aluminium hygroscopic					
Winter									
P.A.I. (Room air)	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	20 / 50	°C/%
P.A.E. (Ambient air)	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	-5/80	°C/%
MAND (Fresh air)	16,3 / 52,5	13 / 57,6	12,7 / 58,5	13 / 57,6	13,0 / 58,3	13,1 / 57,2	12,3 / 60,5	10,8/67,4	°C/%
REC (Heating recovery capacity)	3,6	6,3	10	17,4	21,5	25,2	30,5	37,8	kW
Efficiency recovery (sensible/latent)	85/82	72/69	71/68	72/69	72/69	73/69	69/67	63/63	%
Summer									
P.A.I. (Room air)	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	26 / 50	°C/%
P.A.E. (Ambient air)	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	°C/%
MAND (Fresh air)	26,5 / 56,0	27,2 / 53,7	27,3 / 53,4	27,2 / 53,7	27,3 / 53,4	27,2 / 53,7	27,4 / 53,1	27,8/51,9	°C/%
REC (Heating recovery capacity)	1,3	2,5	4	6,9	8,6	10	12,4	15,7	kW
Efficiency recovery (sensible/latent)	92/73	80/69	79/69	80/69	79/69	80/69	77/68	70/66	%

Accessories

BFW	33	55	110	175	220	255	320	410	
Coil type	N.A.				Cu/Al				
n° rows			3	3	3	3	3	3	n°
Coil connection			3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"
Winter									
Inlet/outlet air temperature			12 / 45,2	12 / 43,2	12 / 43,8	12 / 46,5	12 / 43,9	12 / 42,4	°C
Water temperature IN/OUT			70 / 60	70 / 60	70 / 60	70 / 60	70 / 60	70 / 60	°C
Heating capacity			10,8	19,2	22,9	30,8	38,1	45,4	kW
Air pressure drop			28	41	39	27	40	53	Pa
Summer									
Inlet air / UR			30 / 50	30 / 50	30 / 50	30 / 50	30 / 50	30 / 50	°C / %
Outlet air temperature			19,2	19,3	18,9	17,9	18,8	18,8	°C
Water temperature IN/OUT			7 / 12	7 / 12	7 / 12	7 / 12	7 / 12	7 / 12	°C
Cooling capacity total			4,7	9,8	12,2	15,7	20,5	22,1	kW
Cooling capacity sensible			3,3	6,5	8	10,2	13,3	14,7	kW
Air pressure drop			38	50	53	45	48	60	Pa

BE-R	33	55	110	175	220	255	320	410	
Power supply	230 - 1 - 50				400 - 3 - 50				V-ph-Hz
Power input	1,5	3	3	6	6	12	12	12	kW
n° steps	1	1	1	1	1	1	1	1	n°
Inlet air temperature	12	12	12	12	12	12	12	12	°C
Outlet air temperature	26,2	26,4	21,6	29,5	20,6	26,4	22,4	20,4	°C

Dimensions



Mod.	33	55	110	175	220	255	320	400	
A	1075	1075	1205	1400	1540	1720	1720	1720	mm
B	425	425	460	530	560	600	600	600	mm
C	750	750	860	860	960	1230	1230	1230	mm
G1 BW			3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"
Connection BFW			3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	"

> UT REC DP

DOUBLE PANEL HEAT RECOVERY UNITS

Units Series

Unit type

UT-REC DP H	**Horizontal unit**
UT-REC DP V	**vertical unit**

Unit specifications

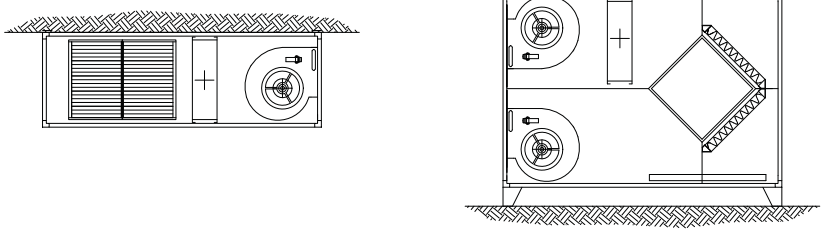
- SUPPORT STRUCTURE: in strong extruded aluminium profiles and double panel in galvanised steel sheet inside and prepainted galvanised sheet steel outside, with thermal insulation and soundproofing in hot-injected polyurethane foam, thick. 23 mm.
- HEAT RECUPERATOR: static-type in aluminium enabling recovery of the heat otherwise lost. Efficiency is guaranteed by the quality of the insulation.
- CONDENSATE TRAY: in sheet steel, it is placed under the recuperator for the condensate in summer mode.
- AIR FILTER: made with pleated filter cells, class G4 (ponderal eff. 90.1%), metal frame and electrowelded screen, easily removed from side.
- FAN MOTOR: a directly coupled type, three-speed with internal thermal protection and startup capacitor always on, with wheel statically and dynamically balanced to minimise noise and vibration.

