

Series
VENTS VUT PE EC

Series
VENTS VUT PW EC



VUT 350 PE EC
VUT 600 PE EC
VUT 1000 PE EC

A13 control panel



VUT 2000 PE EC
VUT 3000 PE EC

Equipped with



VUT 600 PW EC
VUT 1000 PW EC

A13 control panel



VUT 2000 PW EC
VUT 3000 PW EC

Equipped with



Ceiling mounted energy saving Air Handling Units (AHU) with the air capacity up to **4000 m³/h** and the heat exchanger efficiency up to 90% in the sound- and heat-insulated casing with the electric heater

Ceiling mounted Energy saving Air Handling Units (AHU) with the air capacity up to **3800 m³/h** and the heat exchanger efficiency up to 90% in the sound- and heat-insulated casing with the water heater

■ **Description**

Air handling unit VUT PE EC with the electric heater and VUT PW EC with the water heater are the complete ventilation units designed to provide both supply and exhaust ventilation with air filtration and extract air removal. The exhaust air energy is used to heat up the supply fresh air through the plate heat exchanger.

Designed for ventilation and conditioning systems for various premises requiring economic solution and controllable air exchange. EC motors reduce energy consumption by 1.5-3 times and ensure high efficiency and low noise level at the same time. All the models are compatible with 160 (150), 200, 250, 315 and 400 mm round ducts.

■ **Modifications**

VUT PE EC – models with the electric heater.

VUT PW EC – models with water heater.

■ **Casing**

The casing is made of aluzink with 20 mm mineral

wool internal heat and sound-insulating layer for VUT PE/PW 350, 600, 1000 units and 25 mm for VUT PE/PW 2000, 3000 units.

■ **Filter**

Two incorporated G4 panel filters for supply and extract air ventilation are supplied with the unit. Intake filter F7 can be supplied with the few models.

■ **Motor**

VUT PE/PW EC units are equipped with exhaust and supply fans with backward curved blades powered by energy-saving direct current Electronically Commutated (EC) motors. These motors give up to 50% energy consumption economy as compared to standard AC motors. EC motors have built-in thermal overheating protection with automatic restart and enable smooth speed control from 0 to 100%. The ball bearings used with the EC motors are designed for at least 40 000 hours operation and are maintenance-free. Premium efficiency reaching 90% is an absolute privilege of the electronically commutated motor.

■ **Heat exchanger**

VUT 350, 600 and 1000 models are fitted with a counter-flow heat exchanger made of polystyrene. VUT 2000 and 3000 models are manufactured with the cross-flow air-to-air plate heat exchanger made of aluminum. All the units are equipped with a drain pan for condensate drainage.

■ **Heater**

The electric heater (for the unit VUT PE) or the water heater (for the unit VUT PW) at outlet from the heat exchanger is designed for warming up of supply air up to the set level if heat recovery is not enough to attain the set supply air temperature. The water heaters are designed for max. operating pressure 1.0 MPa (10 bar) and max. heat medium operating temperature 95 °C.

■ **Automation**

The unit incorporates an integrated automation and control system with a multi-functional control panel. The standard delivery set includes 10 m connection ca-

Designation key:

Series	Rated air capacity [m ³ /h]	Mounting modification	Heater type	Motor type	Service side
VENTS VUT	350; 600; 1000; 2000; 3000	P – suspended	E – electric W – water	EC – synchronous electronically commutated motor	L – left R – right

Accessories



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ble for connection to the remote control panel. The unit has the freezing protection function to prevent the heat exchanger freezing by means of actuating the bypass damper and controlling water heater. As the temperature sensor warns of the freezing danger, the bypass air damper is opened and the intake air is directed through the air duct beside the heat exchanger. As the heat exchanger is warmed the supply air temperature rises up to the set level while passing through the heater. Meanwhile the warm extract air warms up the heat exchanger. After the freezing danger is no longer imminent, the bypass damper shuts the bypass duct and the unit reverts to the standard operation mode.

VUT PE EC control and protection functions

- ▶ control from the control panel: switching the unit on/off, room temperature display, fan speed selection (low/medium/high speed);
- ▶ each fan speed is 100% adjustable both for supply and exhaust fan during the system setup;
- ▶ maintaining the set room temperature by the sensor on the control panel – smooth heating capacity control;
- ▶ safe start-up/shutdown of the fans;
- ▶ electric heater overheating protection by the temperature sensor installed in the supply air duct and by two overheating thermostats, one thermostat

activated at 50 °C with automatic reset and another thermostat activated at 90 °C with manual reset. Blowing of the heating elements for heat removing at the end of the heating cycle.

General description of VUT PW EC control system

- ▶ control from the control panel: switching the unit on/off, room temperature display, fan speed selection (low/medium/high speed);
- ▶ each fan speed is 100% adjustable both for supply and exhaust fan during the system setup;
- ▶ maintaining supply air temperature set from the control panel by controlling the circulation pump and actuating the heat medium regulating valve;
- ▶ freezing protection of the water heating coils by the exhaust temperature sensor and the return heat medium temperature sensor;
- ▶ safe start-up/ shutdown of the fans, warming up of the water heater before start-up; maintaining the set return heat medium temperature when the fan is off;
- ▶ actuating the external air dampers with a return spring;
- ▶ unit shut down at signal from the fire alarm system;
- ▶ smooth bypass damper control in the bypassing mode to prevent the heat exchanger freezing.

Mounting

The unit is designed for indoor mounting. While mounting the unit ensure its correct position to enable condensate collection and drainage. Access for servicing and cleaning of the filter is from the right or left side panel for the dimension types 350, 600 and 1000 and from the bottom for the dimension types 2000 and 3000.

