

OVERVIEW

VENTILATION UNITS FOR COMFORT OF CENTRAL VENTILATION

**COMFORT
VENTILATION**

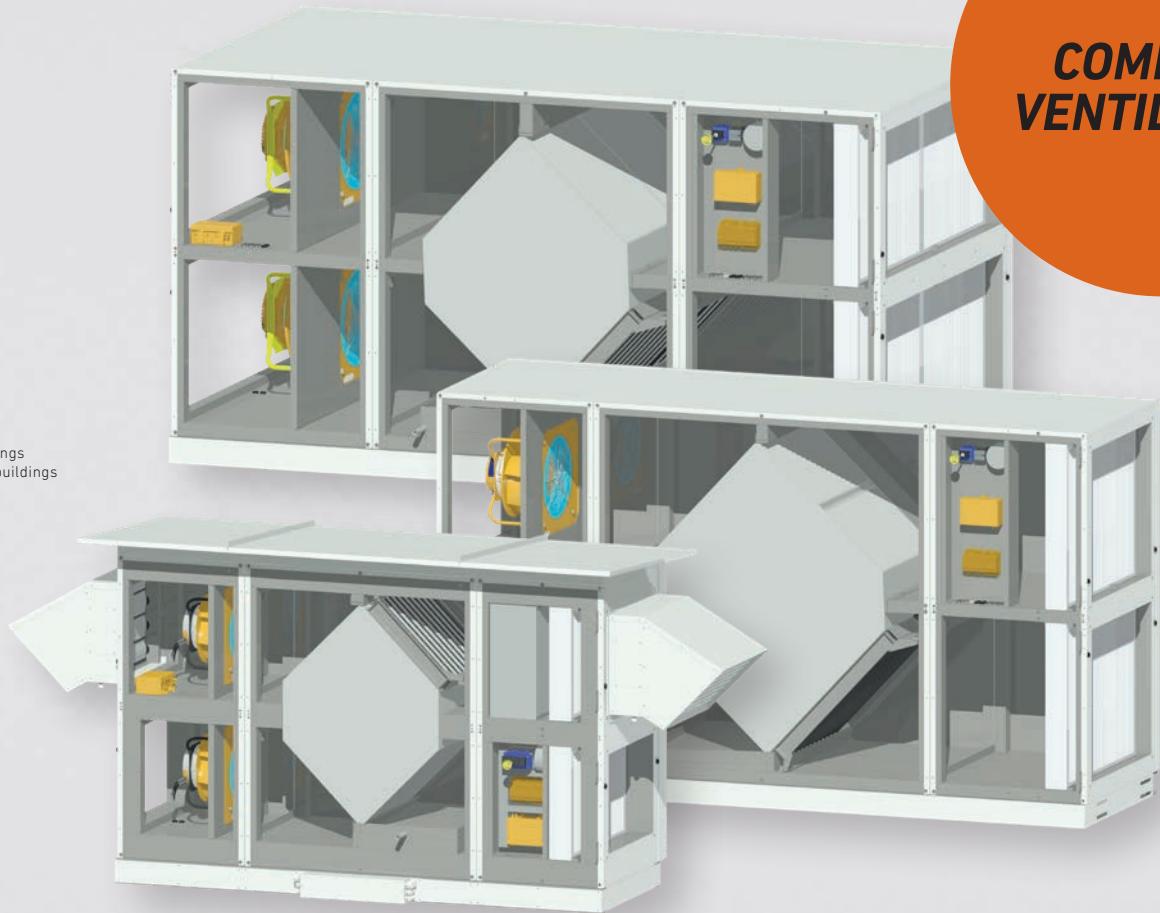


For residential buildings
For non-residential buildings

EN13141-7:2010



EU Regulation
1253/2014



 **PICHLER**

Systematic ventilation.

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Mag. Ing. Gernot Pichler
Managing Director of J. Pichler Gesellschaft m.b.H.

Highly efficient ventilation systems

FOR MULTI-STOREY BUILDINGS

We are immersed in it every day, invisible yet so vital to our well-being – the air without we cannot live. We spend about two thirds of our time indoors. We may therefore expect healthy, fresh air at home and at work as naturally as we do clean water. To a large extent,

comfort will depend on air quality. This is exactly where our ventilation systems are needed, since the right combination of temperature, humidity, freshness and cleanliness are paramount to our true well-being.

Our business focuses largely on multi-storey buildings. We were the

first supplier of large units certified for regulated aeration and ventilation by the Passive House Institute in Darmstadt. Our range comprises central systems supplying several apartments or offices from central ventilation plant and decentralised systems with a compact unit for each location.

PICHLER UNITS SERIES (STANDARD)

COMPACT UNITS SERIES VENTECH LG 500 P TO LG 3200

INDOOR INSTALLATION

COMPACT UNITS SERIES MONO-CASE LG 750 K TO LG 1000 K

WEATHERPROOF

INTEGRATED IN THE ROOF

MODULAR UNITS LG 750 TO LG 6000

INDOOR INSTALLATION

WEATHERPROOF

INTEGRATED IN THE ROOF



Applicable to all Pichler appliances: The units listed in this brochure are standard versions; prices and delivery times for other versions provided on request.



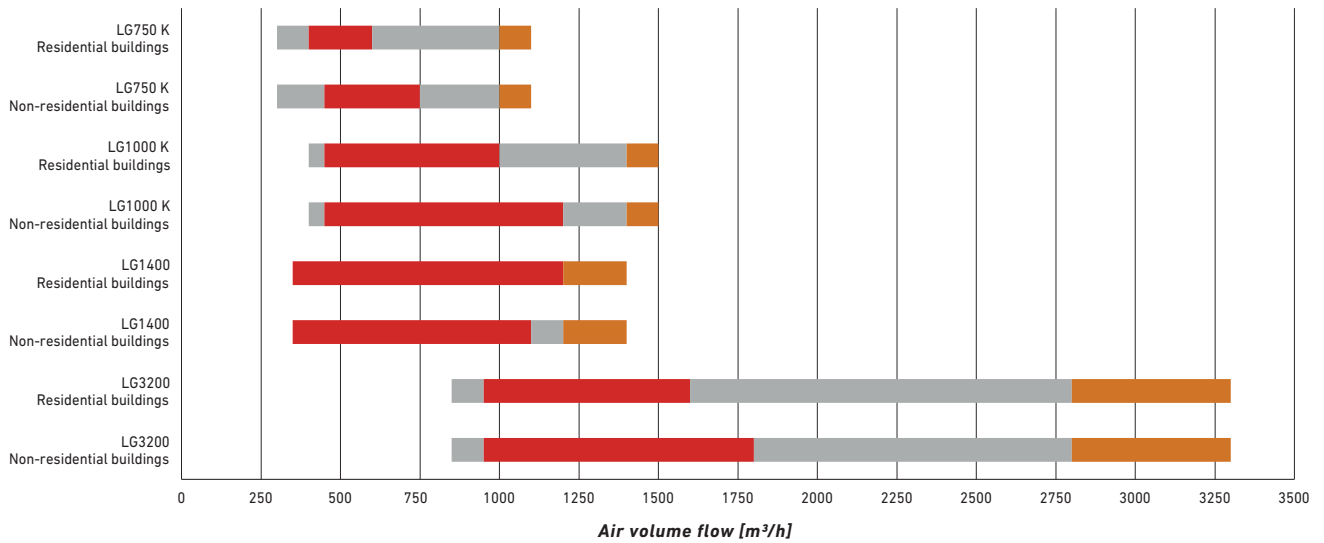
ErP 2018

Fulfils the requirements of the Ecodesign Directive, in accordance with EU Regulation 1253/2014.