Main accessories/Options

Hot water post-heating coil providing for the use of a 2-row coil.
1-stage electric post-heating section.
Safety microswitch
Speed selector CV3
Protection roof

Layout

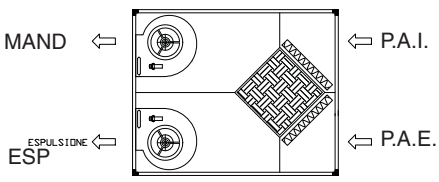
Unit are available in horizontal and vertica layout



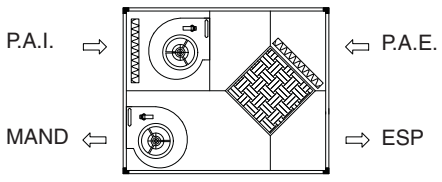
Configuration

Depending on the configuration of the plant duct are available six possible configuration of recovery.

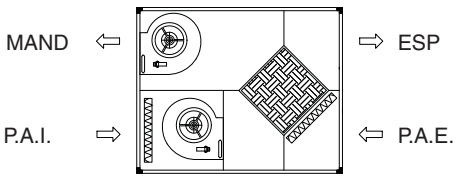
CONFIGURATION 01



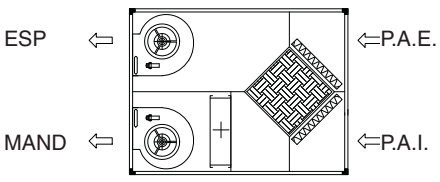
CONFIGURATION 02



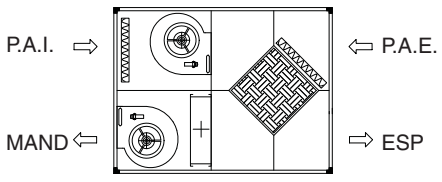
CONFIGURATION 03



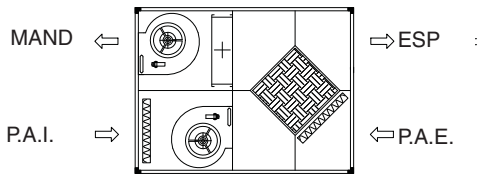
CONFIGURATION 04



CONFIGURATION 05



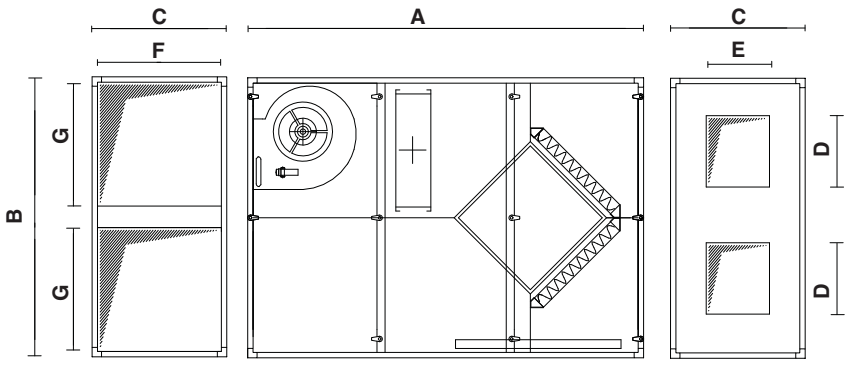
CONFIGURATION 06



Note: Always indicate layout and configuration when ordering

Supply fan	005	01	02	03	04	
Air flow rate	500	1.000	2.000	3.000	4.000	m³/h
External static pressure	80	122	105	153	130	Pa
Power input	45	184	350	550	736	W
n° speed	3	3	3	3	3	n°
Return fan	**005**	**01**	**02**	**03**	**04**	
Air flow rate	500	1.000	2.000	3.000	4.000	m³/h
External static pressure	77	119	93	140	120	Pa
Power input	45	184	350	550	736	W
n° speed	3	3	3	3	3	n°
Performance UT REC DP	**005**	**01**	**02**	**03**	**04**	
Recovery type	cross flow and static type					
Recuperator	High efficiency aluminium plate exchanger					
P.A.I. (Room air)	22 / 50	22 / 50	22 / 50	22 / 50	22 / 50	°C/%
ESP (Exhaust air)	11,0 / 89	9,8 / 93	10,5 / 91	9,7 / 93	11,0 / 87	°C/%
P.A.E. (Ambient air)	-5 / 80	-5 / 80	-5 / 80	-5 / 80	-5 / 80	°C/%
MAND (Fresh air)	8,3 / 28	10,2 / 25	9,1 / 27	10,4 / 25	8,7 / 28	°C/%
REC (Heating recovery capacity)	2,2	5,1	9,5	15,5	18,4	kW
Efficiency recovery (sensible/latent)	49	57	52	57	51	%
Accessories BW	**005**	**01**	**02**	**03**	**04**	
Coil type	Cu/Al					
n° rows	2	2	2	2	2	n°
Coil connection	1/2 “	3/4”	3/4”	3/4”	1”	ø
Inlet air / UR	8,4 / 28	10,0 / 25	9,1 / 27	10,0 / 25	8,7 / 28	°C/%
Outlet air / UR	27,5 / 8	31,9 / 11	25,4 / 13	25,6 / 13	24,9 / 15	°C/%
Water temperature IN/OUT	70 / 60	70 / 60	70 / 60	70 / 60	70 / 60	°C