Accessories

For attenuation of sound generated by the fans it is recommended to install the duct silencer (refer SR) from inside before the unit. For vibration absorbing it is recommended to install the flexible anti-vibration connectors (refer VVG) on both sides of the unit. To disable uncontrollable air flow when the fans are off and to prevent the water heater freezing the units are recommended to be equipped with automatic air dampers. The mixing units USWK are recommended for smooth supply air temperature regulation in the units equipped with water heaters. The mixing unit USWK with three-way heat medium regulating valve and circulation pump provides smooth heating capacity regulation and minimizes the water heater freezing danger.

Unit overall dimensions:

Type	Dimensions, [mm]											Figure No
	∅D	B	B1	B2	B3	B4	H	H1	L	L1	L2	
VUT 350 PE EC	160	485	415	596	132.5	220	285	130	1238	1286	948	1
VUT 600 PE EC	199	827	711	–	294	345	283	120	1238	1286	–	2
VUT 1000 PE EC	249	1350	1215	607.5	430	655	317	143	1346	1395	–	2
VUT 2000 PE EC	314	1050	915	457.5	247	575	750	375	1360	1408	–	3
VUT 3000 PE EC	399	1265	1130	565	297	632.5	830	415	1595	1643	–	3
VUT 600 PW EC	199	827	711	–	294	345	283	120	1238	1286	–	2
VUT 1000 PW EC	249	1350	1215	607.5	430	655	317	143	1346	1395	–	2
VUT 2000 PW EC	314	950	–	405	225	500	761	367	1400	1453	–	3
VUT 3000 PW EC	399	1265	–	563	347	570	881	427	1835	1888	–	3

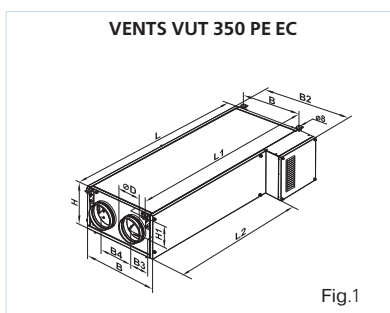


Fig.1

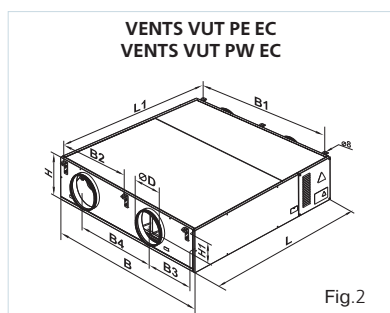


Fig.2

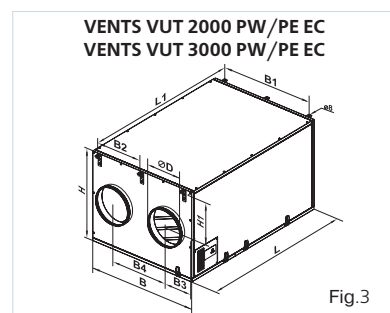


Fig.3

VENTS
 VUT PE EC /
 PW EC
 AIR HANDLING UNIT WITH
 HEAT RECOVERY SERIES

AIR HANDLING UNITS WITH HEAT RECOVERY

Technical data:

	VUT 350 PE EC	VUT 600 PE EC	VUT 600 PW EC
Voltage [V / 50 Hz]	1~ 230		1~ 230
Maximum fan power [W]	200		270
Fan current [A]	1.62		1.6
Electric heater power [kW]	1.5	2	–
Electric heater current [A]	6.5	8.7	–
Number of water (glycol) coil rows	–	–	2
Total unit power [kW]	1.7	2.27	0.27
Total unit current [A]	8.12	10.3	1.6
Air capacity [m ³ /h]	350	700	600
RPM	3560		3060
Noise level at 3m [dBA]	48		53
Transported air temperature [°C]	-25 up to +40		-25 up to +60
Casing material	aluzink		aluzink
Insulation	20 mm mineral wool		20 mm mineral wool
Extract filter	G4		G4
Supply filter	G4 (F7*)	G4 (F7*)	G4
Connected air duct diameter [mm]	∅ 160 (150)**		∅ 200
Weight [kg]	67	75	77
Heat recovery efficiency	up to 90%		up to 90%
Heat exchanger type	counter-flow		counter-flow
Heat exchanger material	polystyrene		polystyrene

* modification; **reducer ∅ 160 to 150 mm is required

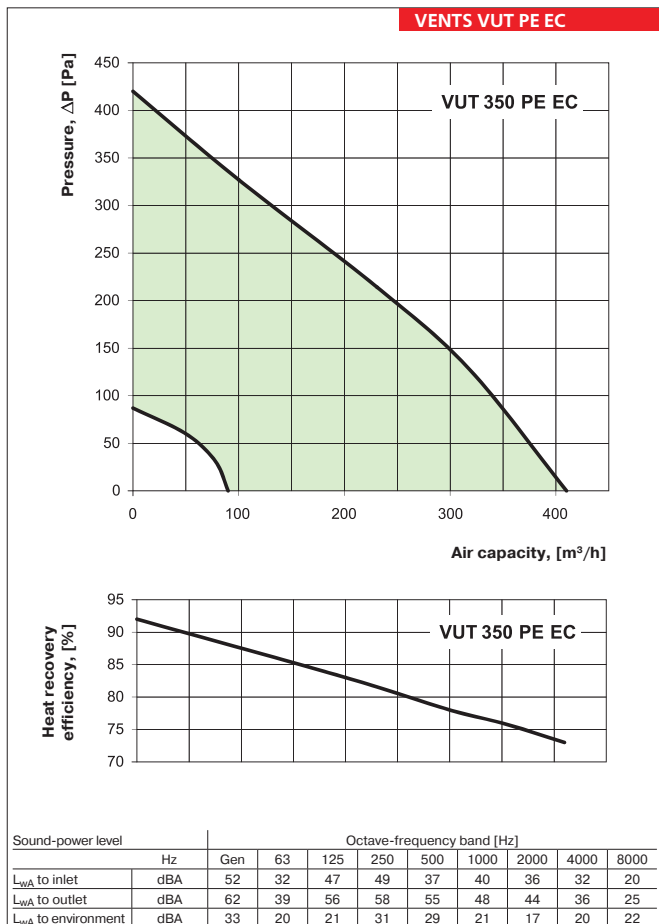
Technical data:

	VUT 1000 PE EC	VUT 1000 PW EC	VUT 2000 PE EC	VUT 2000 PW EC
Voltage [V / 50 Hz]	1~ 230		3~ 400	1~ 230
Maximum fan power [W]	400		2pcs. x 420	
Fan current [A]	2.26		2pcs. x 2.5	
Electric heater power [kW]	3.3	–	12.0	–
Electric heater current [A]	14.3	–	17.4	–
Number of water (glycol) coil rows	–	4	–	2
Total unit power [kW]	3.7	0.4	12.84	0.84
Total unit current [A]	16.56	2.26	22.4	5
Air capacity [m ³ /h]	1100	1000	2000	1950
RPM	2780		2920	
Noise level at 3m [dBA]	52		58	
Transported air temperature [°C]	-25 up to +60		-25 up to +40	
Casing material	aluzink		aluzink	
Insulation	20 mm mineral wool		25 mm mineral wool	
Extract filter	G4		G4	
Supply filter	G4 (F7*)		G4	
Connected air duct diameter [mm]	∅ 250		∅ 315	
Weight [kg]	95	98	190	194
Heat recovery efficiency	up to 90%		up to 75%	
Heat exchanger type	counter-flow		cross-flow	
Heat exchanger material	polystyrene		aluminum	

*modification

Technical data:

	VUT 3000 PE EC	VUT 3000 PW EC
Voltage [V / 50 Hz]	3~ 400	
Maximum fan power [W]	2pcs. x 990	
Fan current [A]	2pcs. x 1.7	
Electric heater power [kW]	21.0	-
Electric heater current [A]	30.0	-
Number of water (glycol) coil rows	-	2
Total unit power [kW]	23.0	1.99
Total unit current [A]	33.4	3.4
Air capacity [m³/h]	4000	3800
RPM	2580	
Noise level at 3m [dBA]	59	
Transported air temperature [°C]	-25 up to +50	
Casing material	aluzink	
Insulation	25 mm mineral wool	
Extract filter	G4	
Supply filter	G4	
Connected air duct diameter [mm]	ø400	
Weight [kg]	290	295
Heat recovery efficiency	up to 75%	
Heat exchanger type	cross-flow	
Heat exchanger material	aluminum	



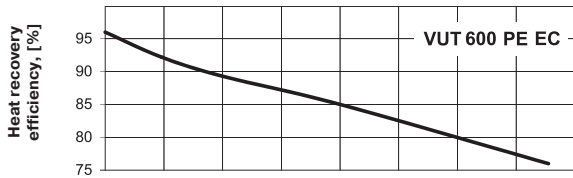
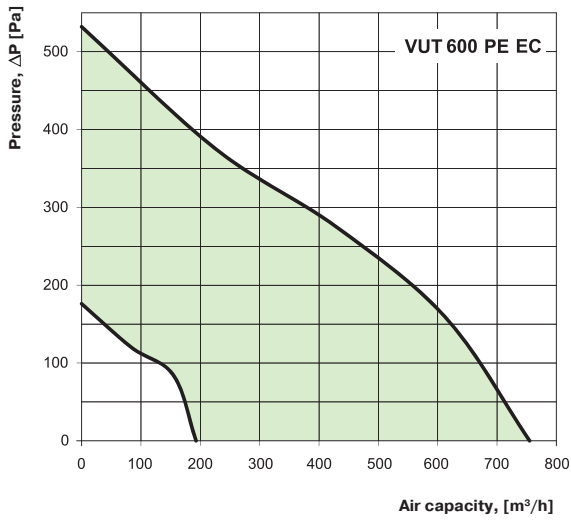
Accessories to air handling units:

Type	Replaceable filter	
	Intake (bag type)	Extract (panel type)
VUT 350 PE EC	SFK 350 PE G4 SFK 350 PE F7	SF 350 PE G4
VUT 600 PE EC	SFK 600 PE/PW G4 SFK 600 PE/PW F7	SF 600 PE/PW G4
VUT 1000 PE EC	SFK 1000 PE/PW G4	SF 1000 PE/PW G4
VUT 2000 PE EC	SF 2000 PE/PW G4	
VUT 3000 PE EC	SF 3000 PE/PW G4	
VUT 600 PW EC	SFK 600 PE/PW G4	SF 600 PE/PW G4
VUT 1000 PW EC	SFK 1000 PE/PW G4 SFK 1000 PE/PW F7	SF 1000 PE/PW G4
VUT 2000 PW EC	SF 2000 PE/PW G4	
VUT 3000 PW EC	SF 3000 PE/PW G4	

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 AIR HANDLING UNIT WITH
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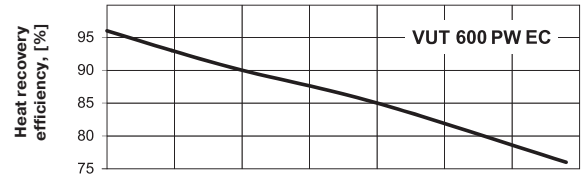
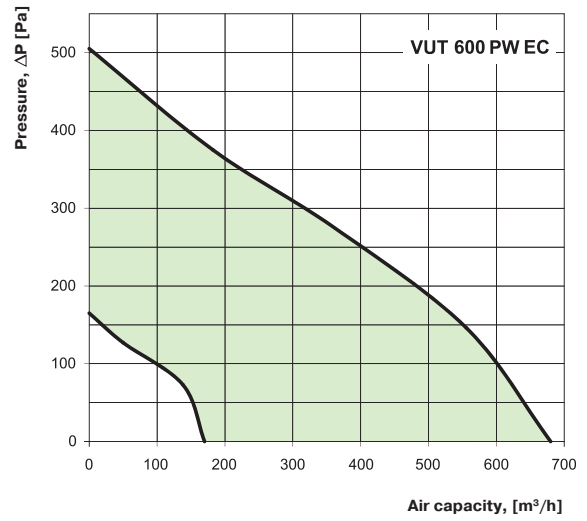
AIR HANDLING UNITS WITH HEAT RECOVERY