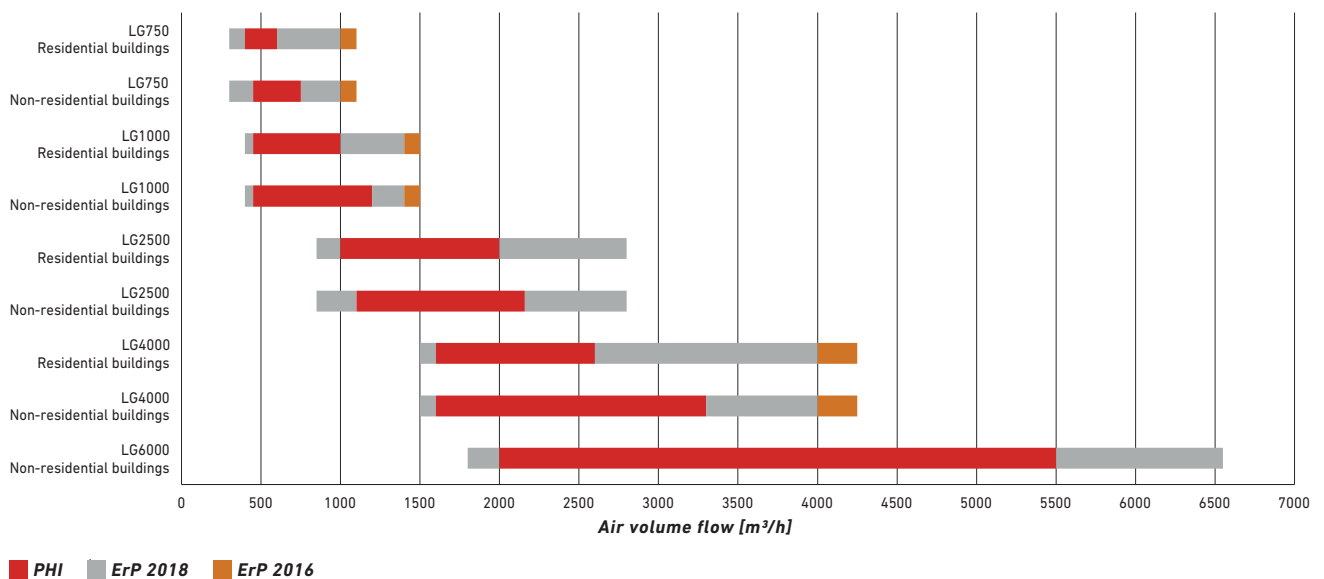


Applications

APPLICATIONS COMPACT UNITS



APPLICATIONS MODULAR UNITS

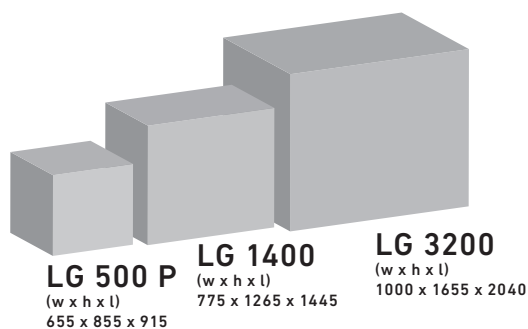


ErP 2016 is valid for units supplied up to December 2017 only. Ventilation units supplied after this date must conform to the 2018 ErP Directive.

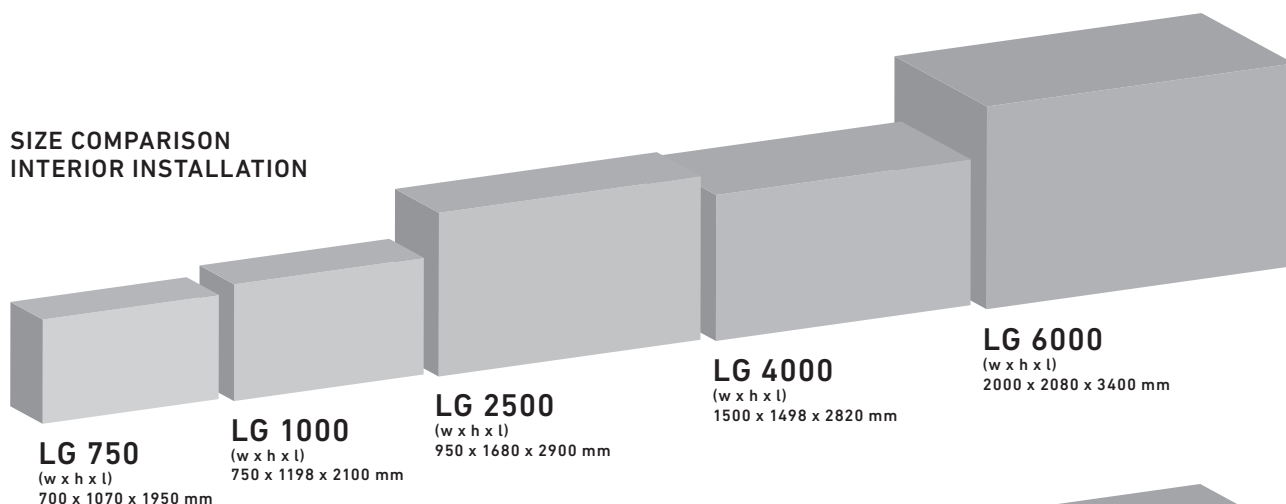
The areas of use specified apply to ventilation units' basic configuration (filter, heat recovery, fans) without additional components e.g. heater battery.



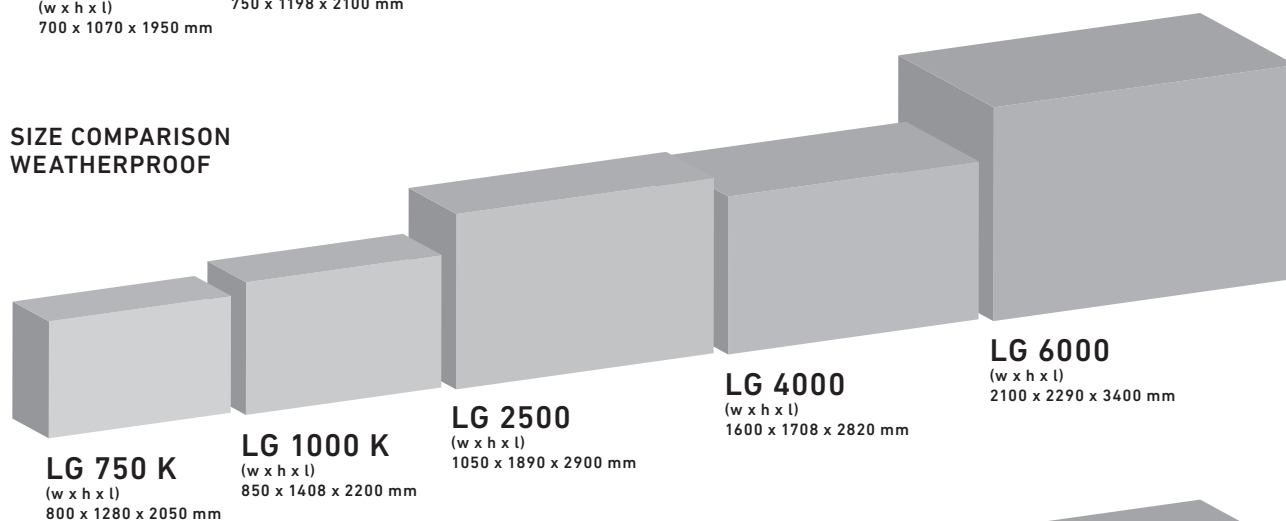
SIZE COMPARISON COMPACT UNITS SYSTEM VENTECH



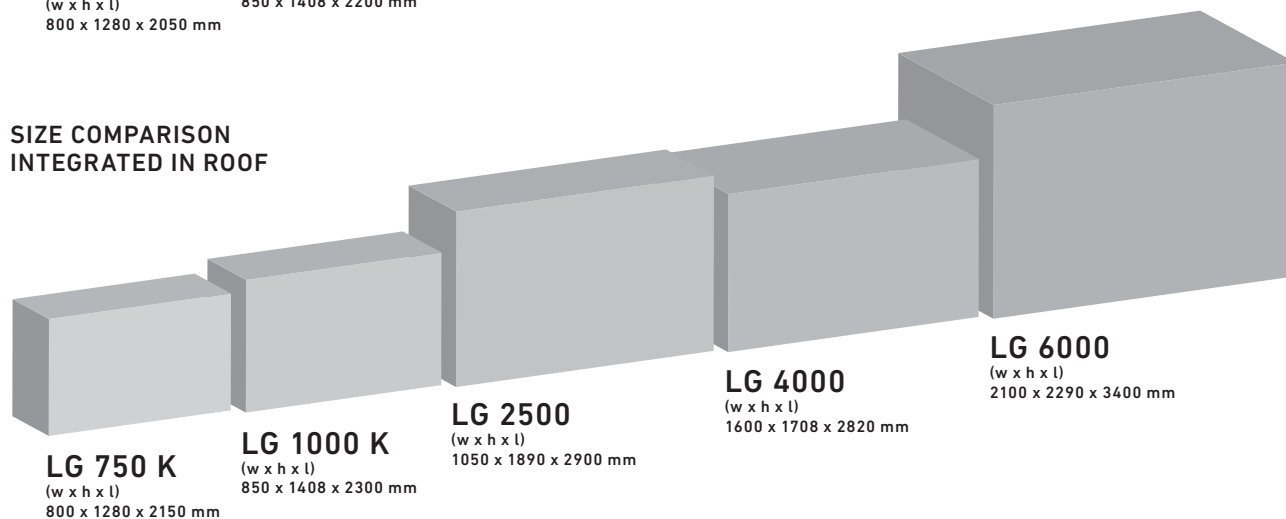
SIZE COMPARISON INTERIOR INSTALLATION



SIZE COMPARISON WEATHERPROOF



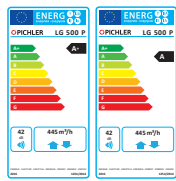



SIZE COMPARISON INTEGRATED IN ROOF



Compact units System VENTECH

INSIDE INSTALLATION

Size of units	LG 500 P
 	 
Number of apartments per storey 85 m ² usable living area (per dwelling unit)	Max. of 5 apartments per storey
Airflow adjustment range [m ³ /h]	150 to 550
Air/air counterflow heat exchanger with bypass	✓
Radial fans with EC motors	✓
Filter	Outdoor air pocket filter, quality class F7 Extract air pocket filter, quality class G4
Pressure sensors or Pichler system optimisation	✓
Dimensions (w x h x d) [mm]	915 x 855 x 655
Air duct connection (w x h) [mm]	Outside air/exhaust air/supply air/extract air: Ø each 200 with dual lip seal
Weight excl. accessories [kg]	ca. 75
Voltage / frequency	230 V/50 Hz / 16 A
Installation type	Free-standing and wall mounting
Design	Compact design
Set up	Inside and outside ¹ (with options)
Versions	<ul style="list-style-type: none"> • left, right • with and without integrated preheater battery • demand-controlled ventilation via air quality sensors (CO₂, VOC)
Operation control unit	3,5" colour touch display PI-HMI

