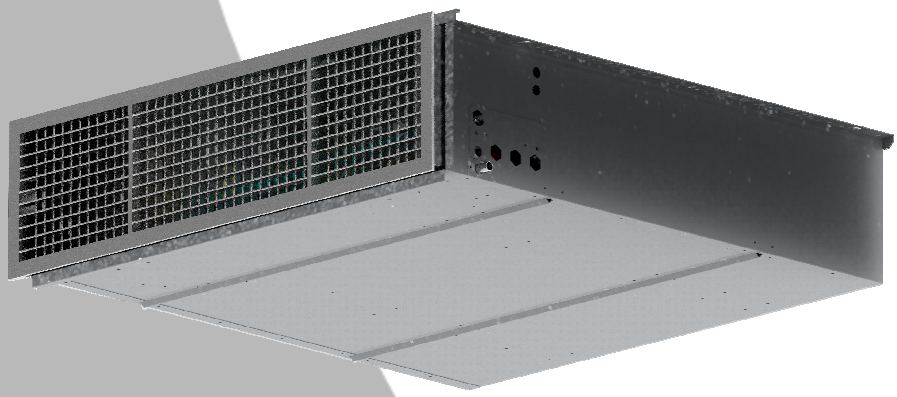
WESTERN™
AIRCONDITIONING
WARMTEPOMPEN

Aertesi
airpower

SERIES

SHS-B



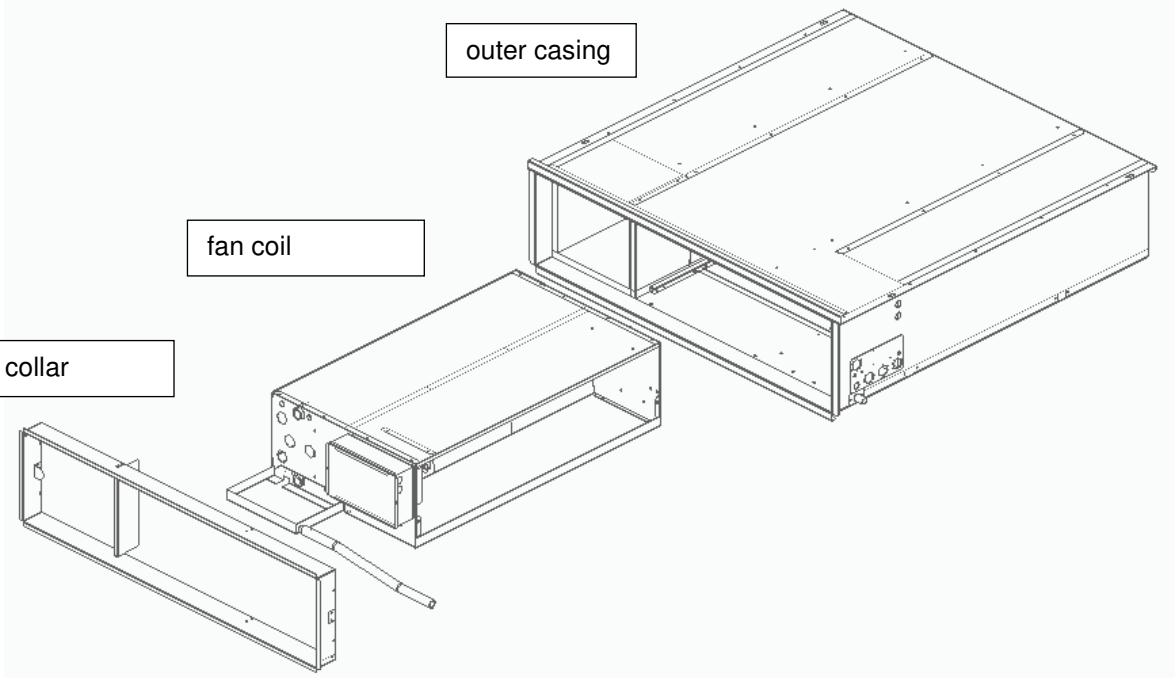
TECHNICAL MANUAL

Smart Hotel
Solution
FAN COILS

CONTENTS

1-INTRODUCTION

The units of the SHS series 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 minimise noise emissions, therefore, they are particularly suitable for installation in hotel rooms.
The unit consists of a horizontal recessed fan coil unit, complete with outer casing and collar for the delivery and return grille. The fan coil consists of a fan section (motor and fan) and heat exchange section (coil and condensate collection tray). The outer casing integrates a silencer at the delivery and return ends. A wide range of hydraulic and aeraulic accessories are also available as options, including the condensate drain pump, valves with pipe kit and the delivery/return grille
The SHS units are available with traditional three-speed motor (AC) and with low consumption motor (EC).



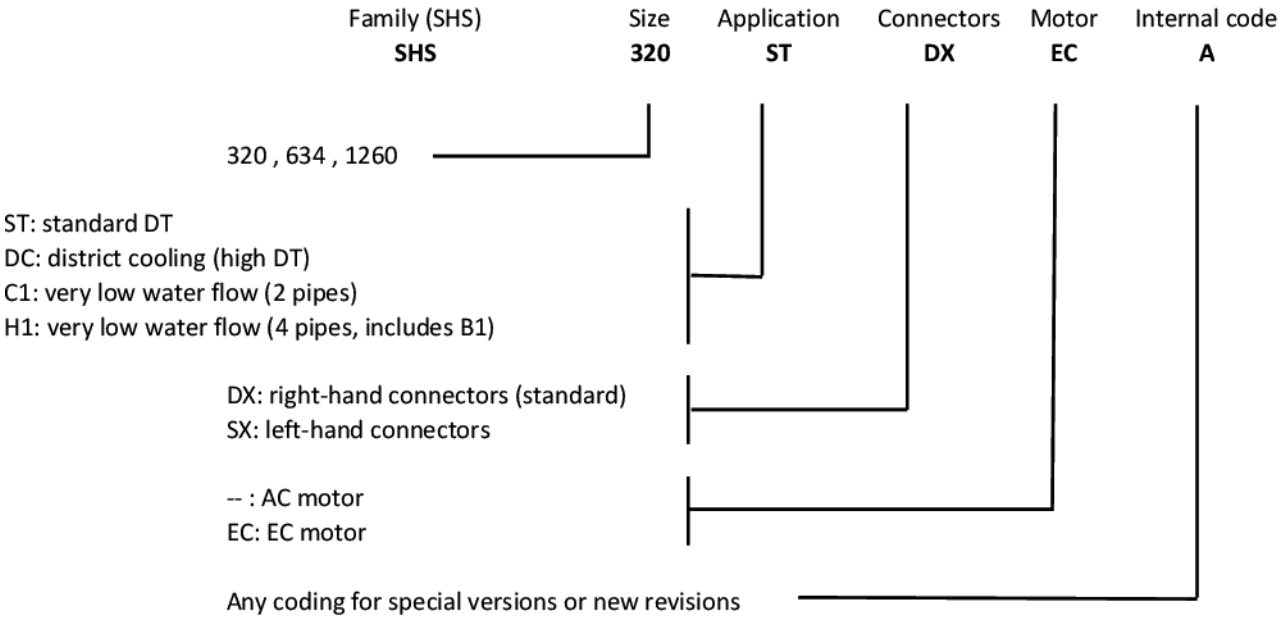
2-APPLICATION LIMITS

Electrical power supply	230V / 50 ÷ 60Hz (1)
Coil inlet water temperature	3 / 70°C
Return air temperature	10 / 50°C
Return air relative humidity	15 / 70%

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

The unit should only operate close to limit operating values for short periods of time, because operation close to limit conditions for prolonged periods can reduce the normal lifetime of unit components.

3-CODES INTERPRETATION KEY



4-MAIN ASSETS

The SHS series units offer a number of advantages in terms of both design and reduction of installation costs:

- Elimination of inspection hatches in the plasterboard under the recessed fan coil
- Possibility of routing pipes or components of other systems (e.g. fire prevention system) below the fan coil
- No ducts, plenums or other aeraulic works
- A single grille for both delivery and return
- Factory pre-assembled solutions with regulation or dynamic balancing valves, ball valves, drain pumps and electronic control boards.
- Possibility of having hydraulic connections on the side or on the rear of the outer casing
- Low noise emissions and low electricity consumption (in particular for the version with EC motor)

5-CONTROL

The units of the SHS 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.

TOP3 Wall thermostat	IRC-SP3 + IRR-SP3 Remote control and receiver
	

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.

6-TECHNICAL SPECIFICATIONS

OUTER CASING FRAME: made of 1.0 mm thick galvanized sheet steel. This rugged structure prevents the propagation of vibration and comes complete with ceiling fixing brackets. A telescopic collar is also included to adapt the outer casing to the plasterboard wall, on which the grille must be fixed.

FAN COIL FRAME: made of 0.8mm thick galvanized sheet steel.

ACCESSIBILITY: the outer casing is equipped with slides that allow the fan coil unit to be removed from the front (from the hole in the grille) to carry out unscheduled maintenance. Through the hole in the grille it is also possible to carry out all routine maintenance operations on valves, electrical panel, filter; therefore, it is not necessary to cut inspection hatches in the false ceiling under the fan coil unit.
The hydraulic connectors are provided as standard on the right side, and optionally on the left (viewed from in front of the fan-coil).

FILTER: ISO COARSE class with ePM10 efficiency <50% (ISO 16890), 3mm thickness, in washable synthetic material. Other types on request. Positioned behind the grille, it is easily inspected and removable.

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.

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. The tray extends to below the valve group.

