HEAT RECOVERY AIR HANDLING UNITS

Series

VENTS VUTR V EC
VENTS VUTR VE EC

Air handling units in heat- and sound-insulated casing.
Air flow up to **670 m³/h**.
Heat recovery efficiency up to **92 %**.

Description

The VUTR V/VE EC air handling units are the fully-featured ventilation units that ensure air filtration, fresh air supply and stale air extraction.

During the operation process the extract air heat is transferred to the intake air through the rotary heat exchanger.

The units are used in ventilation systems installed in various premises that require reasonable energy saving solutions and controllable ventilation systems.

EC motors reduce energy demand by 1.5-3 times and ensure high performance and low noise operation.

All models are designed for connection to ⌀125, 160 and 250 mm round air ducts.

Modifications

VUTR V EC models without a heater.

VUTR VE EC models are equipped with an electric heater.

Casing

Made of galvanized steel, internally filled with a mineral wool heat- and sound-insulating layer.

The insulation thickness is 20 mm for the VUTR 200 V2/V2E EC models and 40 mm for the VUTR 280, 400 and 600 V/VE EC models.

Kitchen hood

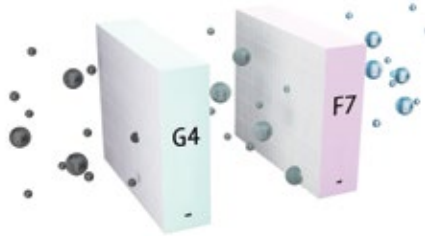
All units are equipped with a 5th spigot for connection of a kitchen hood (see the «Application options» section).

The distinctive feature of the VUTR 200 V2/VE2 EC unit is the ability to connect a KH-1 kitchen hood (available upon separate order) directly to the unit.

Filter

The two integrated G4 and F7 filters ensure sufficient intake air purification.

Extract air is cleaned by the integrated G4 filter.



Motor

The units are equipped with high-efficient EC motors with an external rotor and a centrifugal impeller.

These state-of-the-art motors offer the very best in energy efficiency today.

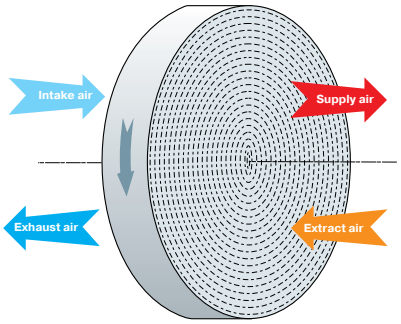
In addition to that, EC motors combine high performance and optimum control over the entire speed range. The high efficiency (up to 90 %) is a definite advantage of EC motors.

Rotary heat exchanger

The rotary heat exchanger is a short rotating cylinder filled with layers of corrugated aluminium tape packaged in a such way so as to enable free passage of the supply and extract air flows.

As the cylinder rotates the aluminium tape contained in the heat exchanger is first exposed to the supply air stream and then to the extract air stream. As a result the material undergoes repeated warming and heating cycles thereby transferring heat and humidity from the warm air stream to the cold one.

As compared to plate heat exchangers, the rotary heat exchangers are distinguished with no condensate forming, ability to maintain comfortable air humidity and extremely low freezing danger.



Rotary heat exchanger operation principle

Heater

The **VUTR V(2)E EC** units are equipped with an electric heater. If heat recovery is not sufficient to reach the set supply air temperature, the heater is activated to warm up supply air. The heaters are equipped with protecting devices to ensure safe and reliable operation of the unit.

Automation

The **VUTR V(2)(E) EC 21** units are equipped with an integrated control system. The A21 controller allows integrating the unit into the Smart Home system or BMS (Building Management Systems). The remote control panel is not included in the delivery set (purchased separately). To control the unit using a mobile application via Wi-Fi, you need to download the VENTS AHU mobile application.

Google play

Download on the App Store

Modbus

Designation key

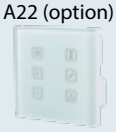
Series	Heat exchanger type	Rated air flow [m³/h]	Mounting type	Insulation thickness	Heater type	Motor type	Control panel
VENTS VUT	**R**: rotary	200; 280; 400; 600	**V**: vertical	_: 40 mm **2**: 20 mm	_: without a heater **E**: with an electric heater	**EC**: synchronous motor with electronic control	A17 A18 A21

The **VUTR V/VE EC A17** units are equipped with a th-Tune control panel with an LCD display.
The **VUTR V/VE EC A18** units are equipped with a pGD1 control panel with an LCD display.

