Meltem®
VENTILATION & HEAT RECOVERY

Comfort ventilation system with heat recovery

M-WRG

M-WRG-II

VENTILATION THE RIGHT WAY

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Meltem®
VENTILATION & HEAT RECOVERY

You have been depending on us for ventilation solutions for over 40 years. We only use the most advanced electronics and high-quality components. The result is individual ventilation solutions for a wide range of construction projects. The quality of our "Made in Germany" ventilation units is demonstrated by various approvals and status as a supplier of equipment that may be required in order to receive a loan or grant.

MOISTURE PROTECTION

- **Protection against moisture damage**
- **Prevention of mould growth**
- **Securing the structure**

HEALTHY LIVING

- **Wellness through clean and pre-heated fresh air**
- **Hypoallergenic due to high-performance air filters**
- **No draughts**

NOISE PROTECTION

- **Ventilation without outside noise**
- **High level of sound insulation**
- **Virtually noiseless operation (so ideal for bedrooms)**

ENERGY CONSERVATION

- **Save on heating costs and reduce CO_2 emissions**
- **Extremely low power consumption**
- **Low-energy home (efficient home as defined by the Reconstruction Loan Corporation KfW) can be achieved at a low cost**

ALL-ROUND VENTILATION OPTIONS FOR USE

Fresh air means more quality of life. It ensures that people feel well in their homes. Raised CO_2 concentrations can lead to fatigue, headaches, problems concentrating and decreased performance. Vapours from cleaning agents, building materials, carpets, furniture, etc. contaminate the air we breathe with additional pollutants. Proper ventilation is thus essential for a healthy home.

Quality of life despite allergies

Many people suffer from allergies caused by dust or pollen. With our ventilation units, you can keep these allergens outside – so the quality of the outdoor air filter being used is crucial. The fine particulate filter (allergy filter) is supplied as standard with the M-WRG-II series. For the M-WRG series it is available as an option. The fine filter medium effectively retains pollen and respirable dust particles such as soot and bacteria from dust class PM1. The activated charcoal filter should be used to prevent unpleasant odours and harmful gases.

By choosing a Meltem home ventilation system with heat recovery, you will be able to create a healthy indoor environment and a higher quality of life in your own home. Turn your home into your personal atmospheric health spa.

Uses:

- **Residential buildings**
- **Retirement homes**
- **Halls of residence**
- **Hotels / boarding houses**
- **Day-care centres / schools**
- **Communal facilities**
- **Office buildings**
- **Doctor's surgeries**

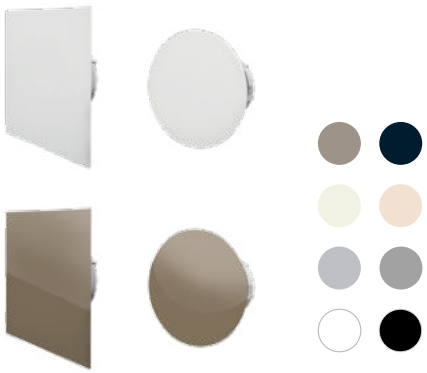
DESIGN VARIANTS

Design covers

Available for M-WRG-II unit cover and U² cover.

M-WRG front panel

Design valves / Colour variants



Transform your home into your personal oasis of well-being. You need optimum air quality, of course, but your visual perceptions are important too. So now you can design the perfect unit cover to suit your space and personal taste.

Contact us for more information about painting the covers, choice of colours and the design variants.

M-WRG
THE CLASSIC

Cost-effective

Convenient

Economic

Suitable for 2 rooms

The classic

- Up to 76 % heat recovery efficiency
- Cross-flow heat exchanger
- Inherent noise from LpA, 10 m² = 12.4 dB(A)
- Sound insulation $D_{n,e,w}$ up to 56 dB
- Filter class ISO ePM10 65% (G4) as standard
- High air flow 15 – 100 m³/h
- Single or multi-room solution
- Filter class: ISO ePM1 60% (F7) optional
- Tested to VDI 6022 sheet 1 hygiene standards

M-WRG-II
QUIET BUT POWERFUL

High heat recovery efficiency

Optimum moisture recovery

Multi-room solution

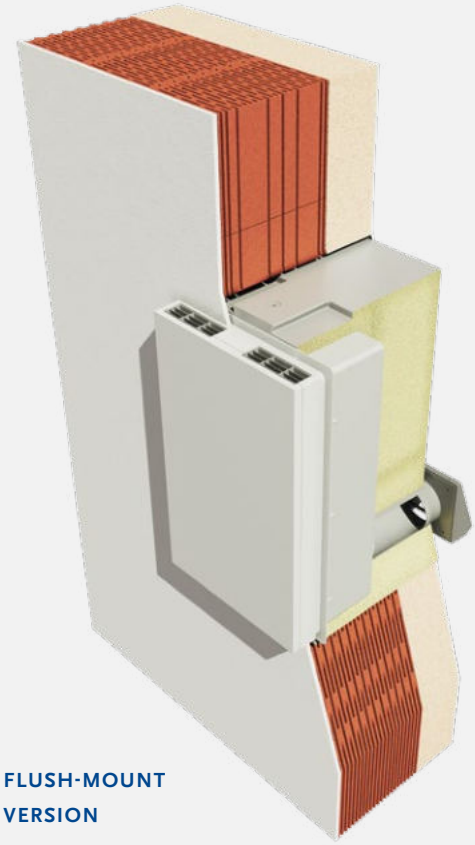
Super-quiet

The powerhouse

- Up to 94 % heat recovery efficiency
- Cross-counterflow heat exchanger
- Enthalpy heat exchanger with moisture recovery possible
- Constant volume flow rate (suitable for multi-storey buildings)
- Inherent noise from LpA, 10 m² = 8.4 dB(A)
- Sound insulation $D_{n,e,w}$ up to 70 dB
- Filter class ISO ePM1 60% (F7) as standard
- Pollutants in the outdoor air can be detected by optional VOC sensor
- High air flow 10 - 100 m³/h
- Single or multi-room solution
- Passivhaus (PHI)-certified
- Tested to VDI 6022 sheet 1 hygiene standards

FLEXIBLE INSTALLATION METHODS FOR BOTH UNIT SERIES

SURFACE-MOUNT VERSION



FLUSH-MOUNT VERSION

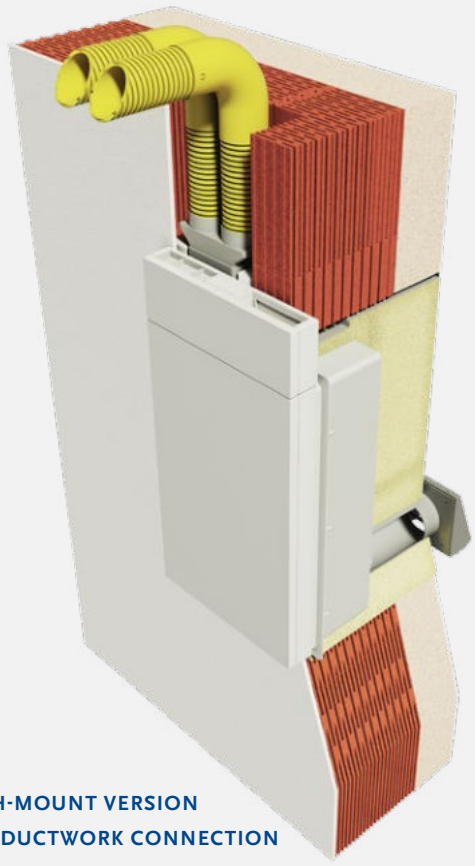
The right installation method for every property

Today, ventilation systems are basic features in the property business. They are just as essential when designing new builds as when renovating and improving the energy efficiency of existing properties. If a decentralised system with individual units is selected, it can be helpful in some construction projects to have the option of using different installation methods. For the units from the M-WRG-II and M-WRG series, Meltem offers surface-mount, flush-mount and the almost invisible integrated into wall (U^2) installation versions. Ductwork connections can be implemented for all installation methods.

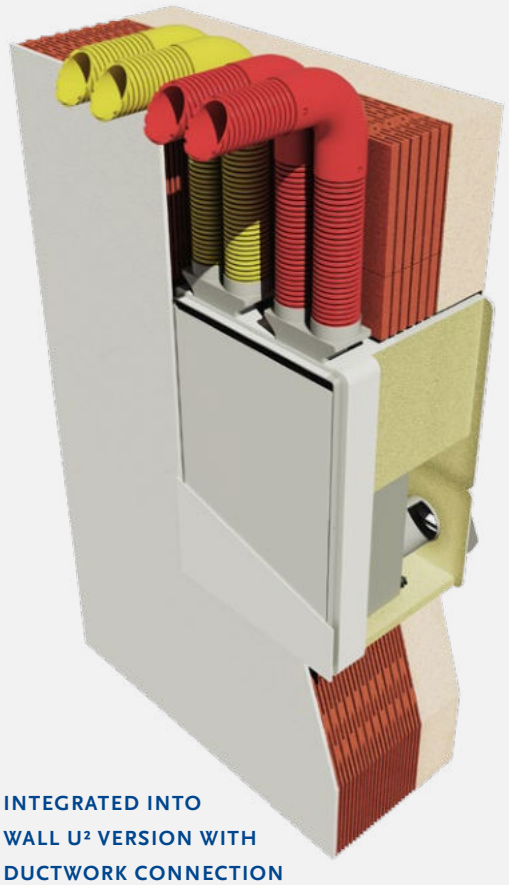
Installation options:

- **Surface-mount for retrospective installation or renovation**
- **Flush-mount for new builds and renovations**
- **Integrated into wall (U^2) for new builds and renovations.** This version is particularly attractive, both visually and architecturally. The unit blends totally into the wall; only the elegant cover remains visible. It is primarily used in new builds or extensive renovations – for example when installing a thermal insulation composite system or fitting new windows.