VENTS VUT PE EC



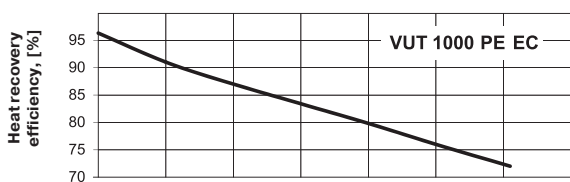
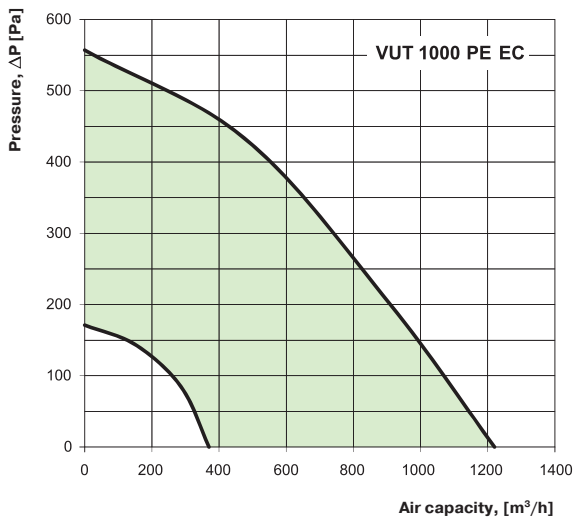
Sound-power level	Hz	Octave-frequency band [Hz]								
		Gen	63	125	250	500	1000	2000	4000	8000
L_{WA} to inlet	dBA	55	35	56	53	43	47	45	37	28
L_{WA} to outlet	dBA	65	47	60	61	61	52	51	40	30
L_{WA} to environment	dBA	39	30	30	39	33	23	24	26	28

VENTS VUT PW EC



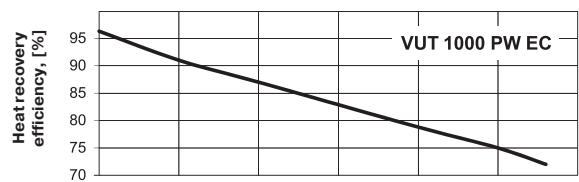
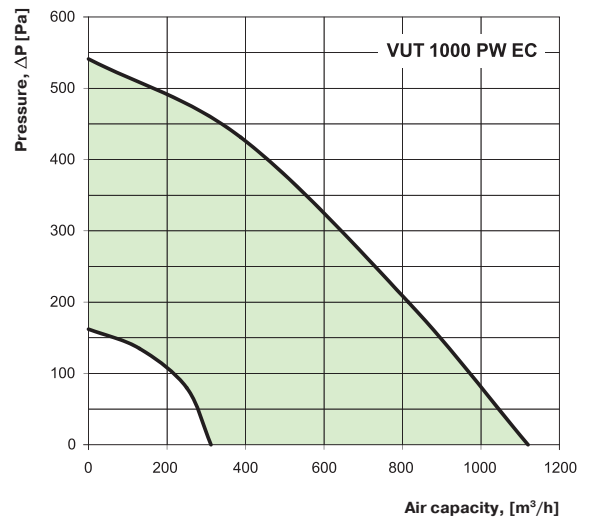
Sound-power level	Hz	Octave-frequency band [Hz]								
		Gen	63	125	250	500	1000	2000	4000	8000
L_{WA} to inlet	dBA	59	34	56	54	43	46	44	36	24
L_{WA} to outlet	dBA	68	43	59	62	59	52	52	40	29
L_{WA} to environment	dBA	38	29	27	39	33	23	23	24	24

