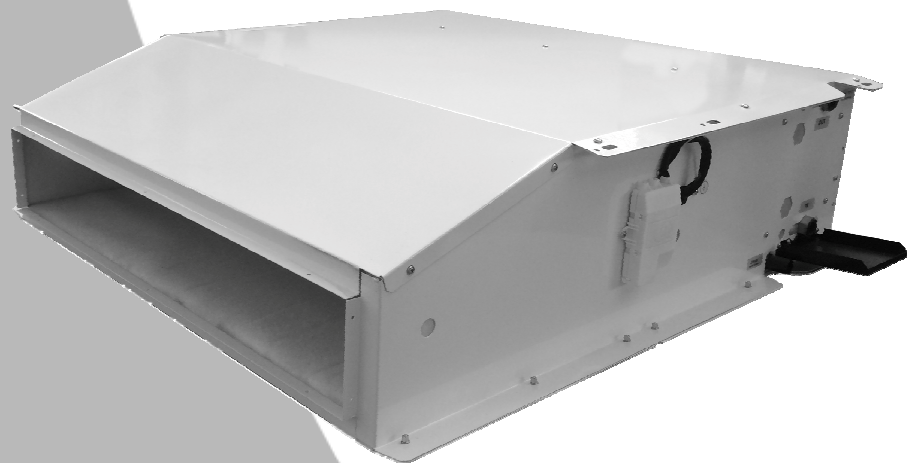


SERIES
LNH

TECHNICAL MANUAL



Low Noise Hotel
FAN COILS



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1-INTRODUCTION

The units of the LNHseries are designed for air conditioning in the residential and retail sectors, for indoor installation not exposed to freezing or otherwise extreme temperatures, in non-dusty, non-explosive and non-aggressive environments (in particular with regard to the aluminium fins and the galvanized coating and/or paint finishing of the metal plates). The manufacturer may not be held liable for the consequences of incorrect use.

The units are designed to be ducted. Do not install them without ducting, as this might cause unit malfunction or damage. The manufacturer may not be held liable for the consequences of incorrect use.

The units are designed to minimise noise emissions, therefore, they are particularly suitable for installation in hotel rooms.

The basic unit consists of a filter, a heat exchange section (coil and condensation tray), a fan section (motor and fan) and an integrated silencer. A wide range of optional sections is also available as accessories (see the dedicated chapter), including optional filters, plenums and hydraulic accessories.

The LNH units are available with traditional three-speed motor (AC) and with low consumption motor (EC).

2-APPLICATION LIMITS

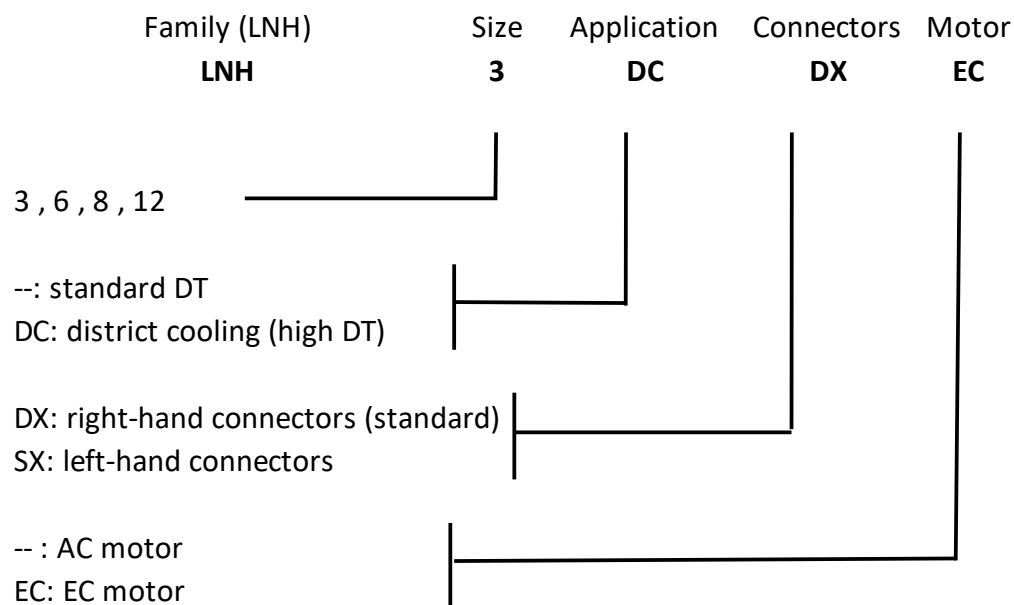
Electrical power supply	230V / 50 ÷ 60Hz (1)
Coil inlet water temperature	3 / 70°C
Maximum air delivery temperature (2)	50°C
Return air temperature	10 / 50°C

(1) +/-10% with respect to the nominal supply voltage. All technical data in this manual refer to 230V / 50Hz.

(2) In the case of water with a delivery flow temperature higher than 50°C, check the air delivery temperature using the TESI10 selection software.

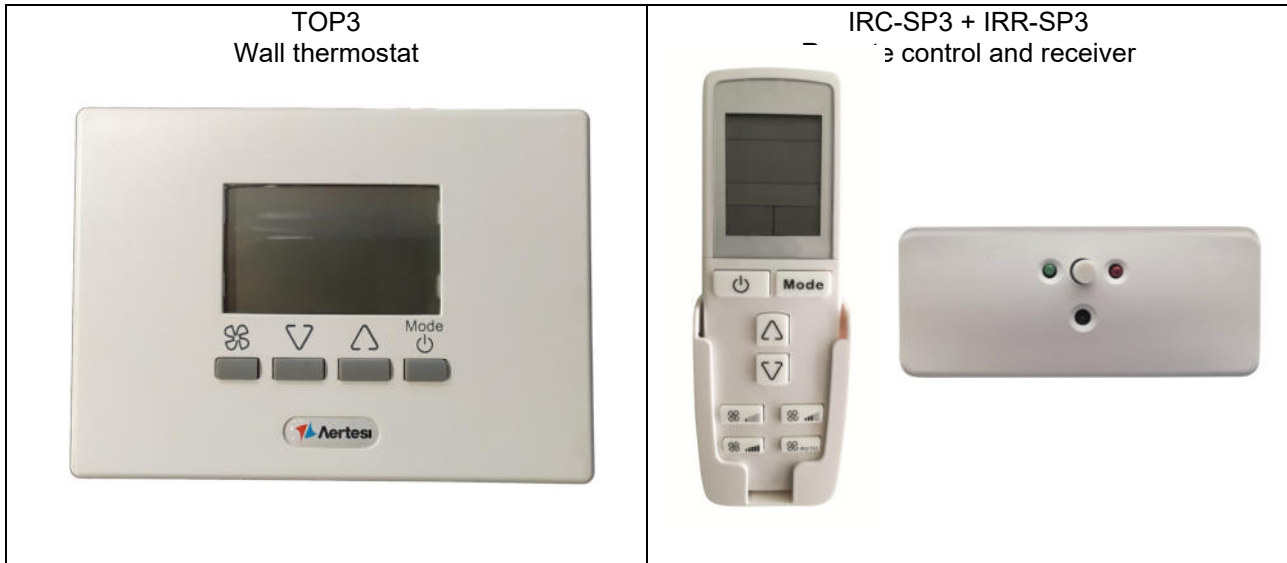
The unit should only operate at the extremes of the above application limits briefly because operation at limit conditions for prolonged periods can reduce the normal lifetime of the unit's components.

3-CODES INTERPRETATION KEY



4-CONTROL

The units of the LNH series can be controlled by wall-mounted thermostats or by remote control. The remote control infrared receiver, with integrated temperature probe, is wall-mounted just like a common thermostat.



The use of thermostats with wall temperature probes, instead of machine on-board temperature probes, is recommended, because this ensures more accurate temperature detection thanks to better positioning of the temperature sensor.

The controls for units with AC motors must have contacts for the three motor speeds sized for at least 1A of inductive load, i.e. the highest power draw from the motor.

Direct connection (in parallel) of more than one unit with AC motor to the same control or to the same relay board is strictly not permitted. In this case, one relay board must be used for each unit (or a single relay board with dedicated contacts for each unit) such as the ETBN-2.5A board.

The controls for units with EC motor must have an output with 0/10V voltage signal sized to provide at least 0.2mA of current for each connected motor (the impedance of the driver's 0/10V input being 50kOhm). It is possible to connect several units with EC motor in parallel to the same control, until the maximum current rating of that control is reached, without interposing other boards.

Using the SC3 accessory, it is also possible to control the EC motor units using a traditional three-speed AC motor control.

For information on the proposed and approved controls for these units, please refer to the dedicated literature. Should you wish to use control types other than those proposed and approved by AERTESI, the manufacturers will not be held liable for any malfunctions caused by them.

5-TECHNICAL SPECIFICATIONS

FRAME: made of 0.80mm thick galvanized sheet steel. This rugged structure prevents the propagation of vibration and comes complete with ceiling fixing brackets.

ACCESSIBILITY: the filter can be removed from the bottom, without any tools being needed (if some accessories are installed at the intake end, please refer to the specific chapter of the manual for more information). Accessibility to internal components is obtained by removing the lower panel. The fan unit plate can be removed without having to disconnect the ducting. The hydraulic connectors are supplied as standard on the right side, and optionally on the left (viewed from in front of the fan-coil); the electrical panel is on the same side to improve accessibility.

FILTER: ISO COARSE class with ePM10 efficiency <50% (ISO 16890), 6mm thickness, in washable synthetic material. Other types on request.

FAN UNIT: the fans have forward curved blades and dual intake centrifuges directly coupled to the motor. The auger is made of galvanized steel or ABS, the fan is in aluminium or ABS (depending on the version and size of the motor). The motor and fans are balanced after installation on the fan unit plate. The motor is mounted on rubber vibration damping mounts, degree of protection IP20 and has three speeds (AC motor) or a 0-10V control (EC motor).

COIL: made from 3/8" diameter copper tubing (5/16" diameter for District Cooling special coils) with high efficiency corrugated aluminium fins and with manual air venting valve in the upper part of the manifold. Nominal pressure PN8. Direct expansion coils are available on request.

CONDENSATE COLLECTION TRAY: made of galvanized steel sheet and painted to prevent the formation of rust. The drain pipe and the edges are welded to avoid leaks over time. The tray is externally insulated with thermal insulation and is installed to an angle in the direction of the drain pipe to avoid standing water.

INSULATION: the heat exchange unit and the tray are insulated with 3mm thick polyurethane, to prevent condensation on the structural metalwork. The fan and silencer section is insulated with 25mm thick textured polyurethane, fire reaction class HF1 according to the UL94 standard.

ELECTRICAL CONTROL PANEL: made of galvanized sheet steel or plastic and positioned on the same side with respect to the hydraulic connectors to improve accessibility. If the machine is equipped with a factory-installed control board (e.g. SP3), all the electrical parts of the fan coil (motor, valves, etc.) are pre-connected to the manufacturer's control. While if the machine is supplied ready to be connected to a wall-mounted control, the electrical devices are connected to a terminal block, to which the installer will, in turn, connect.

6-TECHNICAL DATA (AC motors)

This chapter lists the operating specifications of the units with 4-row main coils and 1-row auxiliary coils. **The District Cooling coils are also available from our selection software.**

6.1- 2-pipe unit

		3			6		
		4 rows			4 rows		
Speed		min	med	max	min	med	max
Air flow rate	m3/h	210	325	370	295	450	535
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C							
Total capacity	kW	1.33	1.88	2.05	1.87	2.60	2.96
Sensitive capacity	kW	1.00	1.43	1.60	1.42	2.02	2.32
Water flow rate	l/h	228	321	353	321	447	508
Δp (water)	kPa	7.5	13.6	16.0	3.1	4.8	6.9
HEATING - air 20 °C - water inlet 45 °C, outlet 40 °C							
Capacity	kW	1.40	2.01	2.24	1.98	2.84	3.27
Water flow rate	l/h	242	348	387	343	491	566
Δp (water)	kPa	6.8	13.0	15.6	2.9	4.7	6.9
MOTOR ELECTRIC POWER DRAW							
Power draw	W	16	27	33	20	34	42
Max power draw	A	0.19			0.24		
SOUND DATA							
Inlet + radiated sound power	dB(A)	43	48	41	42	46	39
Outlet sound power	dB(A)	41	46	39	40	44	37
Inlet + radiated sound pressure (*)	dB(A)	34	39	32	33	37	30
Outlet sound pressure (*)	dB(A)	32	37	30	31	35	28

		8			12		
		4 rows			4 rows		
Speed		min	med	max	min	med	max
Air flow rate	m3/h	440	660	790	650	1000	1125
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C							
Total capacity	kW	2.84	3.91	4.47	3.86	5.30	5.75
Sensitive capacity	kW	2.13	2.99	3.46	2.95	4.16	4.56
Water flow rate	l/h	488	672	769	664	911	988
Δp (water)	kPa	8.2	12.6	18.3	18.5	21.4	37.1
HEATING - air 20 °C - water inlet 45 °C, outlet 40 °C							
Capacity	kW	2.96	4.16	4.82	4.11	5.82	6.38
Water flow rate	l/h	512	719	834	710	1007	1104
Δp (water)	kPa	7.4	11.7	17.5	17.3	21.2	22.4
MOTOR ELECTRIC POWER DRAW							
Power draw	W	42	73	88	68	117	136
Max power draw	A	0.47			0.74		

SOUND DATA							
Inlet + radiated sound power	dB(A)	46	51	45	59	63	56
Outlet sound power	dB(A)	44	49	43	54	61	54
Inlet + radiated sound pressure (*)	dB(A)	37	42	36	50	54	47
Outlet sound pressure (*)	dB(A)	35	40	34	45	52	35

(*) = the sound pressure levels are lower than power levels by 9 dB(A) for a 100 m³ space and a reverberation time of 0.5 sec.