In all types of installation no mixing of supply and extract air / outdoor and exhaust air.*



FLUSH-MOUNT VERSION WITH DUCTWORK CONNECTION



INTEGRATED INTO WALL U² VERSION WITH DUCTWORK CONNECTION

Other benefits of the U² solution:

- It greatly reduces the inherent noise level, sound pressure level LpA, 10 m² from 8.4 dB(A)
- At the same time, it offers a very high level of sound insulation up to Dn,e,w 70 dB
- Can be used to ventilate multiple rooms at the same time by connecting flexible pipes. The U² version is particularly useful from the architectural and design viewpoints in combination with internal extract air rooms.

Saves money on the ventilation of internal bathrooms and WCs:

- Another benefit is that there are no extract air pipes running over the roof and none of the fire protection measures normally associated with extract air pipes.
- Installation ducts can be made smaller, which also increases the available living space.

* The outdoor and indoor mixing as defined in DIN EN 13141-8:2014-09 was 0 % for the M-WRG-II series.

PERFECTION AT WORK – SOPHISTICATED TECHNOLOGY

Fast and straightforward air filter changes in next to no time.

Activated charcoal filter ISO ePM 2.5 55% (F7)

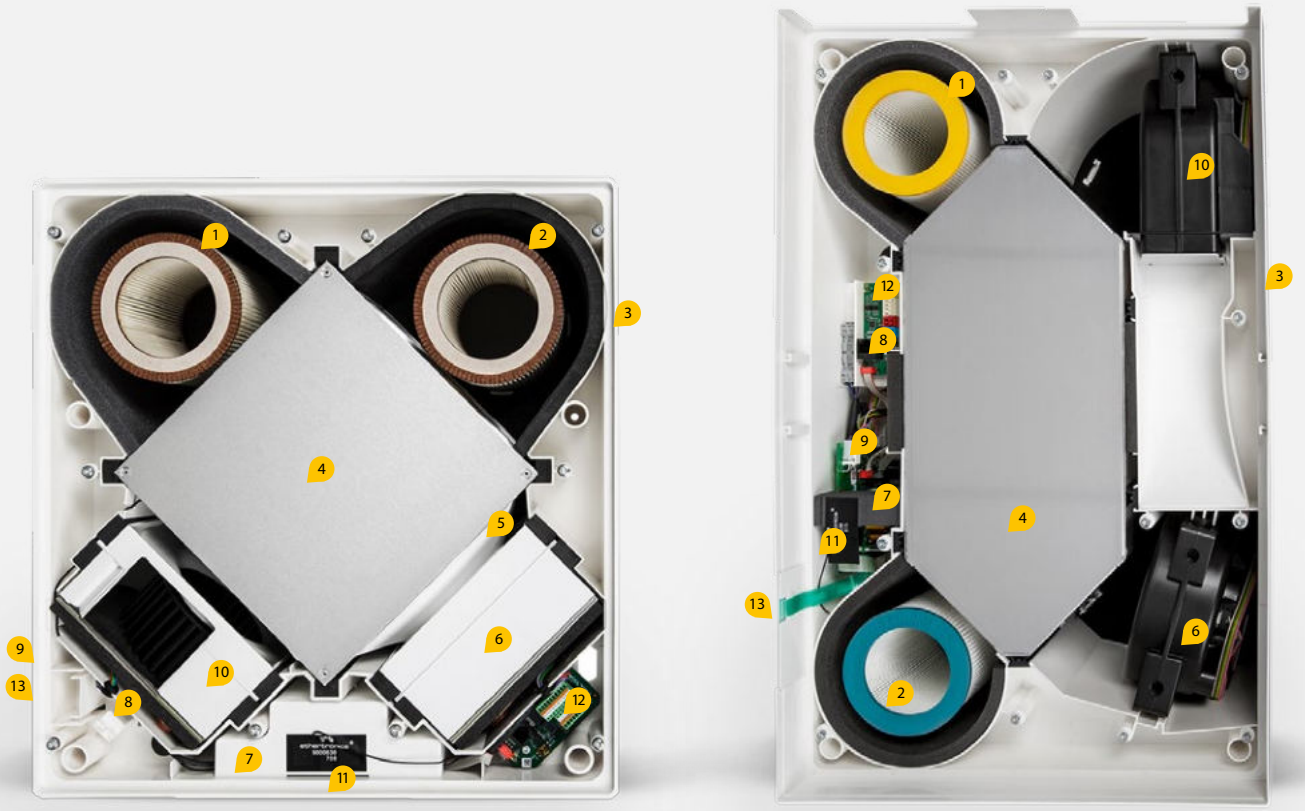
Coarse particulate filter ISO Coarse 60% (G4)

Air filters from the M-WRG-II series

Fine particulate filter ISO ePM1 60% (F7)

High-performance air filters

We have paid particular attention to the filters we use. Only a high-performance air filter can safely protect people and the rooms to be ventilated against pollutants such as dust, dirt, pollen or insects. Both unit series offer hygienic air renewal by separately filtering the outdoor air and extract air. A round filter cartridge is available for each air flow. This means that there is no reciprocal contamination of the air filter medium as occurs with reversing ventilation units. This creates protected spaces that benefit not only people allergic to pollen or respirable dust. The air filters of the two series essentially differ in terms of the filter height (M-WRG-II: 150 mm, M-WRG: 124 mm). While the fine particulate filter (allergy filter) for the outdoor air is an option for the M-WRG series, it is supplied as standard with the M-WRG-II series. The fine filter medium effectively retains respirable dust particles such as pollen, soot and bacteria from dust class PM1. For unpleasant odours or harmful gases (such as fuels, nitrogen oxides, ozone and solvents), we recommend using the activated charcoal filter. The extract air from the room is also filtered to prevent contamination of the ventilation unit components such as heat exchanger, fans or electronics. The unit has an automatic filter change indicator. A pending filter change is signalled visually (M-WRG-II series) or audibly / visually (M-WRG series).



1. Extract air filter
2. Outdoor air filter
3. Housing
4. Heat exchanger
5. Condensate drainage
6. Exhaust air fan
7. Power and control electronics
8. Electrical connection
9. Mains switch position
10. Supply air fan
11. Radio antenna
12. Interface board
13. Control position

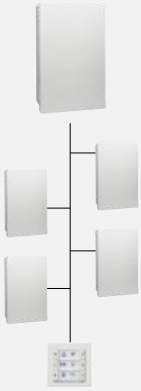
High air flow

Two radial fans are used to ensure a high air throughput even under unfavourable pressure conditions (e.g. wind). They are powered by high-performance and energy-efficient EC direct current motors. Motors and the unit itself are controlled by the most advanced electronics, which ensure that your ventilation unit is not only extremely efficient, but also performs well. The units are also virtually noiseless, which means there are no problems using them in bedrooms. The constant volume flow rate enables the M-WRG-II unit to be used without restriction in multi-storey buildings.

Quality made in Germany

VERSATILE CONTROL OPTIONS

OPERATION AT THE UNIT



OPERATION VIA CABLE

WIRELESS OPERATION VIA RADIO / APP

BUS SYSTEMS

"Unit OFF" input option (M-WRG-II O/EGG-AUS)
The ventilation unit is equipped at the factory with a "Unit OFF" input and a potential-free fault indicator output. A smoke detector or window contact may be connected to the input, for example. For M-WRG-II units only.

Minimum ventilation option to DIN 18017-3 (M-WRG-II O/MVS or M-WRG-O/MVS)
Allows a minimum ventilation level to DIN 18017-3. From 8:00 – 20:00, the unit ventilates at 40 m^3/h, dropping to 20 m^3/h between 20:00 – 8:00. The function is activated at the factory, cannot be switched off by the user and has priority over all other settings.

VOC sensor option for outdoor air quality (M-WRG-II O/VOC-AUL)
The ventilation unit is equipped at the factory with a VOC sensor for monitoring the outdoor air quality. In conjunction with the "Automatic mode" ventilation program, the unit temporarily reduces the supply air if the threshold for VOC contamination (e.g. motor traffic exhaust fumes or by-products from industrial and commercial operations) is exceeded (1,500 ppm). This option is only available for M-WRG-II units with a CO_2 sensor.

Ventilation for moisture protection option (M-WRG-II O/LFS or M-WRG-O/LFS)
Used to set fixed, minimum ventilation levels for day and night (20 m^3/h for both 08:00 – 20:00 and 20:00 – 08:00). A humidity program that runs at the same time in the background increases the air flow as required. The option is activated at the factory and cannot be switched off by the user (who can only set higher ventilation levels). Only for M-WRG-II or M-WRG-S/Z-T units with humidity or/and CO_2 sensors.