INSULATION: the fan coil unit and the tray are insulated with 3mm thick polyurethane, to prevent condensation on the structural metalwork. The integrated delivery and return silencer of the outer casing is insulated with 20mm thick polyester fibre, 100% recyclable ecological material, fire reaction class BS1d0 (for 20mm thickness, density 40kg/m3). The thermo-acoustic insulation is protected from moisture and dust by a surface treatment which makes it particularly smooth and compact, preventing the shedding of fibres into the air.

ELECTRICAL CONTROL PANEL: made of galvanized sheet steel or plastic and positioned on the front side, behind the grille.
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.

NOTE: the fan coil is not equipped with a filter, because this is provided in the return section of the GMR grille (available as an accessory). If you choose to install a grille other than the one suggested as an accessory in this manual, it is essential to provide an adequate filter inside the grill.

7- TECHNICAL DATA (AC motors)

This chapter lists the operating specifications of the units with 4-row main coils and 1-row auxiliary coils.
District Cooling (DC) coils and coils for applications with extremely low water flow rates (C1 and H1) are also available from our selection software.

7.1-2-pipe unit

		320			634			1260		
		4 rows			4 rows			4 rows		
Speed		min	med	max	min	med	max	min	med	max
Air flow rate	m3/h	145	240	280	210	340	410	n.a.	n.a.	n.a.
COOLING - air 27 °C (dry bulb), 19 °C w.b. - water inlet 7 °C, outlet 12 °C										
Total capacity	kW	0.98	1.48	1.66	1.41	2.09	2.42	n.a.	n.a.	n.a.
Sensitive capacity	kW	0.73	1.12	1.27	1.05	1.60	1.87	n.a.	n.a.	n.a.
Water flow rate	l/h	168	254	286	242	360	416	n.a.	n.a.	n.a.
Δp (water)	kPa	4.4	9.0	11.1	1.9	3.8	4.9	n.a.	n.a.	n.a.
HEATING - air 20 °C - water inlet 45 °C, outlet 40 °C										
Capacity	kW	1.00	1.56	1.78	1.46	2.25	2.62	n.a.	n.a.	n.a.
Water flow rate	l/h	174	270	308	253	389	454	n.a.	n.a.	n.a.
Δp (water)	kPa	3.8	8.3	10.4	1.7	3.6	4.7	n.a.	n.a.	n.a.
MOTOR ELECTRIC POWER DRAW										
Power draw	W	18	29	35	20	35	44	n.a.	n.a.	n.a.
Max power draw	A	0.19			0.24			n.a.		
SOUND DATA										
Sound power	dB(A)	33	38	40	30	36	39	n.a.	n.a.	n.a.
Sound pressure (*)	dB(A)	24	29	31	21	27	30	n.a.	n.a.	n.a.

(*) = 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

		320 + B1			634 + B1			1260 + B1		
		4 rows + 1			4 rows + 1			4 rows + 1		
Speed		min	med	max	min	med	max	min	med	max
Air flow rate	m3/h	145	240	280	210	340	410	n.a.	n.a.	n.a.
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C										
Total capacity	kW	0.98	1.48	1.66	1.41	2.09	2.42	n.a.	n.a.	n.a.
Sensitive capacity	kW	0.73	1.12	1.27	1.05	1.60	1.87	n.a.	n.a.	n.a.
Water flow rate	l/h	168	254	286	242	360	416	n.a.	n.a.	n.a.
Δp (water)	kPa	4.4	9.0	11.1	1.9	3.8	4.9	n.a.	n.a.	n.a.
HEATING - air 20 °C - water inlet 65°C, outlet 55°C										
Capacity	kW	0.89	1.25	1.38	1.37	1.90	2.16	n.a.	n.a.	n.a.
Water flow rate	l/h	78	109	121	119	166	188	n.a.	n.a.	n.a.
Δp (water)	kPa	1.4	2.6	3.1	4.7	8.5	10.6	n.a.	n.a.	n.a.
MOTOR ELECTRIC POWER DRAW										
Power draw	W	18	29	35	20	35	44	n.a.	n.a.	n.a.
Max power draw	A	0.19			0.24					
SOUND DATA										
Sound power	dB(A)	33	38	40	30	36	39	n.a.	n.a.	n.a.
Sound pressure (*)	dB(A)	24	29	31	21	27	30	n.a.	n.a.	n.a.

(*) = 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.

8 - TECHNICAL DATA (EC motors)

This chapter lists the operating specifications of the units with 4-row main coils and 1-row auxiliary coils.
District Cooling (DC) coils and coils for applications with extremely low water flow rates (C1 and H1) are also available from our selection software.

8.1-2-pipe unit

		320			**634**			**1260**		
		4 rows			4 rows			4 rows		
Speed (Drive voltage)	V	1	3.5	10	1	3.5	10	1	3.5	10
Air flow rate	m3/h	85	150	325	140	220	450	200	380	870
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C										
Total capacity	kW	0.61	1.01	1.86	0.99	1.47	2.60	1.44	2.52	4.80
Sensitive capacity	kW	0.45	0.75	1.44	0.73	1.10	2.02	1.05	1.87	3.73
Water flow rate	l/h	106	173	321	170	252	447	248	432	825
Δp (water)	kPa	1.9	4.6	13.6	1.0	2.0	5.5	3.3	8.7	27.0
HEATING - air 20 °C - water inlet 45 °C, outlet 40 °C										
Capacity	kW	0.61	1.04	2.01	1.00	1.52	2.84	1.44	2.60	5.21
Water flow rate	l/h	106	179	348	174	264	491	249	449	902
Δp (water)	kPa	1.6	4.0	13.0	0.9	1.8	5.4	2.7	7.7	26.1
MOTOR ELECTRIC POWER DRAW										
Power draw	W	4	6	20	5	8	22	5	11	60
Max power draw	A	0.22			0.21			0.53		
SOUND DATA										
Sound power	dB(A)	30	32	44	30	33	42	29	33	49
Sound pressure (*)	dB(A)	21	23	35	21	24	33	20	24	40

(*) = 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.

8.2-4-pipe unit

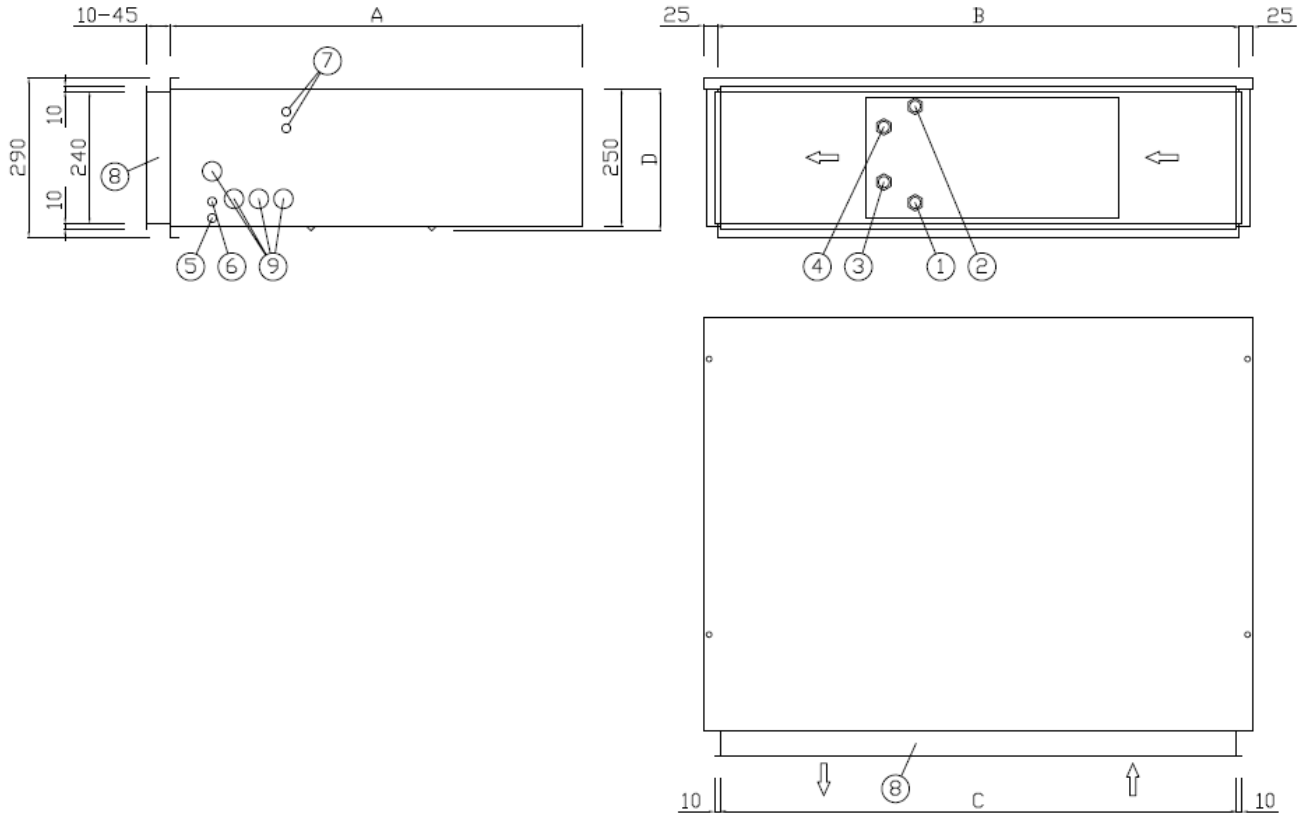
		320 + B1			634 + B1			1260 + B1		
		4 rows + 1			4 rows + 1			4 rows + 1		
Speed (Drive voltage)	V	1	3.5	10	1	3.5	10	1	3.5	10
Air flow rate	m3/h	85	150	325	140	220	450	200	380	870
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C										
Total capacity	kW	0.61	1.01	1.86	0.99	1.47	2.60	1.44	2.52	4.80
Sensitive capacity	kW	0.45	0.75	1.44	0.73	1.10	2.02	1.05	1.87	3.73
Water flow rate	l/h	106	173	321	170	252	447	248	432	825
Δp (water)	kPa	1.9	4.6	13.6	1.0	2.0	5.5	3.3	8.7	27.0
HEATING - air 20 °C - water inlet 65°C, outlet 55°C										
Capacity	kW	0.61	0.91	1.52	1.03	1.41	2.29	1.42	2.23	3.84
Water flow rate	l/h	53	79	133	89	123	200	124	194	335
Δp (water)	kPa	0.7	1.5	3.6	2.9	5.0	11.8	1.2	2.7	7.0
MOTOR ELECTRIC POWER DRAW										
Power draw	W	4	6	20	5	8	22	5	11	60
Max power draw	A	0.22			0.21			0.53		
SOUND DATA										
Sound power	dB(A)	30	32	44	30	33	42	29	33	49
Sound pressure (*)	dB(A)	21	23	35	21	24	33	20	24	40

(*) = 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.