Mounting

The unit is designed for wall or floor mounting.
The access for unit and filter maintenance is available from the front panel.
The service and the back panels can be rearranged allowing connection both on the right and on the left side.

Control and automation

Functions	A21	A17	A18
Control via Wi-Fi using a mobile application	+	-	-
Control via a wired remote control panel	A22 (option) 	A17 	A18 
Control via a wireless remote control panel	A22 Wi-Fi (option) 	-	-
Control via a wired remote LCD control panel	A25 (option) 	-	-
BMS	RS-485	option	option
	WI-FI	-	-
	Ethernet	-	-
	MODBUS (RTU, TCP)	option	option
Service Vents Cloud Server	+	-	-
Speed selection	+	+	+
Filter replacement indication	according to hour meter readings	according to hour meter readings	according to hour meter readings
Alarm indication	full alarm description in the mobile application	full alarm description on the control panel	full alarm description on the control panel
Week-scheduled operation	+	+	+
Timers	+	-	-
Boost mode	+	-	-
Fireplace mode	+	-	-
Reheater connection	integrated in E models, external reaheater cannot be connected	integrated in E models, external reaheater cannot be connected	integrated in E models, external reaheater cannot be connected
Cooler connection	option	option	option
Kitchen hood connection	option	option	option
Minimum supply air temperature control	+	-	-
Humidity control	option	option	option
CO_2 controller	option	option	option
VOC controller	option	option	option
Fire alarm sensor connection	option	option	option

*Option. The functionality is available when you purchase the appropriate accessory.

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Accessories

Model	G4 panel filter	F7 panel filter	LCD control panel	Control panel	Control panel with Wi-Fi	Connection module Modbus-RS485	VOC sensor 0-10 V	CO_2 sensor 0-10 V	Humidity sensor 0-10 V	Humidity sensor NO
										
VUTR 200 V2 EC A21	SF 284x103x60 G4	SF 284x103x60 F7	A25	A22	A22 Wi-Fi	-	DPWQ 30600	DPWQ 40200	DPWC 11200	HR-S
VUTR 200 V2 EC A17/18			-	-	-	PCOS004850				
VUTR 200 V2E EC A21			A25	A22	A22 Wi-Fi	-				
VUTR 200 V2E EC A17/18			-	-	-	PCOS004850				
VUTR 280 V EC A21	SF 400x196x40 G4	SF 400x196x40 F7	A25	A22	A22 Wi-Fi	-				
VUTR 280 V EC A17/18			-	-	-	PCOS004850				
VUTR 280 VE EC A21			A25	A22	A22 Wi-Fi	-				
VUTR 280 VE EC A17/18			-	-	-	PCOS004850				
VUTR 400 V EC A21	SF 436x196x40 G4	SF 436x196x40 F7	A25	A22	A22 Wi-Fi	-				
VUTR 400 V EC A17/18			-	-	-	PCOS004850				
VUTR 400 VE EC A21			A25	A22	A22 Wi-Fi	-				
VUTR 400 VE EC A17/18			-	-	-	PCOS004850				
VUTR 600 V EC A21	SF 536x220x40 G4	SF 536x220x40 F7	A25	A22	A22 Wi-Fi	-				
VUTR 600 V EC A17/18			-	-	-	PCOS004850				
VUTR 600 VE EC A21			A25	A22	A22 Wi-Fi	-				
VUTR 600 VE EC A17/18			-	-	-	PCOS004850				

Model	Humidity sensor 0-10 V	Kitchen hood	Silencers		Back valves	Air dampers	Clamps	Electric actuator	
									
VUTR 200 V2 EC A21	HV-2	KH-1	SR 125	SRF 125	KOM 125	KRV 125	C 125	LF230	TF230
VUTR 200 V2 EC A17/18									
VUTR 200 V2E EC A21									
VUTR 200 V2E EC A17/18									
VUTR 280 V EC A21			SR 125	SRF 125	KOM 125	KRV 125	C 125		
VUTR 280 V EC A17/18									
VUTR 280 VE EC A21									
VUTR 280 VE EC A17/18									
VUTR 400 V EC A21			SR 160	SRF 160	KOM 160	KRV 160	C 160		
VUTR 400 V EC A17/18									
VUTR 400 VE EC A21									
VUTR 400 VE EC A17/18									
VUTR 600 V EC A21			SR 200	SRF 200	KOM 200	KRV 200	C 200		
VUTR 600 V EC A17/18									
VUTR 600 VE EC A21									
VUTR 600 VE EC A17/18									