Summer mode cross-ventilation:
At night, when the outdoor air temperature is lower than the interior temperature, the ventilation unit can be set to allow supply air or extract air operation only. With two units, one is set to supply air operation and the other to extract air operation, which creates a cross-ventilation effect. "Supply air or Exhaust air operation" can optionally be implemented via InControl pushbutton sensor, Modbus, app, RS-485 bus or wireless remote control.

CONVENIENT AND INDIVIDUALLY CONTROLLABLE

APP

Convenient control of M-WRG-II and M-WRG ventilation units.
Offers maximum flexibility with respect to all the control options.

EXTERNAL WIRELESS HUMIDITY SENSOR

Control unit with 5 ventilation levels/programs including humidity sensor for on-demand operation of the ventilation units. Allows the battery-operated sensor to be arranged flexibly within the room or can be retrofitted for units without sensors.

EXTERNAL WIRELESS CO_2 SENSOR

Control unit with 5 ventilation levels/programs including CO_2 sensor for on-demand operation of the ventilation units. Allows the battery-operated sensor to be arranged flexibly within the room (230 V connection required) or can be retrofitted for units without sensors.

4-WAY WIRELESS PUSHBUTTON SWITCH

With LED feedback for wireless operation of the ventilation unit.
The wireless pushbutton switch is ideal for retrospective installation or for barrier-free living.

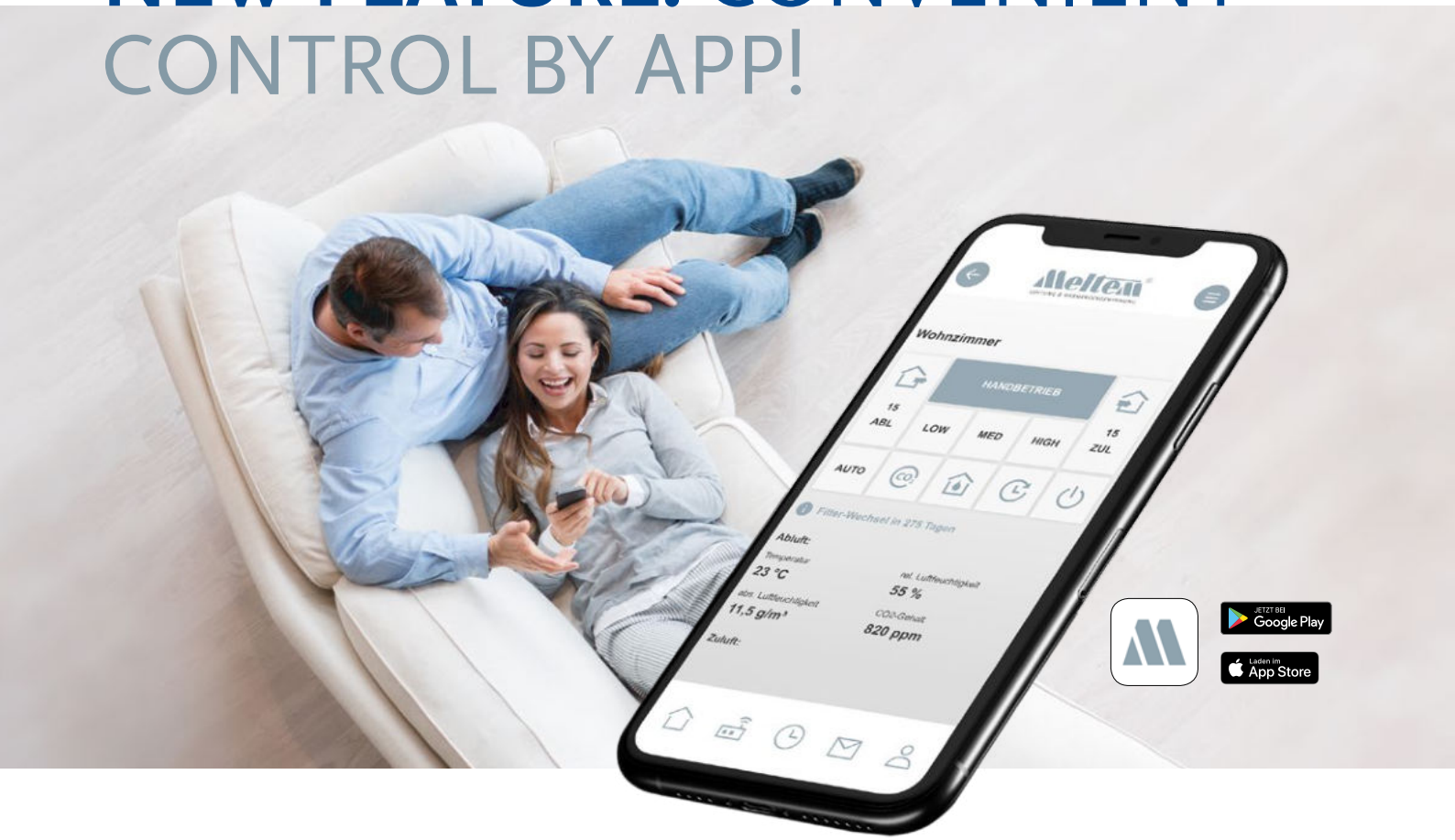
M-WRG-FBH WIRELESS REMOTE CONTROL

Convenient operation of up to six ventilation units in one room. This solution is useful for new builds and retrospective installation in renovations where time-consuming and expensive cable runs need to be avoided as far as possible.

INCONTROL PUSHBUTTON SENSOR

Convenient buttons and ease of use for up to five M-WRG-II P-T/E-T or M-WRG-S/Z-T units in one room. Fixed values for humidity and CO_2.
Hard-wired solution for new builds.

NEW FEATURE: CONVENIENT CONTROL BY APP!



Control by app
for comfort ventilation units

The new Meltem app can be used for bidirectional control, programming and reading of ventilation units from the M-WRG-II and M-WRG series. It can be used decentrally, centrally on site or online from anywhere in the world. It allows time programs to be saved for different controllers according to the unit configuration. And, of course, the user can also program various unit functions and sensors. Top priority for data protection! Your data is fully encrypted and can only be released by the user. Naturally all Meltem ventilation units can also be controlled without the app.

You will need:

- The Meltem app
- Gateway with Meltem cable and mains plug
- Ventilation units from the M-WRG-II and M-WRG series constructed 2020 or later
- Router with Internet access
- Smartphone or tablet, iOS or Android operating system

THE BENEFITS TO YOU WITH THE NEW APP

User/tenant

- Selecting and setting various program functions
- Displaying operating statuses
- Variable program settings for specific uses
- Optimum ventilation guaranteed even when building is unoccupied
- Online support possible via remote maintenance
- Fault messages and filter change indicator

Property owner

- The property owner purchases the units and allows the tenants to use the app
- Options such as ventilation for moisture protection (to preserve the building structure), minimum ventilation level to DIN 18017-3 standard (partly implemented in the building regulations) or the external control inputs cannot be changed by the user
- When the tenant changes, simply disconnect the gateway from the Internet and press the Reset button if necessary
- The new tenant can link the units to the app and has the sole access

Student housing manager

- In every bedroom, the units are equipped and can be operated with a simple controller
- The manager has access to the app and so can make basic settings and forward fault messages to himself at a central location. If users request changes to the settings, the manager can again implement these centrally

The benefits to you

- The M-WRG ventilation units can be quickly and simply linked to the app
- Clear and simple displays and operator input
- Display of air quality and comfort parameters (e.g. humidity, CO_2 and temperature)
- The ventilation solution can be customised to match user behaviour
- Access rights allow remote maintenance to be carried out online
- Central controller for the units with individual parameters for each room, residential unit or building
- Multiple buildings can be linked into the app
- Can be retrofitted without having to adapt the units (M-WRG from 2020)