TEST RESULTS – PASSIVE HOUSE CERTIFIED TO PHI CRITERIA

Residential building	
Applications	280 to 448 m ³ /h
Housing tightness	external leakage 0.6%, internal leakage 0.52%
Heat supply efficiency	$\eta_{\text{eff, t, WRG}} = 82\%$ (345 m ³ /h); 86 % (277 m ³ /h)
Comfort criterion	$T_{\text{sup, air}} = +16.5^{\circ}\text{C}$ at $T_{\text{outs, air}} = -10^{\circ}\text{C}$
Power efficiency	$\eta_{\text{elec.}} = 0.33 \text{ Wh/m}^3$ (345 m ³ /h); 0.26 Wh/m ³ (277 m ³ /h)
Certified to EN 13141-7:2010	
Thermodynamic test volume flow ²	extract air side = 76% / 76% / 70% and supply air side = 88% / 84% / 82% (at 121 / 304 / 446 m ³ /h)
Power efficiency	$\eta_{\text{elek.}} = 0.26 / 0.20 / 0.36 \text{ Wh/m}^3$




¹ Weatherproof type on request (weatherproof ventilation units are not Passive House certified)

² At outside air temp. +7°C: (+1 x Ref. +2°C), extract air temp. +20°C



Compact units System VENTECH

INSIDE INSTALLATION

Size of units	LG 1400 / LG 1400 S	LG 3200 / LG 3200 S
		
Number of apartments per storey 85 m ² usable living area (per dwelling unit)	Max. of 12 apartments per storey	Max. of 26 apartments per storey
Airflow adjustment range [m ³ /h]	350 to 1500	900 to 3400
Air/air counterflow heat exchanger with bypass	✓	✓
Radial fans with EC motors	✓	✓
Filter	Outdoor air pocket filter, quality class F7 Extract air pocket filter, quality class G4	Outside air pocket filter, quality class F7 Extract air pocket filter, quality class G4
Pressure sensors or Pichler system optimisation	✓	✓
Dimensions (w x h x d) [mm]	1445 x 1265 x 775	2040 x 1655 x 1000
Air duct connection (w x h) [mm]	200 x 596	300 x 800
Weight excl. accessories [kg]	ca. 190	ca. 390
Voltage / frequency	230 V/50 Hz / 20 A (Elec. exchanger type: 400 V/50 Hz / 25 A)	400 V/50 Hz/20 A
Installation type	Free standing	Free standing
Design	Compact design	Compact design
Set up	Inside and outside ¹ (with options)	Inside and outside ¹ (with options)
Versions	<ul style="list-style-type: none"> • left, right • with and without fitted pre- or reheater battery (hot water or electrical) • side version • demand-controlled ventilation via air quality sensors (CO₂, humidity) • with fitted cooling battery 	<ul style="list-style-type: none"> • left, right • with and without fitted pre- or reheater battery (hot water or electrical) • Side version • demand-controlled ventilation via air quality sensors (CO₂, humidity) • with fitted cooling battery
Operation control unit	3,5" colour touch display PI-HMI	3,5" colour touch display PI-HMI

TEST RESULTS – PASSIVE HOUSE CERTIFIED TO PHI CRITERIA

Non-residential building		
Applications	350 to 1100 m ³ /h at external compression of 228 Pa	950 to 1800 m ³ /h at external compression of 259 Pa
Housing tightness	externe leakage 0.39 %, interne Leakage 0,56 %	externe leakage 0.3 %, interne Leakage 0.9 %
Heat supply efficiency	$\eta_{\text{eff, t, WRG}} = 83 \%$	$\eta_{\text{eff, t, WRG}} = 84 \%$
Comfort criterion	$T_{\text{sup, air}} = +16.5^{\circ}\text{C}$ at $T_{\text{outs, air}} = -10^{\circ}\text{C}$	$T_{\text{sup, air}} = +16.5^{\circ}\text{C}$ at $T_{\text{outs, air}} = -10^{\circ}\text{C}$
Power efficiency	$\eta_{\text{elec}} = 0.39 \text{ Wh/m}^3$	$\eta_{\text{elec}} = 0.41 \text{ Wh/m}^3$
Residential building		
Applications	350 to 1200 m ³ /h at external compression of 198 Pa	950 to 2200 m ³ /h at external compression of 236 Pa
Housing tightness	external leakage 0.36%, internal leakage 0.52%	external leakage 0.3%, internal leakage 0.9%
Heat supply efficiency	$\eta_{\text{eff, t, WRG}} = 82 \%$	$\eta_{\text{eff, t, WRG}} = 82 \%$
Comfort criterion	$T_{\text{sup, air}} = +16.5^{\circ}\text{C}$ at $T_{\text{outs, air}} = -10^{\circ}\text{C}$	$T_{\text{sup, air}} = +16.5^{\circ}\text{C}$ at $T_{\text{outs, air}} = -10^{\circ}\text{C}$
Power efficiency	$\eta_{\text{elec}} = 0.38 \text{ Wh/m}^3$	$\eta_{\text{elec}} = 0.41 \text{ Wh/m}^3$
Certified to EN 13141-7:2010		
Thermodynamic test flow ²	extract air side = 77% / 76% / 74% and supply air side = 89% / 83% / 84% (at 344 / 922 / 1306 m ³ /h)	extract air side = 76 % / 75 % / 70 % and supply air side = 88 % / 87 % / 88 % (at 908 / 2120 / 3075 m ³ /h)
Power efficiency	$\eta_{\text{elek}} = 0,15 / 0,24 / 0,39 \text{ Wh/m}^3$	$\eta_{\text{elek}} = 0,19 / 0,28 / 0,45 \text{ Wh/m}^3$



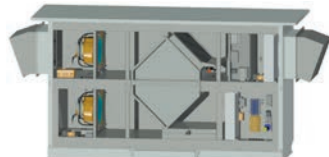
¹ Weatherproof type on request (weatherproof ventilation units are not Passive House certified)

² At outside air temp. +7°C: (+1 x Ref. +2°C), extract air temp. +20°C



Compact units system Mono-Case

INSIDE INSTALLATION

Size of units	LG 750 K*	LG 1000 K*
		
Type	Modular units – standard version	Modular units – standard version
Heat exchanger arrangement		
Supply air volume		
Dimensions (w x h x l) [mm]		
Weight [kg]		
Panel wall thickness [mm]		
Duct connection (w x h) [mm]		
Motor type		
Output [W]		
Heat exchanger type		
Heater battery type (E=electric or W=PWW)		
Standard filter classes (supply air / extract air)		
Control		

WEATHERPROOF

Type	LG750_K_WF	LG1000_K_WF
Heat exchanger arrangement	vertical (LG750KV_WF)	vertical (LG1000KV_WF)
Supply air volume	1000 m³/h at 550 Pa	1400 m³/h at 420 Pa
Dimensions (w x h x l) [mm] with flat roof (= standard, height = 60 mm)	800 x 1280 x 2150	850 x 1408 x 2300
Weight [kg]	~550	~ 600
Panel wall thickness [mm]	100	100
Duct connection (w x h) [mm]	480 x 345	530 x 410
Motor type	EC	EC
Output [W]	1020	1020
Heat exchanger type	Counterflow heat exchanger	Counterflow heat exchanger
Heater battery type (E=electric or W=PWW)	E/W	E/W
Standard filter classes (supply air / extract air)	F7/M5	F7/M5
Control	PI-Air2-control	PI-Air2-control