Heating capacity	3,2	7,4	11,4	15,8	21,8	kW
Air pressure drop	10	17	45	53	55	Pa
Accessories BE	**005**	**01**	**02**	**03**	**04**	
Power supply	400 - 3 - 50					
Power input	2,5	5	10	15	15	kW
n° steps	1	1	2	2	2	n°

Dimensions



Mod.	UM	005	01	02	03	04
A	mm	1290	1310	1310	1660	1840
B	mm	1040	1040	1040	1250	1400
C	mm	400	500	500	600	650
D	mm	135	205	265	295	395
E	mm	225	235	235	265	341
F	mm	320	460	460	560	570
G	mm	380	380	380	470	555

> UT REC DP F

DOUBLE PANEL HEAT RECOVERY UNIT WITH 4 ROWS EXCHANGER

Units Series

Unit type

UT-REC DP F Horizontal unit

Unit specifications

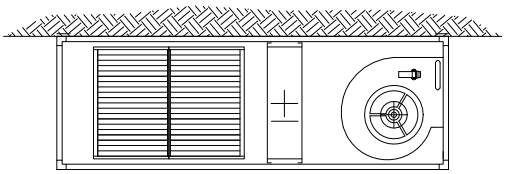
- SUPPORT STRUCTURE: in strong extruded aluminium profiles and double panel in galvanised steel sheet inside and prepainted galvanised steel sheet outside, with thermal insulation and soundproofing in hot-injected polyurethane foam, thick. 23 mm.
- HEAT RECUPERATOR: static-type in aluminium enabling recovery of the heat otherwise lost. Efficiency is guaranteed by the quality of the insulation.
- CONDENSATE TRAY: in steel sheet, it is placed under the recuperator for the condensate in summer mode.
- AIR FILTER: made with pleated filter cells, class G4 (ponderal eff. 90.1%), metal frame and electrowelded screen, easily removed from side.
- FAN MOTOR: a directly coupled type, three-speed with internal thermal protection and startup capacitor always on, with wheel statically and dynamically balanced to minimise noise and vibration.
- HEAT EXCHANGER: made with copper pipes arranged in staggered rows to increase heat exchange and aluminium fins locked by mechanical expansion of the pipes, with 4 rows for air conditioning and heating.

Main accessories/Options

Single-phase speed variator
Safety microswitch
Speed selector CV3
Protection roof

Layout

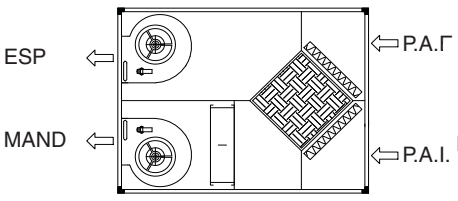
Unit are available in horizontal layout



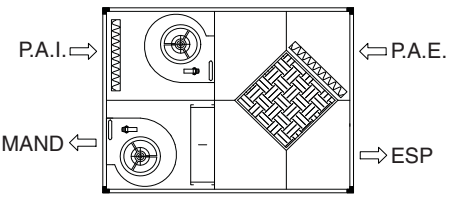
Configuration

Depending on the configuration of the plant duct are available three possible configuration of recovery.