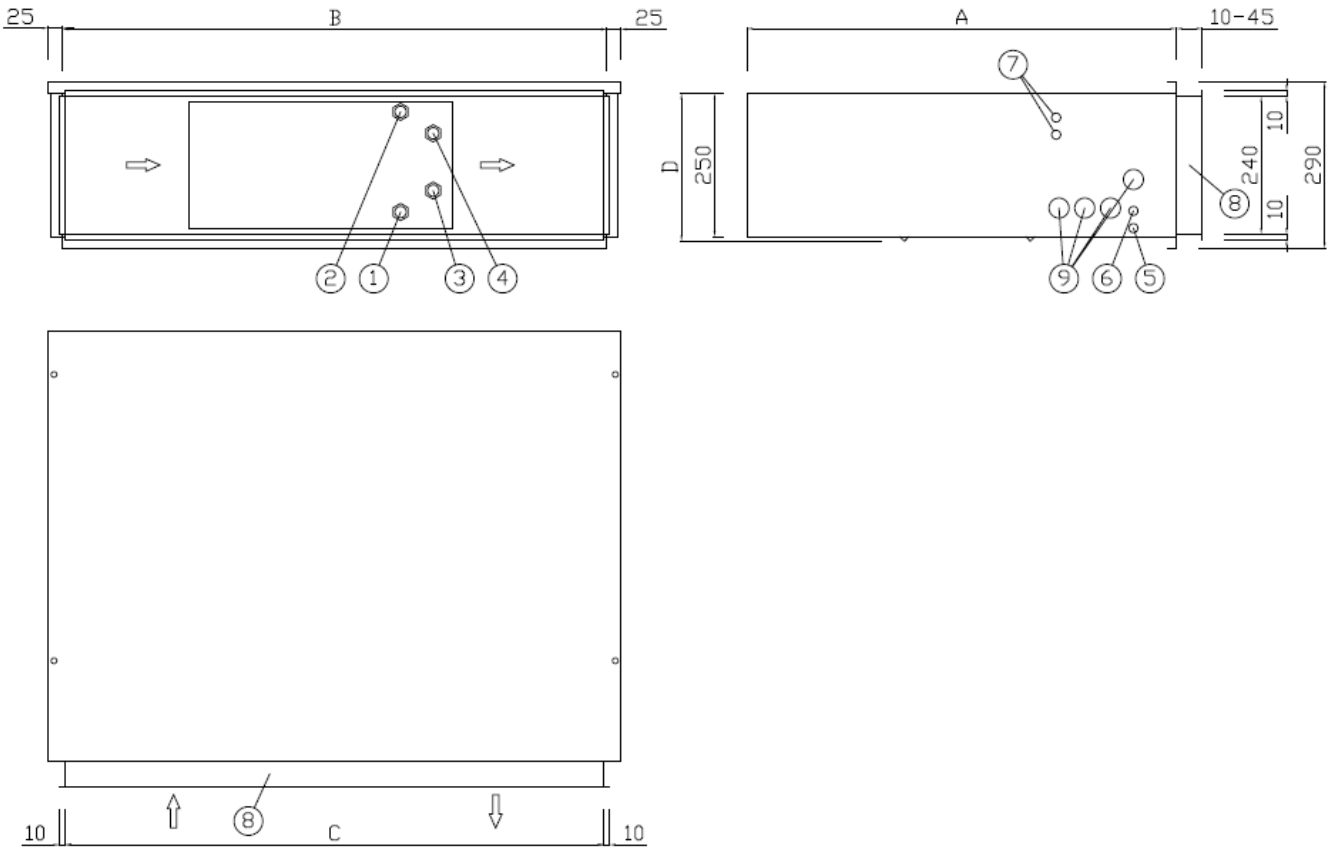
9-DIMENSIONS AND WEIGHTS

1 - main coil input	2 - main coil output
3 - auxiliary coil input	4 - auxiliary coil output
5 - condensate drain	6 - condensate drain with pump
7 - wiring cables inlet	8 - telescopic collar for grille
9 - holes for hydraulic pipes inlet (for basic version, without valves)	

Unit with standard ST coil (right-hand connectors)



Unit with standard ST coil (left-hand connectors)

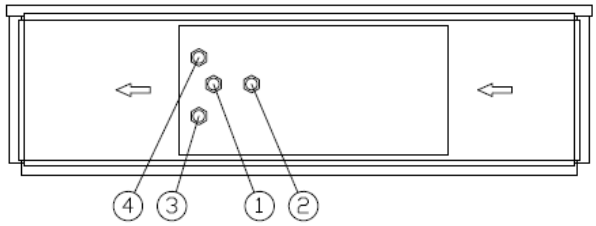


DIMENSIONS		320	634	1260
A	mm	750	1010	1270
B	mm	950	950	1050
C	mm	940	940	1040
D	mm	260	260	270
1 - Main coil INPUT	“	1/2”		
2 - Main coil OUTPUT	“	1/2”		
3 - Auxiliary coil INPUT	“	1/2”		
4 - Auxiliary coil OUTPUT	“	1/2”		
5 - condensate drain	mm	d.16		
6 - condensate drain with pump	mm	d.6		

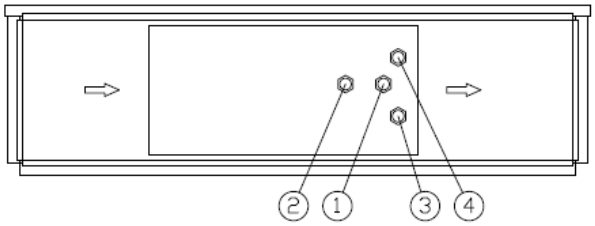
WEIGHTS		320	634	1260
Unit weight	**kg**	27	35	45
Main coil inside volume	**litres**	1.02	1.59	2.16
Auxiliary coil inside volume	**litres**	0.26	0.40	0.54

Units with DC, C1, H1 coils have connectors in the positions shown in the drawings below, i.e. other than the ST standard.