INTEGRATED IN THE ROOF

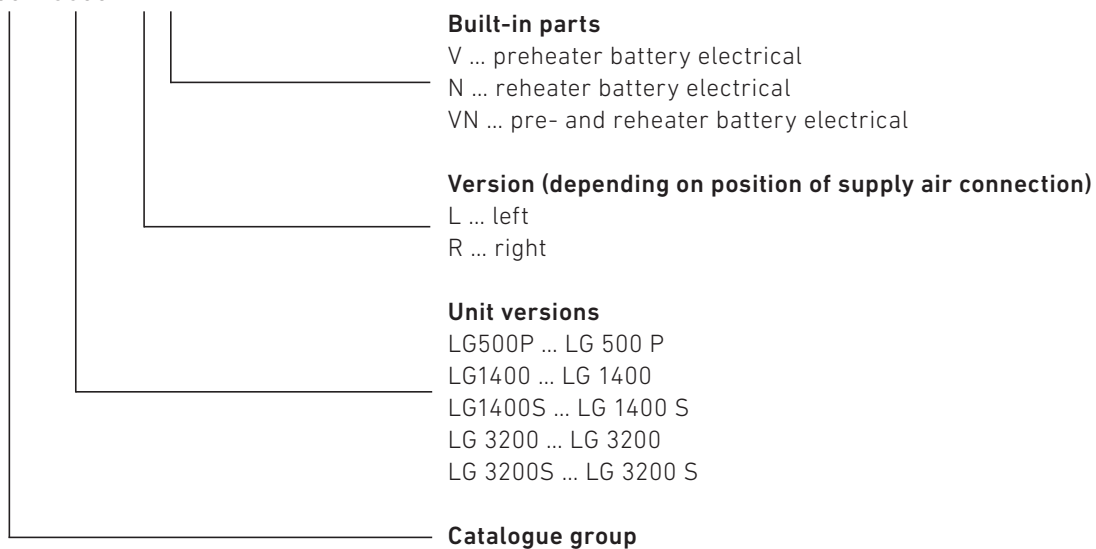
Type	LG750_K_DINT	LG1000_K_DINT
Heat exchanger arrangement	vertical (LG750KV_DINT)	vertical (LG1000KV_DINT)
Supply air volume	1000 m³/h at 550 Pa	1400 m³/h at 420 Pa
Dimensions (w x h x l) [mm] with flat roof (= standard, height = 60 mm)	800 x 1280 x 2150	850 x 1408 x 2300
Weight [kg]	~650	~ 700
Panel wall thickness [mm]	100	100
Duct connection (w x h) [mm]	320 x 270 (supply air/extract air) 480 x 345 (outdoor air/exhaust air)	370 x 270 (supply air/extract air) 530 x 410 (outdoor air/exhaust air)
Motor type	EC	EC
Output [W]	1020	1020
Heat exchanger type	Counterflow heat exchanger	Counterflow heat exchanger
Heater battery type (E=electric or W=PWW)	E/W	E/W
Standard filter classes (supply air / extract air)	F7/M5	F7/M5
Control	PI-Air2-control	PI-Air2-control

* also available as modular units (See page 10)

ITEM KEYS COMPACT UNITS SYSTEM VENTECH

The compact central units are available in different versions depending on your requirements:

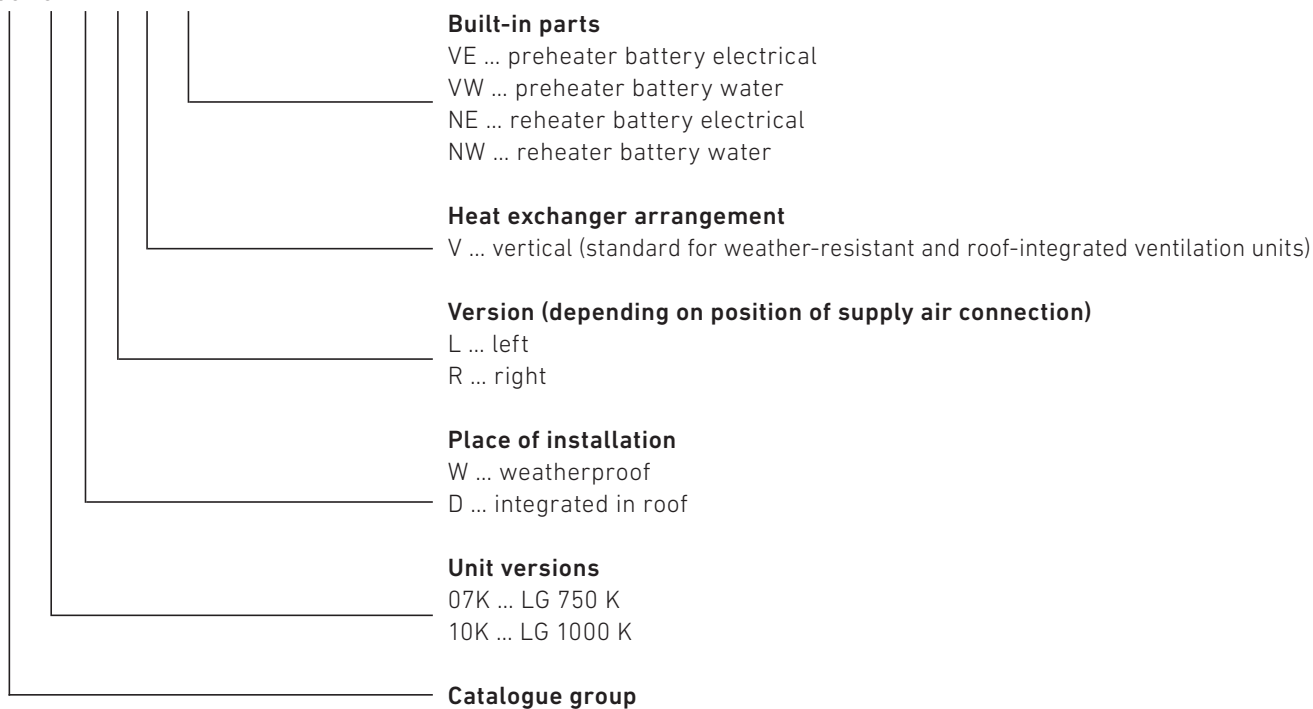
08 LG500P L V



ITEM KEYS COMPACT UNITS SYSTEM MONO-CASE

The compact central units are available in different versions depending on your requirements:

08 10K W R V VW



Modular units

INSIDE INSTALLATION

Size of units	LG 750*	LG 1000*	LG 2500
			
Type	LG750_IN	LG1000_IN	LG2500_IN
Heat exchanger arrangement	horizontal (LG750H)	horizontal (LG1000H)	horizontal (LG2500H)
Supply air volume	1000 m³/h at 550 Pa	1400 m³/h at 420 Pa	2800 m³/h at 560 Pa
Dimensions (w x h x l) [mm]	700 x 1070 x 1950	750 x 1198 x 2100	950 x 1680 x 2900
Weight [kg]	~350	~400	~700
Panel wall thickness [mm]	50	50	50
Duct connection (w x h) [mm]	480 x 345	530 x 410	730 x 650
Motor type	EC	EC	EC
Output [W]	1020	1020	2015
Heat exchanger type	Counterflow heat exchanger	Counterflow heat exchanger	Counterflow heat exchanger
Heater battery type (E=electric or W=PWW)	E/W	E/W	E/W
Standard filter classes (supply air / extract air)	F7 / M5	F7 / M5	F7 / M5
Control	PI-Air2-control	PI-Air2-control	PI-Air2-control

WEATHERPROOF

Type	Compact units – standard version	Compact units – standard version	LG2500_WF
Heat exchanger arrangement			vertical (LG2500V_WF)
Supply air volume			2800 m³/h to 560 Pa
Dimensions (w x h x l) [mm] with flat roof (= standard, height = 60 mm)			1050 x 1890 x 2900
Weight [kg]			~800
Panel wall thickness [mm]			100
Duct connection (w x h) [mm]			730 x 650
Motor type			EC
Output [W]			2015
Heat exchanger type			Counterflow heat exchanger
Heater battery type (E=electric or W=PWW)	Compact units – standard version	Compact units – standard version	E/W
Standard filter classes (supply air / extract air)			F7 / M5
Control			PI-Air2-control

INTEGRATED IN THE ROOF

Type	Compact units – standard version	Compact units – standard version	LG2500_DINT
Heat exchanger arrangement			vertical
Supply air volume			2800 m³/h to 560 Pa
Dimensions (w x h x l) [mm] with flat roof (= standard, height = 60 mm)			1050 x 1890 x 2900
Weight [kg]			~1200
Panel wall thickness [mm]			100
Duct connection (w x h) [mm]			570 x 370 (supply air/extract air) 730 x 650 (outdoor air/exhaust air)
Motor type			EC
Output [W]			2015
Heat exchanger type			Counterflow heat exchanger
Heater battery type (E=electric or W=PWW)	Compact units – standard version	Compact units – standard version	E/W
Standard filter classes (supply air / extract air)			F7 / M5
Control			PI-Air2-control

* also available as compact version (See page 8)