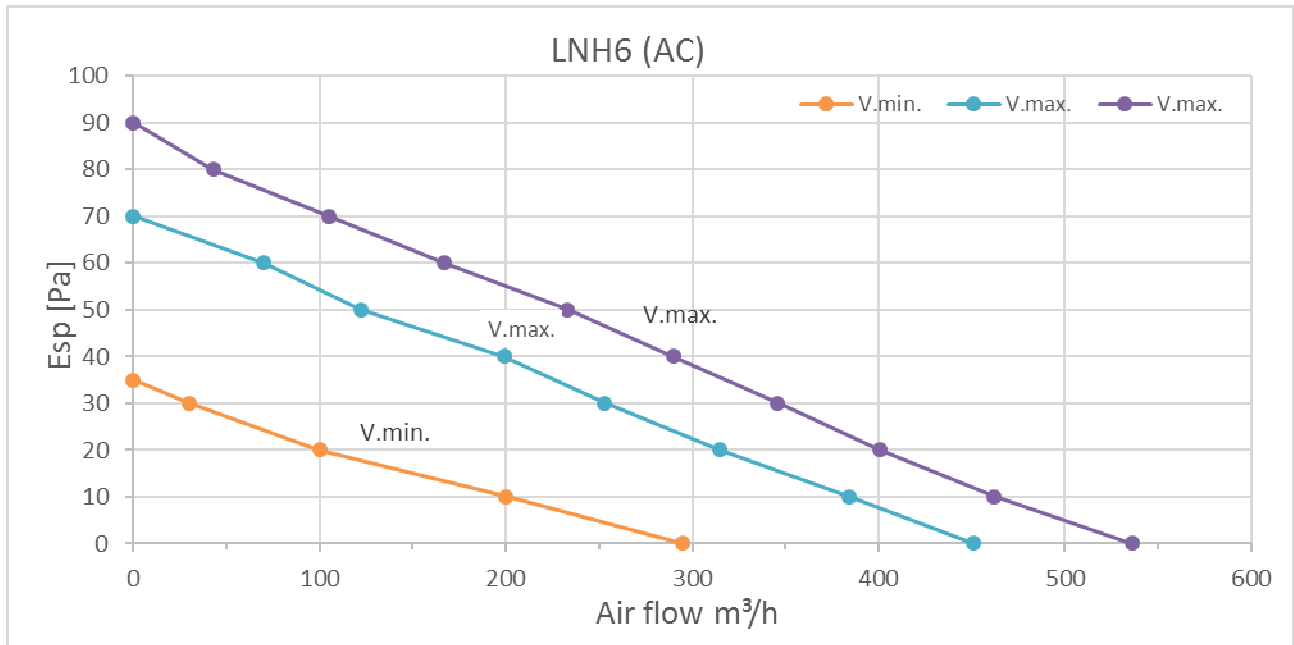
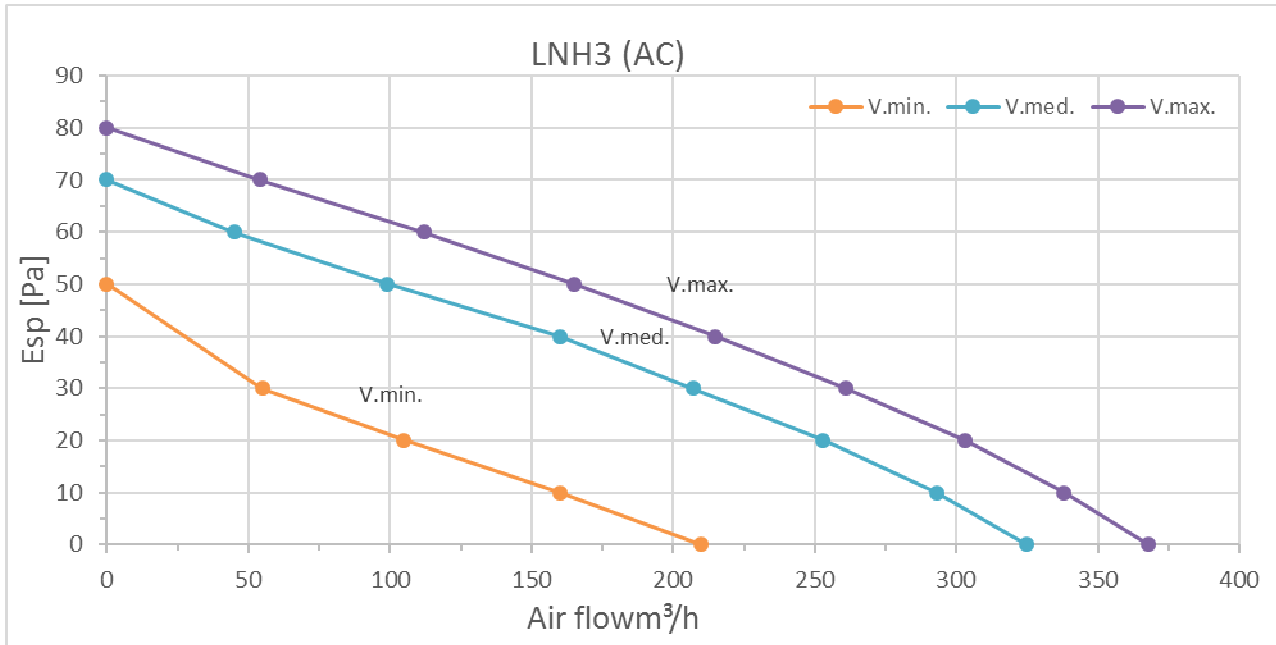
6.2- 4-pipe unit

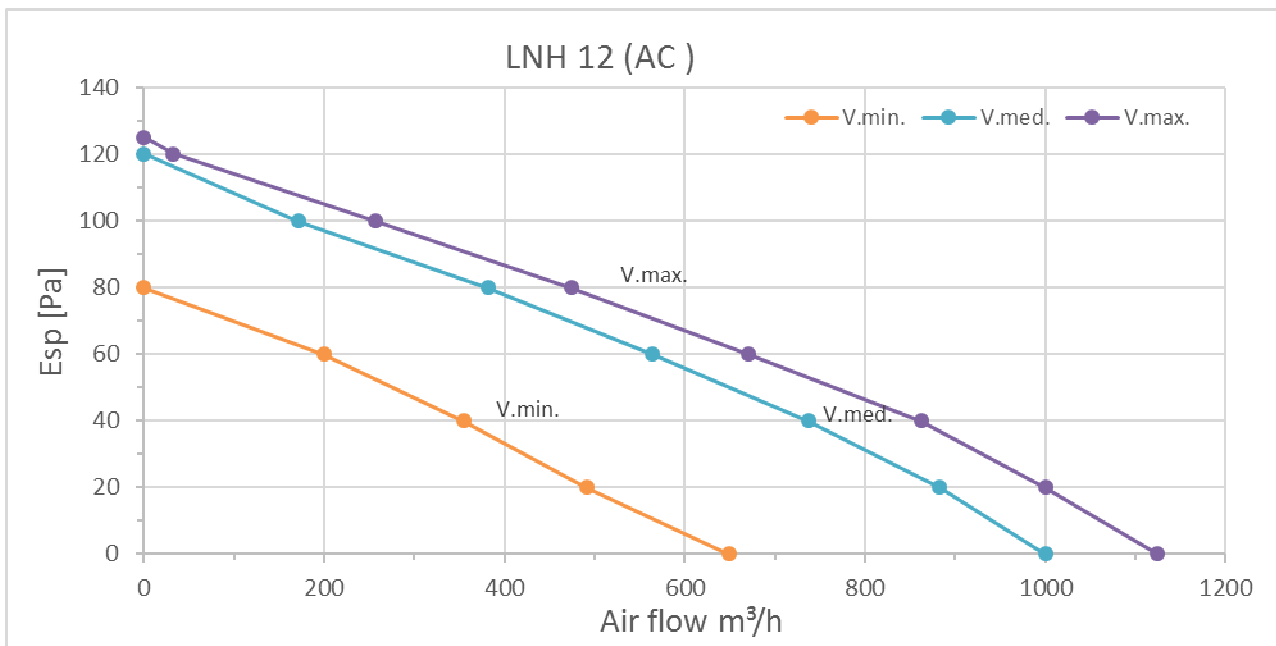
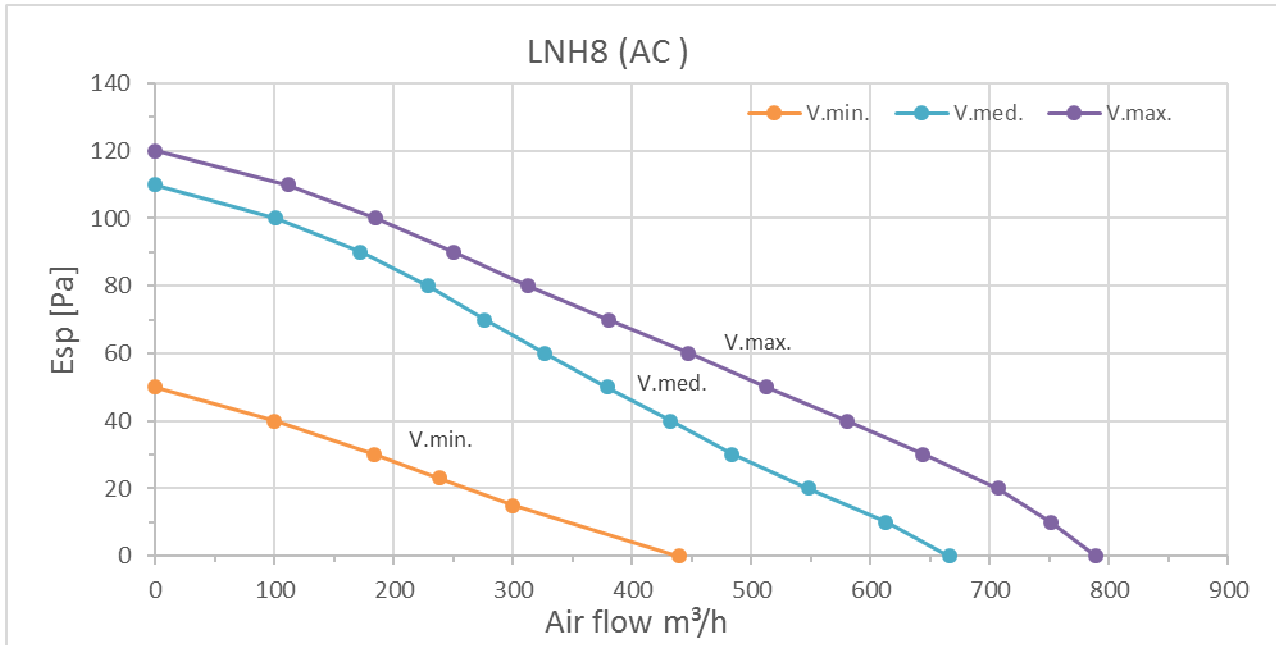
		3 + B1			6 + B1		
		4 rows + 1			4 rows + 1		
Speed		min	med	max	min	med	max
Air flow rate	m ³ /h	210	325	370	295	450	535
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C							
Total capacity	kW	1.33	1.88	2.05	1.87	2.60	2.96
Sensitive capacity	kW	1.00	1.43	1.60	1.42	2.02	2.32
Water flow rate	l/h	228	321	353	321	447	508
Δp (water)	kPa	7.5	13.6	16.0	3.1	4.8	6.9
HEATING - air 20 °C - water inlet 65°C, outlet 55°C							
Capacity	kW	1.14	1.52	1.66	1.73	2.29	2.57
Water flow rate	l/h	99.6	133	144	151	200	224
Δp (water)	kPa	2.2	3.6	4.2	7.2	10.3	14.4
MOTOR ELECTRIC POWER DRAW							
Power draw	W	16	27	33	20	34	42
Max power draw	A	0.19			0.24		
SOUND DATA							
Inlet + radiated sound power	dB(A)	43	48	41	42	46	39
Outlet sound power	dB(A)	41	46	39	40	44	37
Inlet + radiated sound pressure (*)	dB(A)	34	39	32	33	37	30
Outlet sound pressure (*)	dB(A)	32	37	30	31	35	28

		8 + B1			12 + B1		
		4 rows + 1			4 rows + 1		
Speed		min	med	max	min	med	max
Air flow rate	m ³ /h	440	660	790	650	1000	1125
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C							
Total capacity	kW	2.84	3.91	4.47	3.86	5.30	5.75
Sensitive capacity	kW	2.13	2.99	3.46	2.95	4.16	4.56
Water flow rate	l/h	488	672	769	664	911	988
Δp (water)	kPa	8.2	12.6	18.3	18.5	21.4	37.1
HEATING - air 20 °C - water inlet 65°C, outlet 55°C							
Capacity	kW	2.46	3.22	3.62	3.19	4.11	4.40
Water flow rate	l/h	214	281	316	278	358	384
Δp (water)	kPa	2.4	3.4	4.8	5.0	5.2	8.9

MOTOR ELECTRIC POWER DRAW							
Power draw	W	42	73	88	68	117	136
Max power draw	A	0.47			0.74		
SOUND DATA							
Inlet + radiated sound power	dB(A)	46	51	45	59	63	56
Outlet sound power	dB(A)	44	49	43	54	61	54
Inlet + radiated sound pressure (*)	dB(A)	37	42	36	50	54	47
Outlet sound pressure (*)	dB(A)	35	40	34	45	52	35

(*) = the sound pressure levels are lower than power levels by 9 dB(A) for a 100 m³ space and a reverberation time of 0.5 sec.