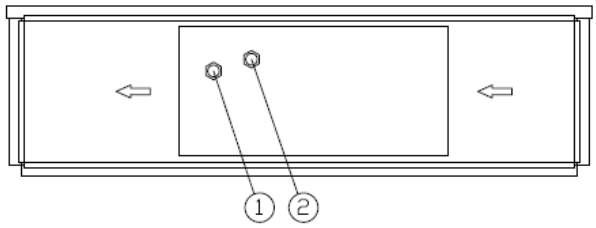
DC coil with right-hand connectors



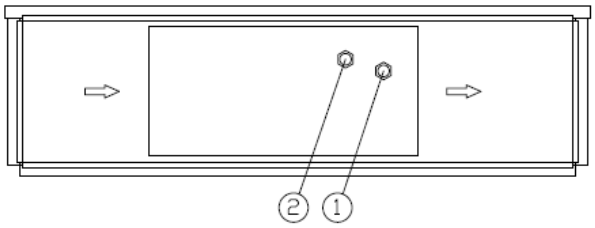
DC coil with left-hand connectors



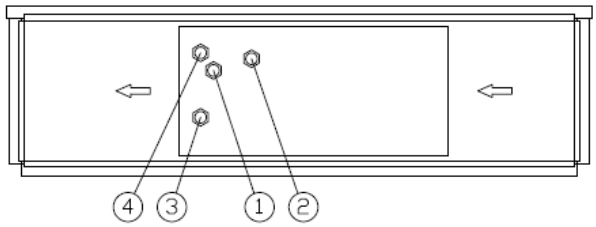
C1 coil with right-hand connectors



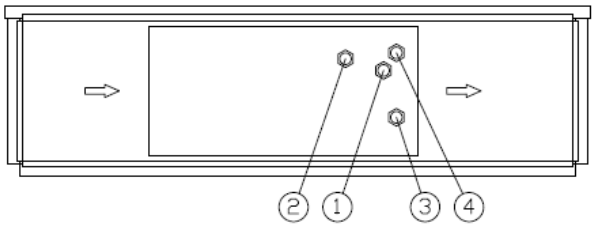
C1 coil with left-hand connectors



H1 coil with right-hand connectors



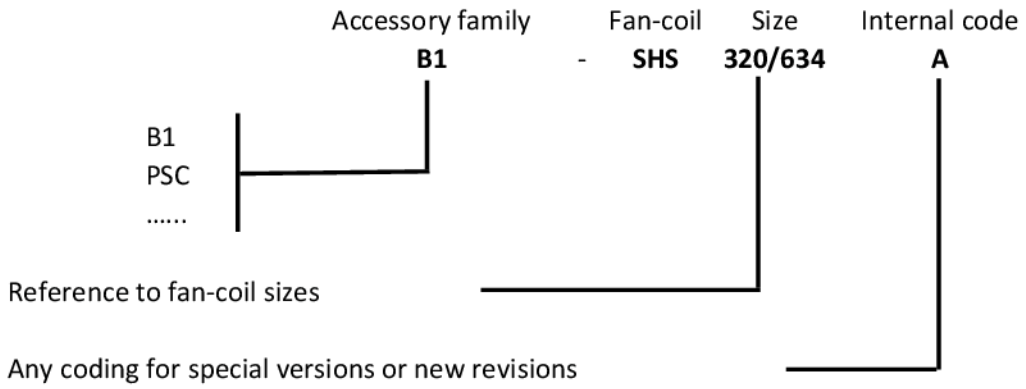
H1 coil with left-hand connectors



10-ACCESSORIES

		HYDRAULIC ACCESSORIES
1	**B1**	Auxiliary coil for 4-pipe systems
2	**V**	Valve (for the VBD dynamic balancing valve, see the specific manual)
3	**PSC**	Condensate drain pump
		ELECTRICAL ACCESSORIES
4	**TR24**	Transformer for modulating valve
5	**ETBN-2.5A**	Power relay board for master-slave
6	**SC3**	Three-speed EC motor control board
		AERAULIC ACCESSORIES
7	**GMR**	Delivery-Return grille
8	**FLAE**	External air intake flange (for hard pipes)
9	**FLAE1**	External air intake flange (for flex hoses)

Unless otherwise specified, the ordering codes for the accessories consist of the accessory code followed by the fan-coil size:



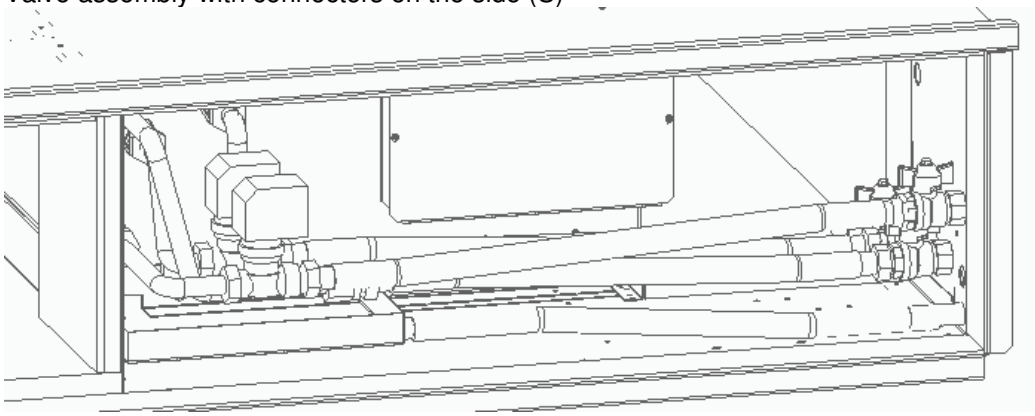
10.1 -Auxiliary coil (B1)

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 some of the connecting pipes have 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.
The auxiliary coil is available as an accessory with the main coils ST and DC.
To obtain an auxiliary coil as an accessory for the C1 coil, the H1 version of the unit must be ordered, which includes the main coil C1 and the auxiliary coil B1.

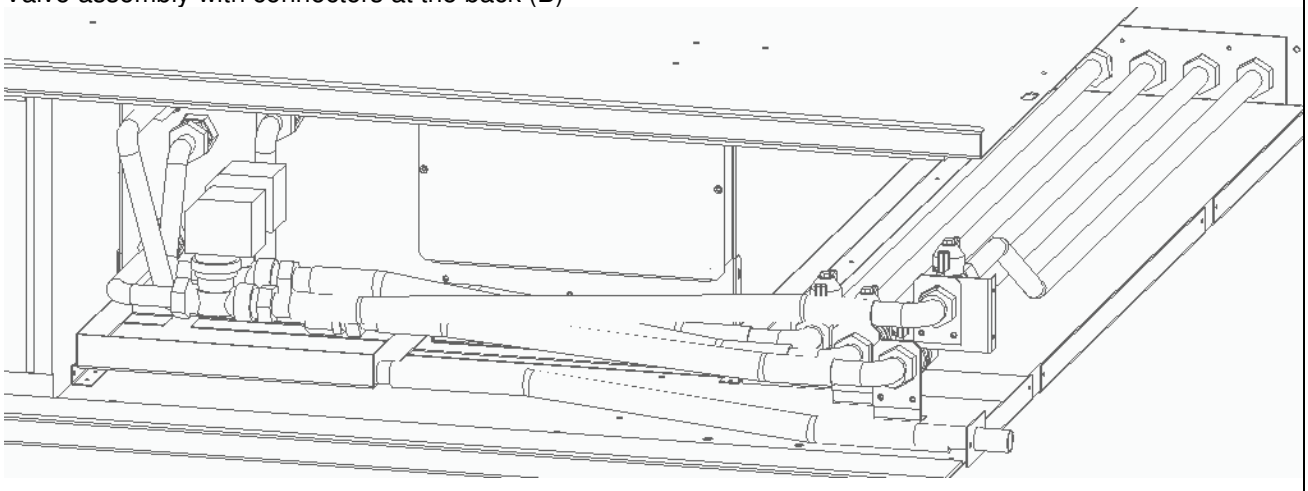
10.2-Valves (V)

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 fitted to the unit in two different configurations: with connectors on the side (S) and at the back (B).

Valve assembly with connectors on the side (S)



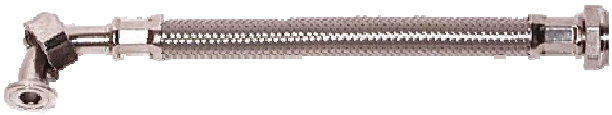
Valve assembly with connectors at the back (B)



Both configurations (S and B) include:

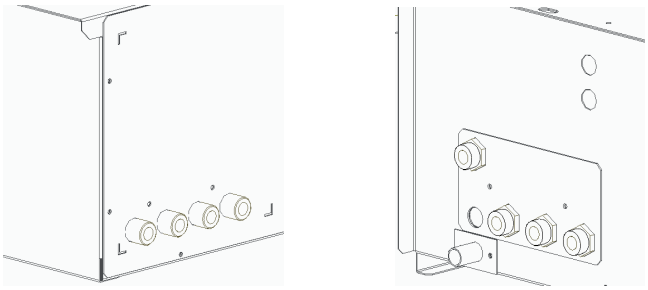
- Copper pipes for connection between coil and valve
- Two-way regulation valve (V) or dynamic balancing valve (VBD) - on-off or modulating actuator