Overall dimensions

Model	Dimensions [mm]						
	Ø D	Ø D1	B	L	H	H1	Fig.
VUTR 200 V2(E) EC	125	-	347	600	700	901	1
VUTR 280 V(E) EC	122	-	508	598	630	754	2
VUTR 400 V(E) EC	159	99	528	745	675	755	2
VUTR 600 V(E) EC	199	124	628	819	772	852	2

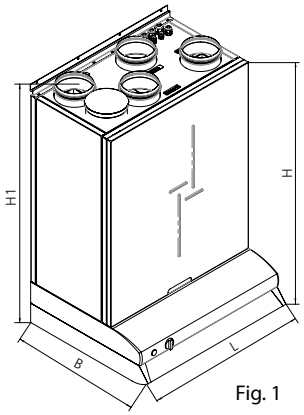


Fig. 1

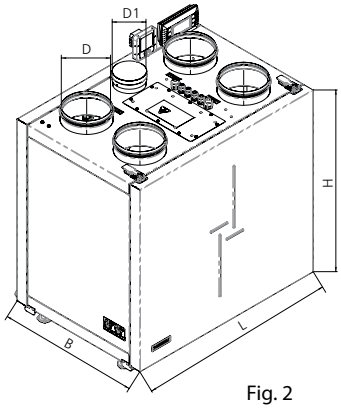


Fig. 2

Technical data

		VUTR 200 V2 EC	VUTR 200 V2E EC	VUTR 280 V EC	VUTR 280 VE EC
Unit voltage [V/50 (60) Hz]		1~230			
Max. unit power without electric heater [W]		118		195	
Max. power of electric heater [W]		-	700	-	650
Max. unit power [W]		118	818	195	845
Max. unit current without electric heater [A]		1.0		1.9	
Max. unit current of electric heater [A]		-	3.0	-	2,8
Max. unit current [A]		1.0	4.0	1.9	4.7
Maximum air flow [m^3/h]		270		300	
RPM [min^{-1}]		1800		2050	
Sound pressure level at 3 m distance [dBA]		28		26	
Transported air temperature [°C]		from -25 up to +40			
Casing material		painted steel			
Insulation		20 mm mineral wool		40 mm mineral wool	
Filter	Extract	G4			
	Intake	G4, F7		F7	
Connected air duct diameter [mm]		125			
Weight [kg]		47	48	63	64
Heat recovery efficiency		from 76 up to 92		from 81 up to 90	
Heat exchanger type*		rotary			
Heat exchanger material		aluminium			
SEC class		A			

*Heat recovery efficiency is specified in compliance with EN 13141-7

Calculation of air temperature downstream of the heat exchanger:
$t = t_{outd} + k_{hr} * (t_{extr} - t_{outd})/100$,
where
t_{outd} : outdoor air temperature [°C]
t_{extr} : extract air temperature [°C]
k_{hr} : heat exchanger efficiency (according to the diagram) [%]

HEAT RECOVERY AIR HANDLING UNITS

Technical data

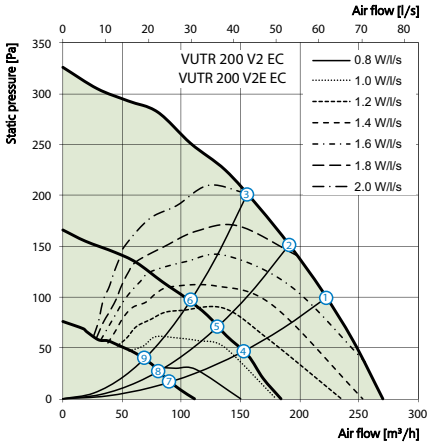
		VUTR 400 V EC	VUTR 400 VE EC	VUTR 600 V EC	VUTR 600 VE EC
Unit voltage [V/50 (60) Hz]		1~230			
Max. unit power without electric heater [W]		200		405	
Max. power of electric heater [W]		-	1400	-	2800
Max. unit power [W]		200	1600	405	3205
Max. unit current without electric heater [A]		1.4		2.6	
Max. unit current of electric heater [A]		-	6.1	-	12.2
Max. unit current [A]		1.4	7.5	2.6	14.8
Maximum air flow [m^3/h]		440		670	
RPM [min^{-1}]		3280		3230	
Sound pressure level at 3 m distance [dBA]		33		35	
Transported air temperature [°C]		from -25 up to +40			
Casing material		painted steel			
Insulation		40 mm mineral wool			
Filter	Extract	G4			
	Intake	G4, F7			
Connected air duct diameter [mm]		160		200	
Weight [kg]		81	82	90	92
Heat recovery efficiency		from 76 up to 85		from 81 up to 89	
Heat exchanger type*		rotary			
Heat exchanger material		aluminium			
SEC class		A			