Retrofitting

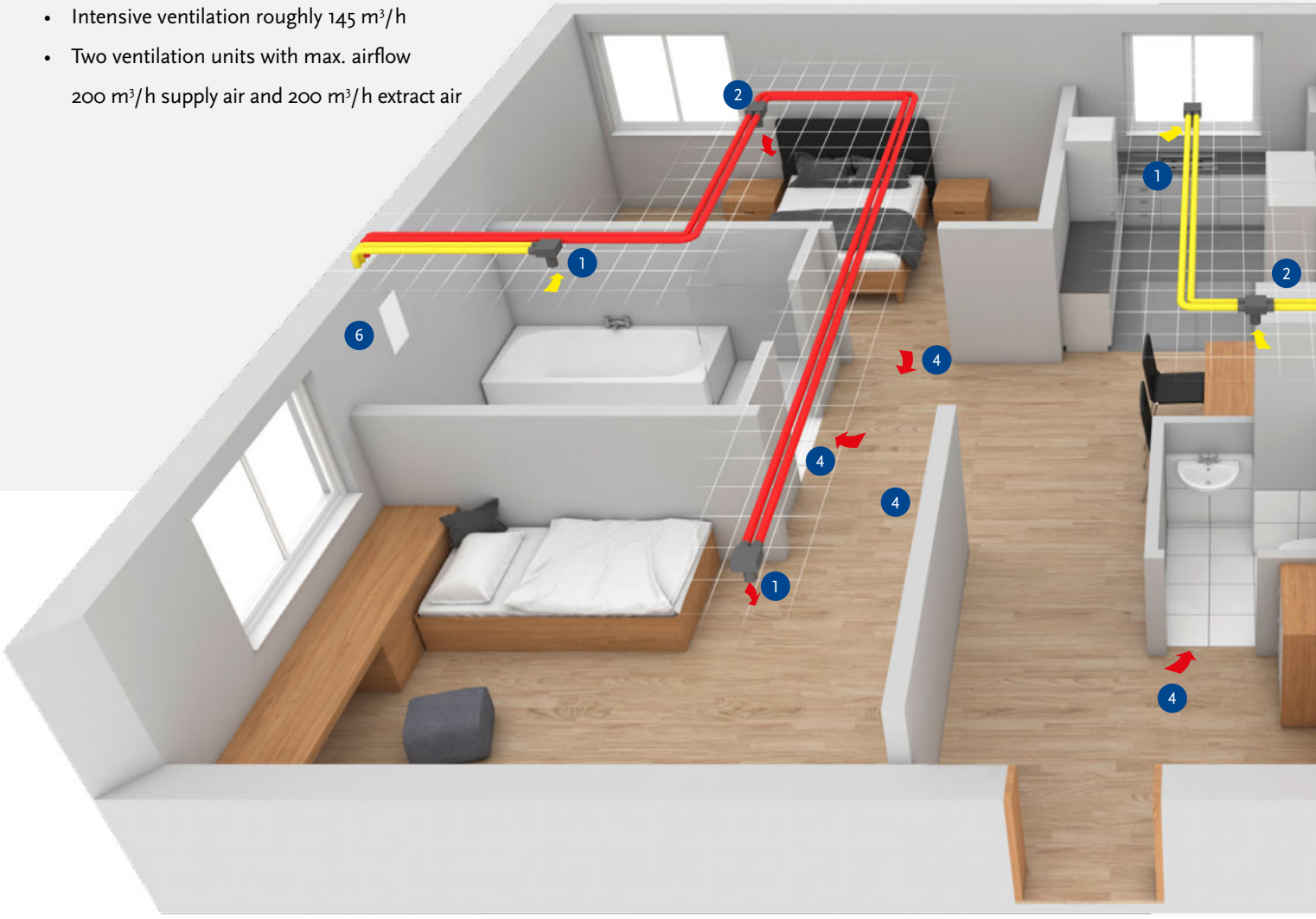
An M-WRG-II/M-WRG standard unit without sensors can be subsequently equipped and operated with an app via a gateway; this has the following benefits:

- Central controller for the units with individual parameters for each room, residential unit or building, with up to 10 ventilation levels/programs (rather than 3-5)
- Supply air operation, extract air operation
- Use of time programs for various modes
- Visual filter change indicator in text form and option of ordering filters online
- No accessories needed to read operating hours
- Display of fault messages
- Fast and straightforward online support possible for maintenance or repair if enabled
- In addition, all unit functions can be programmed individually as required

COMBINATION OPTIONS

4-room apartment, roughly 110 m²

- Normal ventilation roughly 115 m³/h
- Ventilation for moisture protection roughly 25 - 45 m³/h
- Intensive ventilation roughly 145 m³/h
- Two ventilation units with max. airflow 200 m³/h supply air and 200 m³/h extract air



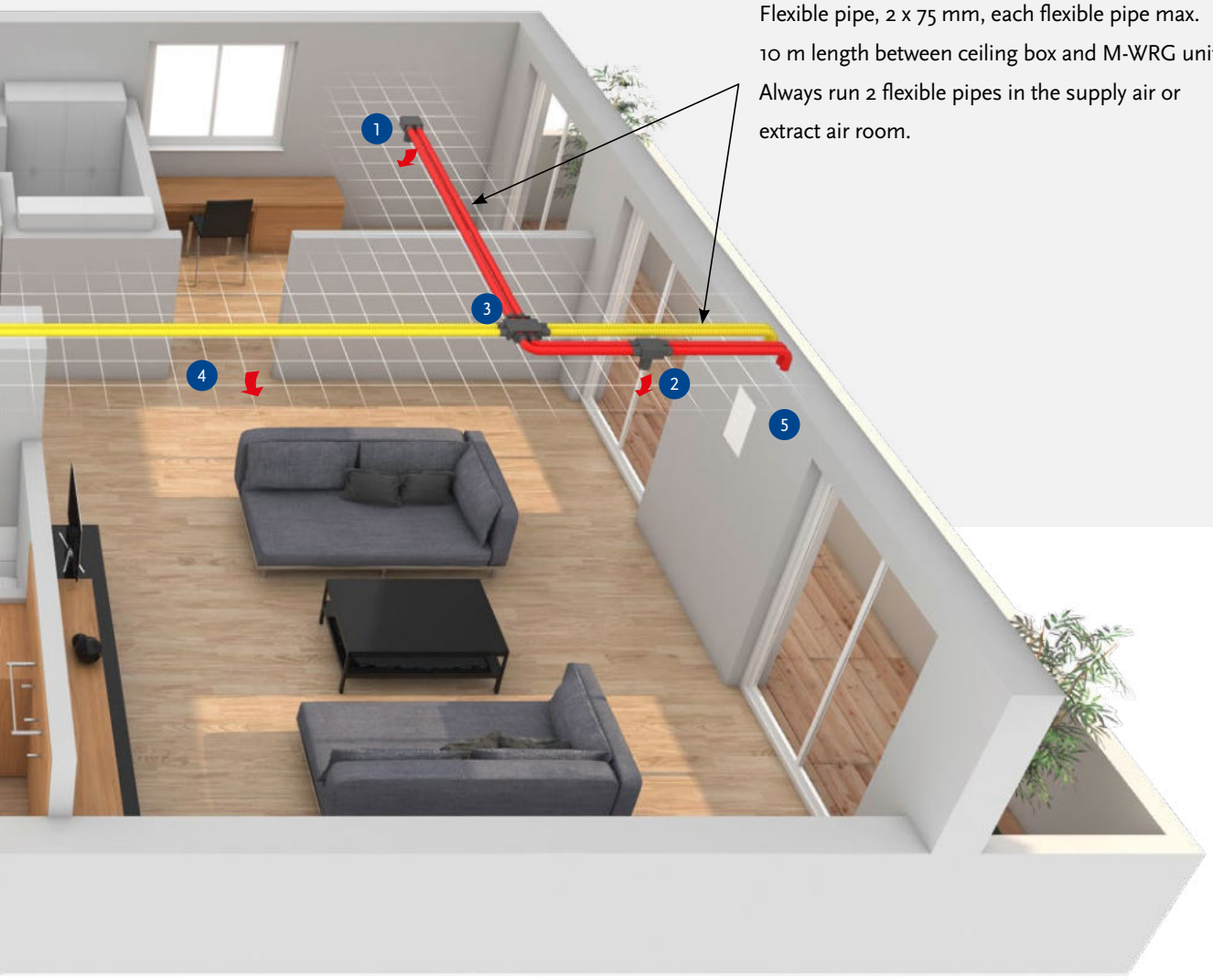
1 Ceiling box
Flexible pipe connection
2 x 75 mm to DN 100

2 Ceiling box
Flexible pipe connection
4 x 75 mm to DN 100

3 Crosspiece, top part and bottom part both with 4 x 75 mm (or 63 mm) connections for flexible pipe

Extract air
2 x 75 mm

Supply air
2 x 75 mm



Flexible pipe, 2 x 75 mm, each flexible pipe max. 10 m length between ceiling box and M-WRG unit. Always run 2 flexible pipes in the supply air or extract air room.

4 Non-closeable overflow openings must be provided in the internal doors between the supply air and extract air rooms, such as a door undercut.

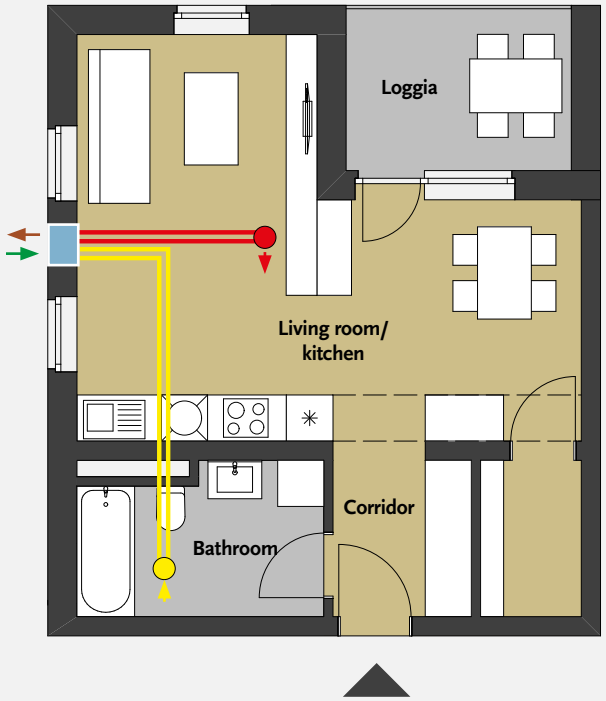
5 M-WRG-II ventilation unit for integrated into wall installation (U^2) with ductwork connection and minimum ventilation option to DIN 18017-3. Alternatively, M-WRG units can also be used.