Size of units	LG 4000	LG 6000
		
Type	LG4000_IN	LG6000_IN
Heat exchanger arrangement	horizontal (LG4000H)	horizontal (LG6000H)
Supply air volume	4000 m³/h at 690 Pa	6550 m³/h at 420 Pa
Dimensions (w x h x l) [mm]	1500 x 1498 x 2820	2000 x 2080 x 3400
Weight [kg]	~850	~1500
Panel wall thickness [mm]	50	50
Duct connection (w x h) [mm]	1280 x 560	1780 x 851
Motor type	EC	EC
Output [W]	3415	4015
Heat exchanger type	Counterflow heat exchanger	Counterflow heat exchanger
Heater battery type (E=electric or W=PWW)	W	W
Standard filter classes (supply air / extract air)	F7 / M5	F7 / M5
Control	PI-Air2-control	PI-Air2-control

Type	LG4000_WF	LG6000_WF
Heat exchanger arrangement	vertical (LG4000V_WF)	vertical (LG2500V_WF)
Supply air volume	4000 m³/h at 690 Pa	6550 m³/h at 420 Pa
Dimensions (w x h x l) [mm] with flat roof (= standard, height = 60 mm)	1600 x 1708 x 2820	2100 x 2290 x 3400
Weight [kg]	~1050	~1800
Panel wall thickness [mm]	100	100
Duct connection (w x h) [mm]	1280 x 560	1780 x 851
Motor type	EC	EC
Output [W]	3415	4015
Heat exchanger type	Counterflow heat exchanger	Counterflow heat exchanger
Heater battery type (E=electric or W=PWW)	W	W
Standard filter classes (supply air / extract air)	F7 / M5	F7 / M5
Control	PI-Air2-control	PI-Air2-control

Type	LG4000_DINT	LG6000_DINT
Heat exchanger arrangement	vertical	vertical
Supply air volume	4000 m³/h at 690 Pa	6550 m³/h at 420 Pa
Dimensions (w x h x l) [mm] with flat roof (= standard, height = 60 mm)	1600 x 1708 x 2820	2100 x 2290 x 3400
Weight [kg]	~1450	~2400
Panel wall thickness [mm]	100	100
Duct connection (w x h) [mm]	1120 x 470 (supply air/extract air) 1280 x 560 (outdoor air/exhaust air)	1620 x 470 (supply air/extract air) 1780 x 851 (outdoor air/exhaust air)
Motor type	EC	EC
Output [W]	3415	4015
Heat exchanger type	Counterflow heat exchanger	Counterflow heat exchanger
Heater battery type (E=electric or W=PWW)	W	W
Standard filter classes (supply air / extract air)	F7 / M5	F7 / M5
Control	PI-Air2-control	PI-Air2-control

ITEM KEYS MODULAR UNITS

The modular central units are available in different versions depending on your requirements:

08 10 W R V VW

Built-in parts

VE ... preheater battery electrical
 VW ... preheater battery water
 NE ... reheater battery electrical
 NW ... reheater battery water
 KW ... cooling battery water
 KDX ... cooling battery direct evaporator
 S1 ... sound suppressor in outdoor and exhaust air ducts
 S2 ... sound suppressor in supply and extract air ducts
 S3 ... sound suppressor in outdoor, exhaust, supply and extract air ducts
 B ... humidifier

Heat exchanger arrangement

V ... vertical (standard for weather-resistant and roof-integrated ventilation units)
 H ... horizontal (standard for indoor installation units)

Version (depending on position of supply air connection)

L ... left
 R ... right

Place of installation

I ... inside
 W ... weatherproof
 D ... integrated in roof

Unit versions

07 ... LG 750
 10 ... LG 1000
 25 ... LG 2500
 40 ... LG 4000
 60 ... LG 6000

Catalogue group



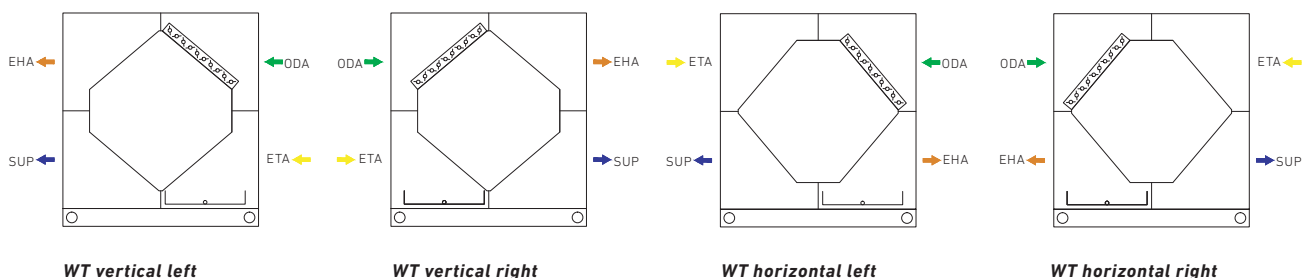
HEAT EXCHANGER ARRANGEMENT

The heat exchanger positions shown are the preferred ones, in each case in left-hand and right-hand versions for the different inspection sides and with airflow arrows. Standard ventilation units are available in the following designs: Ventilation units for indoor

installation are fitted with horizontal heat exchangers; weather-resistant and roof-integrated ventilation units are fitted with vertical heat exchangers. Prices and delivery times for other versions are available on request.

Standard ventilation units with weather-resistant or roof-integrated design:

*Standard ventilation units
for indoor installation:*



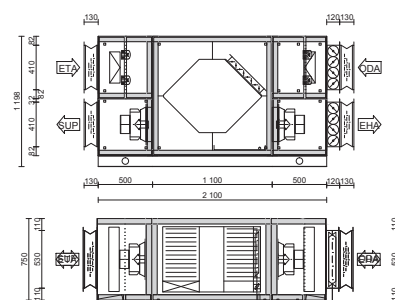
EXAMPLE 08_10_I_L_H

Ventilation unit LG 1000

I ... for interior installation

L ... left version

H ... with horizontal heat exchanger



EXAMPLE 08_10_I_L_H_VW_NW_KW

Ventilation unit LG 1000

I ... for interior installation

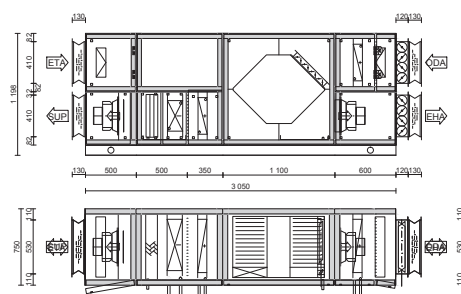
L ... left version

H ... with horizontal heat exchanger

VW ... preheater battery water

NW ... reheater battery water

KW ... cooling battery water



EXAMPLE 08_10_W_L_V_VW_NW_KW_S3

Ventilation unit LG 1000

W ... for weatherproof installation

L ... left version

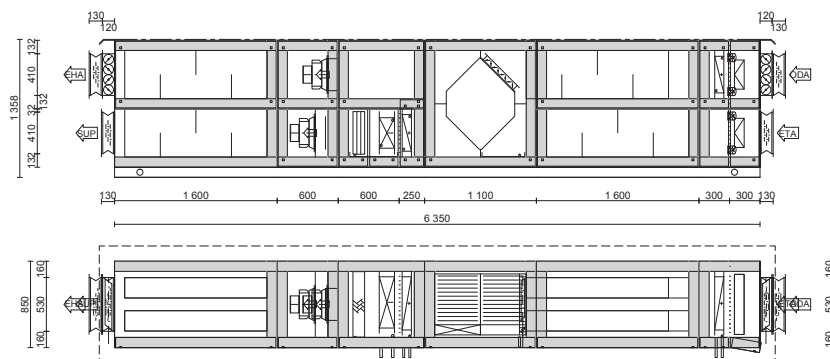
V ... with vertical heat exchanger

VW ... preheater battery water

NW ... reheater battery water

KW ... cooling battery water

S3 ... sound suppressor in outdoor,
exhaust, supply and extract
air ducts



PASSIVE HOUSE CERTIFIED TO PHI CRITERIA

Size of units	LG 750 / LG 750 K	LG 1000 / LG 1000 K	LG 2500	LG 4000	LG 6000
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	Non-residential building	Non-residential building	Non-residential building	Non-residential building	Non-residential building (residential building)
Applications	450 to 750 m ³ /h at external compression of 204 Pa	450 to 1200 m ³ /h at external compression of 233 Pa	1100 to 2160 m ³ /h at external compression of 271 Pa	1600 to 3300 m ³ /h at external compression of 298 Pa	2000 to 5500 m ³ /h at external compression of 328 Pa
Heat supply rate	$\eta_{\text{eff, t, WRG}} = 82 \%$	$\eta_{\text{eff, t, WRG}} = 82 \%$	$\eta_{\text{eff, t, WRG}} = 82 \%$	$\eta_{\text{eff, t, WRG}} = 82 \%$	$\eta_{\text{eff, t, WRG}} = 83 \%$
Power efficiency	$\eta_{\text{elec.}} = 0,41 \text{ Wh/m}^3$	$\eta_{\text{elec.}} = 0,40 \text{ Wh/m}^3$	$\eta_{\text{elec.}} = 0,42 \text{ Wh/m}^3$	$\eta_{\text{elec.}} = 0,42 \text{ Wh/m}^3$	$\eta_{\text{elec.}} = 0,43 \text{ Wh/m}^3$