Sound power level INLET + RADIATED [dB].

Mod.	Speed	Band middle frequency [Hz]						
		125	250	500	1000	2000	4000	8000
3	3-MAX	46	44	40	33	29	25	20
	2-MED	53	51	47	40	34	29	22
	1-MIN	48	47	43	33	26	21	22
6	3-MAX	44	42	38	31	27	23	18
	2-MED	51	49	45	38	32	27	20
	1-MIN	47	46	42	32	25	20	21
8	3-MAX	50	48	44	37	33	29	24
	2-MED	56	54	50	43	37	32	25
	1-MIN	51	50	46	36	29	24	25
12	3-MAX	61	59	55	48	44	40	35
	2-MED	68	66	62	55	49	44	37
	1-MIN	61	60	59	53	43	38	33

Sound power level OUTLET [dB].

Mod.	Speed	Band middle frequency [Hz]						
		125	250	500	1000	2000	4000	8000
3	3-MAX	42	40	39	34	21	24	22
	2-MED	48	47	46	40	27	29	25
	1-MIN	43	43	41	33	19	20	22
6	3-MAX	40	38	37	32	19	22	20
	2-MED	46	45	44	38	25	27	23
	1-MIN	42	42	40	32	18	19	21
8	3-MAX	46	44	43	38	25	28	26
	2-MED	51	50	49	43	30	32	28
	1-MIN	46	46	44	36	22	23	25
12	3-MAX	57	55	54	49	36	39	37
	2-MED	63	62	61	55	42	44	40
	1-MIN	56	56	54	46	32	33	35

ISO Noise Rating levels

Mod.	Speed	NR (*)
3	3-MAX	20
	2-MED	28
	1-MIN	23
6	3-MAX	18
	2-MED	26
	1-MIN	22
8	3-MAX	24
	2-MED	31
	1-MIN	26
12	3-MAX	35
	2-MED	43
	1-MIN	36

(*) Noise level for ducted unit both in inlet and in outlet. NR evaluated considering a 18 dB noise reduction due to place, plant, ceiling, ducts and installation. The calculus for the value dB(A) inside the technical data has the dB(A) values for all the octave bands and not only the middle one. Consequently there could be a bit difference between the technical data and the one obtained using this table.

7 - TECHNICAL DATA (EC motors)

This chapter lists the operating specifications of the units with 4-row main coils and 1-row auxiliary coils.
The District Cooling coils are also available from our selection software.

7.1- 2-pipe unit

		3			6		
		4 rows			4 rows		
Speed (Drive voltage)	V	1	3.5	10	1	3.5	10
Air flow rate	m ³ /h	110	210	430	180	335	670
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C							
Total capacity	kW	0.77	1.33	2.28	1.24	2.07	3.48
Sensitive capacity	kW	0.57	1.00	1.80	0.92	1.58	2.77
Water flow rate	l/h	133	228	393	212	355	597
Δp (water)	kPa	7.5	11.1	16.0	1.5	3.7	9.2
HEATING - air 20 °C - water inlet 45 °C, outlet 40 °C							
Capacity	kW	0.78	1.40	2.52	1.27	2.22	3.92
Water flow rate	l/h	135	242	436	219	384	678
Δp (water)	kPa	6.8	10.4	15.6	1.3	3.5	9.5
MOTOR ELECTRIC POWER DRAW							
Power draw	W	4	6	20	4	7	23
Max power draw	A	0.22			0.21		
SOUND DATA							
Inlet + radiated sound power	dB(A)	44	43	46	41	41	46
Outlet sound power	dB(A)	42	41	44	39	39	44
Inlet + radiated sound pressure (*)	dB(A)	35	34	37	32	32	37
Outlet sound pressure (*)	dB(A)	33	32	35	30	30	37

		8			12		
		4 rows			4 rows		
Speed (Drive voltage)	V	1	3.5	10	1	3.5	10
Air flow rate	m ³ /h	270	450	860	255	530	1140
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C							
Total capacity	kW	1.88	2.89	4.76	1.79	3.30	5.80
Sensitive capacity	kW	1.38	2.17	3.70	1.31	2.49	4.60
Water flow rate	l/h	324	497	818	308	567	997
Δp (water)	kPa	4.0	8.5	20.5	4.8	14.0	37.7
HEATING - air 20 °C - water inlet 45 °C, outlet 40 °C							
Capacity	kW	1.90	3.02	5.16	1.80	3.45	6.45
Water flow rate	l/h	329	522	893	312	598	1115
Δp (water)	kPa	3.4	7.7	19.7	4.0	12.7	38.0
MOTOR ELECTRIC POWER DRAW							
Power draw	W	4	8	32	4	11	69
Max power draw	A	0.27			0.53		

SOUND DATA							
Inlet + radiated sound power	dB(A)	38	44	48	40	47	54
Outlet sound power	dB(A)	32	41	46	34	44	52
Inlet + radiated sound pressure (*)	dB(A)	29	35	39	31	38	45
Outlet sound pressure (*)	dB(A)	29	35	39	25	35	43

(*) = the sound pressure levels are lower than power levels by 9 dB(A) for a 100 m³ space and a reverberation time of 0.5 sec.

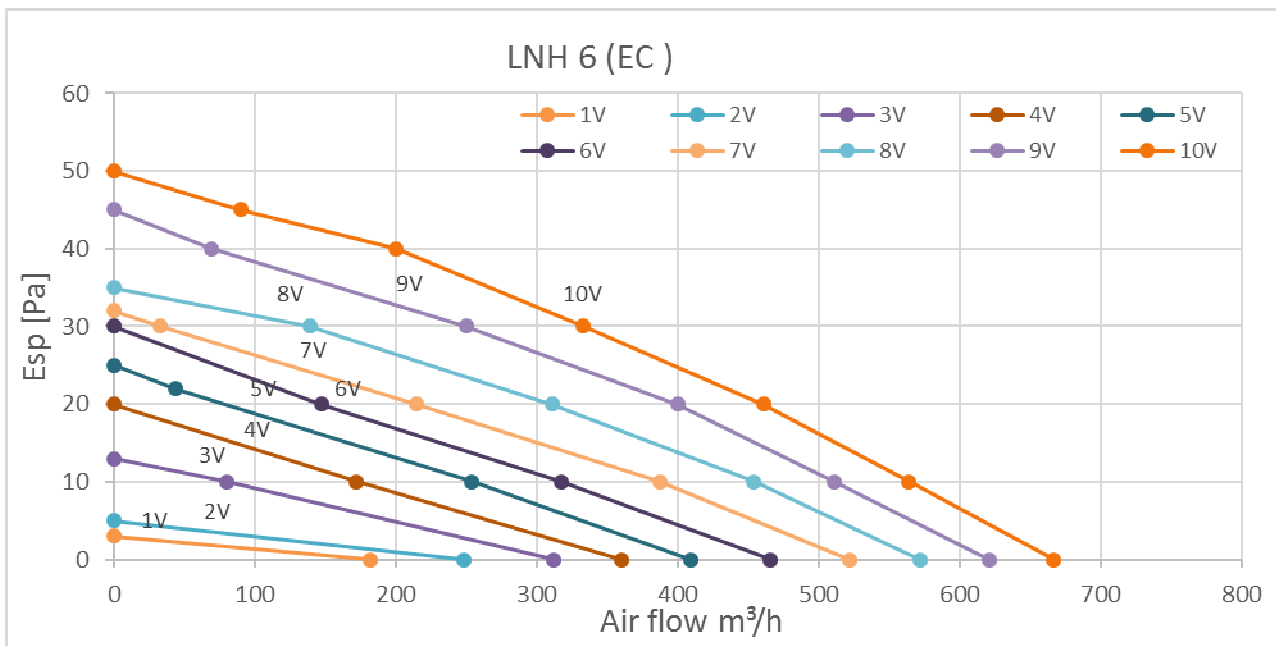
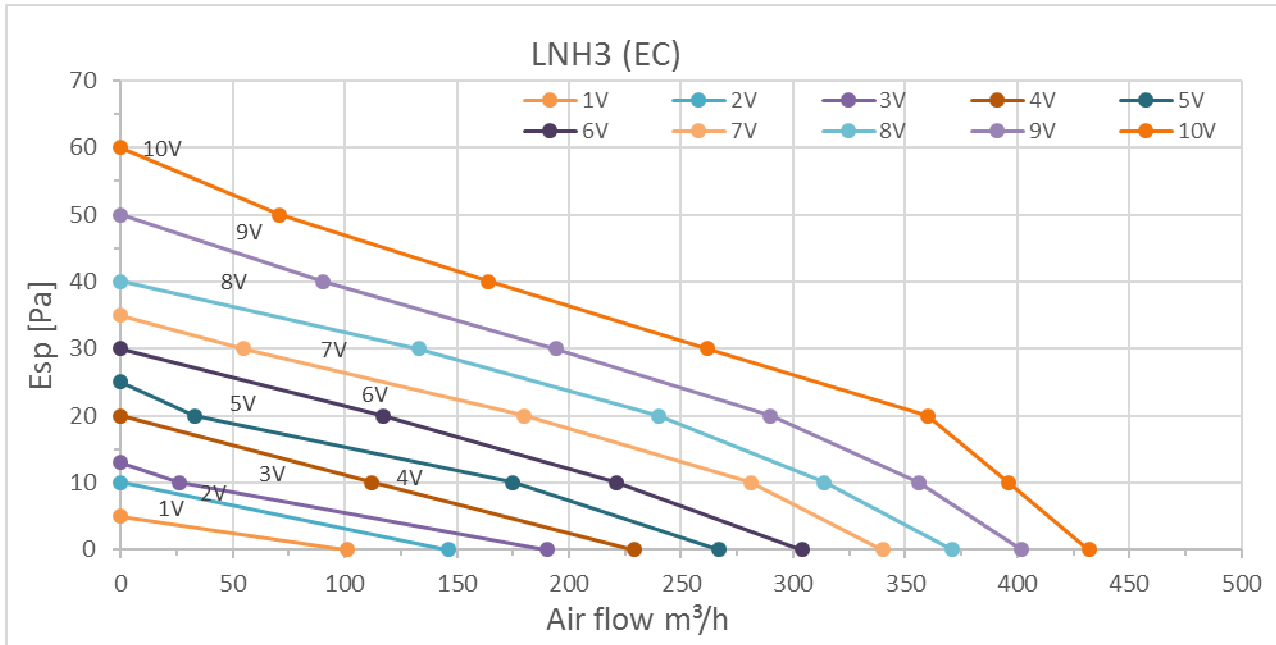
7.2- 4-pipe unit