VENTS VUT PE EC

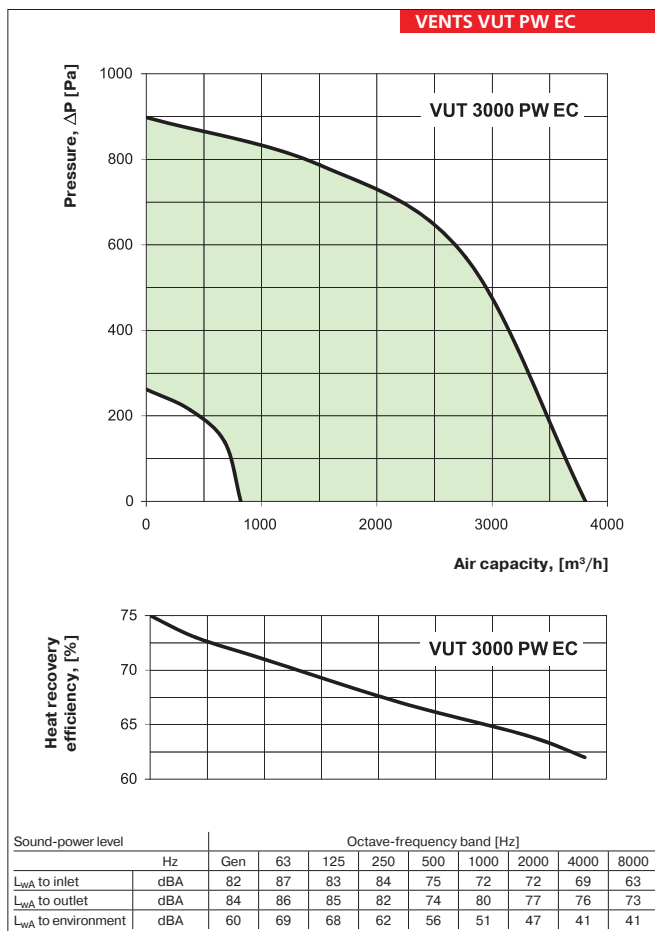
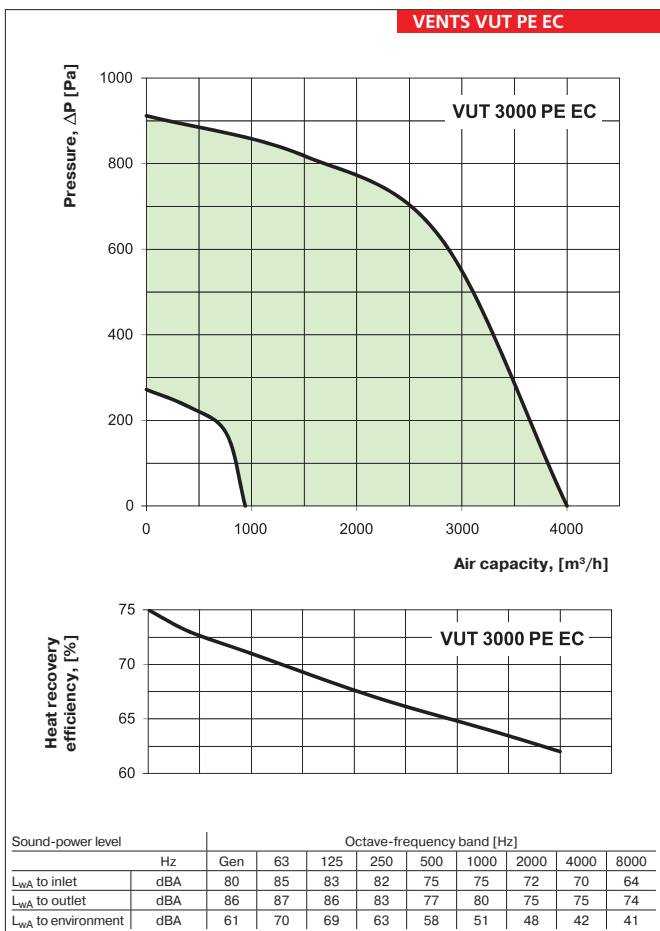
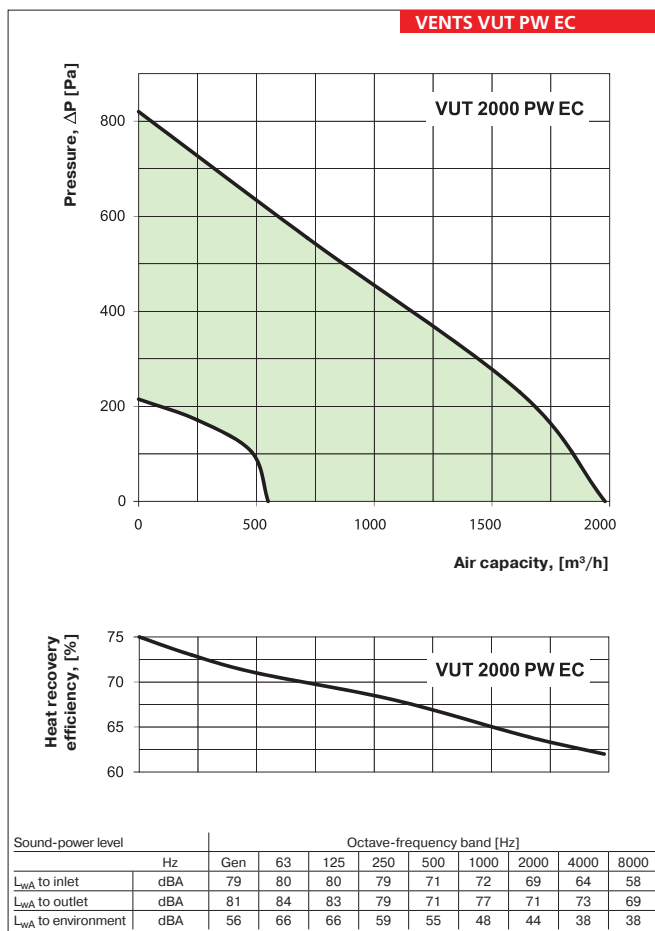
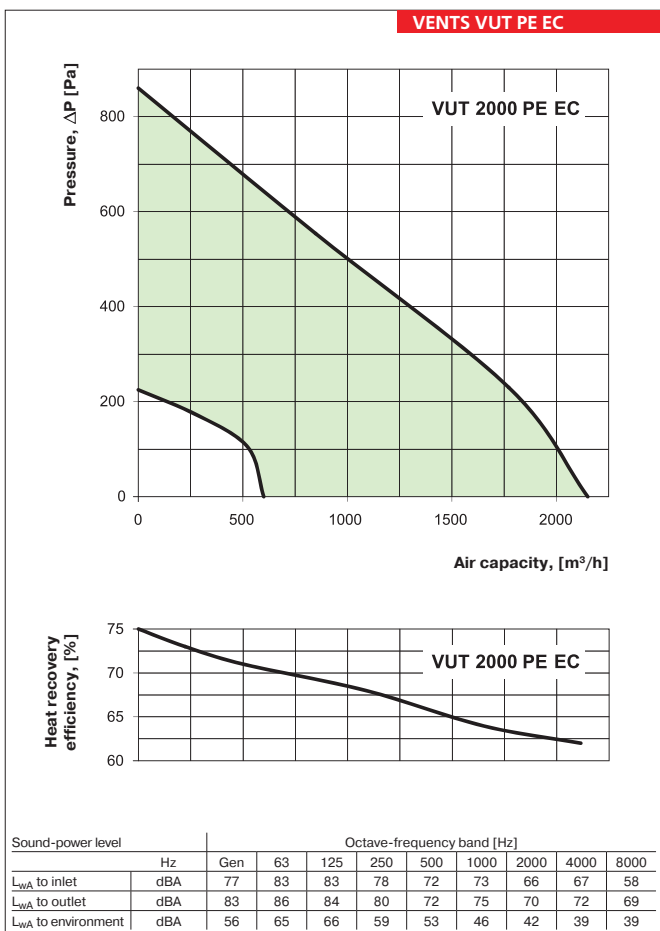