- Flexible hoses with low oxygen permeability

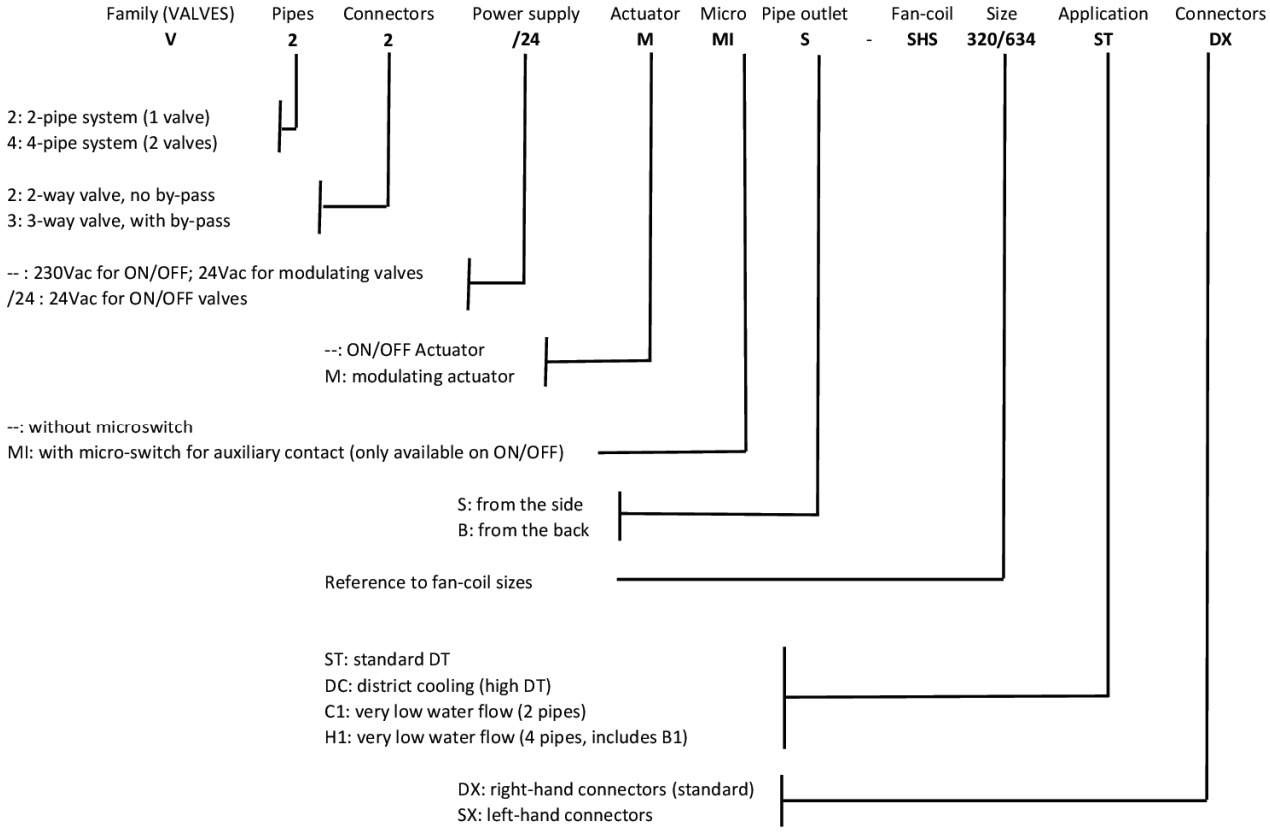


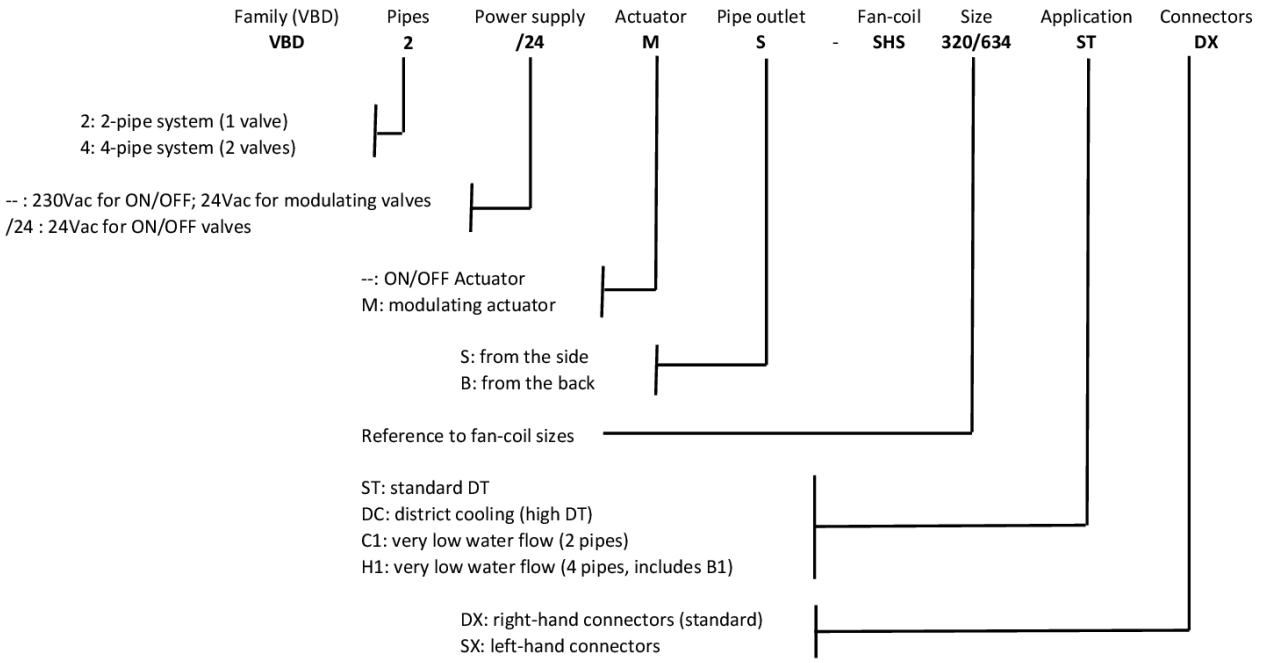
- Shut-off ball valves

- Copper pipes and/or brass fittings to allow connection by the installer from the side (S) of the unit or from the back (B).



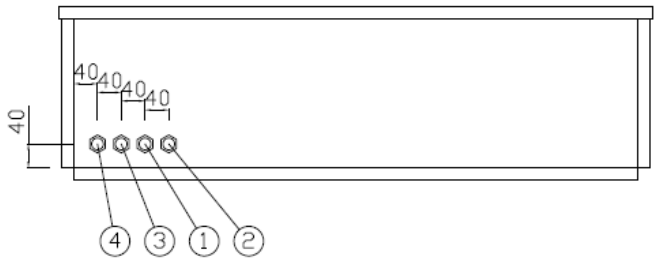
The condensate collection tray extends to the outside the unit and under the valve of the main coil. The pipes outside the condensate tray are insulated to prevent condensate dripping.
In both configurations, the condensate drain and the electrical cable inlet are located on the side.


Family (VALVES) V
Pipes 2
Connectors 2
Power supply /24
Actuator M
Micro MI
Pipe outlet S
-
Fan-coil SHS
Size 320/634
Application ST
Connectors DX
2: 2-pipe system (1 valve)
4: 4-pipe system (2 valves)
2: 2-way valve, no by-pass
3: 3-way valve, with by-pass
-- : 230Vac for ON/OFF; 24Vac for modulating valves
/24 : 24Vac for ON/OFF valves
--: ON/OFF Actuator
M: modulating actuator
--: without microswitch
MI: with micro-switch for auxiliary contact (only available on ON/OFF)
S: from the side
B: from the back
Reference to fan-coil sizes
ST: standard DT
DC: district cooling (high DT)
C1: very low water flow (2 pipes)
H1: very low water flow (4 pipes, includes B1)
DX: right-hand connectors (standard)
SX: left-hand connectors

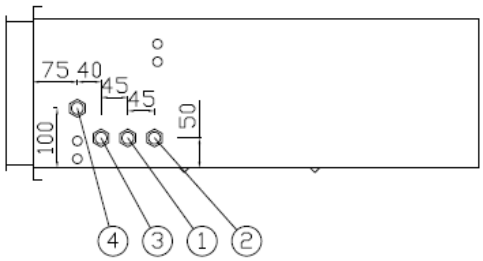

Family (VBD) VBD
Pipes 2
Power supply /24
Actuator M
Pipe outlet S
-
Fan-coil SHS
Size 320/634
Application ST
Connectors DX
2: 2-pipe system (1 valve)
4: 4-pipe system (2 valves)
-- : 230Vac for ON/OFF; 24Vac for modulating valves
/24 : 24Vac for ON/OFF valves
--: ON/OFF Actuator
M: modulating actuator
S: from the side
B: from the back
Reference to fan-coil sizes
ST: standard DT
DC: district cooling (high DT)
C1: very low water flow (2 pipes)
H1: very low water flow (4 pipes, includes B1)
DX: right-hand connectors (standard)
SX: left-hand connectors

Unit with right-hand connectors (DX, R.-H.)

Pipe outlet from the back (B)

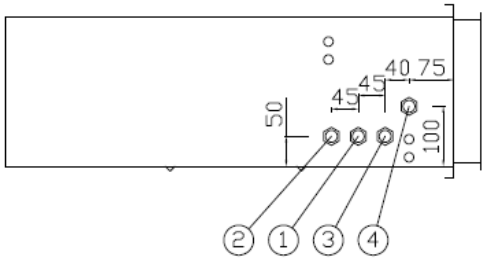


Pipe outlet from the side (S)

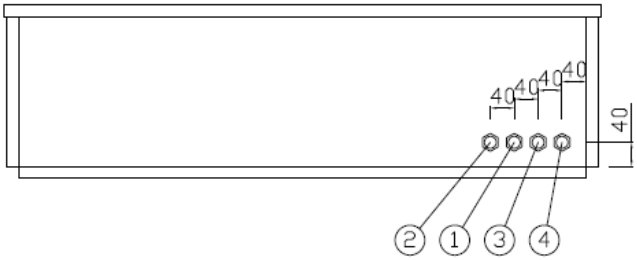


Unit with left-hand connectors (SX, L.-H.)

Pipe outlet from the side (S)



Pipe outlet from the back (B)