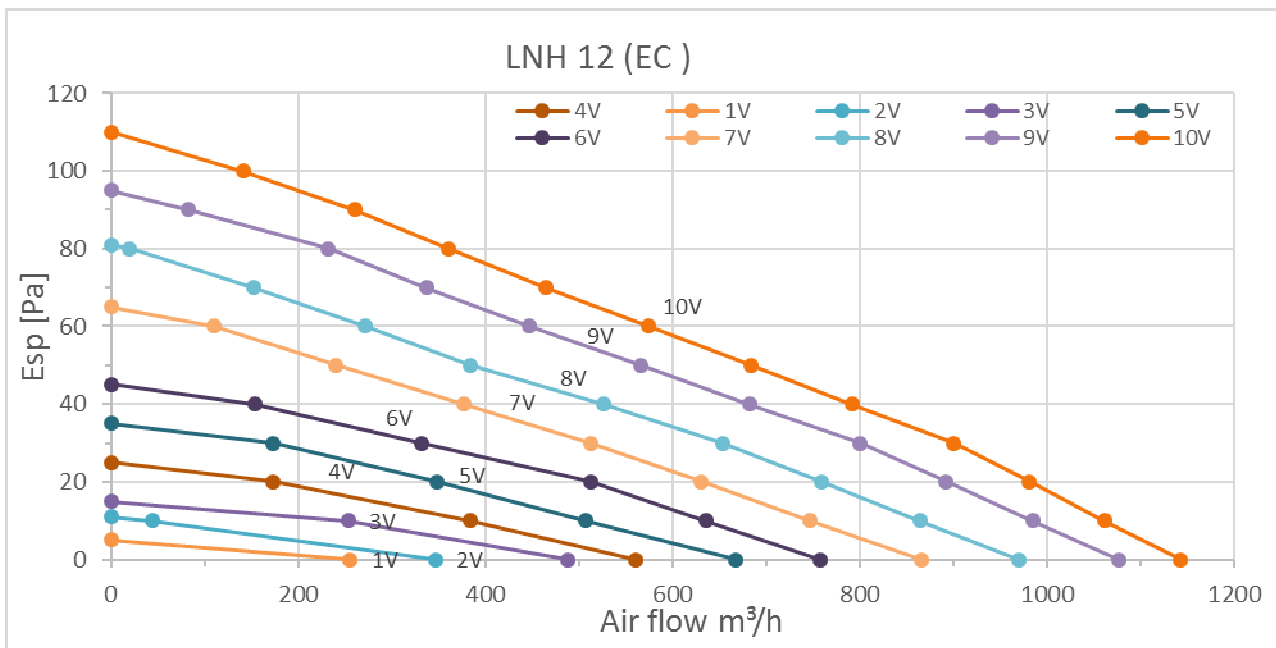
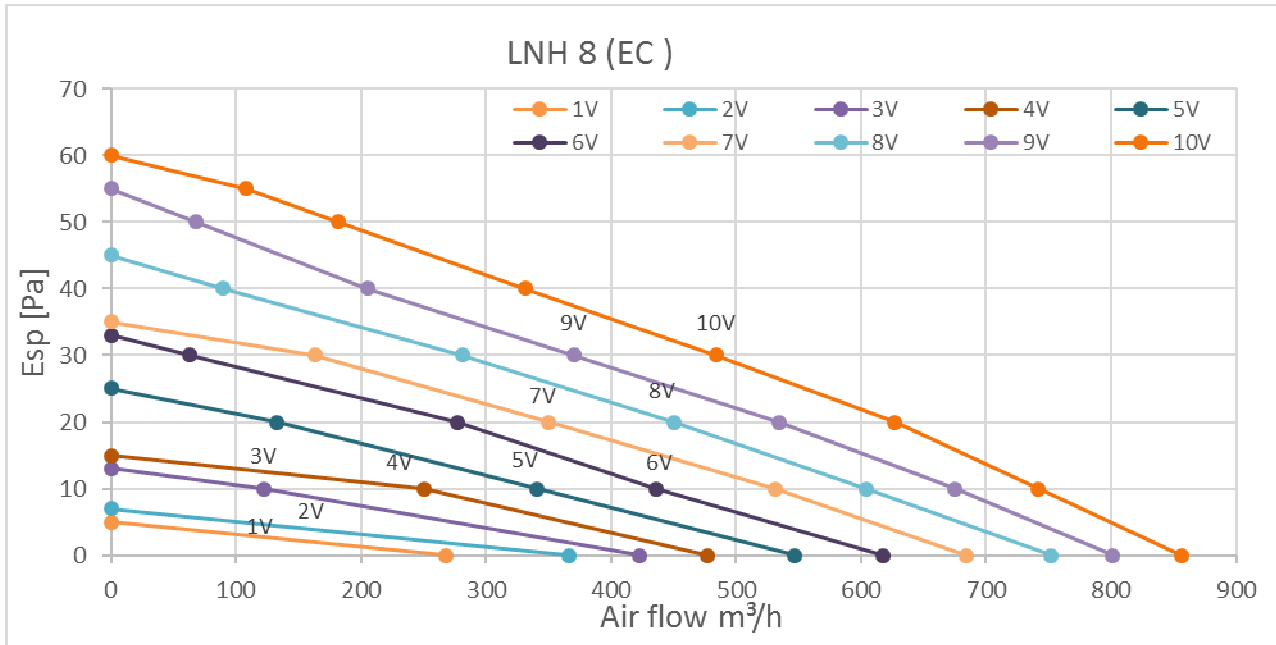
		3 + B1			6 + B1		
		4 rows + 1			4 rows + 1		
Speed (Drive voltage)	V	1	3.5	10	1	3.5	10
Air flow rate	m ³ /h	110	210	430	180	335	670
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C							
Total capacity	kW	0.77	1.33	2.28	1.24	2.07	3.48
Sensitive capacity	kW	0.57	1.00	1.80	0.92	1.58	2.77
Water flow rate	l/h	133	228	393	212	355	597
Δp (water)	kPa	7.5	11.1	16.0	1.5	3.7	9.2
HEATING - air 20 °C - water inlet 65°C, outlet 55°C							
Capacity	kW	0.73	1.14	1.81	1.23	1.88	2.96
Water flow rate	l/h	64	100	158	107	164	258
Δp (water)	kPa	6.8	10.4	15.6	3.9	8.3	18.5
MOTOR ELECTRIC POWER DRAW							
Power draw	W	4	6	20	4	7	23
Max power draw	A	0.22			0.21		
SOUND DATA							
Inlet + radiated sound power	dB(A)	44	43	46	41	41	46
Outlet sound power	dB(A)	42	41	44	39	39	44
Inlet + radiated sound pressure (*)	dB(A)	35	34	37	32	32	37
Outlet sound pressure (*)	dB(A)	33	32	35	30	30	37

		8 + B1			12 + B1		
		4 rows + 1			4 rows + 1		
Speed (Drive voltage)	V	1	3.5	10	1	3.5	10
Air flow rate	m ³ /h	270	450	860	255	530	1140
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C							
Total capacity	kW	1.88	2.89	4.76	1.79	3.30	5.80
Sensitive capacity	kW	1.38	2.17	3.70	1.31	2.49	4.60
Water flow rate	l/h	324	497	818	308	567	997
Δp (water)	kPa	4.0	8.5	20.5	4.8	14.0	37.7
HEATING - air 20 °C - water inlet 65°C, outlet 55°C							
Capacity	kW	1.76	2.50	3.82	1.69	2.79	4.44
Water flow rate	l/h	154	218	333	148	243	387
Δp (water)	kPa	1.4	2.5	5.3	1.7	3.9	9.0

MOTOR ELECTRIC POWER DRAW							
Power draw	W	4	8	32	4	11	69
Max power draw	A	0.27			0.53		
SOUND DATA							
Inlet + radiated sound power	dB(A)	38	44	48	40	47	54
Outlet sound power	dB(A)	32	41	46	34	44	52
Inlet + radiated sound pressure (*)	dB(A)	29	35	39	31	38	45
Outlet sound pressure (*)	dB(A)	29	35	39	25	35	43

(*) = the sound pressure levels are lower than power levels by 9 dB(A) for a 100 m3 space and a reverberation time of 0.5 sec.





Sound power level INLET + RADIATED [dB].

Mod.	Speed [V]	Band middle frequency [Hz]						
		125	250	500	1000	2000	4000	8000
3	10 V	51	49	45	38	34	30	25
	3,5 V	48	46	42	35	29	24	17
	1 V	49	48	44	34	27	22	23
6	10 V	51	49	45	38	34	30	25
	3,5 V	46	44	40	33	27	22	15
	1 V	46	45	41	31	24	19	20
8	10 V	54	53	46	37	30	25	19
	3,5 V	50	49	42	32	25	19	21
	1 V	41	40	38	28	19	15	17
12	10 V	60	59	52	43	36	31	25
	3,5 V	53	52	45	35	28	22	24
	1 V	43	42	40	30	21	17	19

Sound power level OUTLET [dB].

Mod.	Speed [V]	Band middle frequency [Hz]						
		125	250	500	1000	2000	4000	8000
3	10 V	47	45	44	39	26	29	27
	3,5 V	43	42	41	35	22	24	20
	1 V	44	44	42	34	20	21	23
6	10 V	47	45	44	39	26	29	27
	3,5 V	41	40	39	33	20	22	18
	1 V	41	41	39	31	17	18	20
8	10 V	50	50	44	38	25	26	23
	3,5 V	46	45	40	33	19	19	21
	1 V	38	36	30	21	12	15	20
12	10 V	56	56	50	44	31	32	29
	3,5 V	49	48	43	36	22	22	24
	1 V	40	38	32	23	14	17	22

ISO Noise Rating levels

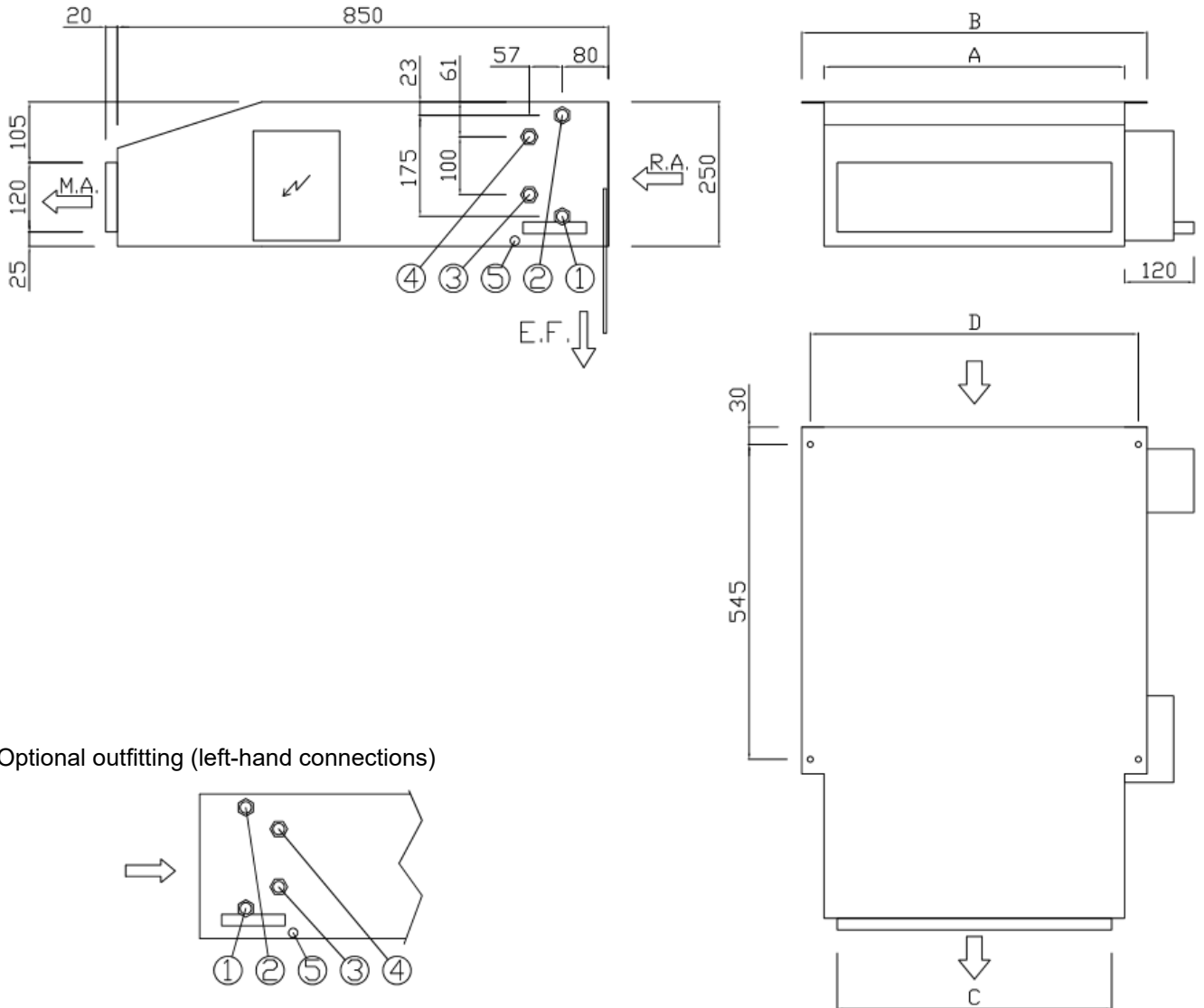
Mod.	Velocità [V]	NR (*)
3	10 V	25
	3,5 V	23
	1 V	24
6	10 V	25
	3,5 V	21
	1 V	21
8	10 V	27
	3,5 V	23
	1 V	13
12	10 V	33
	3,5 V	26
	1 V	15

(*) Noise level for ducted unit both in inlet and in outlet. NR evaluated considering a 18 dB noise reduction due to place, plant, ceiling, ducts and installation. The calculus for the value dB(A) inside the technical data has the dB(A) values for all the octave bands and not only the middle one. Consequently there could be a bit difference between the technical data and the one obtained using this table.

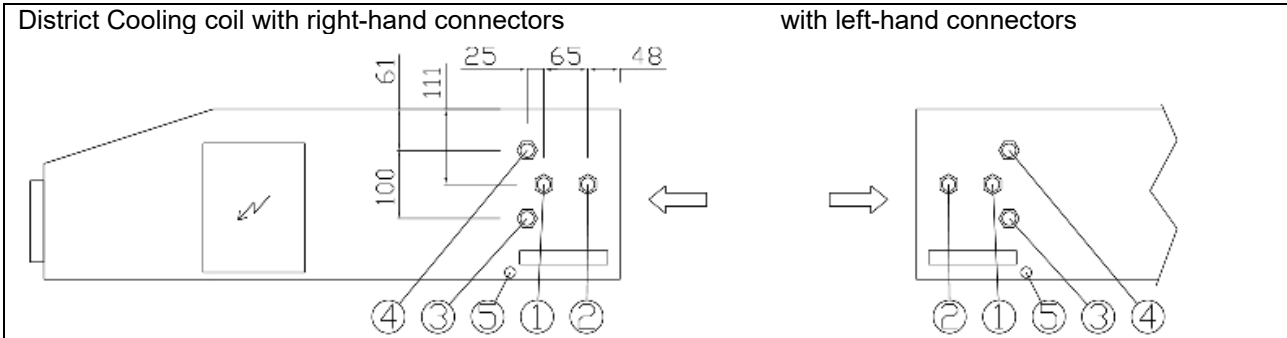
8-DIMENSIONS AND WEIGHTS

1 - main coil input	2 - main coil output	A.R. : Air Return
3 - auxiliary coil input	4 - auxiliary coil output	A.D. : Air Delivery
5 - condensate drain		F.E. : filter extraction

Standard outfitting (right-hand connections)



Unit with District Cooling coils have connectors in the positions shown in the drawings below, i.e. non-standard.