6 M-WRG-II ventilation unit for integrated into wall installation (U^2) with ductwork connection and protection class IPX5, with minimum ventilation option to DIN 18017-3. Alternatively, M-WRG units can also be used.

TYPICAL APPLICATIONS FOR THE M-WRG-II AND M-WRG SERIES

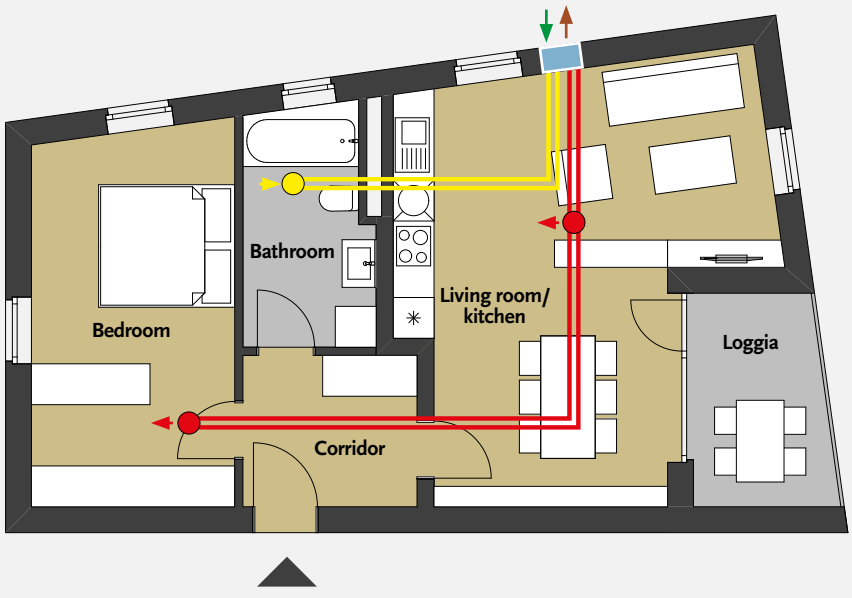
1-room apartment, roughly 50 m²

Integrated into wall U²
with ductwork connection and
flush-mount installation
(M-WRG-II)



2-room apartment, roughly 50 m²

Integrated into wall U²
with ductwork connection and
flush-mount installation
(M-WRG-II)



Extract air
2 x 75 mm

Supply air
2 x 75 mm

Outdoor air

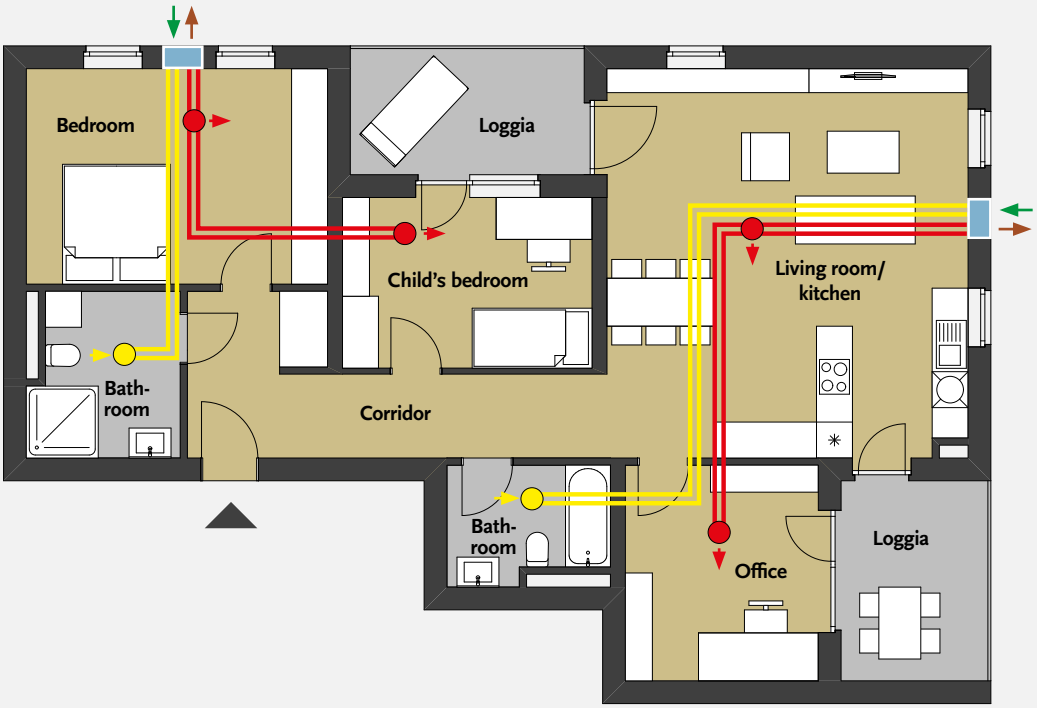
Exhaust air

M-WRG-II / M-WRG units
(graphical representation)

Ceiling box with distributor
4 x 75 mm flexible pipe conn.
and supply air poppet valve

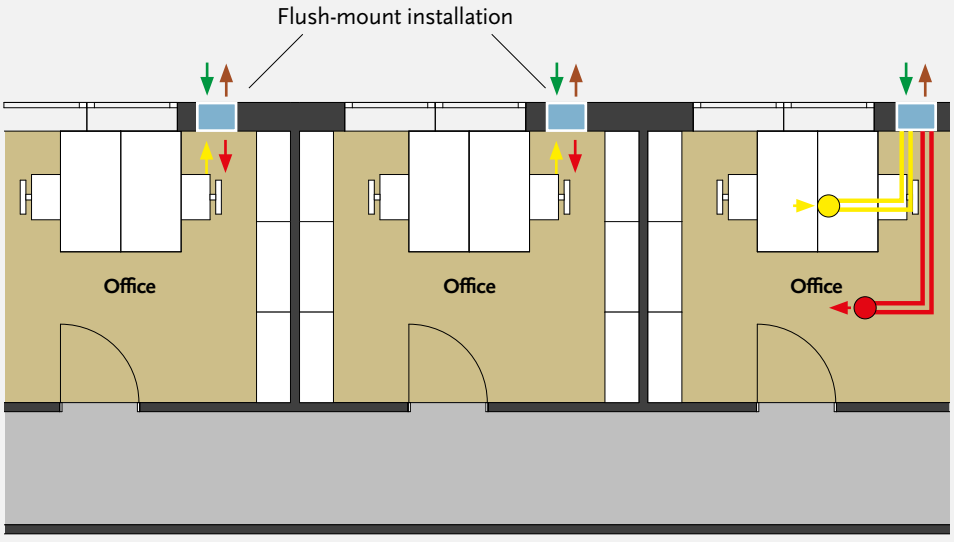
Ceiling box
2 x 75 mm flexible pipe conn.
with supply air poppet valve

Ceiling box
2 x 75 mm flexible pipe connection
with extract air poppet valve



4-room apartment
roughly 100 m²

Integrated into wall U² with ductwork connection



Office

Integrated into wall U² with ductwork connection and flush-mount installation (M-WRG-II)

Extract air
2 x 75 mm

Supply air
2 x 75 mm

Outdoor air

Exhaust air

M-WRG-II / M-WRG units
(graphical representation)

Ceiling box with distributor
4 x 75 mm flexible pipe conn.
and supply air poppet valve

Ceiling box
2 x 75 mm flexible pipe conn.
with supply air poppet valve

Ceiling box
2 x 75 mm flexible pipe connection
with extract air poppet valve

OUTER WALL TERMINALS

Stainless steel pod for M-WRG-II series

Stainless steel pod for M-WRG series

Plastic pipe for
M-WRG-II & M-WRG series

Hidden outer wall terminal using the window reveal solution for the M-WRG-II and M-WRG series

In addition to the visible outer wall terminal with small pods, an outer wall terminal can also be hidden in the window reveal in order to meet the most stringent architectural requirements. With this solution, the pod on the outer wall is replaced by extremely discrete outlets installed in the window reveal. These are finished with an elegant stainless steel faceplate.