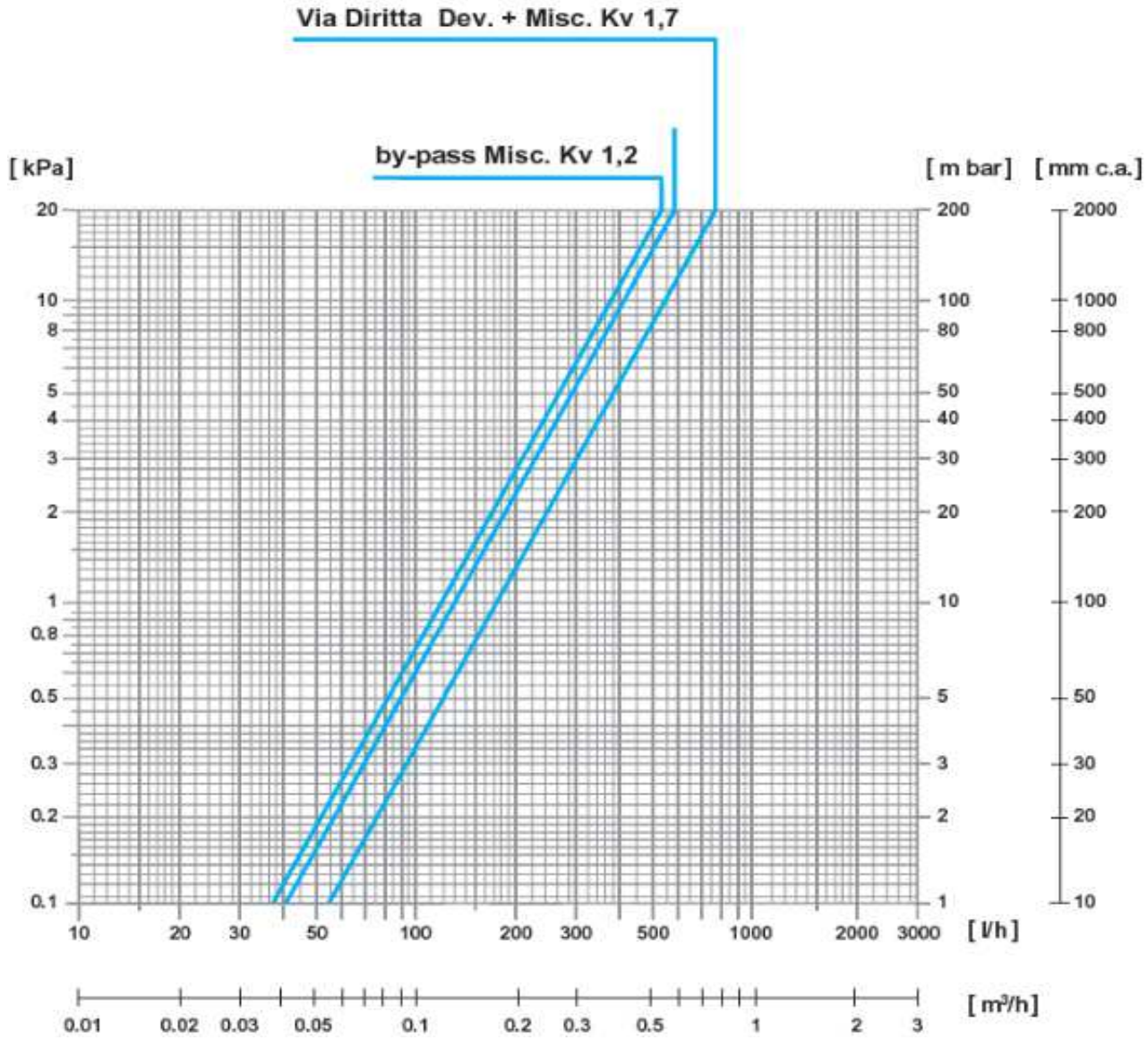


TECHNICAL SPECIFICATIONS 2-WAY REGULATION VALVES (V)

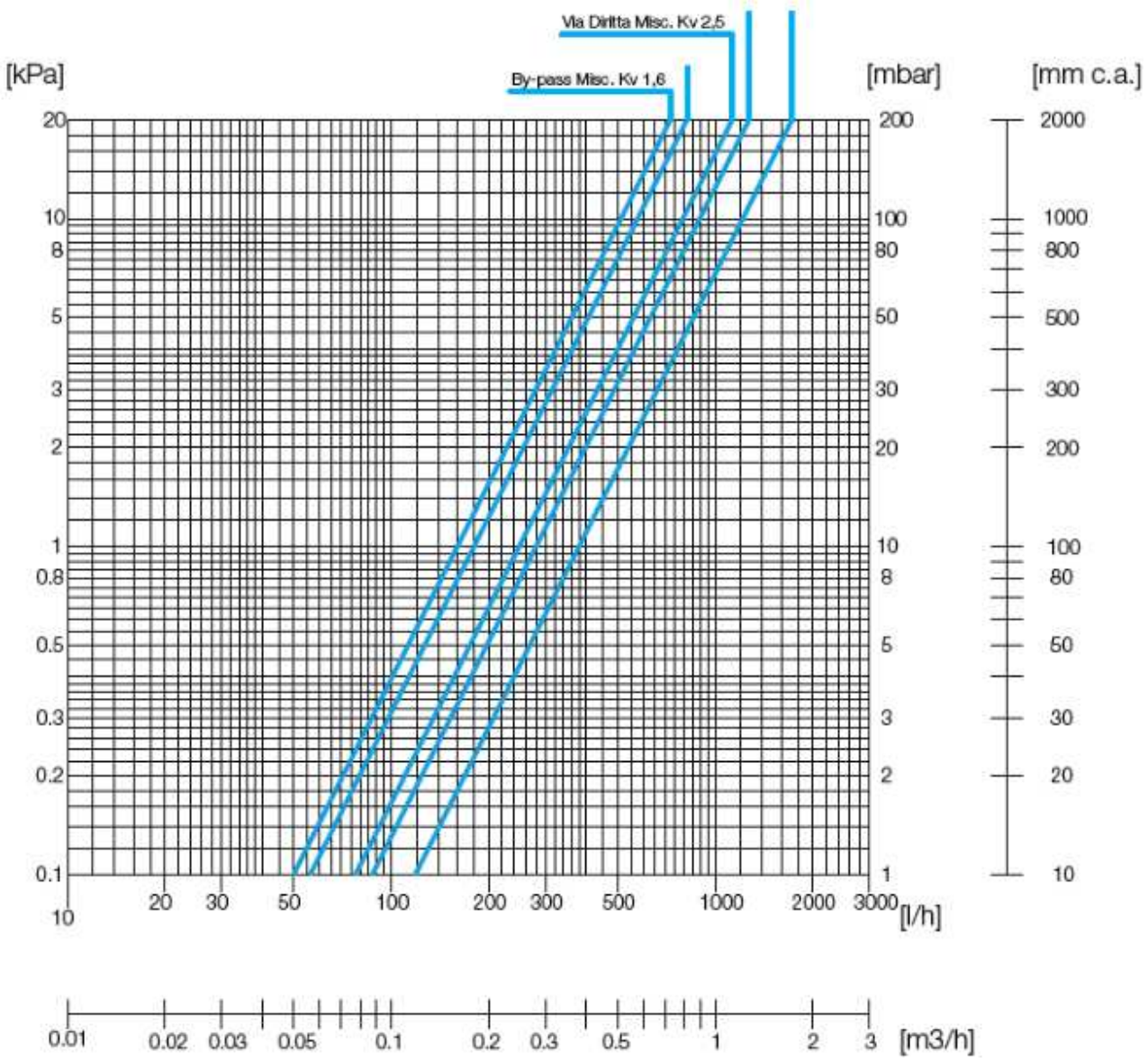
Unit with ST coil	**VALVE FOR MAIN COIL (SHS 320/634)**	**VALVE FOR MAIN COIL (SHS 1260)**
Unit with DC, C1, H1 coil	**VALVE FOR MAIN COIL (SHS 320/1260)**	**--**
Unit with ST, DC, C1, H1 coil	**VALVE FOR AUXILIARY COIL (SHS 320/1260)**	**--**
GENERAL CHARACTERISTICS		
Connections size	1/2”	3/4”
Kv (2-way 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



TECHNICAL SPECIFICATIONS DYNAMIC BALANCING VALVES (VBD)

Unit with ST coil	**VALVE FOR MAIN COIL (SHS 320)**	**VALVE FOR MAIN COIL (SHS 6341260)**
Unit with DC, C1, H1 coil	**VALVE FOR AUXILIARY COIL (SHS 320/1260)**	**--**
Unit with ST, DC, C1, H1 coil	**VALVE FOR AUXILIARY COIL (SHS 320/1260)**	**--**
GENERAL CHARACTERISTICS		
Model	VDL010F200	VDL015F200H
Connections size	1/2”	3/4”
Flow rate adjustment range	65…370 l/h	220…1330 l/h

For any further information on dynamic balancing valves, please refer to the specific technical manual.

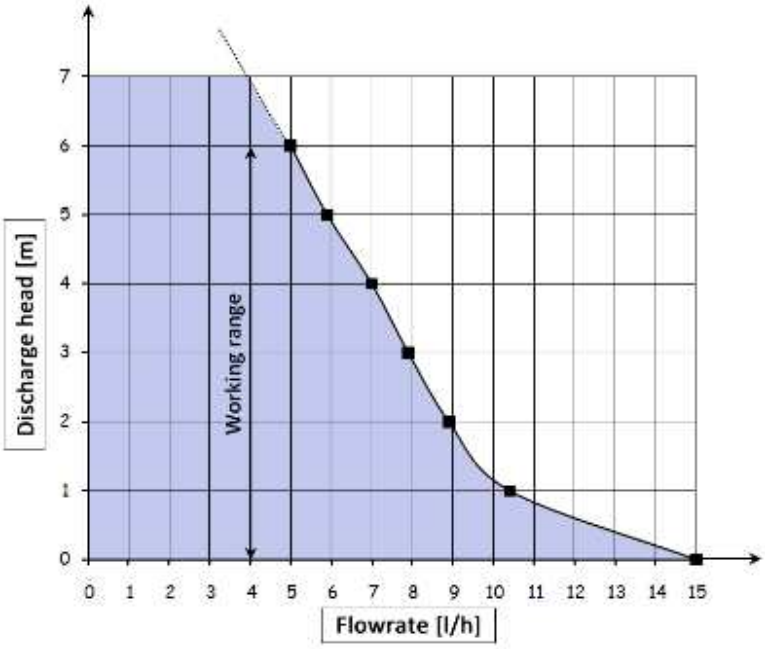
10.3-Condensate drain pump (PSC)

Condensate drain pumps are supplied already assembled in the unit.