Sound-power level	Hz	Octave-frequency band [Hz]								
		Gen	63	125	250	500	1000	2000	4000	8000
L_{WA} to inlet	dBA	68	67	68	70	68	60	60	61	55
L_{WA} to outlet	dBA	70	71	69	68	66	65	63	61	58
L_{WA} to environment	dBA	45	57	56	47	52	42	38	34	35

VENTS VUT PW EC

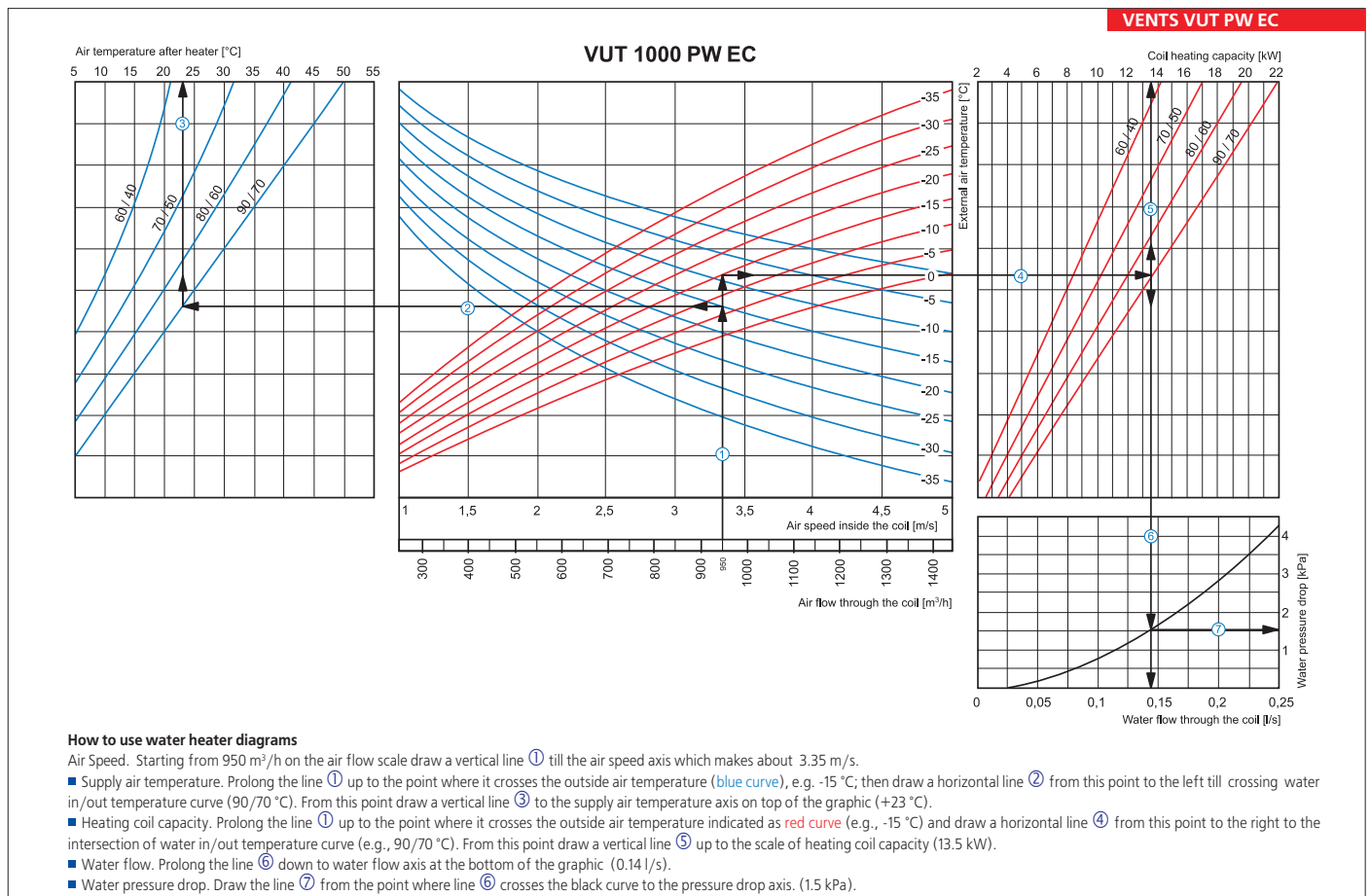
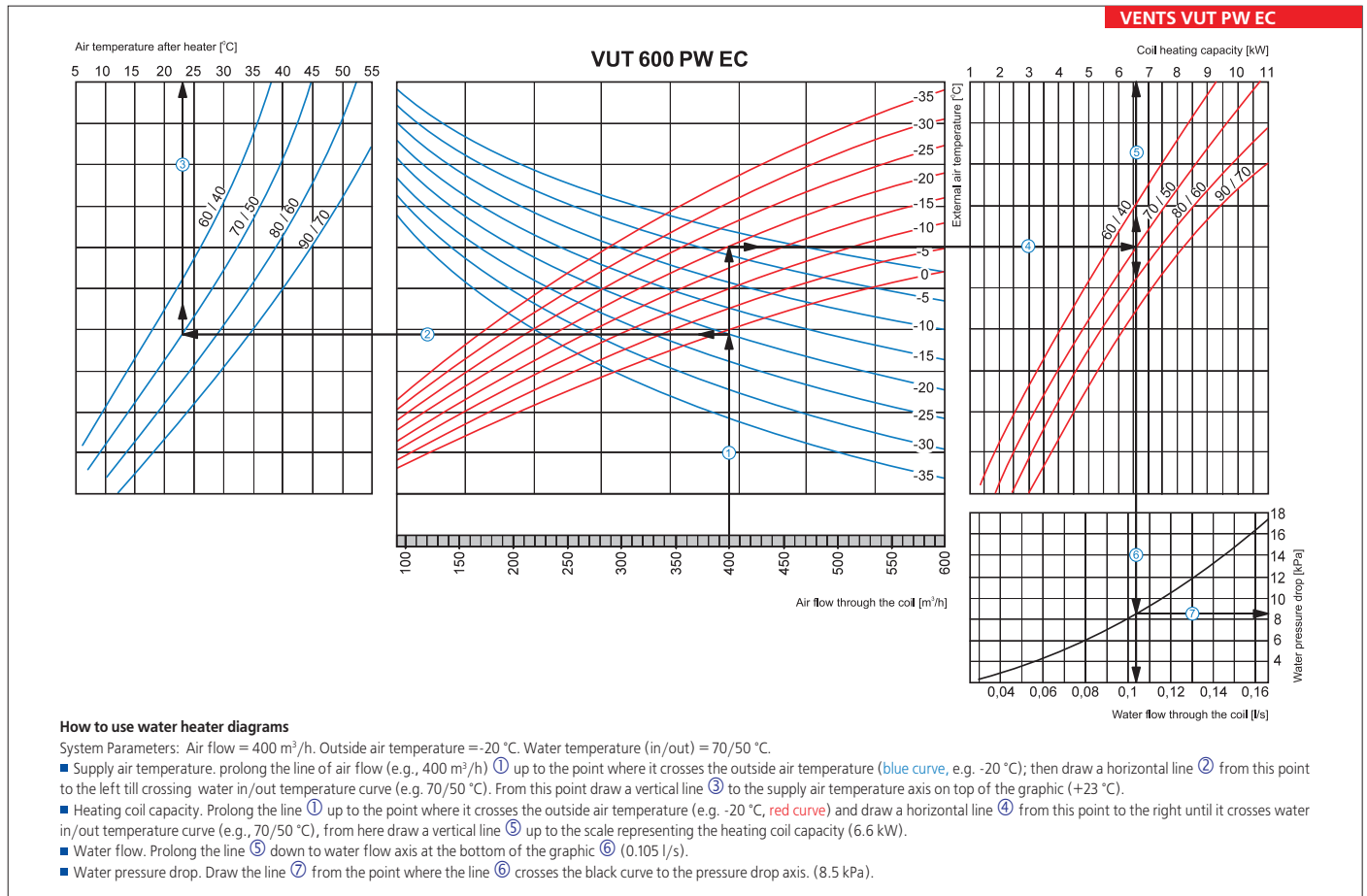