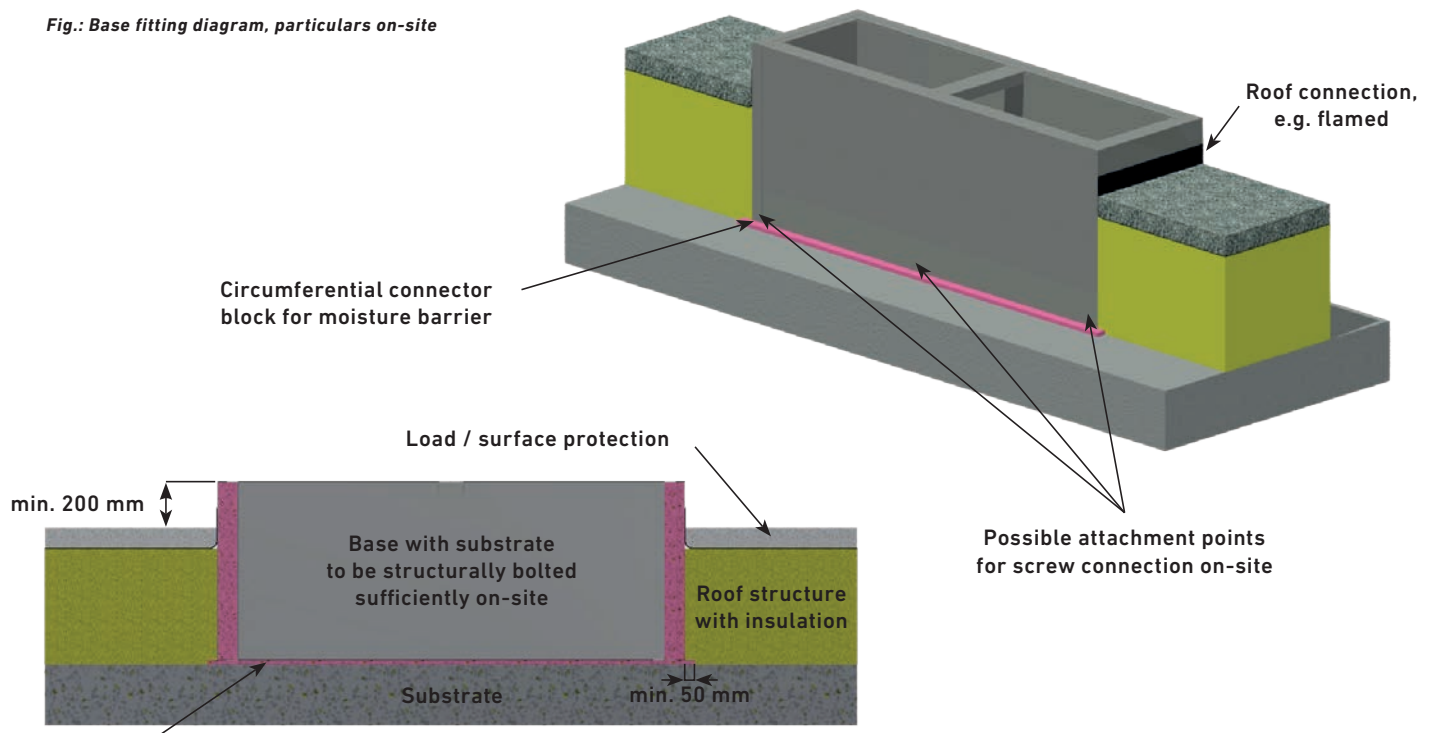
	Residential building	Residential building	Residential building	Residential building	Non-residential building (residential building)
Applications	400 to 600 m ³ /h at external compression of 155 Pa	450 to 1000 m ³ /h at external compression of 187 Pa	1000 to 2000 m ³ /h at external compression of 230 Pa	1600 to 2600 m ³ /h at external compression of 246 Pa	
Heat supply efficiency	$\eta_{\text{eff, t, WRG}} = 82 \%$	$\eta_{\text{eff, t, WRG}} = 81 \%$	$\eta_{\text{eff, t, WRG}} = 81 \%$	$\eta_{\text{eff, t, WRG}} = 81 \%$	
Power efficiency	$\eta_{\text{elec.}} = 0,34 \text{ Wh/m}^3$	$\eta_{\text{elec.}} = 0,33 \text{ Wh/m}^3$	$\eta_{\text{elec.}} = 0,37 \text{ Wh/m}^3$	$\eta_{\text{elec.}} = 0,35 \text{ Wh/m}^3$	



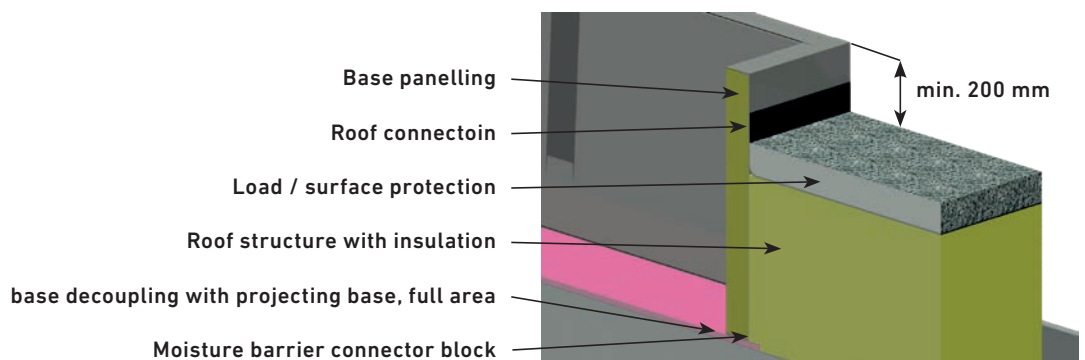
Diagram: base fitting for roof-integrated ventilation units

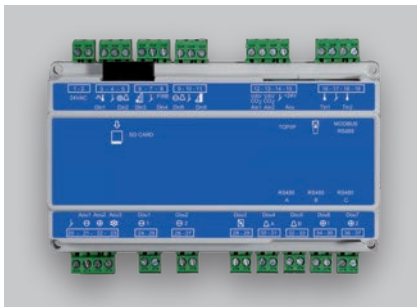
- Panelled base with U-value $< 0,3 \text{ W/m}^2\text{K}$
- Thermal decoupling from building shell
- Apertures for air ducts arbitrary
- Variable base height (depending on roof structure)
- Weather protection cover (removed after installation of units)

Fig.: Base fitting diagram, particulars on-site



Base decoupling included in delivery. Full area under base.
Min. 50 mm projecting base.





Simple operation of integrated control via control unit or integrated Web server



Colour touch-screen PI-HMI

Controller

An integrated Pichler control and regulation system is standard for the modular central comfort ventilation units. Settings on the ventilation units are made via an integrated Web server and limited settings are also possible via a controller.

INTEGRATED WEB SERVER

All the ventilation units settings are possible via the integrated Web server. The Web server has an integrated program for days and weeks. Current operating status and system settings such as control mode, ventilation level, temperatures etc. are also shown on a control unit. Signal lamps will indicate normal operation (green) or malfunctioning (flashing red); these conditions are also displayed in plain text. A graphic control unit with a touch screen allowing more accurate settings to be made for the ventilation unit is under development.

The PI-Air2 system is a simple, user friendly, intelligent controller for ventilation units. It will guarantee maximum comfort and minimum energy consumption. This system is included in all Pichler ventilation units, starting from LG750.