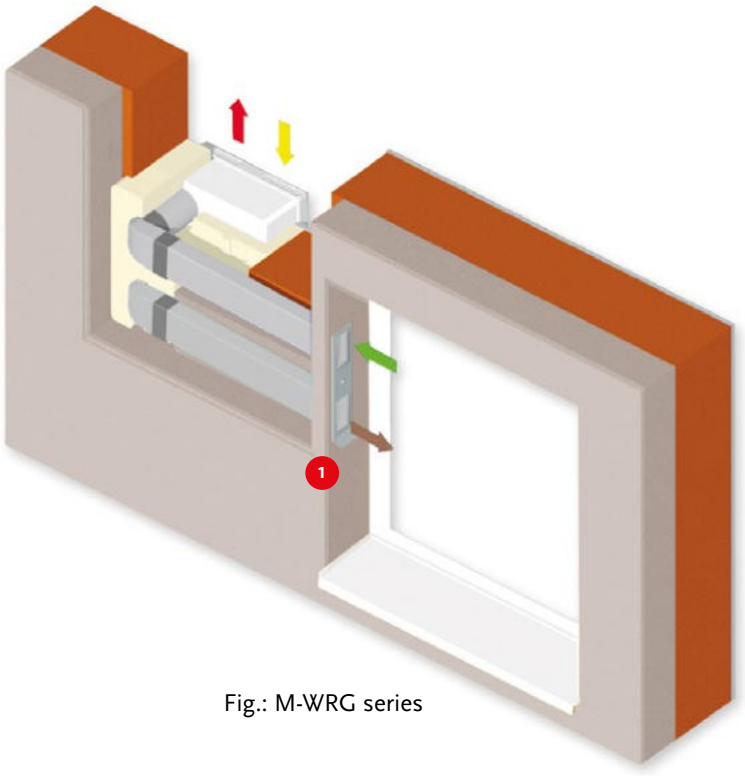


Fig.: M-WRG series

TECHNICAL DATA FOR THE M-WRG-II

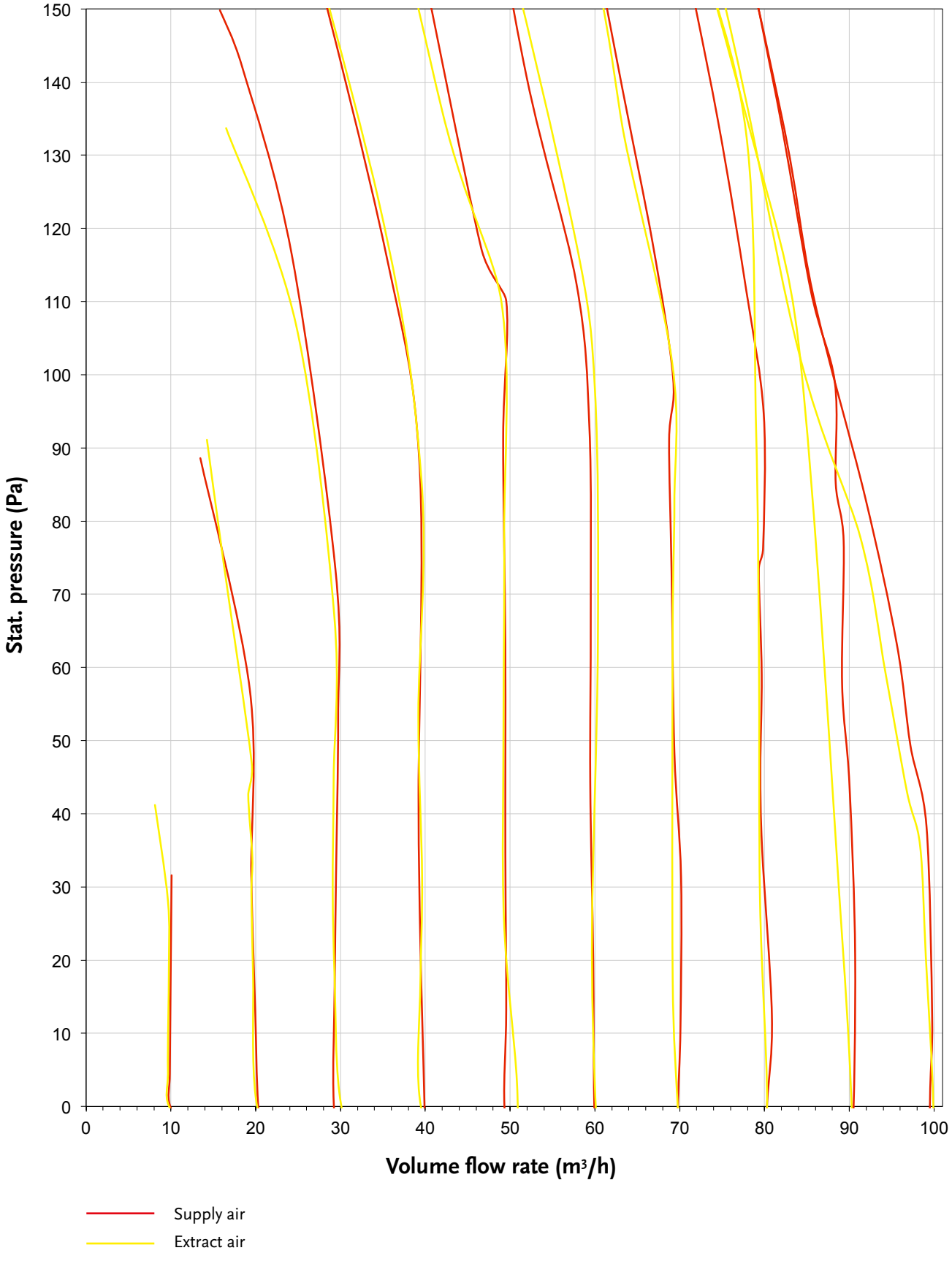
Unit types	M-WRG-II P / M-WRG-II E	M-WRG-II P (F, FC) / M-WRG-II E (F, FC)
Type of system	Decentralised, heat recuperation	
Air flow (m³/h)	10 to 100	
Output control	5-level on the unit, 10-level with accessories	5-level on the unit, 10-level with accessories, infinitely variable with humidity/CO_2 sensors
Heat exchanger	Cross-counterflow / enthalpy cross-counterflow	
Max. heat recovery efficiency, DIN EN 13141-8 (%)	94 / 91	
Effective heat recovery PHI (%), U² version with ductwork connection	82 / 75	
Moisture recovery ηx PHI (%)	No / 45	
Motor / supply air / extract air fan	EC direct current, radial	
Electrical power consumption (W), free blowing	4.6 to 52.4 / 4.4 to 53.4	
Standby power consumption (W)	0.8	
Volume flow rate-related power consumption of the fans (W/m³/h) at ref. vol. flow rate 70 m³/h, free blowing	0.33 / 0.34	
Constant volume flow rate, balanced ventilation	Yes	
Max. current consumption (A)	0.41 / 0.42	
Operating voltage (V) / mains frequency (Hz)	85 – 265 / 50 – 60	
Sound pressure level surface-mount (LpA in dB, 10 m²)	17.5 to 48.1 / 11.6 to 46.7	
Sound pressure level flush-mount (LpA in dB, 10 m²)	13.0 to 47.5 / 12.3 to 46.1	
Sound pressure level flush-mount with ductwork connection on extract air side (LpA in dB, 10 m²)	12.6 to 46.4 / 12.3 to 44.6	
Sound pressure level for integrated into wall U² with ductwork connection on extract air side (LpA in dB, 10 m²)	8.4 to 42.1 / 11.3 to 42.6	
Sound insulation for weighted standardised sound level difference, unit in use, depending on installation version ($D_{n,e,w}$ in dB)	51 to 70	
Weight (kg)	8.3	
Colour	White similar to RAL 9010	
Outdoor air / exhaust air connection (DN)	100	
Dimensions (W x H x D) in mm	364 x 590 x 218	
Possible installation methods	Surface-mount, flush-mount, integrated into wall U²	
Ductwork connection possible?	Yes, with accessories	
Visible unit depth surface-mount/flush-mount/integrated into wall U² (mm)	218 / 58 / -	
Filter type	Round filter cartridges for outdoor air and extract air	
Outdoor air / extract air filter class, optional activated charcoal filter for outdoor air (ISO 16890-1:2016-12 or EN 779: 2012-10)	ISO ePM1 60 % (F7) / ISO Coarse 60 % (G4), ISO ePM2.5 55 % (F7)	
Filter monitoring with filter change indicator	Runtime-controlled, visual	
Condensate drain	Via condensate connection / not required[1]	
Fully automatic cover flap control (when switching On / Off, in Standby mode and if the power fails)	Yes	
"Unit OFF" input (smoke detector, window contact)	Yes, optional	
IP code (standard / with integrated into wall U² installation version)	IPX4 / IPX5	
Humidity control	Optional with accessories	Yes
CO_2 control	Optional with accessories	Yes, with -FC unit version
Automatic mode (humidity and CO_2 control)	Optional with accessories	Yes, with -FC unit version
TÜV-tested	Yes	
Tested to/compliant with VDI 6022 sheet 1	Yes, no. W-304132-18-WD	
Passivhaus certificate (PHI)	Yes, comp. ID 1327vs03 / 1328vs03	
National technical approval (DIBt)	Z-51.3-431	
Energy efficiency class	B/A[2]	A

[1] If used for the intended use as described in the operating instructions and if not exposed to excessive humidity