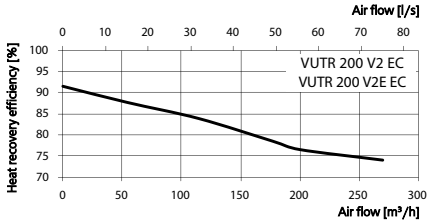
*Heat recovery efficiency is specified in compliance with EN 13141-7

Calculation of air temperature downstream of the heat exchanger:
$t = t_{outd} + k_{hr} * (t_{extr} - t_{outd})/100$,
where
t_{outd} : outdoor air temperature [°C]
t_{extr} : extract air temperature [°C]
k_{hr} : heat exchanger efficiency (according to the diagram) [%]

Point	Total unit power [W]				Sound pressure level at 3 m (1 m) distance [dBA]			
	VUTR 200 V2 EC VUTR 200 V2E EC	VUTR 280 V EC VUTR 280 VE EC	VUTR 400 V EC VUTR 400 VE EC	VUTR 600 V EC VUTR 600 VE EC	VUTR 200 V2 EC VUTR 200 V2E EC	VUTR 280 V EC VUTR 280 VE EC	VUTR 400 V EC VUTR 400 VE EC	VUTR 600 V EC VUTR 600 VE EC
1	103	154	170	375	28 (38)	26 (36)	33 (43)	35 (45)
2	98	132	170	375	27 (37)	26 (36)	33 (43)	35 (45)
3	85	110	170	375	26 (36)	25 (35)	32 (42)	34 (44)
4	43	55	68	163	21 (31)	24 (34)	31 (41)	30 (40)
5	40	47	65	155	21 (31)	24 (34)	28 (38)	29 (39)
6	37	38	59	151	20 (30)	22 (32)	27 (37)	28 (38)
7	18	19	26	43	19 (29)	15 (25)	23 (33)	27 (37)
8	17	18	25	42	19 (29)	14 (24)	21 (31)	23 (33)
9	16	17	25	39	17 (27)	13 (23)	19 (29)	23 (33)

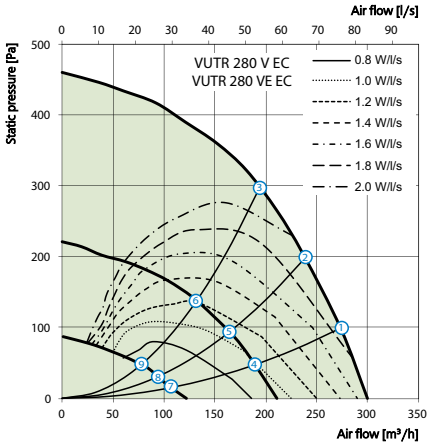
VUTR V EC/VUTR VE EC

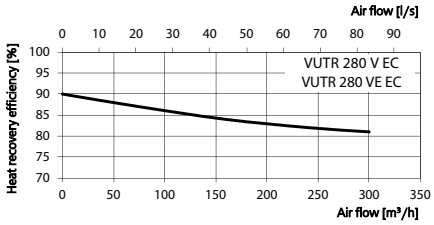




A-weighted sound power level		Gen.	Octave-frequency band [Hz]								LpA, 3 m dBA	LpA, 1 m dBA
		dBA	63	125	250	500	1000	2000	4000	8000		
L_{wA} to supply inlet	dBA	54	48	42	51	44	41	40	39	31		
L_{wA} to supply outlet	dBA	69	34	45	54	61	64	64	59	54		
L_{wA} to exhaust inlet	dBA	54	48	41	52	43	33	32	34	30		
L_{wA} to exhaust outlet	dBA	61	32	40	51	57	53	55	53	47		
L_{wA} to environment	dBA	49	25	41	43	43	39	38	35	24	28	38