ADVANTAGES

- Simple operation via control unit or integrated Web server
- Modular, demand-optimised system
- Multilingual
- Clear overview of current operating parameters
- Simple integration into automated building systems
- Extensible via PI optimiser system for demand-optimised room zone regulation

FUNCTIONS

Function	Description	Standard	Optional	Accessories necessary
Filter monitoring	Filter timer monitors filter runtime		●	
	Pressure switch for monitoring static pressure loss		●	●
	Continuous pressure sensors for monitoring static pressure loss	●		●
	Continuous pressure sensors for monitoring dynamic pressure loss		●	●
Temperature control	Regulation of constant supply air temperature		●	
	Regulation of constant extract air temperature	●		
	Regulation of constant room air temperature		●	● (room air temperature sensor)
	Regulation of constant supply air/extract air temperature differential		●	
Summer/winter changeover	Temperature compensation guided by outside air temperature setpoint value		●	
	Changes temperature control type for winter and summer modes.		●	
Night time cooling	If the temperature conditions are approved during the summer, the cooler outside air is used to cool down rooms at night. This can be controlled over a period of time or within a temperature window.		●	
Active cooling	Cooling performance can be managed continuously by installing a cooler battery.		●	● (PWW cooler)
	DX cooling battery – digital or continuous refrigerating machine power control		●	● (DX cooler)
Active heating/cooling	By using a combination battery, the user can control heating and cooling via a continuous 0-10 V and a 230 V pump outlet.		●	● (Combi battery)
	Requirement for heating or cooling demand		●	● (Signal relay)
Approve cooling	Digital input when using a combi battery. Facility for external control of whether coolant is provided in the event of demand for cooling		●	
Approve heating	Digital input when using a combi battery. Facility for external control of whether heating medium is provided in the event of demand for heating		●	

Function	Description	Standard	Optional	Accessories necessary
Preheating	Control signal for an electrical pre-heater battery or digital switch output		•	• (electric heater)
	Control signal for a PWW/glycol/brine pre-heater battery 0 – 10 V mixer valve and 230 V pump control		•	• (PWW heater)
	Heat requirement in the event of heating demand		•	• (Signal relay)
Reheating	Control signal for an electrical re-heater battery or digital switch output		•	• (electric heater)
	Control signal for a PWW reheater battery 0-10 V mixer valve and 230 V pump control		•	• (PWW heater)
	Heat requirement in the event of heating demand		•	• (Signal relay)
Temperature sensor	Outside air temperature sensor	•		
	Supply air temperature sensor	•		
	Exhaust air temperature sensor	•		
	Room temperature sensor		•	• (room air temperature sensor)
	Extract air temperature sensor	•		
Heat recovery bypass performance control	Continuous bypass control for optimal energy recovery	•		
Bypass frost protection	Protection of the heat exchanger by opening the bypass duct.	•		
Fan protection	In the event of a fault in the fans, an alarm is triggered and the unit is shut down.	•		
Fire alarm system	Alarm signal from central fire alarm system can be connected (digital input). An active alarm stops the unit.		•	
Smoke alarm	An active smoke alarm (digital input) triggers a smoke detector alarm in the unit and a defined, adjustable fan speed.		•	
Web operation	Integration into a LAN network. Unit operation and remote control via integrated web server		•	
Communication	Connection to a building's automation system via Modbus RTU interface		•	
	Connection to a building's automation system via Modbus TCP/IP interface		•	
	Connection to a building's automation system via BACnet interface		•	
	Connection to a building's automation system via LON interface		•	• (LON module)
Shut-off valve	Outside air valve closes automatically when the unit stops.		•	• (valve with actuator)
	Exhaust air valve closes automatically when the unit stops.		•	• (valve with actuator)
Cold recovery	When extract air is cool and outside air is too warm, the warm outside air is used to cool down the outside air.	•		
Weekly programme	Time-controlled ventilation regulation. Up to 4 start and stop times may be defined per 24 hour period.	•		
Shock ventilation (party function)	By activating a digital input, the unit is operated at a high ventilation level. The unit can run for a definable period of time after the contact is opened.		•	
External start/stop	The unit is started or stopped by activating a digital input.		•	
A alarm	Fault message resulting in unit shutdown. (potential-free output)	•		
B alarm	Warning message requiring maintenance e. g. filter change (potential-free output)		•	
Ventilation control	Constant ducting pressure control		•	• (pressure sensors)
	Constant air volume control	•		
	Constant supply air duct pressure control		•	• (pressure sensors)
	Constant extract air duct pressure control		•	• (pressure sensors)
	VOC/CO ₂ bedarfsgeführte Regelung		•	• (CO ₂ /VOC sensor)
	0-10 V demand-controlled supply air and extract air separated		•	• (e. g. Belimo Fan-optimiser)
	GreenZone/PI Optimizer – demand optimised control		•	• (Pi-optimiser/zone module)
	Constant fan speed		•	
Dehumidification	Dehumidification of extract room air (only possible in combination with cooling and heater batteries)		•	• humidity sensor, cooling/heater battery)
Humidification	0-10 V signal and switch output to control an external humidification unit for supply air		•	• (External humidifier, humidity sensor)
Control unit	Pichler 3,5" colour touch screen control unit	•		
Language package	The following languages are currently available: German, English, Italian, French, Danish, Finnish, Swedish, Norwegian, Spanish, Polish, Russian, Dutch	•		
Heater battery protection	An alarm is triggered in the event of a heater battery fault.	•		
Combi battery protection	An alarm is triggered in the event of a combi battery fault.		•	
Summer operation	Signalling of summer operation		•	
Operating message	Signalling of system operation status		•	

Demand-optimised fan control with Pichler System Optimiser

The newly developed Pichler System Optimiser will regulate the supply and extract air fans in central ventilation equipment to match demand, achieving energy efficient and optimised operation of the plant.

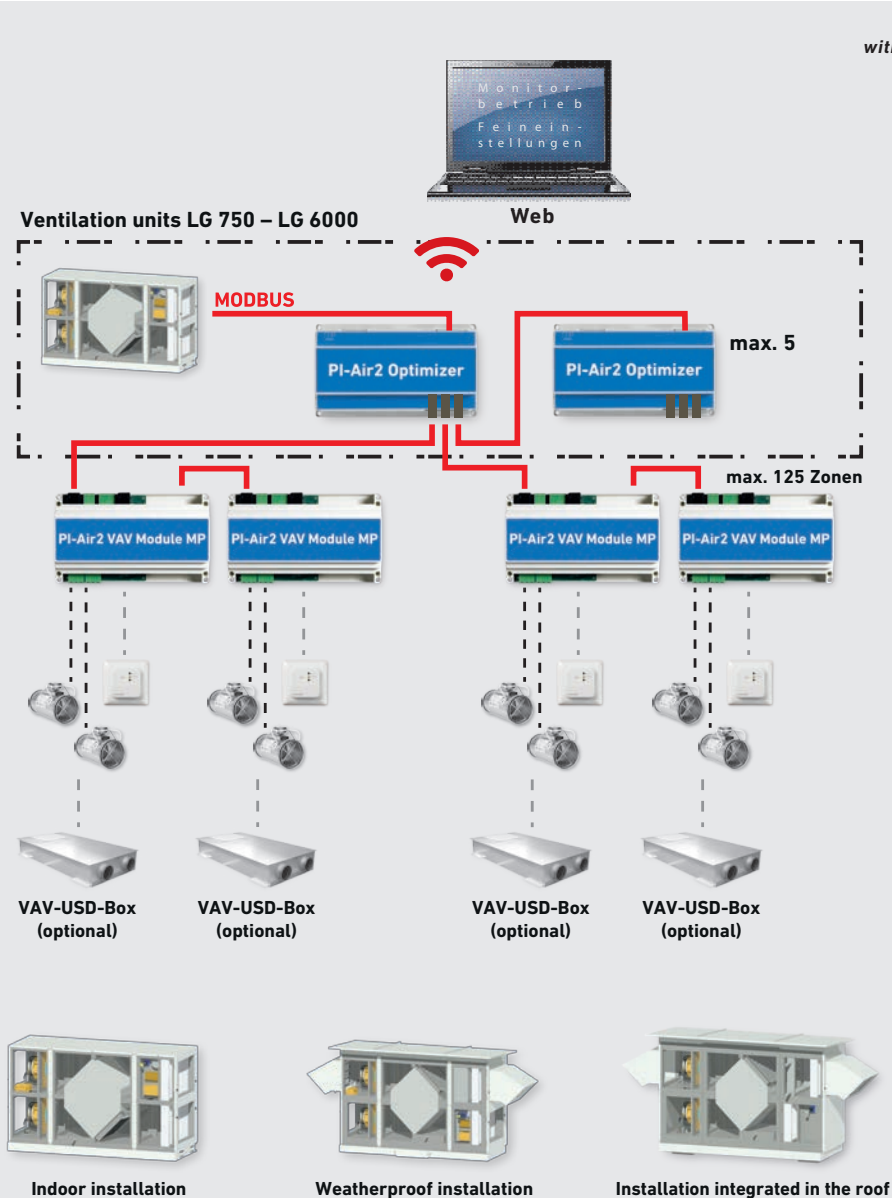
25 zones (50 flow regulators) per section may be controlled via a zone optimiser system for the sections, developed in-house. This system may, if required, be extended to up to 5 sections, each with 25 zones - i.e. 125 zones in total (250 flow regulators). The individual zones may each

be parameterised and monitored centrally or via the integrated Web server.

In addition to the air volume parameters V_{min} , V_{max} , additional flow regulator parameters may be controlled via the Web server. Current flow regulator operating parameters (e.g. flap position, current flows, etc.) will be passed on to the central optimiser via a Modbus system. These are used to calculate optimal fan speeds to thereby control all flaps in optimal operating position.