DIMENSIONS		3	6	8/12
A	mm	520	780	1040
B	mm	600	860	1120
C	mm	475	735	995
D	mm	570	830	1090
1 - Main coil INPUT	"	1/2"		
2 - Main coil OUTPUT	"	1/2"		
3 - Auxiliary coil INPUT	"	1/2"		
4 - Auxiliary coil OUTPUT	"	1/2"		
5 - horizontal condensate drain	mm	d.16		

WEIGHTS		3	6	8/12
Unit weight	kg	25	33	42
Main coil inside volume	litres	1.02	1.59	2.16
Auxiliary coil inside volume	litres	0.26	0.40	0.54

9.1-Auxiliary coil (B1)

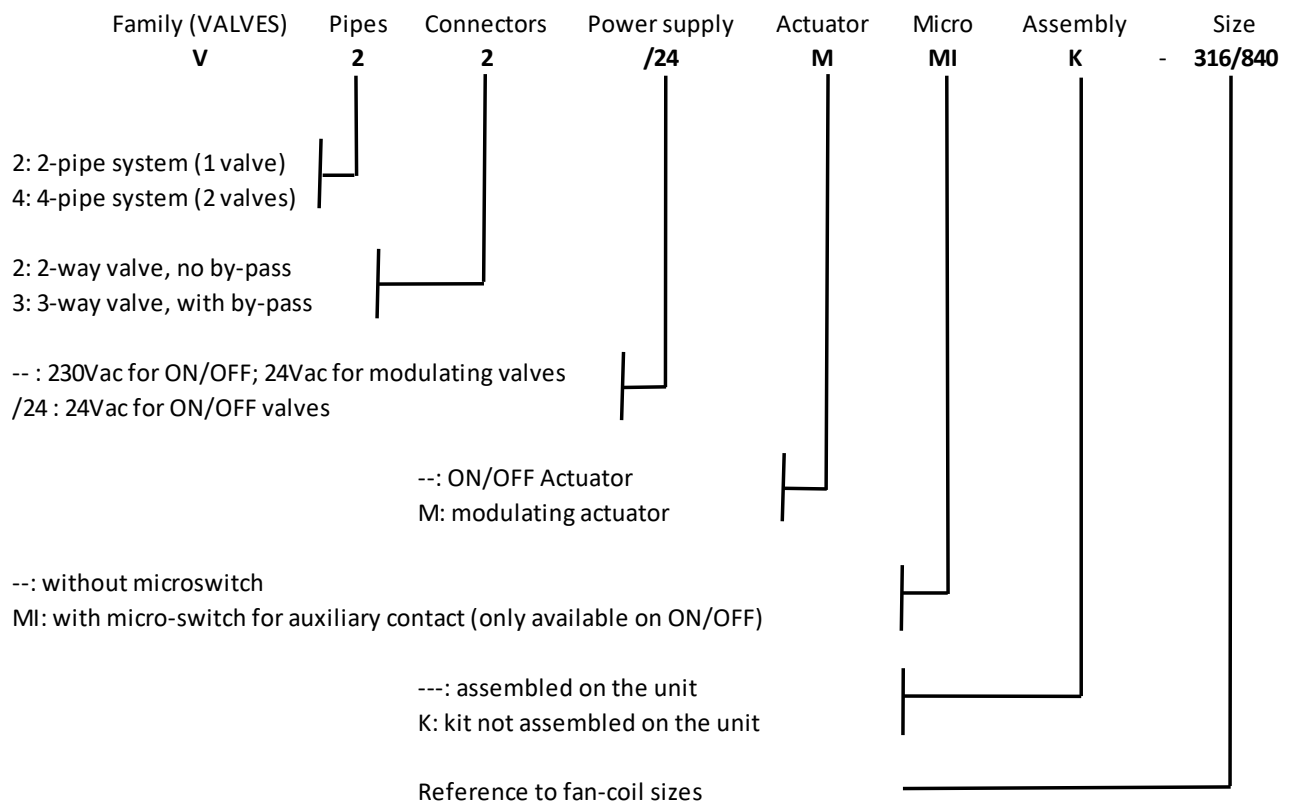
The single-row auxiliary coil (B1) is used for heating purposes in 4-pipe systems. Feeding this coil with chilled water is not allowed, because it has no condensate collection tray. For correct management of heating and cooling, in 4-pipe systems it is necessary to provide motorized valves on both coils (main and auxiliary) ensuring that only one of the two coils is active.

9.2-Valves (V)

Servo-controlled valves should be used to prevent the formation of condensate on the surface of the unit when the fan has stopped.

The valves can be supplied assembled on the unit or as kits (disassembled components).

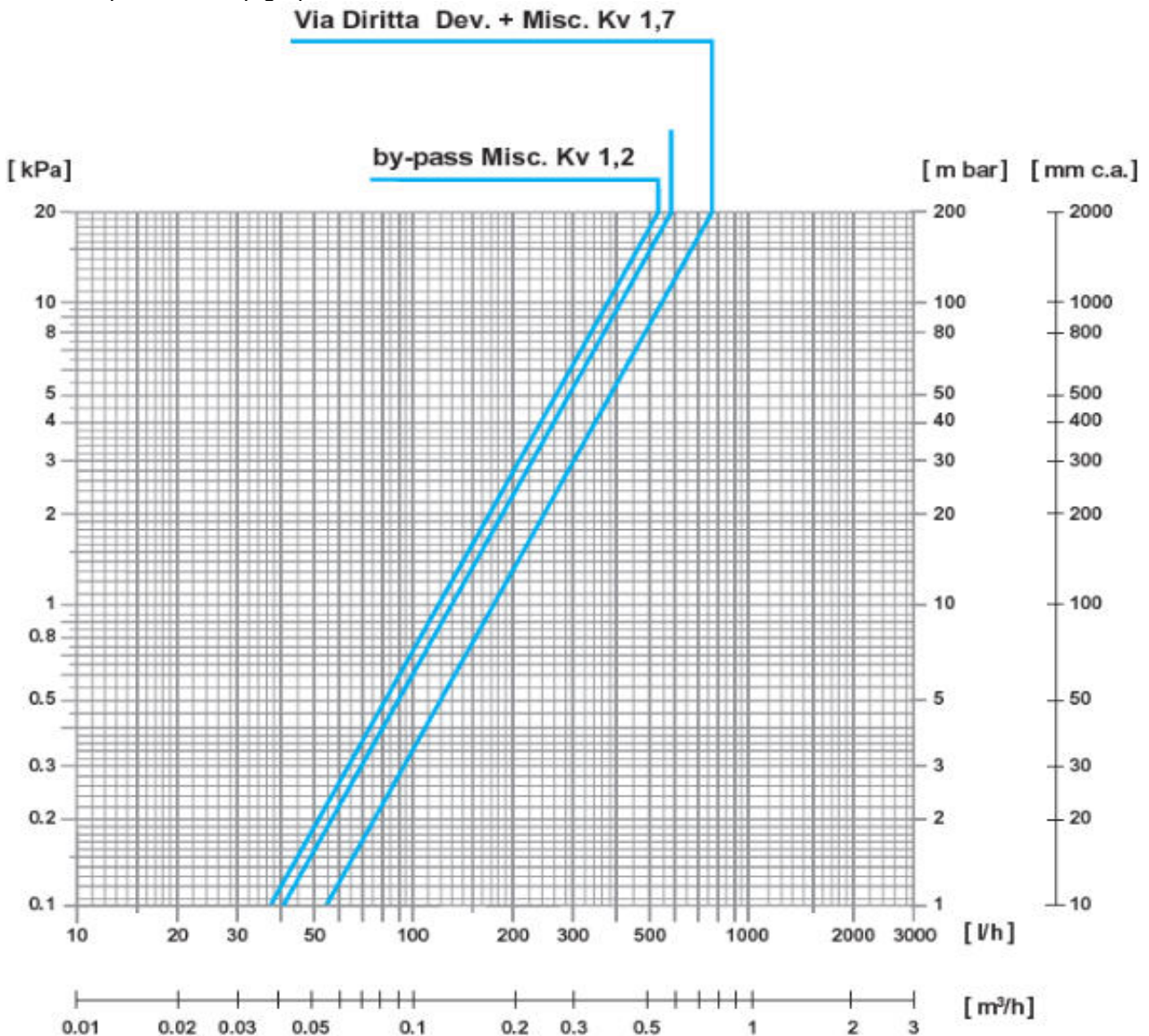
The auxiliary condensate collection tray is supplied with the unit as part of the standard equipment, without extra costs.



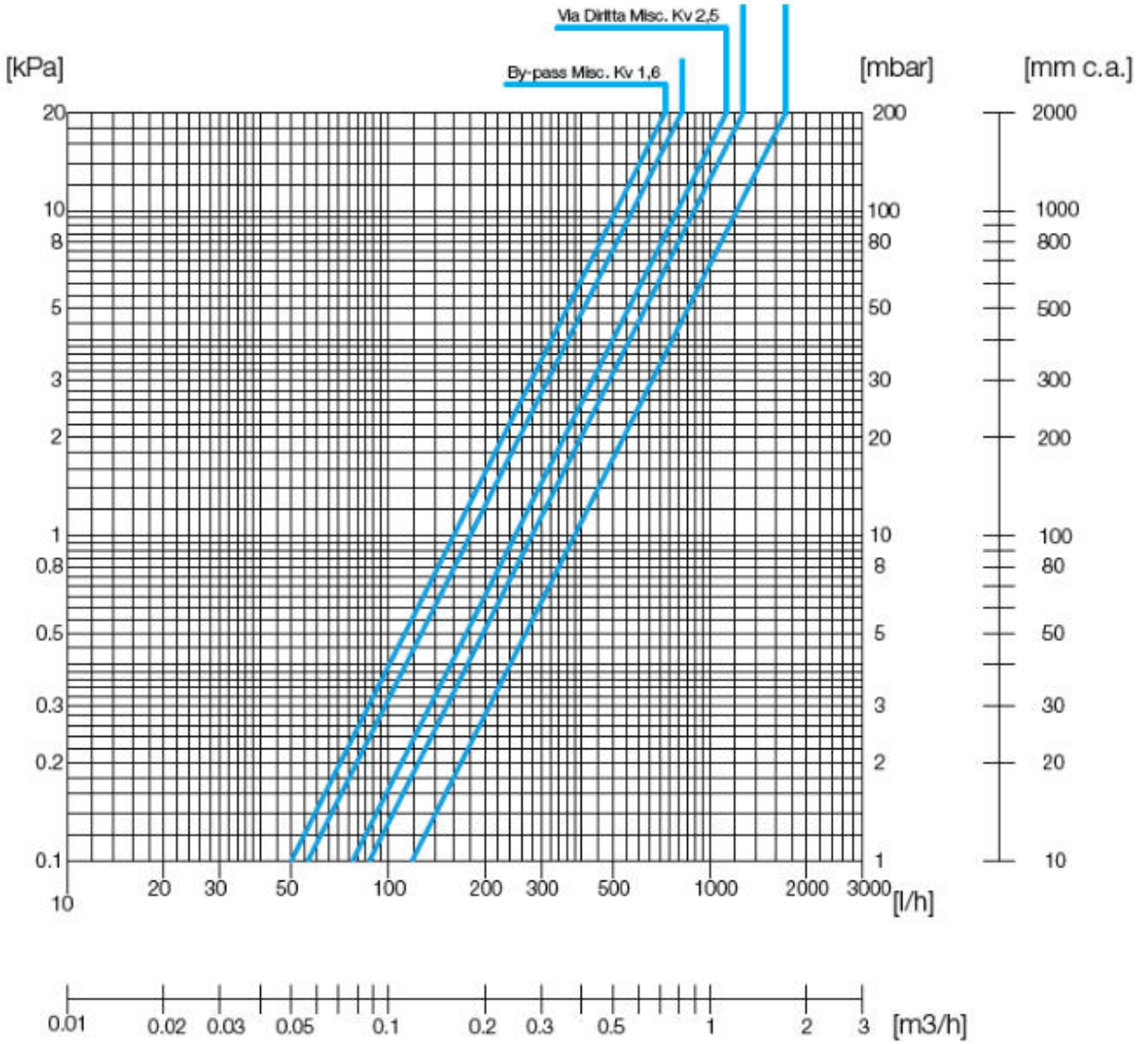
	VALVE FOR MAIN COIL (LNH 3 / 8)	VALVE FOR MAIN COIL (LNH 12)
	VALVE FOR MAIN COIL (LNH 3 / 12)	
GENERAL CHARACTERISTICS		
Connections size	1/2"	3/4"
Kv (2-way valve)	1.7	2.5
Kv (3-way valve, direct flow)	1.7	2.5
Kv (3-way valve, by-pass)	1.2	1.6
Max differential pressure	2.0bar	1.0bar
Nominal pressure	PN16	
Water temperature	5 – 110°C	
ACTUATOR ON/OFF		