Family (PUMPS)		Fan-coil	Size
PSC	-	**SHS**	**320/1260**

Reference to fan-coil sizes

Maximum water flow rate	15 l/h
Maximum drainage height	6m (5 l/h)
Sound pressure at 1 m	20 dB(A)
Power supply	230V – 50/60Hz
Alarm microswitch	Resistive NC 5A 250V
Circuit breaker	automatic reset
Protection	IP64
Power draw	19W

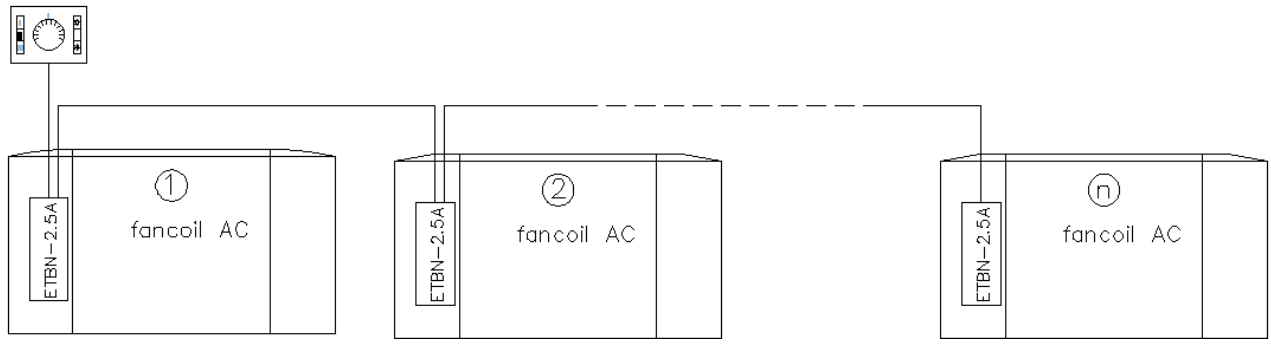


10.4-Transformer for modulating valves (TR24)

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.

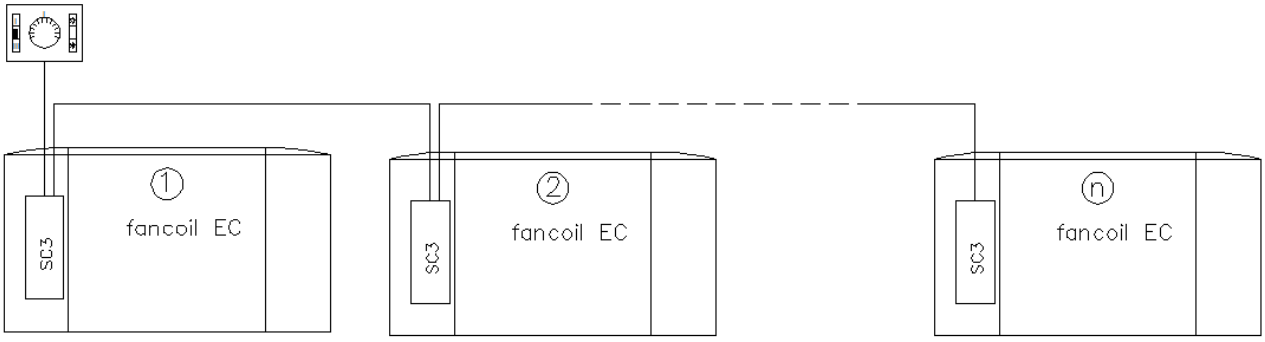
10.5-Power relay board for master-slave (ETBN-2.5A)

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.



10.6-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.



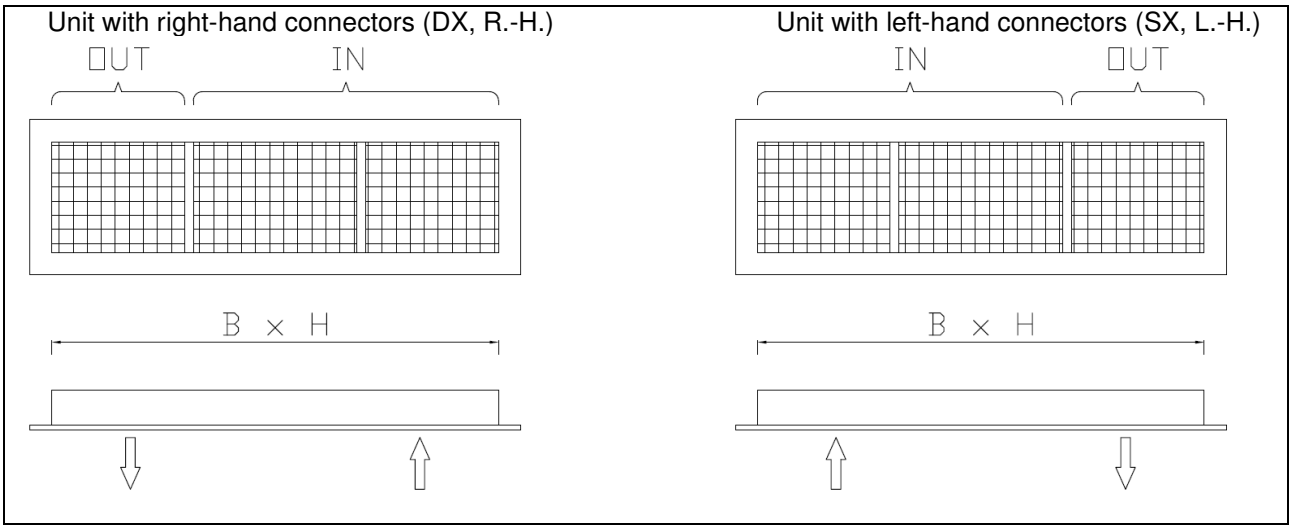
10.7-Dual adjustment delivery grille (GMR)

The delivery and return grille is made of RAL 9010 (white) painted aluminium. It is equipped with two rows of fins, which allow for double adjustment of the air flow: vertically and horizontally. Delivery air flows through about 1/3 of its length while intake air flows through the remaining 2/3. The filter is located behind the intake section which makes it easy to inspect.

Family (Grid)		Fan-coil	Size
GMR	-	**SHS**	**320/634**

Reference to fan-coil sizes

The grille has suitable dimensions for being housed in the telescopic collar of the unit. The dimensions of the hole in the plasterboard allowing the grille and collar to be installed are shown in the table below.



Fan-coil size	320/634	1260
B x H (mm)	945 x 240	1045 x 240
B x H: nominal dimensions of the hole for grille and collar		

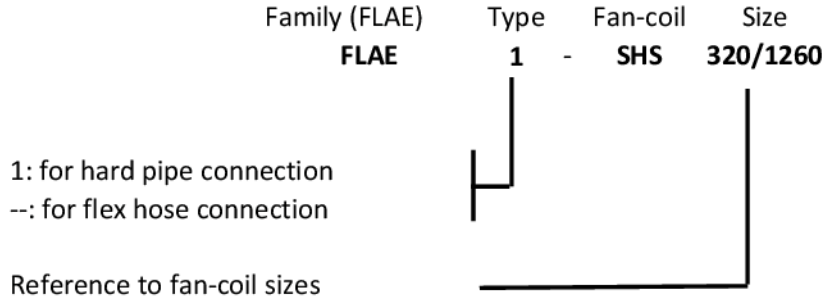
NOTE: between the delivery and return sections a divider is provided that breaks thermal bridges. Depending on the working conditions of the unit (delivery air temperature and return air temperature/humidity), it is however possible for a few drops of condensate to form in the grille. This shouldn't be considered a product defect, but a normal physical phenomenon due to existing environmental conditions.

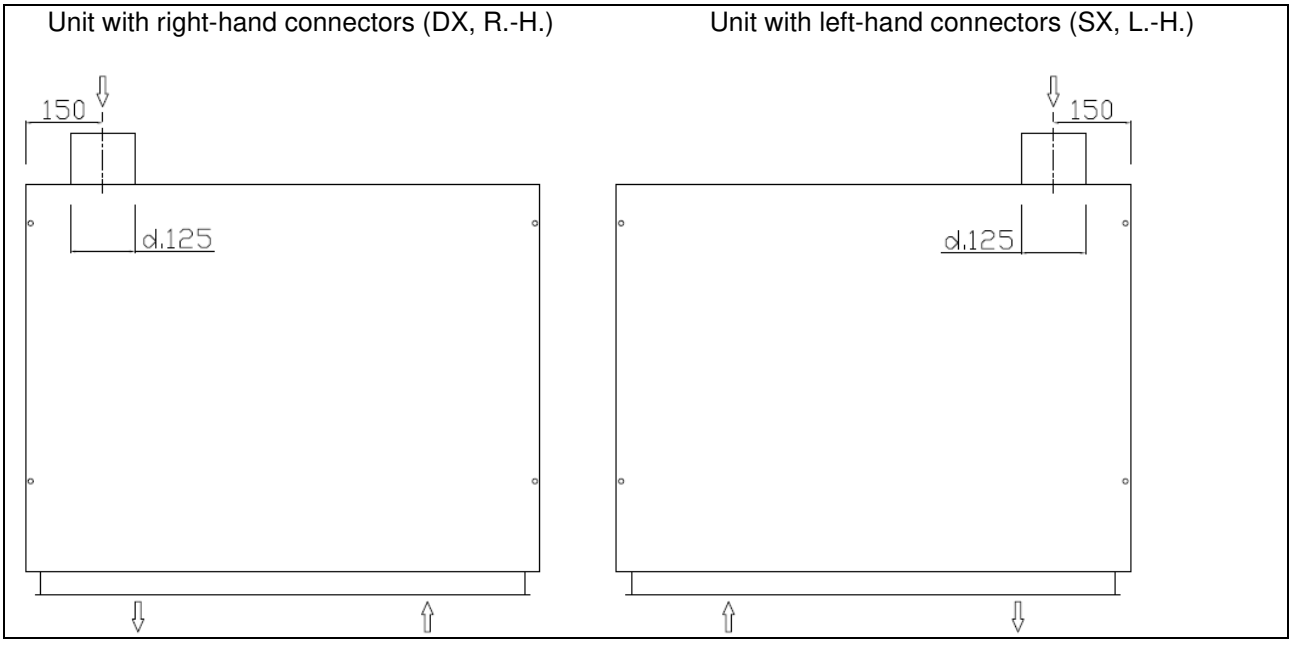
10.8-Flange for external air intake (FLAE)

The external air intake flange can be used when fresh air must be introduced from the outside. It is located at the delivery end of the unit. Two types of flared sleeves are available:

- flared sleeve suitable for connecting flexible hoses for conditioning systems: in this case, the actual outside diameter of the sleeve is approximately 5mm smaller than the nominal inside diameter of the pipe to be connected.
- Flared sleeve suitable for connecting hard pipes: in this case, the actual outside diameter of the sleeve is approximately 1-2mm smaller than the nominal inside diameter of the pipe to be connected, and a rubber seal is provided to prevent any air leaks.