The central reference and control variable of this need-based system will be the flow regulator flap position. This will significantly reduce the power consumption of the fans. The reduced airflow noise over the flap wings will furthermore clearly benefit user comfort.

Advantages compared to constant pressure control: Significantly lower energy consumption of the fans, less airflow noise, optimised regulation achieved by central control of all flow regulators.



Pichler Modbus system design with zone optimiser system for up to 250 volume flow regulators.



Zone-optimised system for up to 250 flow controllers



Optimised plant operation with the Pichler System Optimiser



Needs-based operation with air quality sensors

EFFICIENT START-UP WITH QUICK PLUG MODBUS

All the settings for the Pichler optimiser system are easy to make via the integrated Web server. No special software needed - a standard Web browser such as Internet Explorer will suffice. No programming needed either – simply insert the components and fine tune the settings!

All system components are linked via a Modbus system. Bus cabling uses daisy chaining to minimising installation effort.

NEED-BASED VENTILATION VIA CONTROL UNIT OR AIR QUALITY SENSOR

There are two other possibilities of regulating air volumes in the individual zones, as variations on need-based ventilation with the Pichler System Optimiser: either via a room control unit with three air level settings V_{\min} , V_{\max} and V_{comf} (adjustable via the Web server at all times) or via CO₂ regulated air volume control using a CO₂ air quality sensor. This alternative is also very easy to configure and adjust via the Web server.

ADVANTAGES

- Projected air volume preconfigured for a specific dwelling unit
- Preset parameters for the individual zones, e.g. V_{\min} , V_{\max} or ppm values of the CO₂ sensor, easy to adjust via the integrated Web server at any time
- Very easy linking of the Web server to your LAN (local area network)
- Facilitates installation and addressing of air flow regulators
- Maximum configuration level for up to 125 zones (250 flow regulators)
- Continuous plant monitoring and analysis
- Indications of possible malfunctioning at a central point
- Need-based ventilation optionally also with intelligent air quality sensors





**External control extension
for external water registers**



External PI-SYS-OPT control extension



Pressure sensors PI-Air2 incl. connection kit

External control extensions

EXTERNAL CONTROL EXTENSION FOR EXTERNAL WATER REGISTERS

External control extension for ventilation units with a PI-Air2 control system. Provides for controlling a maximum of two external water registers (pre-heater, postheater, water cooling battery and combi exchanger). Control system extension pre-assembled and wired in the surfacemounted housing.

- **Dimensions (WxHxD):**
255x180x110 mm
- **Material:** polystyren
- **Colour:** light grey,
similar to RAL703
- **Degree of protection:** IP54/6
- Suitable for indoor use
- Metric knockouts for
screwed cable glands

Accessories included:

- Clamp-on temperature
sensor PT1000 (2 pieces)
- Modbus flat cable (7 metres)
- RJ12 plug for press-fit
applications (2 pieces)

EXTERNAL CONTROL EXTENSION WITH PICHLER- SYSTEM OPTIMIZER

External PI-SYS-OPT (Pichler system optimizer) control extension for ventilation units with a PI-Air2 control system. Provides for the demand-optimized control of the central ventilation unit within a range of up to 25 zones. The system can be extended to a maximum of 125 zones. Control system pre-assembled and wired in the surface-mounted housing.

- **Dimensions (WxHxD):**
255x180x110 mm
- **Material:** polystyren
- **Colour:** light grey,
similar to RAL703
- **Degree of protection:** IP54/6
- Suitable for indoor use
- Metric knockouts for
screwed cable glands

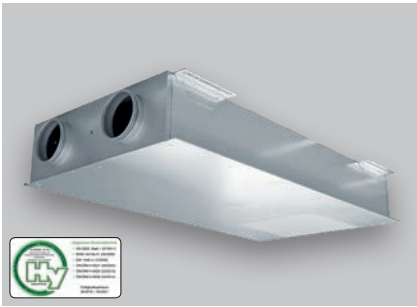
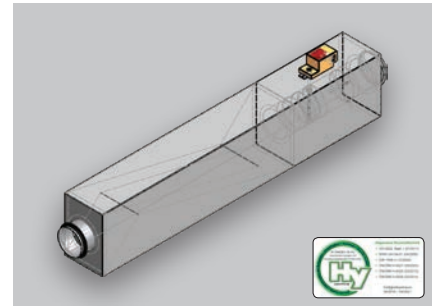
EXTERNAL CONTROL EXTENSION WITH PRESSURE SENSORS

Pressure sensors for external mounting including a connection kit. Serves to ensure the constant pressure control of ventilation units by means of a PI-Air2 control system.

Including:

- A double pressure sensor
- Air tube (1.5 metres)
- Connecting nozzles (2 pcs.)
- Modbus flat cable (5 metres)
- RJ12 plug for press-fit
applications (2 pcs.)



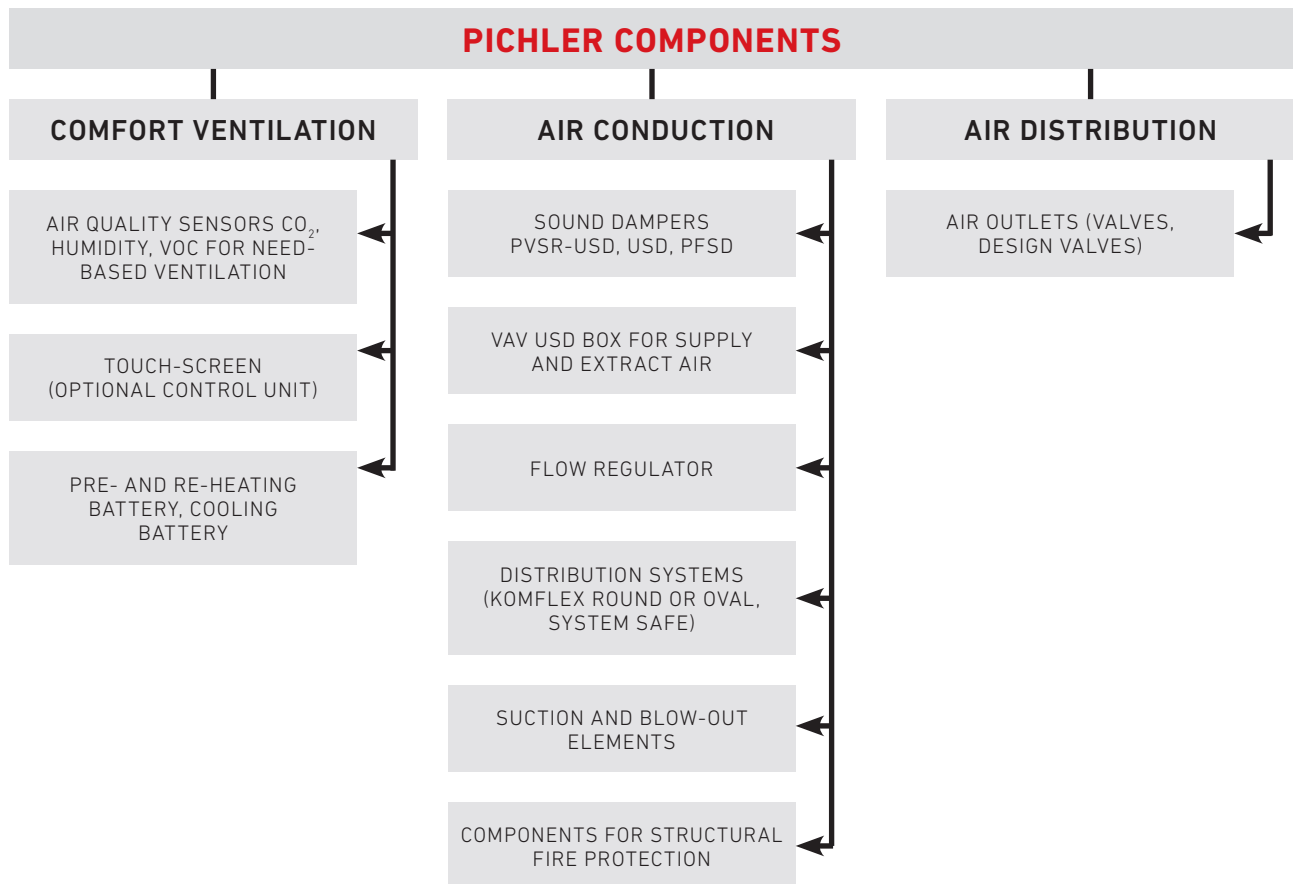
**VAV USD box****Need-based ventilation
with air quality sensors****PVSR USD Pichler flow regulator with
redirecting sound damper USD**

Pichler components and accessories

Pichler is your partner for competent and complete ventilation systems. We can supply you with all the ventilation units, components

and accessories for your ventilation project: From air distribution via air guidance up to air control and from air ducting systems via fire shut-

ters down to the tiniest screw. Refer to the technical documentation for details on our range of components.



Notes



Notes





Your partner/installer:



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