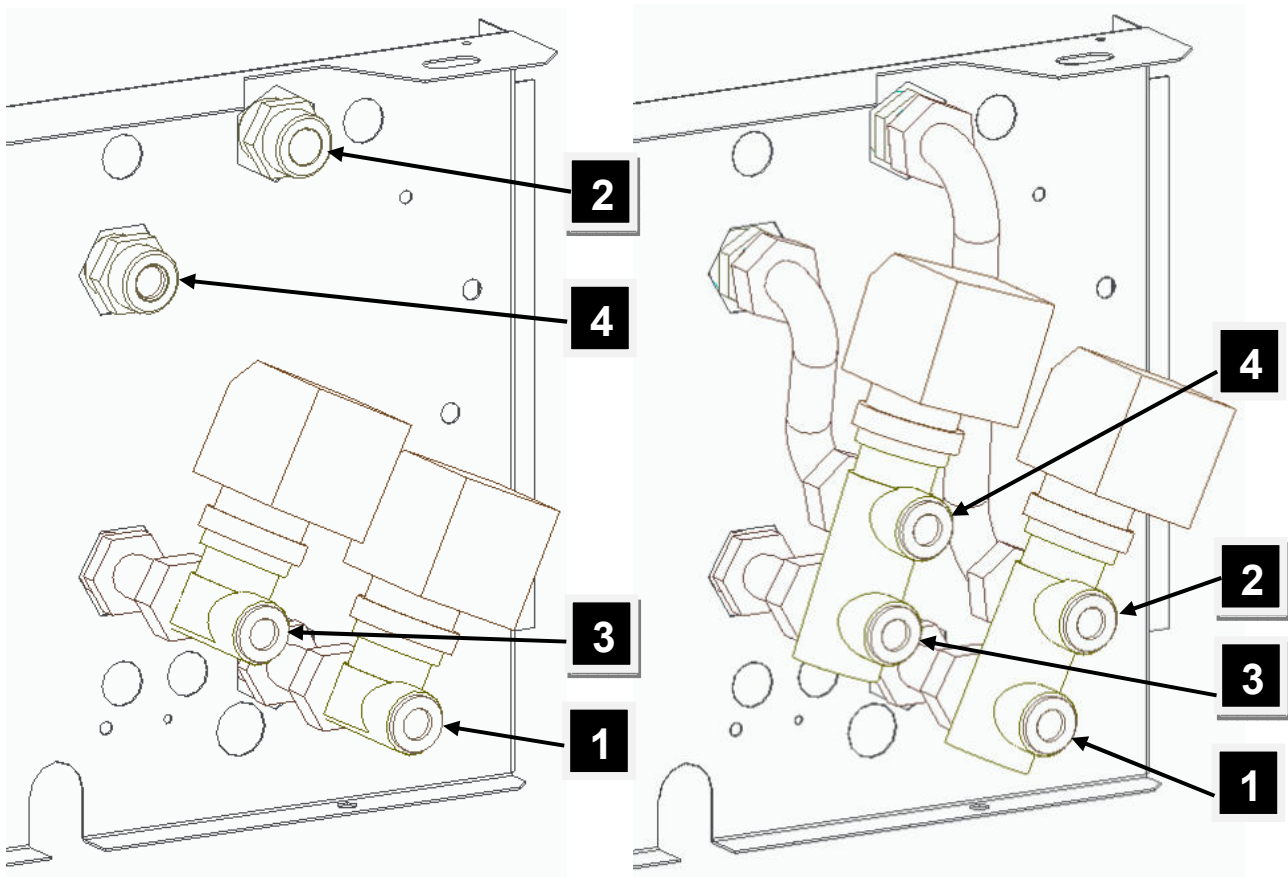
Power supply	230V-50Hz (24V-50Hz on request)
Absorbed power	2.5W
Stroke time	180s
Characteristic (valve+actuator)	N.C. (Normally Closed)
Protection	IP44
MODULATING ACTUATOR	
Power supply	24Vac
Absorbed power	1.5W
Stroke time	8S
Control signal	0/10V
Control signal impedance	100k Ohm
Protection	IP43

1/2" valve pressure drop graph



3/4" valve pressure drop graph





1 - main coil input	2 - main coil output
3 - auxiliary coil input	4 - auxiliary coil output

Dynamic balancing valves (VBD) are also available as accessories; for information please refer to the specific technical manual.

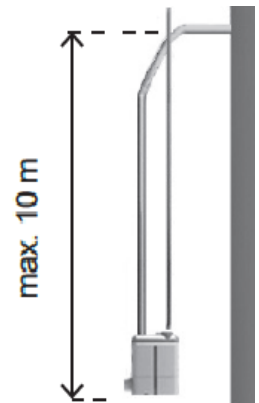
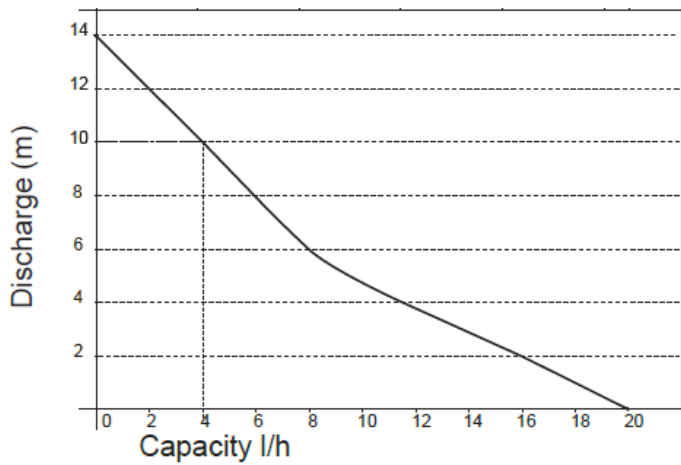
9.3-Condensate drain pump (PSC)

The condensate drain pumps can be supplied assembled on the unit or as kits (disassembled components).

Family (PUMPS) Assembly Fan-coil
PSC **/BI** - **LNH**

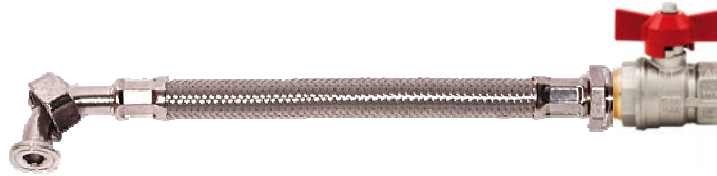
--: kit not assembled at the unit
 /BI : assembled on the unit

Maximum water flow rate	20 l/h
Maximum drainage height	10m (4 l/h)
Sound pressure at 1 m	23 dB(A)
Power supply	230V – 50/60Hz
Alarm microswitch	Resistive NC 8A 250V
Circuit breaker	90°C (automatic reset)
Protection	IP54

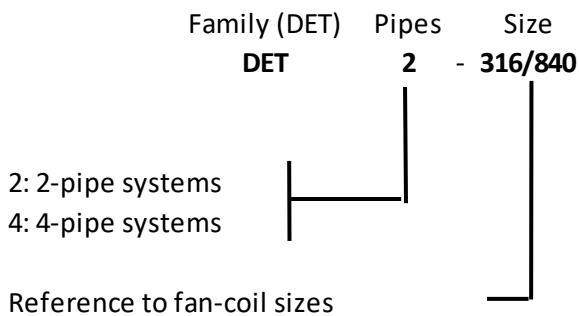


9.4-Flexible hoses with ball valves (DET)

The flexible hoses with ball valves are supplied as kits (disassembled components). Their use simplifies the hydraulic connection of fan-coils and, thanks to the ball valves, allows for valve and coil maintenance without having to completely drain the system.



External metal braid material	AISI304 stainless steel
Internal material	EPDM
Fittings and elbows material	Brass, chrome-plated brass, copper
Ball valve material	Chrome plated brass
Maximum working pressure	10 bar
Water temperature	5 - 85°C
Hose length	190mm
Hose length + valve	240mm (+/- 5)



9.5-Transformer for modulating valves (TR24)

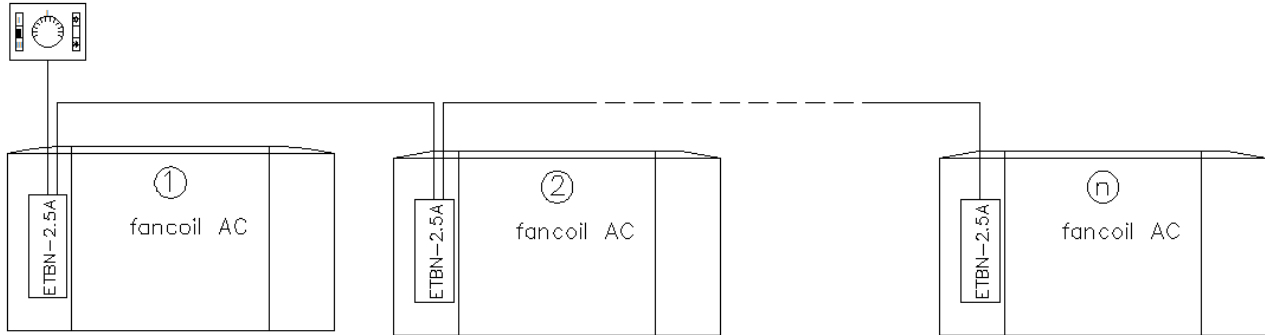
The TR24 accessory is a 230Vac - 24Vac 20VA transformer needed to power the modulating valves. In the event that there are two modulating valves for the same unit (4-pipe system), only one transformer is sufficient to supply both valves.

TR24 is available in one size, suitable for all unit sizes.

9.6-Power relay board for master-slave (ETBN-2.5A)

The power relay board (ETBN-2.5A) is needed to control more than one unit with AC motor (three speeds) with a single control. In this case, one ETBN-2.5A is required for each unit. This board is also necessary to control a single unit, when the control is not able to carry the highest current draw by the motor. For more information on this accessory, please refer to its specific technical manual.

The ETBN-2.5A board is available in one size, suitable for all unit sizes.

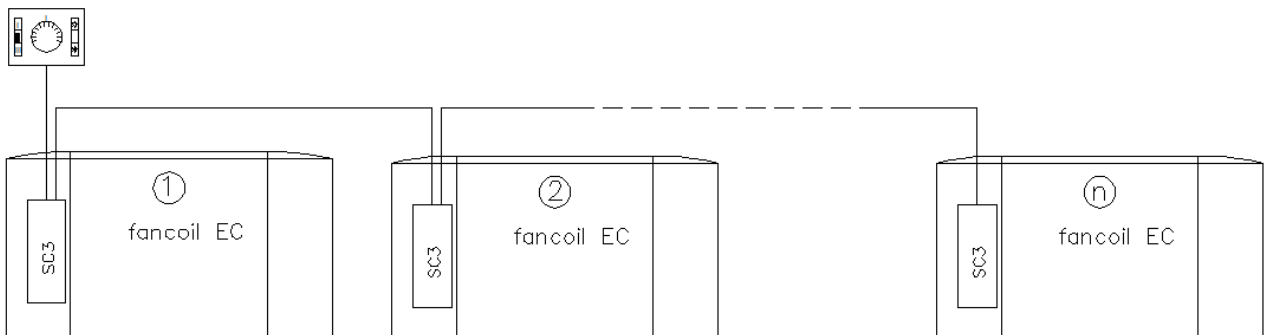


(*)

9.7-Three-speed EC motor control board (SC3)

The SC3 board allows an EC motor (with 0/10V signal) to be controlled through a common three speed control for AC motors. It is possible to control several (up to 20) units equipped with SC3 through a single control. For more information on this accessory, please refer to its specific technical manual.

The SC3 board is available in one size, suitable for all unit sizes.



(*)

(*)The pictures are for illustrative purposes only.

9.8-Plenum with electrical heater (PEH) and relay (EHR)

The plenum with electric heaters, made of galvanised metal pate, must be installed on the delivery end. The electric heaters are made of aluminium and are equipped with a safety thermostat against overheating. To control the heaters, it is recommended to use the EHR (power relay) accessory.

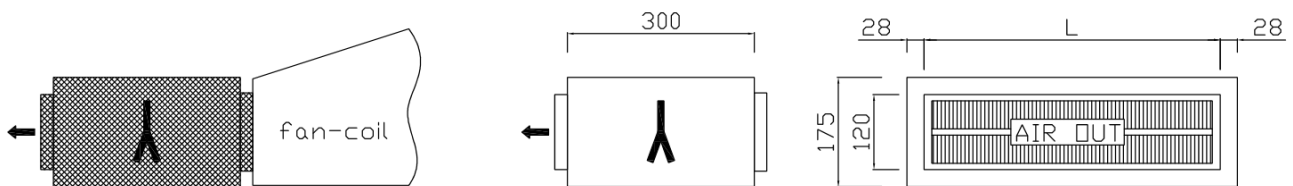
For correct dissipation of the heat generated by the electric heaters, it is recommended to never use the minimum fan speed and to use instead the maximum and medium speed settings (to be chosen also in relation to the pressure drops in the ducting). After the heaters are turned off, it is recommended to leave the fan on for a few minutes (at least two minutes) to allow the electric heaters to cool.

It is therefore strongly recommended to use an AERTESI control, chosen from those with a specific setting for the electric heater mode."