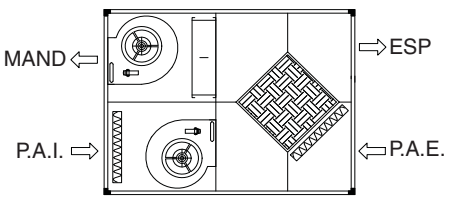
CONFIGURATION 01



CONFIGURATION 02

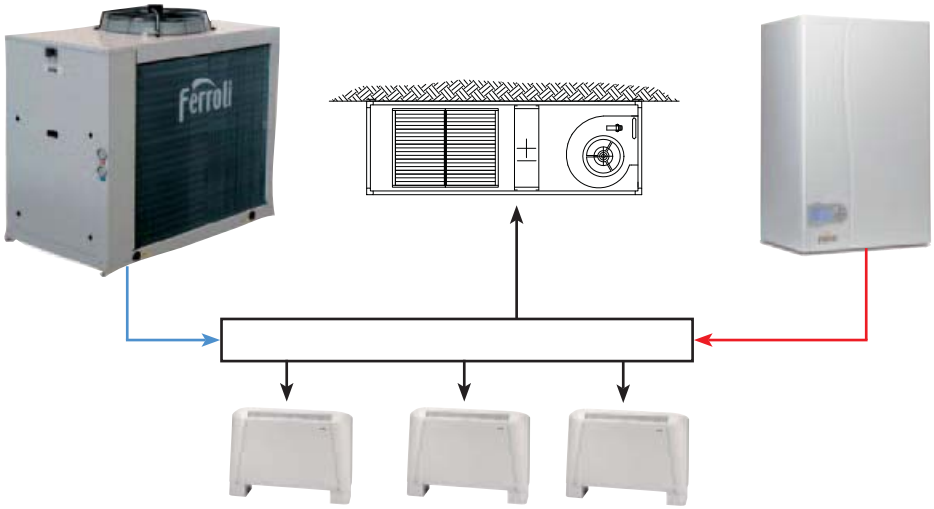


CONFIGURATION 03



Note: Always indicate configuration when ordering

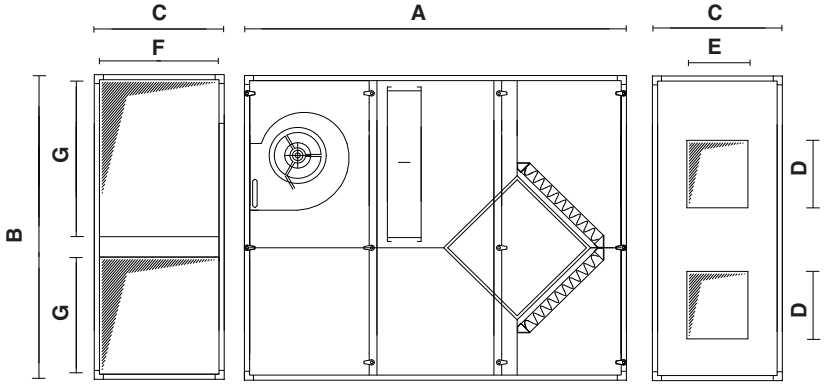
Supply fan	005	01	02	03	04	
Air flow rate	500	1.000	2.000	3.000	4.000	m³/h
External static pressure	55	155	75	95	65	Pa
Power input	45	350	550	550	1.100	W
n° speed	3	3	3	3	1	n°
Return fan	**005**	**01**	**02**	**03**	**04**	
Air flow rate	500	1.000	2.000	3.000	4.000	m³/h
External static pressure	90	116	125	142	104	Pa
Power input	45	184	550	550	1.100	W
n° speed	3	3	3	3	1	n°
Performance UT REC DP F	**005**	**01**	**02**	**03**	**04**	
Recovery type	cross flow and static type					
Recuperator	High efficiency aluminium plate exchanger					
P.A.I. (Room air)	27 / 48	28 / 50	28 / 50	28 /50	28 / 50	°C/%
ESP (Exhaust air)	29,4 / 45	29,9 / 44	29,8 / 44	29,9 / 44	30 / 44	°C/%
P.A.E. (Ambient air)	32 / 50	32 / 50	32 / 50	32 / 50	32 / 50	°C/%
MAND (Fresh air)	30 / 57	30 / 55	30 / 55	30 / 55	30 / 56	°C/%
REC (Heating recovery capacity)	0,3	0,7	1,2	2	2,7	kW
Efficiency recovery (sensible/latent)	43	49	45	49	50	%
Performance 4R coil	**005**	**01**	**02**	**03**	**04**	
Coil type	Cu/Al					
n° rows	4	4	4	4	4	n°
Coil connection	1/2 “	3/4”	3/4”	1”	1”	ø
Inlet air / UR	30 / 57	30 / 55	30 / 55	30 / 55	30 / 56	°C/%
Outlet air / UR	16,4 / 97	18,8 / 94	19,1 / 92	18,9 / 92	18,5 / 93	°C/%
Water temperature IN/OUT	07/12	07/12	07/12	07/12	07/12	°C
Cooling capacity	4	5,5	11,4	17,1	24,8	kW