[2] In combination with the external wireless humidity or CO_2 sensor

PRESSURE-VOLUME FLOW RATE CHARACTERISTICS SUPPLY AIR/EXTRACT AIR

Meltem®
VENTILATION & HEAT RECOVERY



VARIABLE UNIT FUNCTIONS

Functions \ Unit types PET or enthalpy	M-WRG-II functions: Decentralised – Operation at the unit: M-WRG-II P	M-WRG-II P-F	M-WRG-II P-FC	Decentralised – 4-way wireless pushbutton switch: M-WRG-II P...	M-WRG-II P...F	M-WRG-II P...FC	Decentralised – Wireless remote control: M-WRG-II P...	M-WRG-II P...F	M-WRG-II P...FC	Decentralised – InControl pushbutton sensor: M-WRG-II P-T	M-WRG-II P-T-F	M-WRG-II P-T-FC	Central – APP: M-WRG-II P-T	M-WRG-II P-T-F	M-WRG-II P-T-FC	Central – Modbus (BMS, Loxone and KNX ready)[1]: M-WRG-II P-M	M-WRG-II P-M-F	M-WRG-II PM-FC	Central – RS-485: M-WRG-II P-S 485	M-WRG-II P-S 485-F	M-WRG-II P-S 485-FC
10 ventilation levels							X	X	X				X	X	X	X	X	X	X	X	X
5 ventilation levels	X																				
4 ventilation levels		X	X	X	X	X				X	X	X									
Extract air operation										X			X	X	X						
Supply air operation										X	X		X	X	X						
Variable extract air operation							X	X	X				X	X	X	X	X	X	X	X	X
Variable supply air operation							X	X	X				X	X	X	X	X	X	X	X	X
Humidity control (RH)		X			X						X	X									
Variable humidity control (RH)								X	X					X	X		X	X		X	X
CO_2 control												X									
Variable CO_2 control									X						X			X			X
Automatic mode RH+CO_2			X			X															
Variable automatic mode RH+CO_2									X						X			X			
Temporary intensive ventilation	X	X	X	X	X	X				X	X	X									
Variable temporary intensive ventilation							X	X	X				X	X	X	X	X	X	X	X	X
Variable timer program													X	X	X	X	X	X	X	X	X
Control input	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Optional unit OFF input (smoke detector, 24V window contact)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Min. ventilation program to DIN 18017-3, factory setting, CANNOT BE SWITCHED OFF, optional	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
Ventil. for moisture protection with humidity control, CANNOT BE SWITCHED OFF, optional		X	X		X	X		X	X		X	X		X	X		X	X			
VOC sensor for monitoring the outdoor air quality, not in combination with minimum ventilation[2]			X			X			X			X			X			X			
Visual filter change indicator	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Reading the operating hours							X	X	X				X	X	X	X	X	X			
Reading the operating hours with accessories	X	X	X	X	X	X				X	X	X							X	X	X
Sensor values display							X	X	X				X	X	X	X	X	X	X	X	X
VOC supply air > CO_2 extract air display[2]			X												X			X			
RH supply air > RH extract air display		X	X								X	X		X	X		X	X			
Visual fault indicator LED / symbol	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Operating status							X	X	X				X	X	X	X	X	X	X	X	X
Operating status LED	X	X	X	X	X	X				X	X	X									
Frost protection function	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

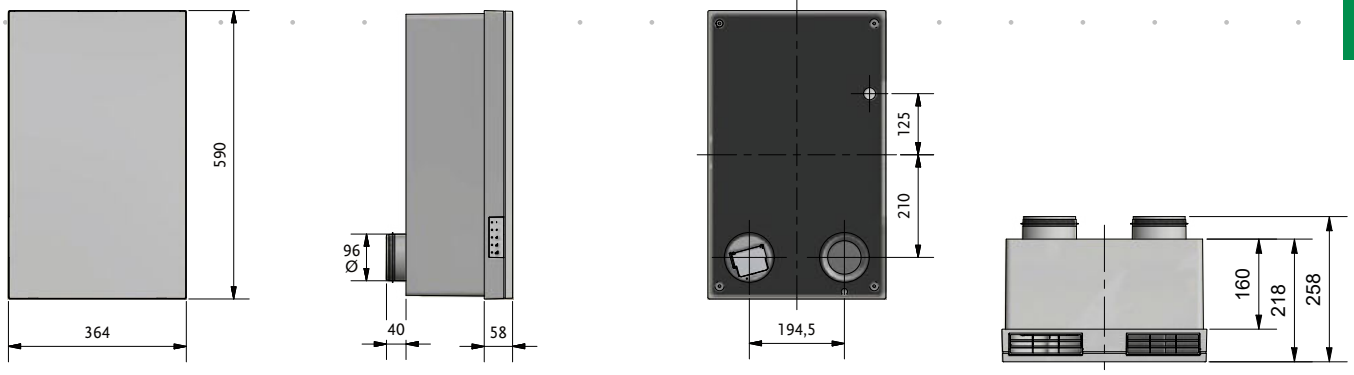
[1] **Additional components from the system supplier are required; these may give rise to additional costs. The bus cable must be installed as a Modbus cable. You will find further details in the Modbus operating and installation instructions.**

[2] Optional supply air VOC sensor required.

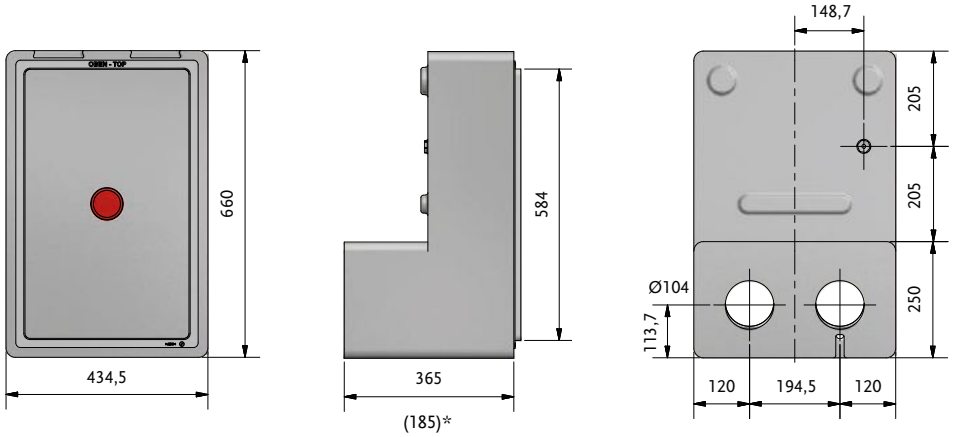
Use of external 3-way stepping switch, functions as for 4-way wireless pushbutton switch apart from LED display
App works in combination with operation on the unit, 4-way wireless pushbutton switch, wireless remote control, InControl pushbutton sensor

DIMENSIONS

VENTILATION UNIT

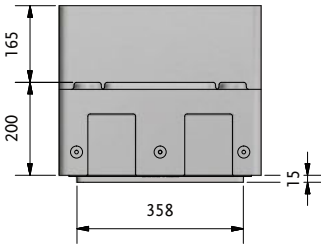


FLUSH-MOUNT INSTALLATION KIT FRAME CONSTRUCTION / SOLID CONSTRUCTION



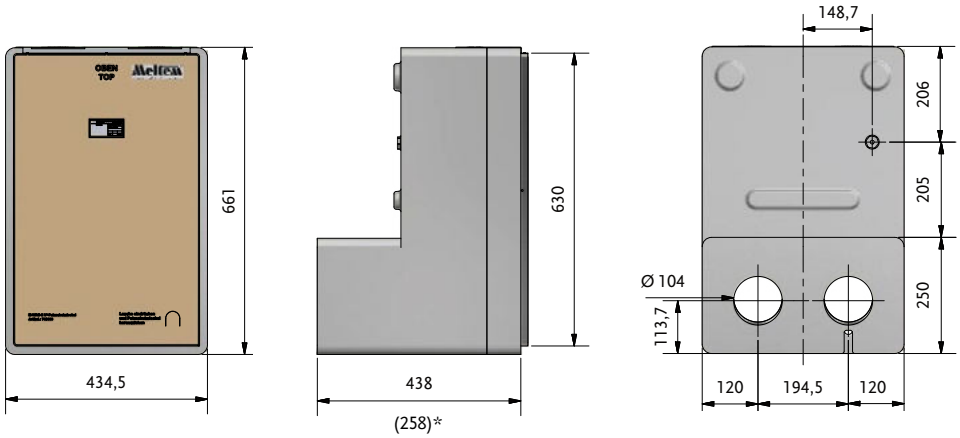
* Installation depth shortened at the factory to minimum dimension of 185 mm

Dimension 365 mm variable, can be cut to length according to the wall structure (including internal plaster, external render and insulation); min. 200 mm thick, max. variable (wall structures that are greater than 630 mm will be compensated through longer ventilation pipes, part no. 5580)



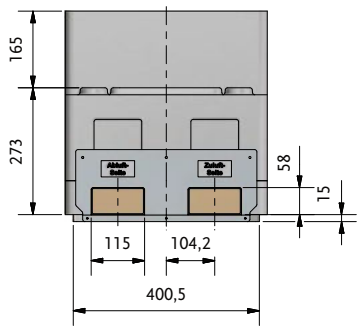
Installation depth with plastering trim at least 215 mm (solid construction only)