Sound-power level	Hz	Octave-frequency band [Hz]								
		Gen	63	125	250	500	1000	2000	4000	8000
L_{WA} to inlet	dBA	67	68	67	67	66	59	61	61	56
L_{WA} to outlet	dBA	69	70	71	68	66	66	64	59	58
L_{WA} to environment	dBA	47	58	52	47	53	40	41	35	35

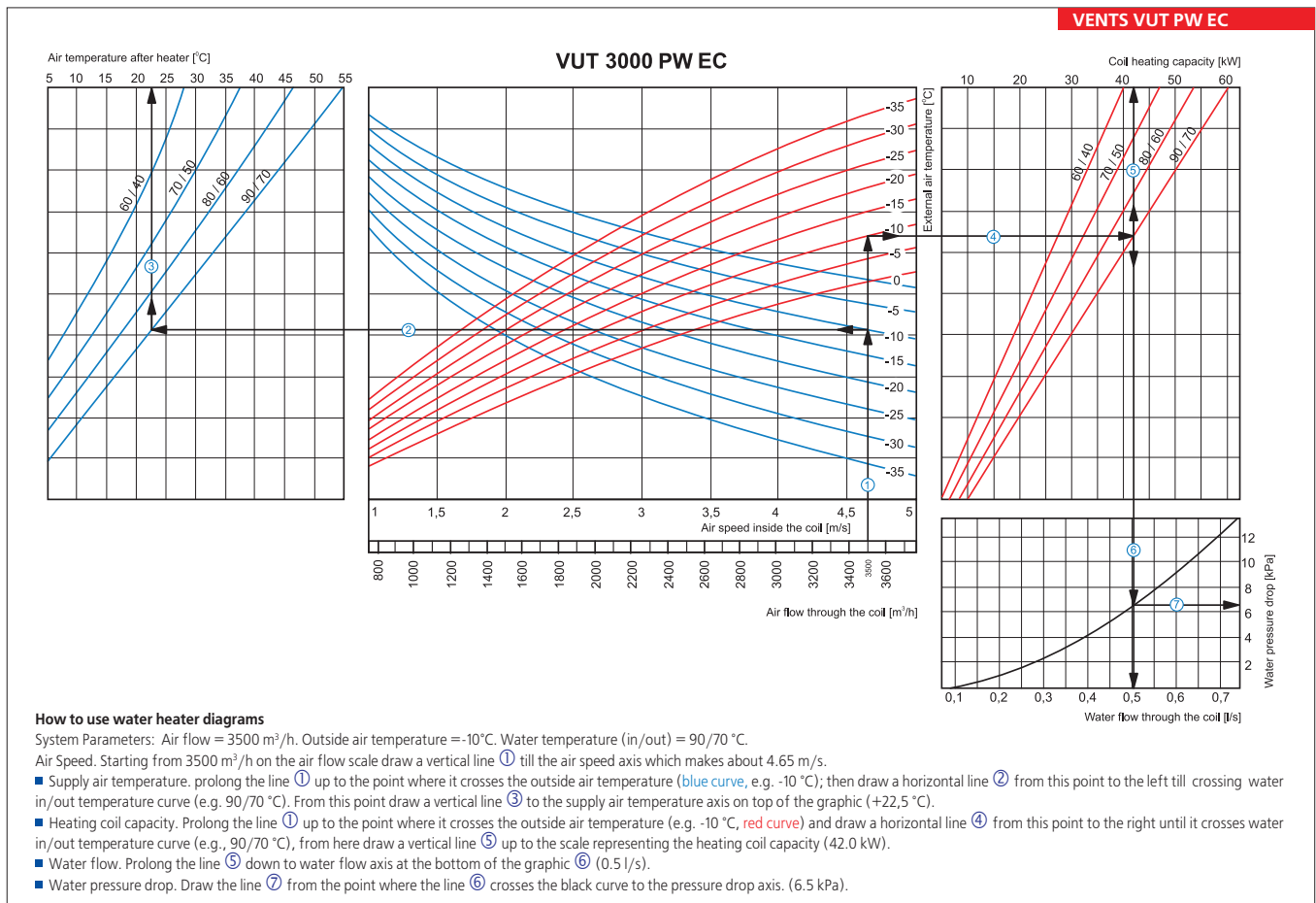
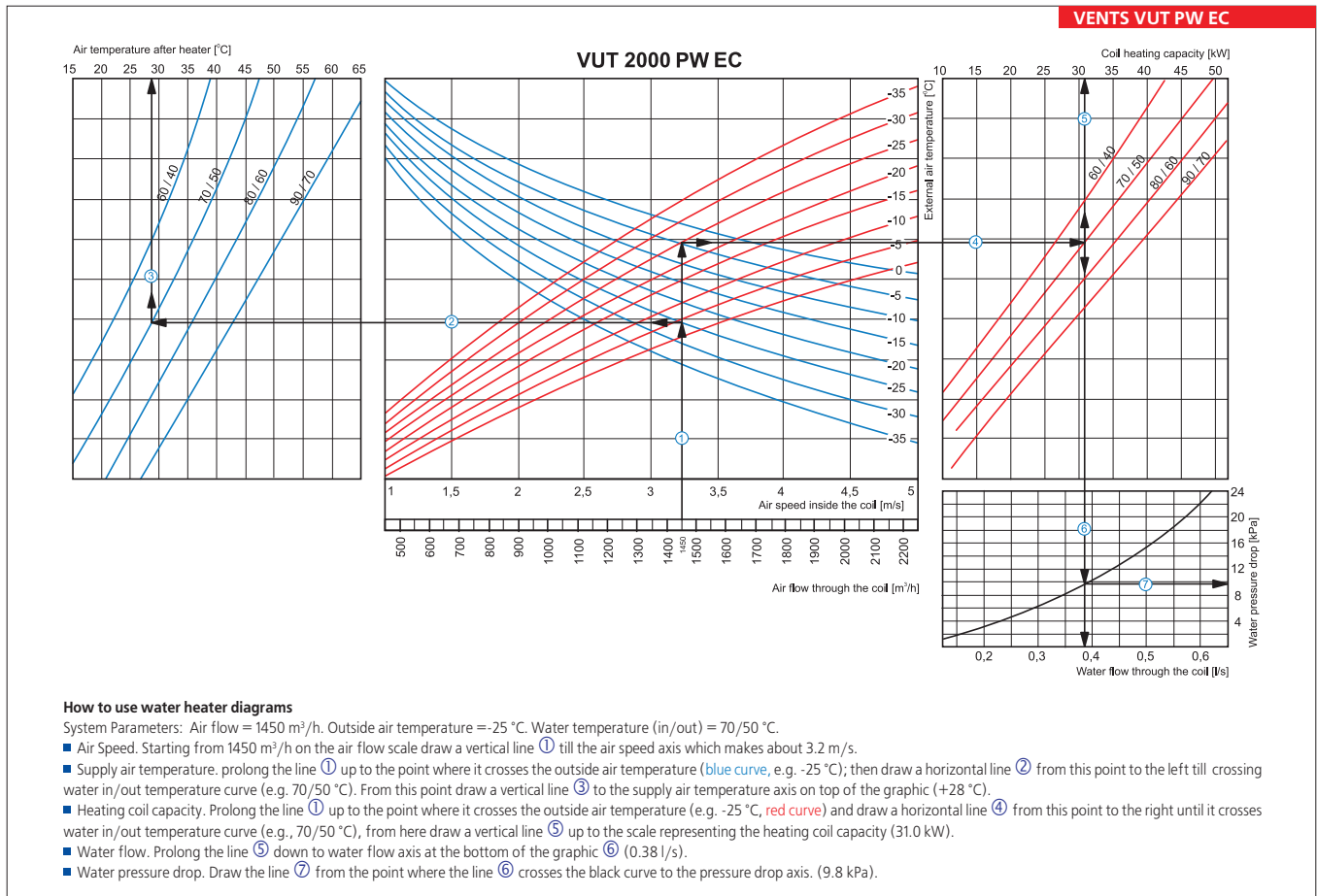


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VUT PE EC /
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Hot water coil parameters:



Hot water coil parameters:



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