NB: For correct operation of the unit in heating, maximum delivery water temperatures up to T=50°C are acceptable. Therefore connection to a condensing-type boiler, as indicated in the diagram opposite, is advisable. If the unit is connected to a conventional boiler, the use of a 3-way valve with adjustment on the temperature of delivery to the system is indispensable.

NB: The unit is designed to integrate the primary air and therefore guarantee the air change in an existing system. It only guarantees cooling, and not conditioning (see example above).

Dimensions



Mod.	UM	005	01	02	03	04
A	mm	1290	1540	1540	1790	2040
B	mm	1040	1040	1400	1790	2040
C	mm	400	500	500	600	650
D	mm	135	205	265	295	395
E	mm	225	235	235	265	341
F	mm	320	420	420	520	570
G	mm	380	380	380	640	640

> EOLO
EXHAUST AIR UNITS

Units Series

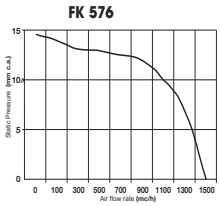
Unit type
EOLO FK direct drive

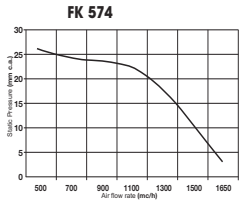
Unit specifications

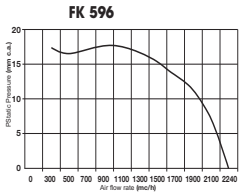
- CONSTRUCTION CHARACTERISTICS: in aluzink sheet, with soundproofing interposed in the unit, guaranteed by an adequate thickness of polyester.
- ELECTRIC FANS: the fans are dual-intake centrifugal type with statically and dynamically balanced wheels. EOLO FK Series 1 models have centrifugal electric fans with motor directly coupled. Vibration dampers are interposed between the structure and the fan to attenuate the transmission of any vibrations. The working temperature must be between -20°C and +40°C.

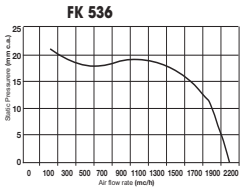
Main accessories/Options

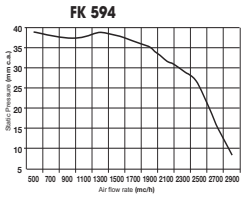
Single-phase speed variator
Three-phase speed variator
Protection roof
Bird net shroud
Overpressure damper
Support feet