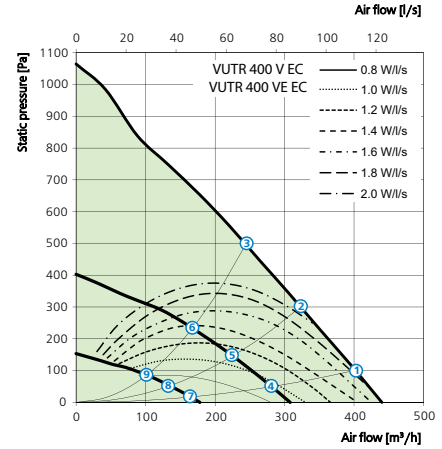
VUTR V EC/VUTR VE EC

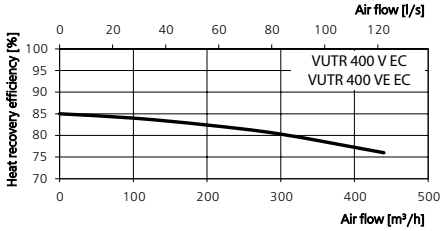




A-weighted sound power level		Gen.	Octave-frequency band [Hz]								LpA, 3 m dBA	LpA, 1 m dBA
		dBA	63	125	250	500	1000	2000	4000	8000		
L_{wA} to supply inlet	dBA	54	47	42	50	44	41	39	39	31		
L_{wA} to supply outlet	dBA	69	63	56	65	59	55	50	52	46		
L_{wA} to exhaust inlet	dBA	54	47	41	41	43	33	31	34	30		
L_{wA} to exhaust outlet	dBA	65	61	50	61	55	46	43	46	40		
L_{wA} to environment	dBA	47	42	37	43	36	31	28	26	21	26	36

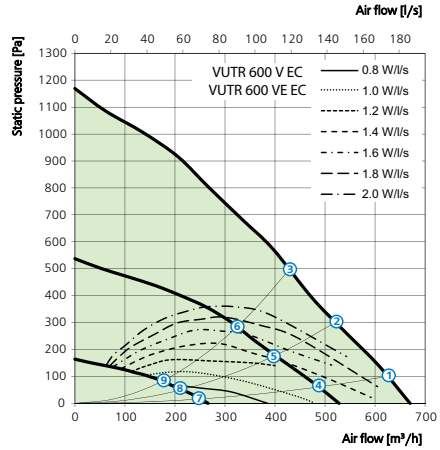
VUTR V EC/VUTR VE EC

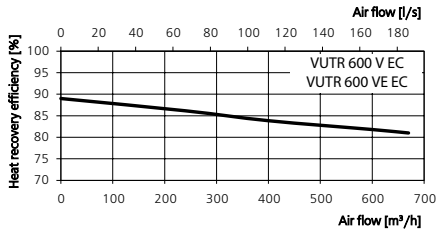




A-weighted sound power level		Gen.	Octave-frequency band [Hz]								LpA, 3 m dBA	LpA, 1 m dBA
		dBA	63	125	250	500	1000	2000	4000	8000		
L_{wA} to supply inlet	dBA	59	27	46	54	55	53	48	44	35		
L_{wA} to supply outlet	dBA	60	27	46	54	55	53	49	44	35		
L_{wA} to exhaust inlet	dBA	55	25	41	50	51	44	42	39	30		
L_{wA} to exhaust outlet	dBA	55	26	41	51	51	44	42	39	31		
L_{wA} to environment	dBA	54	18	36	47	49	48	43	37	33	33	43

VUTR V EC/VUTR VE EC





A-weighted sound power level		Gen.	Octave-frequency band [Hz]								LpA, 3 m dBA	LpA, 1 m dBA
		dBA	63	125	250	500	1000	2000	4000	8000		
L_{wA} to supply inlet	dBA	82	65	63	65	80	74	74	68	64		
L_{wA} to supply outlet	dBA	66	60	56	55	63	58	49	40	33		
L_{wA} to exhaust inlet	dBA	82	64	67	71	81	77	79	75	67		
L_{wA} to exhaust outlet	dBA	70	51	64	62	68	60	60	50	42		
L_{wA} to environment	dBA	56	39	47	46	54	46	46	44	40	35	45