	3	6	8/12
Power	1.0 kW	1.25 kW	2.0 kW
Power supply	230V-50Hz single-phase		
No. of stages	1	1	1
Power relays to be used	EHR-8A	EHR-8A	EHR-20A

Two relay sizes are available, according to the table below:

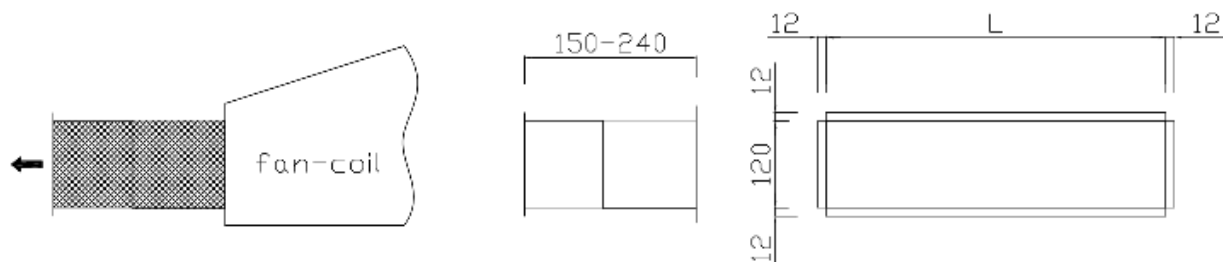
	EHR-8A	EHR-20A
Maximum contact current (resistive load)	8 A	20 A
Coil power supply	230V-50Hz single-phase	
No. of contacts	2	4



Fan-coil size	3	6	8/12
L (mm)	475	735	995

9.9-Telescopic coupling (RT)

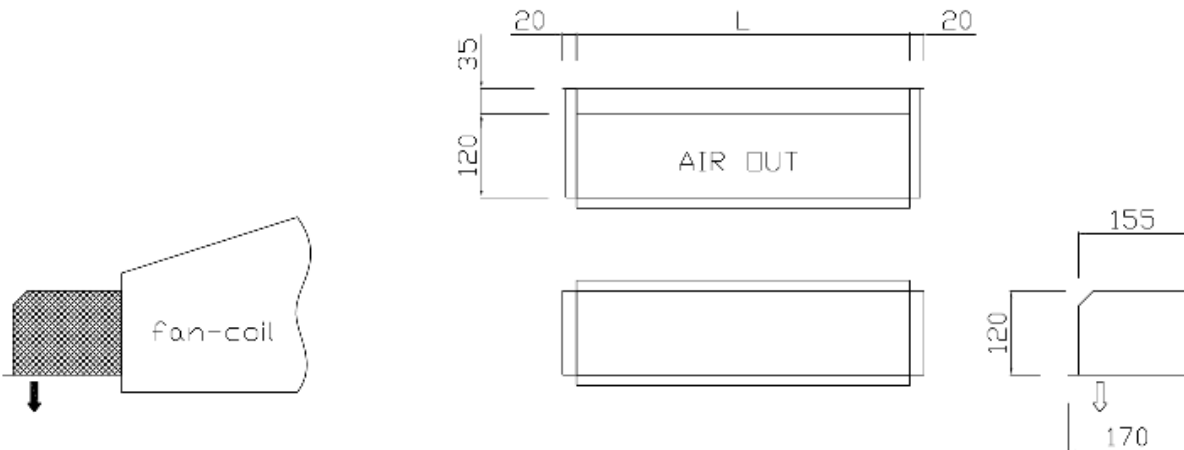
The telescopic coupling can be used when it is necessary to adjust the distance between the unit delivery and another element (for example the delivery grille or a duct). It is composed of two elements sliding one inside the other and can cover a distance ranging between 150 and 240mm. The size of the plenum delivery outlet is compatible with the size of the GM2 delivery grille.



Fan-coil size	3	6	8/12
L (mm)	475	735	995

9.10-90° Delivery plenum (PM90)

The 90° delivery plenum can be used when the air delivery outlet must be pointing downwards. The size of the plenum delivery outlet is compatible with the size of the GM2 delivery grille.

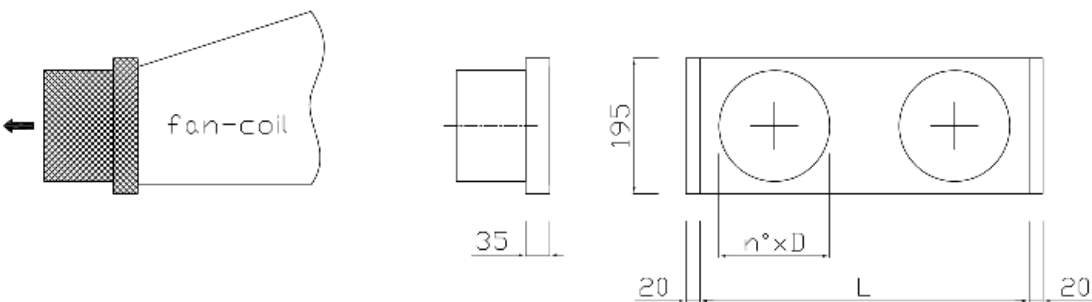


Fan-coil size	3	6	8/12
L (mm)	475	735	995

9.11-Delivery plenum with spigot (PMS)

The delivery plenum with flared sleeves can be used when it is necessary to connect circular ducts to the delivery end.

The flared sleeves are of the type suitable for connecting flexible hoses for conditioning systems, therefore the actual outside diameter of the sleeve is approximately 5mm smaller than the nominal inside diameter of the pipe to be connected.

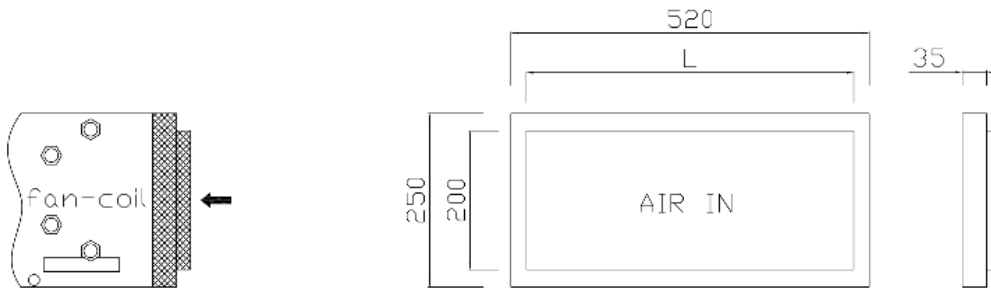


Fan-coil size	3	6	8/12
L (mm)	475	735	995
n. x D (mm)	1 x ø160	2 x ø160	3 x ø160
D = nominal inside diameter of the hose to be connected			

9.12-Air return flange (FRA)

The air return flange can be used when it is necessary to channel the air intake. The size of the intake outlet is compatible with the size of the GR return grille.

The return flange is also necessary to connect some plenums to the unit intake; on this subject, please refer to the specific paragraph of each plenum.

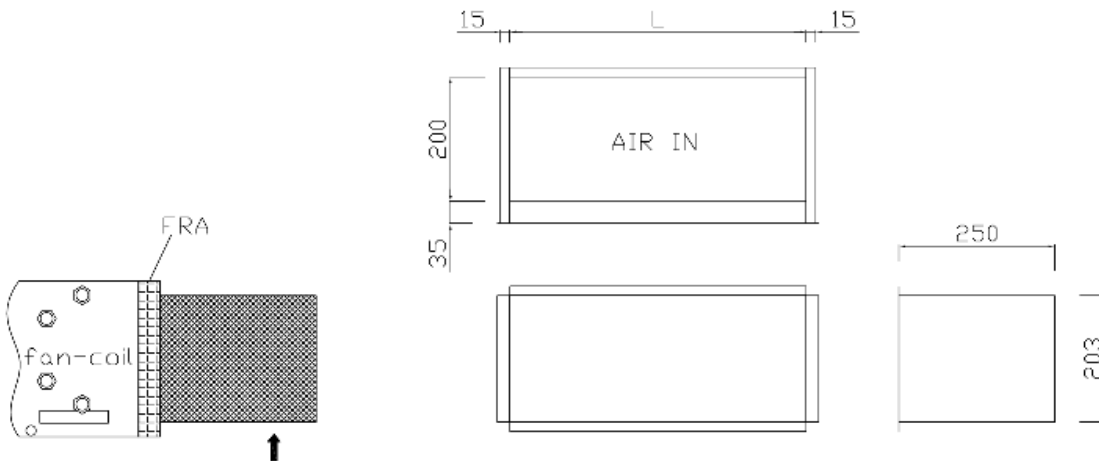


Fan-coil size	3	6	8/12
L (mm)	475	735	995

9.13-90° Intake plenum (PA90)

The 90° intake plenum can be used when the air intake outlet must be pointing downwards. The size of the plenum delivery outlet is compatible with the size of the GR return grille.

In order to connect the accessory to the unit, the FRA accessory must be interposed.



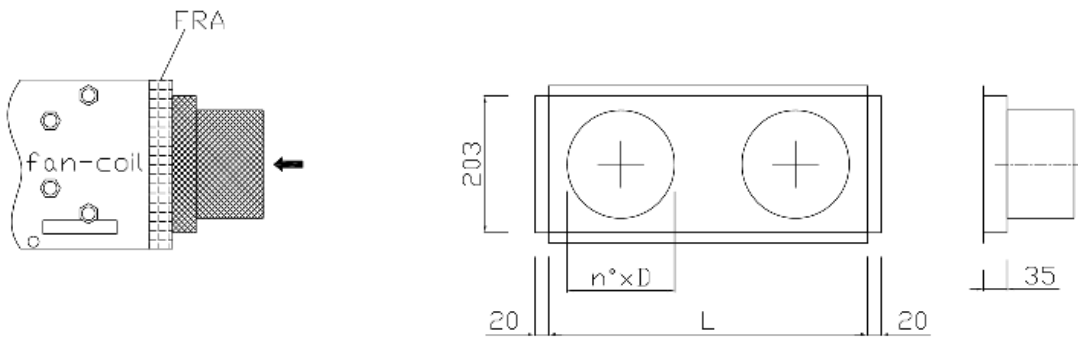
Fan-coil size	3	6	8/12
L (mm)	475	735	995

9.14-Intake plenum with spigot (PAS)

The intake plenum with flared sleeves can be used when it is necessary to connect circular ducts to the intake end.

The flared sleeves are of the type suitable for connecting flexible hoses for conditioning systems, therefore the actual outside diameter of the sleeve is approximately 5mm smaller than the nominal inside diameter of the pipe to be connected.

In order to connect the accessory to the unit, the FRA accessory must be interposed.



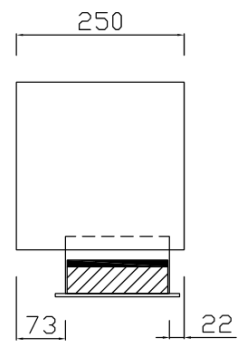
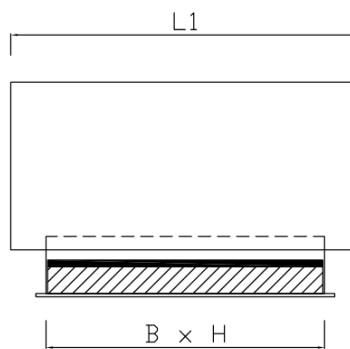
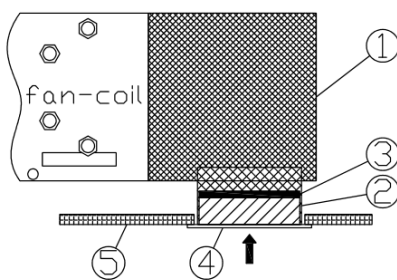
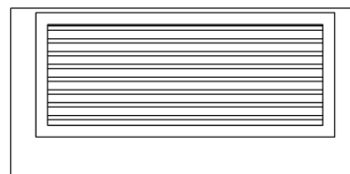
Fan-coil size	3	6	8/12
L (mm)	475	735	995
n. x D (mm)	1 x ø160	2 x ø160	3 x ø160
D = nominal inside diameter of the hose to be connected			

9.15-90° plenum with return grille and filter (PA90GF)

The 90° return plenum can be used when the air intake outlet must be pointing downwards, with the return grille applied directly to the plenum. This accessory is a kit consisting of the following components:

- 90° return plenum
- Telescopic return fitting, to adapt to the height of the false ceiling
- Return grille with inspectable filter

1	90° return plenum
2	Telescopic coupling
3	Filter
4	Return grille
5	False ceiling

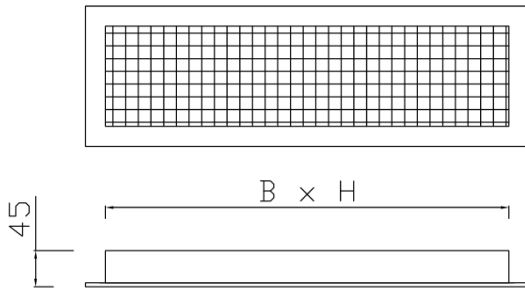


Fan-coil size	3	6	8/12
L1 (mm)	520	780	1040
B x H (mm)	415x155	675x155	935x155
B x H: nominal dimensions of the hole			

9.16-Dual adjustment delivery grille (GM2)

The delivery grille is made of RAL 9016 (white) painted aluminium. It is equipped with two rows of fins, which allow for double adjustment of the air flow: vertically and horizontally.