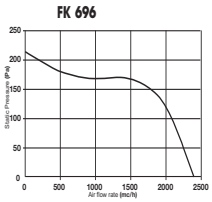


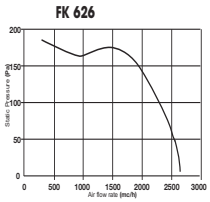


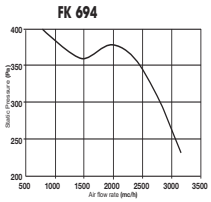


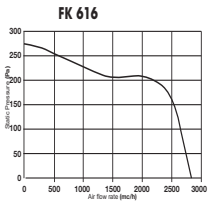


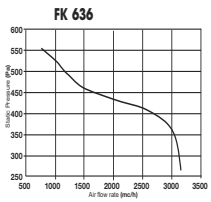


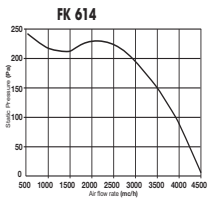


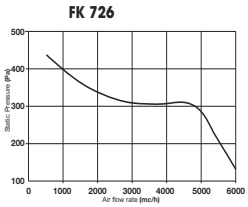


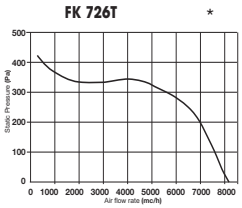




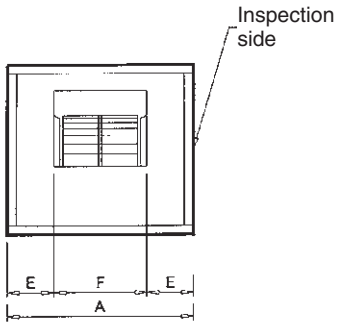






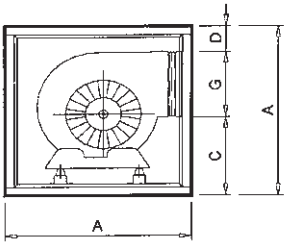


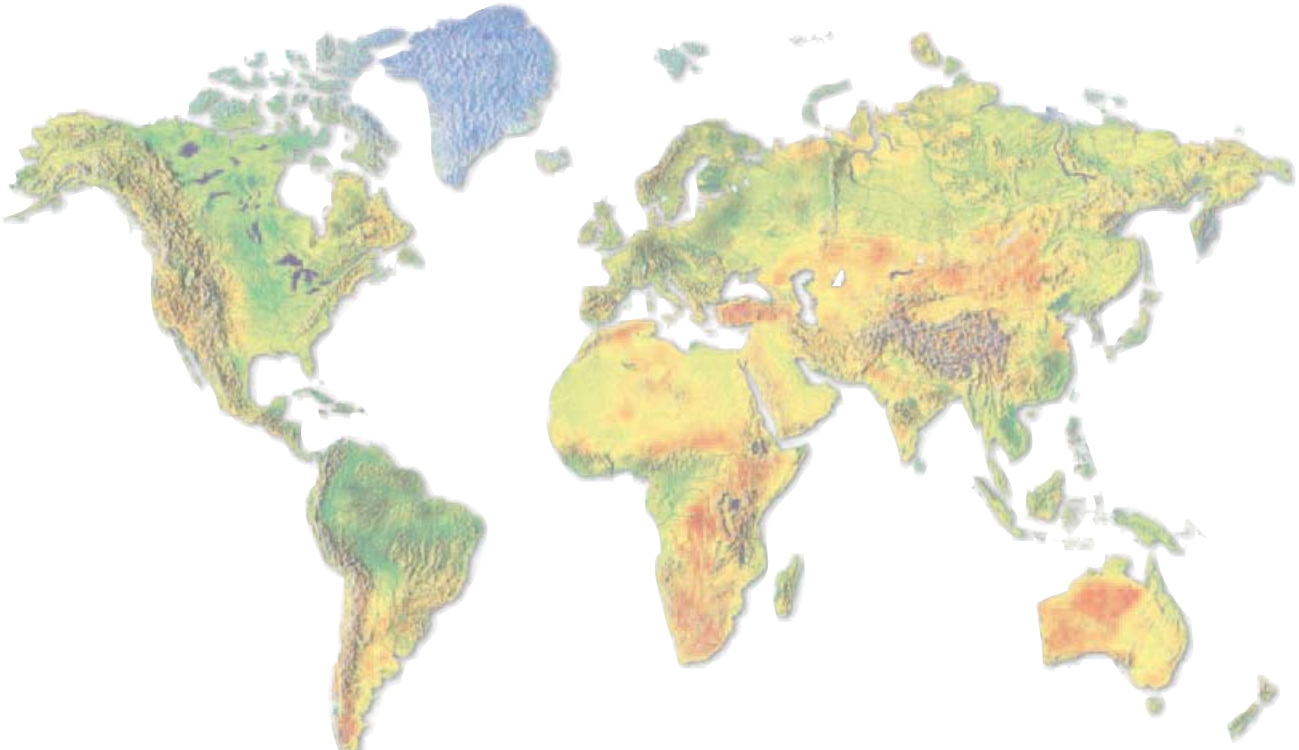
* three-phases unit



Dimensions

Mod.	UM	FK 576-574	FK 596-536-594	FK 696-626-694	FK 616-636-614	FK 726-726T*
A	mm	500	500	600	600	700
C	mm	171	179	179	208	234
D	mm	111	49	149	93	115
E	mm	129	129	146	129	147
F	mm	242	242	308	342	406
G	mm	218	272	272	299	351
Weight	kg	25-30	28-33	35-40	40-45	60





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