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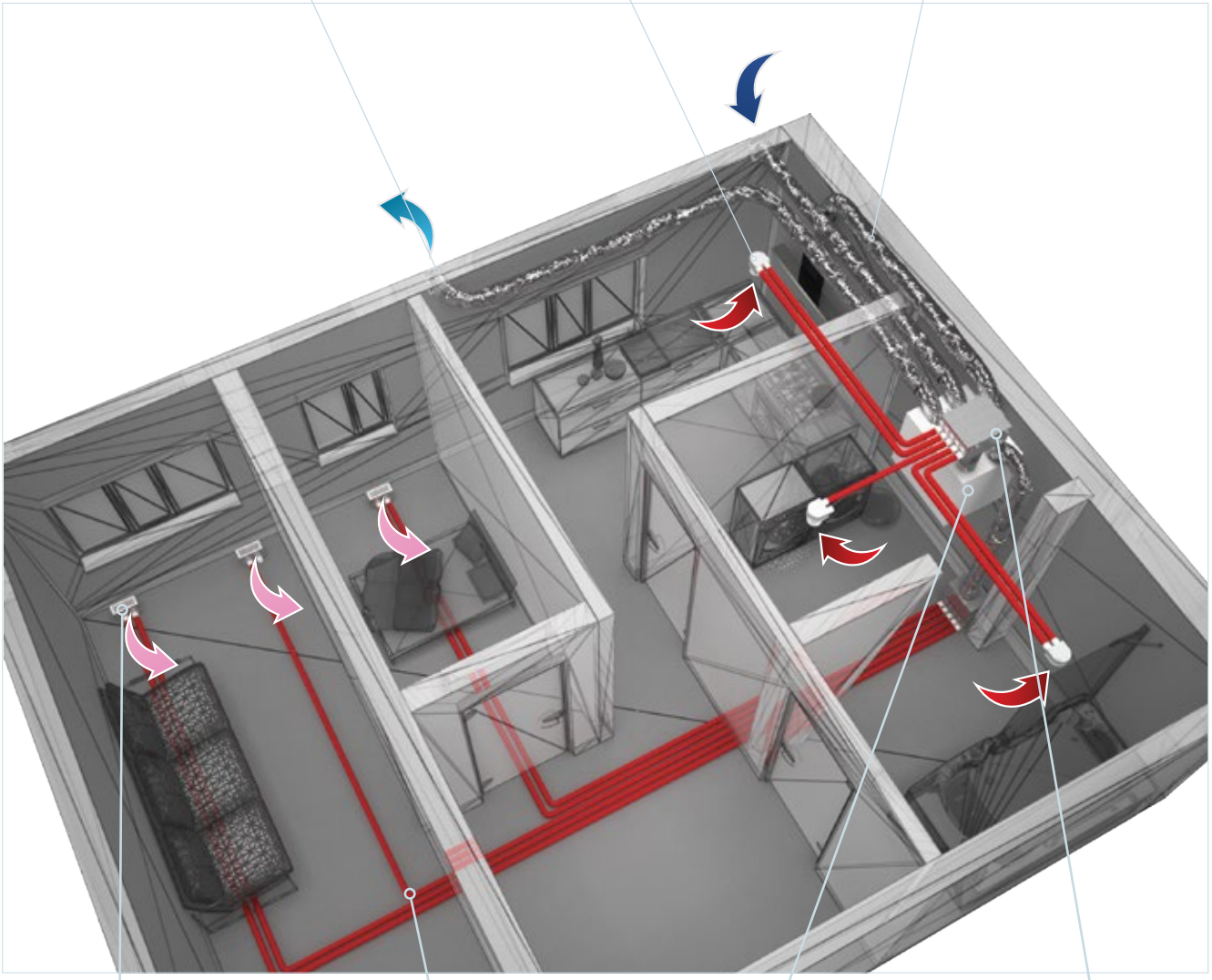
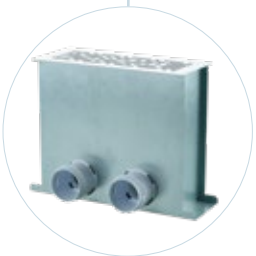
Application options

Ventilation hood

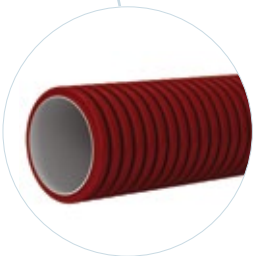
Ceiling connector with a disk valve

Isovent 150 insulated air duct



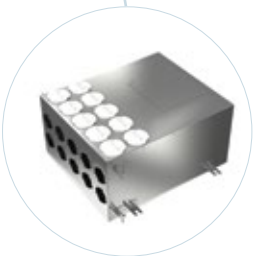


Floor connector with a grille



FlexiVent air duct

Air handling unit



Collector