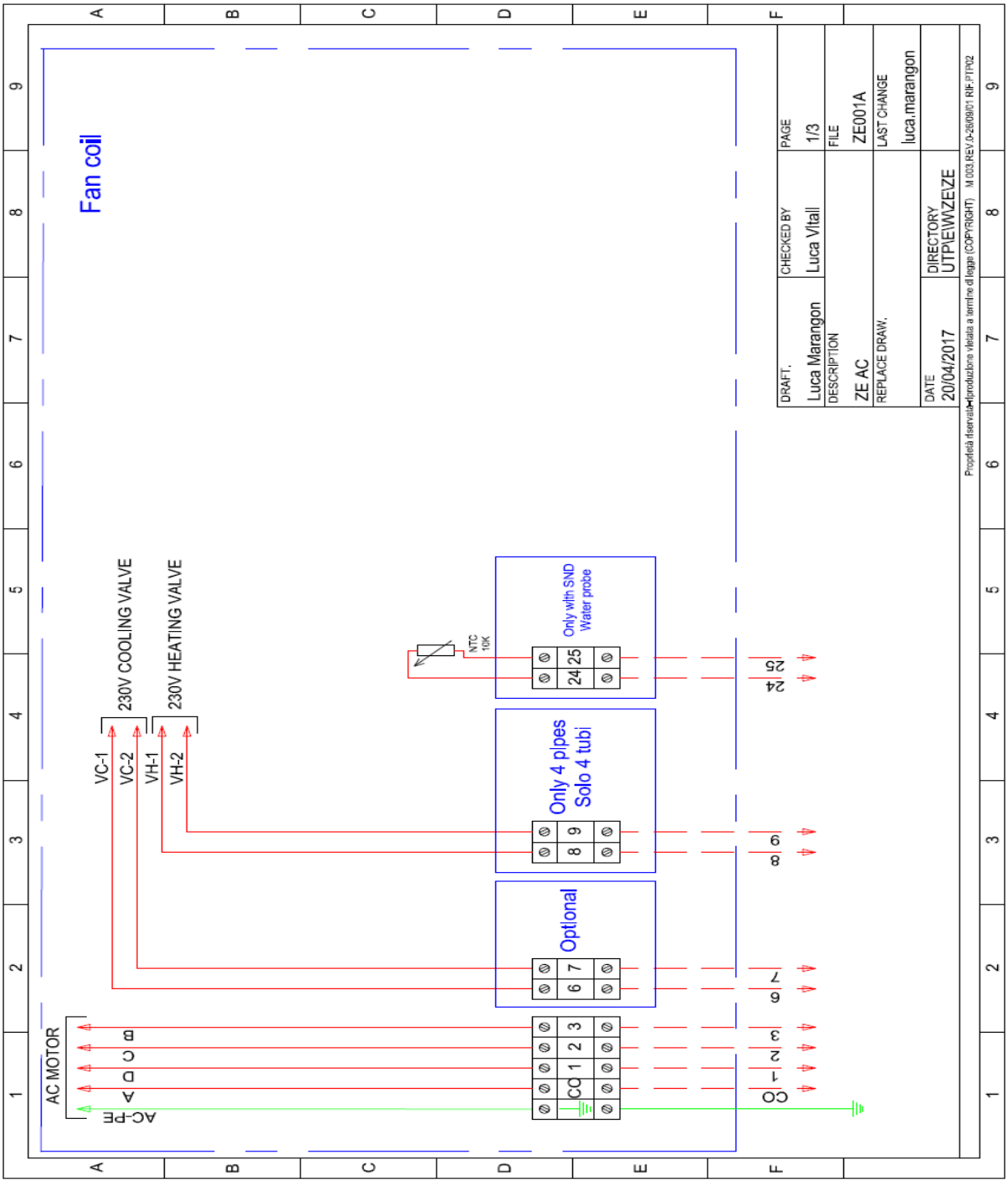
The fresh air must be previously treated through a heat recovery unit or similar units. Direct intake of outdoor air is not allowed.

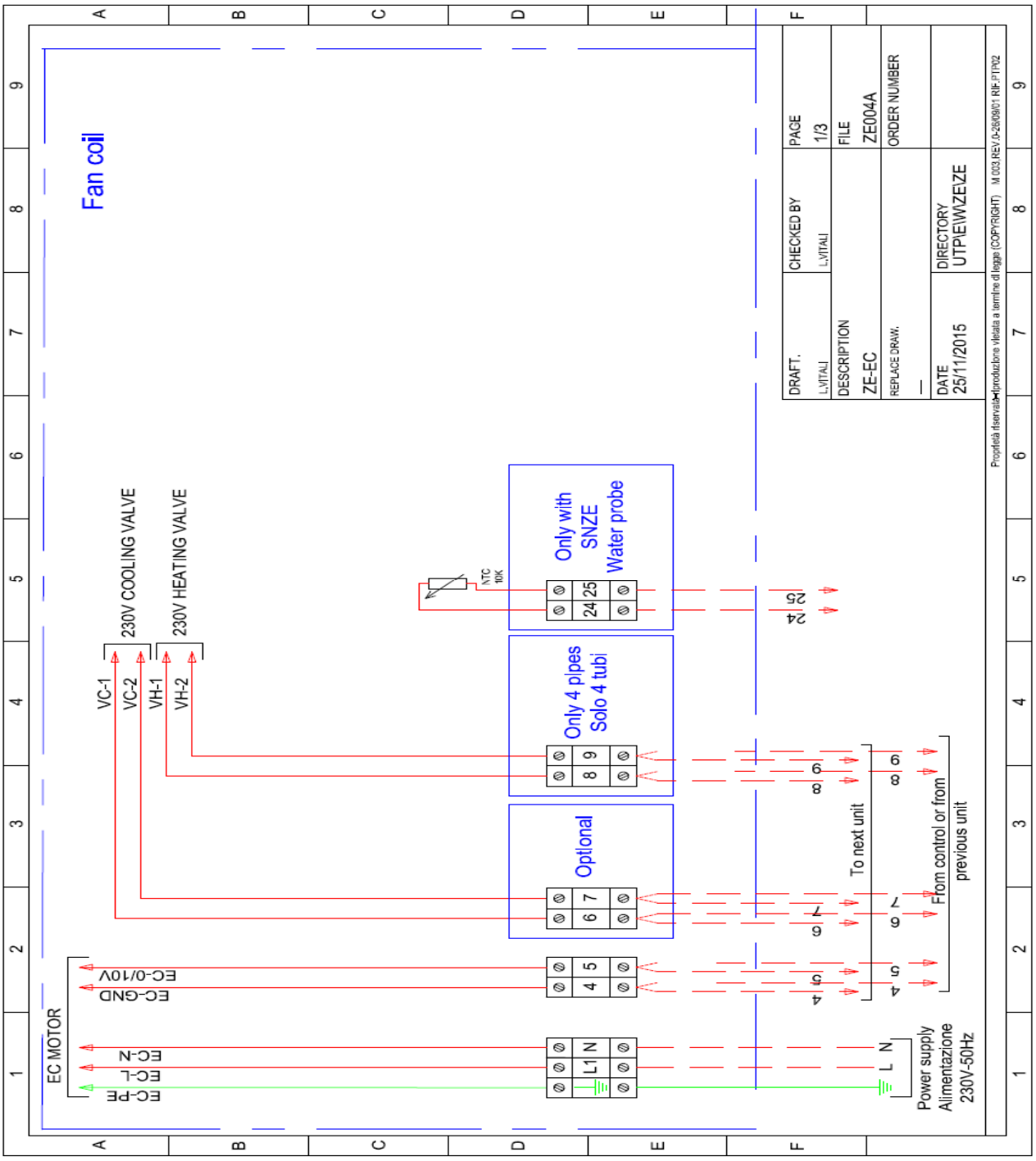




11 -ELECTRICAL WIRING

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.




Fan coil
230V COOLING VALVE
230V HEATING VALVE
VC-1
VC-2
VH-1
VH-2
NTC 10K
Only with SNZE Water probe
Only 4 pipes Solo 4 tubi
Optional
24 25
8 9
6 7
4 5
L1 N
EC MOTOR
EC-0/10V
EC-GND
EC-N
EC-L
EC-PE
To next unit
From control or from previous unit
Power supply Alimentazione 230V-50Hz
DRAFT. L.VITALI
CHECKED BY L.VITALI
PAGE 1/3
DESCRIPTION ZE-EC
FILE ZE004A
REPLACE DRAW. —
ORDER NUMBER
DATE 25/11/2015
DIRECTORY UTP\EIW\ZE\ZE

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

NOTES:

Aertesi srl reserves the right to introduce any changes considered necessary to improve the product by editing the related technical data at any time

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