The frame is provided with holes for fixing the grille by means of screws (not supplied) which must be chosen according to the support material.



Fan-coil size	3	6	8/12
B x H (mm)	475x120	735x120	995x120
B x H: nominal dimensions of the hole			

9.17-Return grille (GR)

The return grille is made of RAL 9016 (white) painted aluminium. It has fixed horizontal fins, making the inside of the duct barely visible.

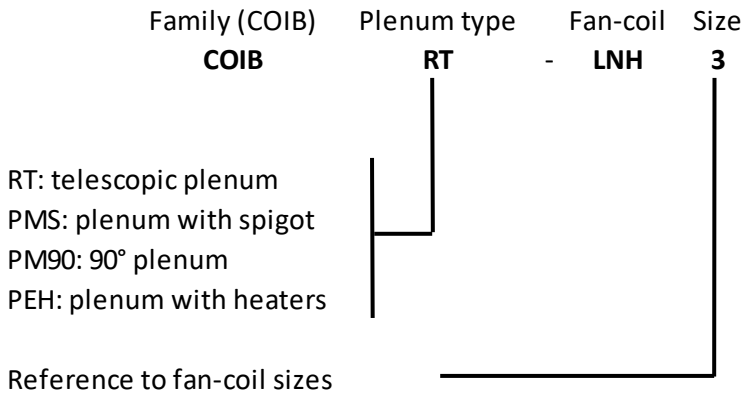
The frame is provided with holes for fixing the grille by means of screws (not supplied) which must be chosen according to the support material.



Fan-coil size	3	6	8/12
B x H (mm)	475x200	735x200	995x200
B x H: nominal dimensions of the hole			

9.18- Insulation for plenum (COIB)

When the plenums are installed on the delivery end, the COIB accessory must also be added, since the plenums supplied as part of the standard equipment are NOT insulated. The insulation, made of 3mm thick closed cell polyethylene, prevents condensation from collecting on the outside of the plenum when cold air flows through it.



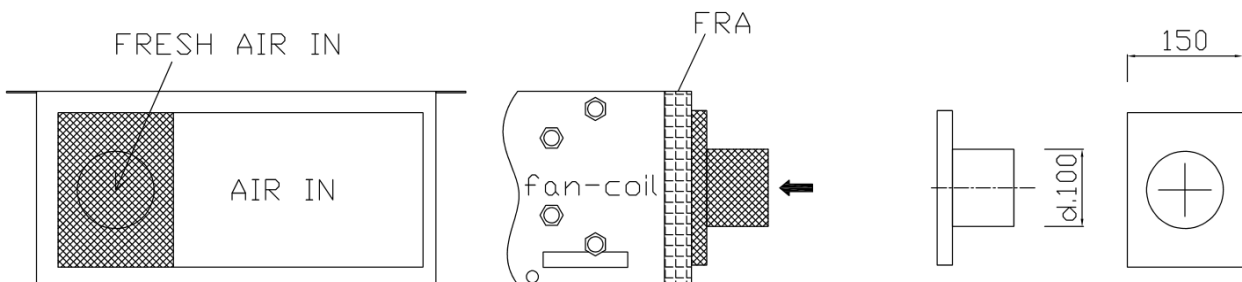
9.19-Flange for external air intake (FLAE)

The external air intake flange can be used when fresh air must be introduced from the outside. It is located at the unit return end and therefore the size of the flange for the recirculated air is reduced.

The flared sleeve is of the type suitable for connecting flexible hoses for conditioning systems, therefore the actual outside diameter of the sleeve is approximately 5mm smaller than the nominal inside diameter of the pipe to be connected.

The fresh air must be previously treated through a heat recovery unit or similar units. Direct intake of outdoor air is not allowed.

In order to connect the accessory to the unit, the FRA accessory must be interposed.



9.20-Synthetic fibre filter (FAG3)

The FAG3 synthetic fibre filter, classified ISO COARSE (ISO 16890) guarantees greater filtration efficiency than a standard filter, although it falls in the same class of filtration. This filter is NOT washable and must be replaced when it is dirty.

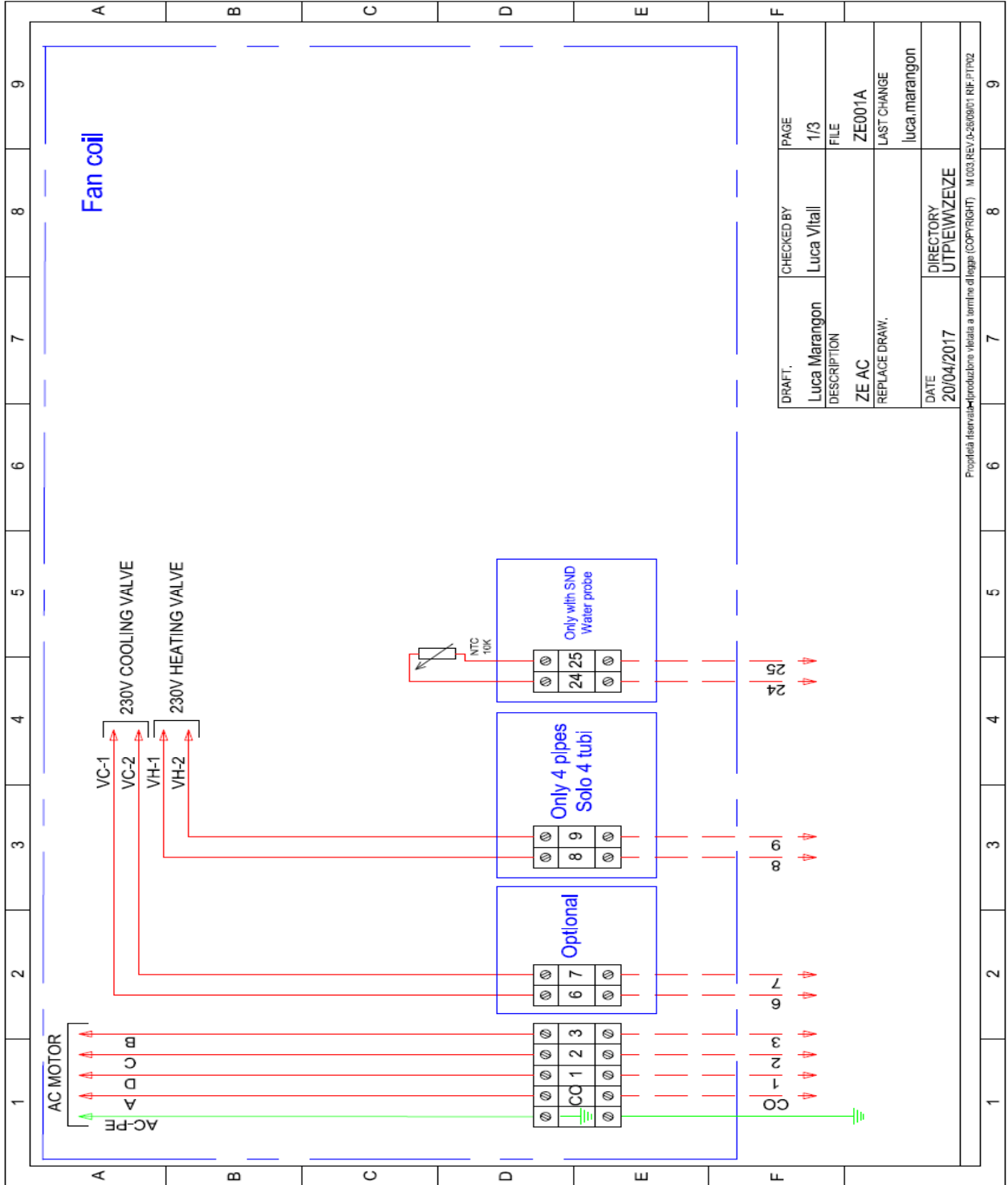
9.21-Filter in synthetic fibre with Sanitized treatment (FA/SAN)

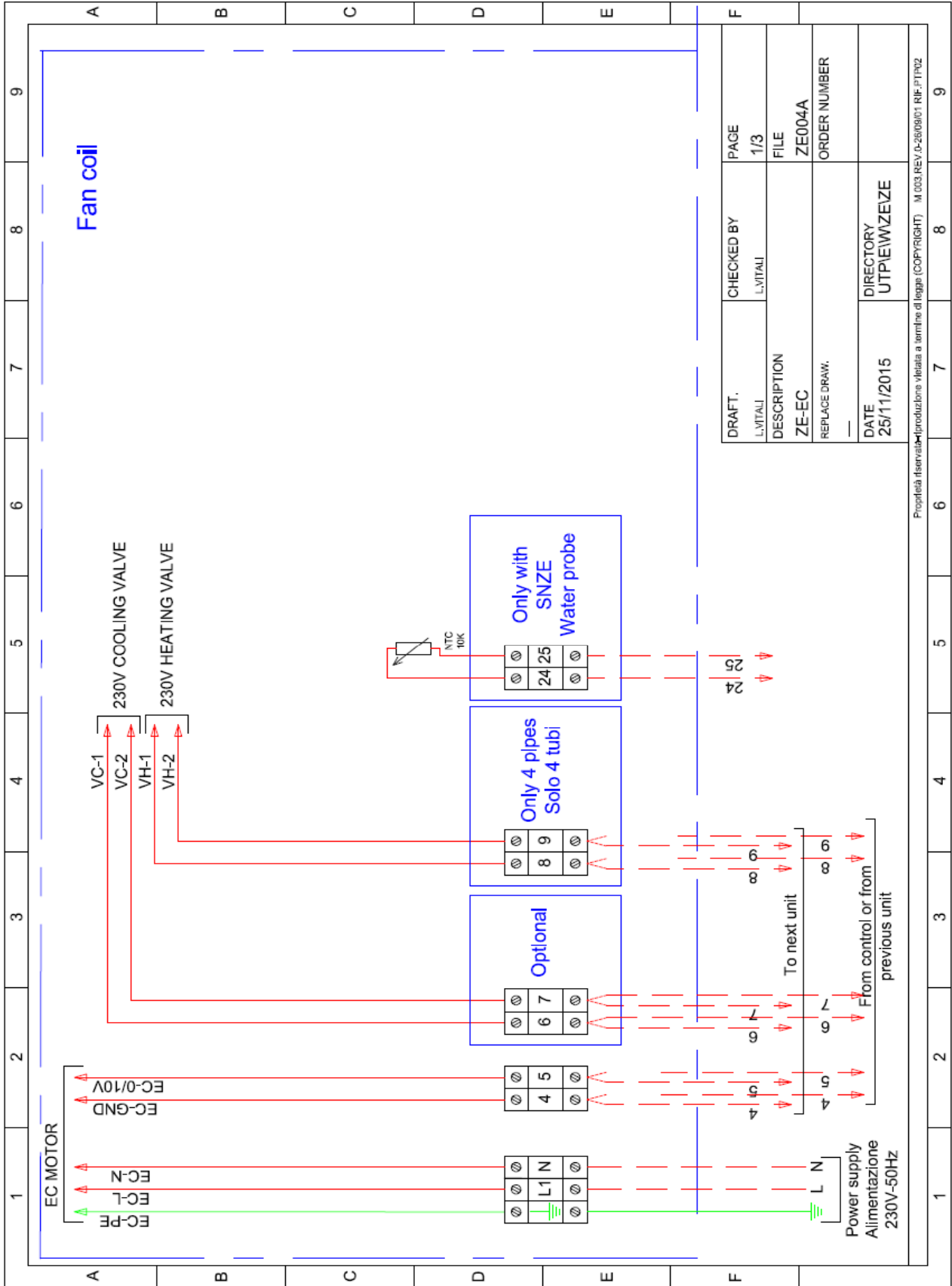
The FA/SAN synthetic fibre filter, classified ISO COARSE (ISO 16890) guarantees greater filtration efficiency than a standard filter, although it falls in the same class of filtration. Additionally, thanks to the special Sanitized treatment, it has an antibacterial effect and prevents fungal growth. This filter is NOT washable and must be replaced when it is dirty. More information and certificates relating to the tests carried out are available from our sales office.

10-ELECTRICAL CONNECTIONS

The electrical panel, based on the chosen configuration of the accessories, can consist of a sheet metal box or a plastic box.

Given the wide range of available accessories and their combinations, this manual only shows the wiring diagram of the "basic" unit, i.e. a three-speed AC or EC motor with 0/10V signal and 230V valves. Each machine is supplied with its specific wiring diagram, based on the chosen equipment.





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25/11/2015	UTPIEWZEZE	

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EXTERNAL THERMOSTAT CONTROLS	
CO	Common fan
1	Minimum fan speed (line)
2	Medium fan speed (line)
3	Maximum fan speed (line)
4	Reference with 0-10V signal
5	0-10V signal for motor control
6	Common 2-pipe valve / 4-pipe cold valve (neutral)
7	Common 2-pipe valve / 4-pipe cold valve (line)
8	Common 4-pipe hot valve (neutral) - only if available
9	4-pipe hot valve signal (line) - only if available
24-25	NTC water probe - only if available
26-27	NTC remote air probe - only if available



something different

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Aertesi srl
viale della tecnica, 6/a
35026 Conselve (PD) ITALY
t. +39.049.9501109
f. +39.049.9500823
www.aertesi.com
info@aertesi.com