FLUSH-MOUNT INSTALLATION KIT INTEGRATED INTO WALL U²



* Installation depth shortened at the factory to minimum dimension of 258 mm

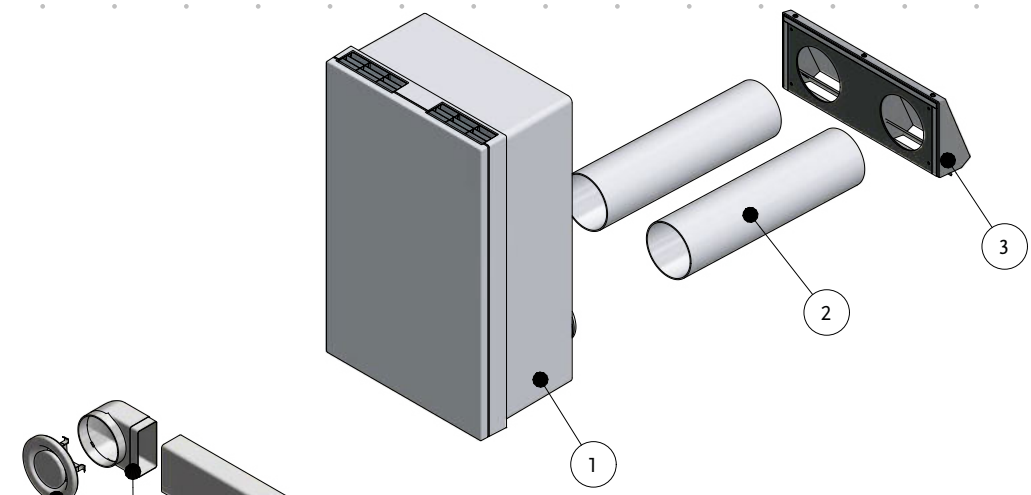
Dimension 438 mm variable, can be cut to length according to the wall structure (including internal plaster, external render and insulation); min. 273 mm thick, max. variable (wall structures that are greater than 700 mm will be compensated through longer ventilation pipes, part no. 5580)



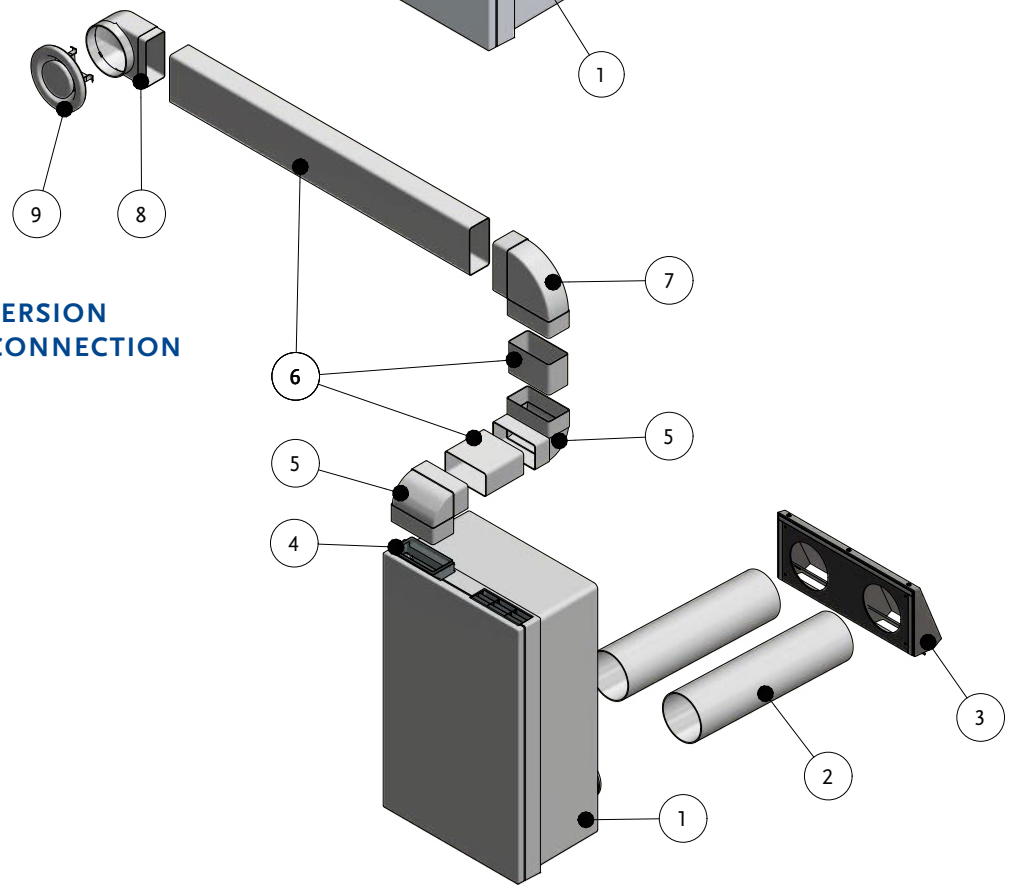
Installation depth with plastering trim at least 288 mm (solid construction only)

SYSTEM OVERVIEW

SURFACE-MOUNT VERSION



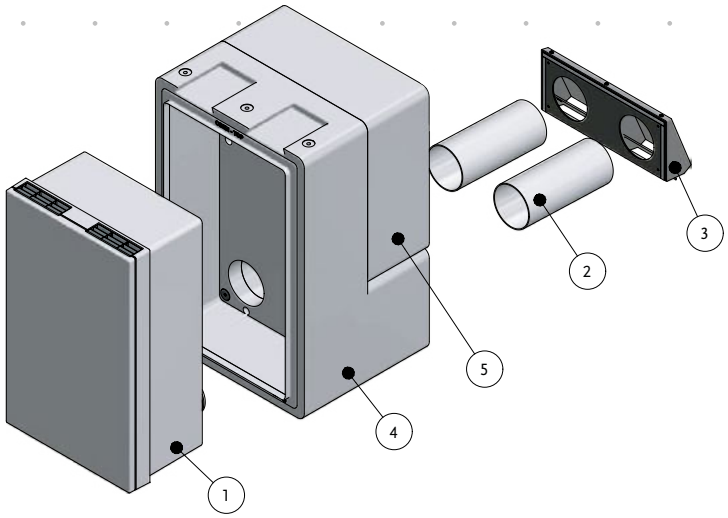
SURFACE-MOUNT VERSION WITH DUCTWORK CONNECTION



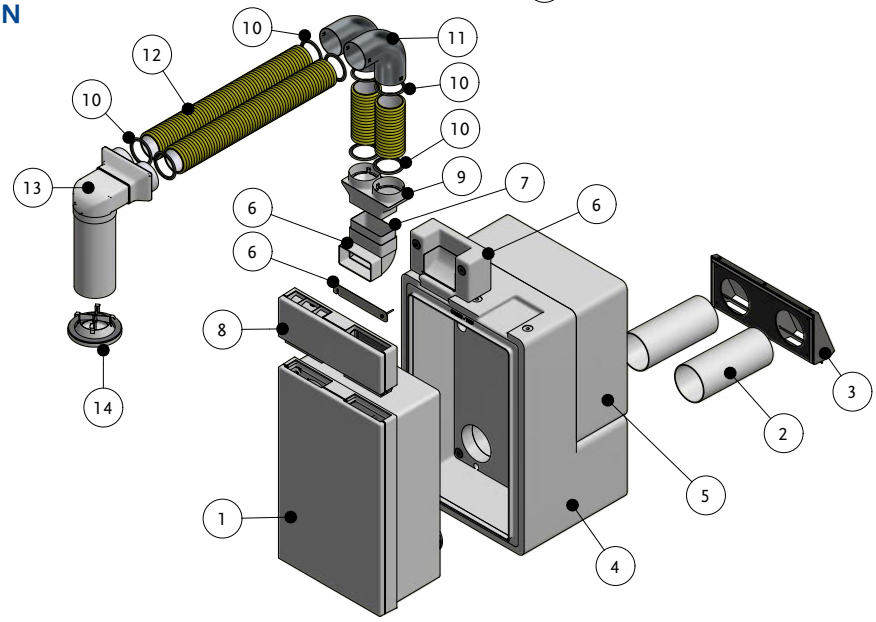
List of components			
	Part no.	Type	Description
1		Unit type	M-WRG-II ventilation unit (no condensate connection needed for enthalpy heat exchanger)
2	5574	M-WRG-LR 50	Outdoor air and exhaust air pipe DN 100 - 2 x 0.5 m*
3	730000	M-WRG-II ES	Outer wall terminal stainless steel pod
4	731000	M-WRG-II KA	Surface-mount duct adapter
5	5593	M-WRG-FK-W	Flat ductwork elbow 90° vertical, sleeves on both sides
6	5590	M-WRG-FK-F	Flat ductwork 110 x 54 mm
7	5592	M-WRG-FK-B	Flat ductwork 90° bend, horizontal, sleeves on both sides
8	5579-10	M-WRG-RR-FK	Adapter 90° DN 100 to flat ductwork 110 x 54 mm
9	5056-30/A	M-WRG-FR-TVA	Poppet valve, extract air DN 100, alternatively as a plastic version

* For wall structures (including internal plaster, external render and insulation) that are more than 470 mm thick, use longer ventilation pipes, part no. 5580.

FLUSH-MOUNT VERSION



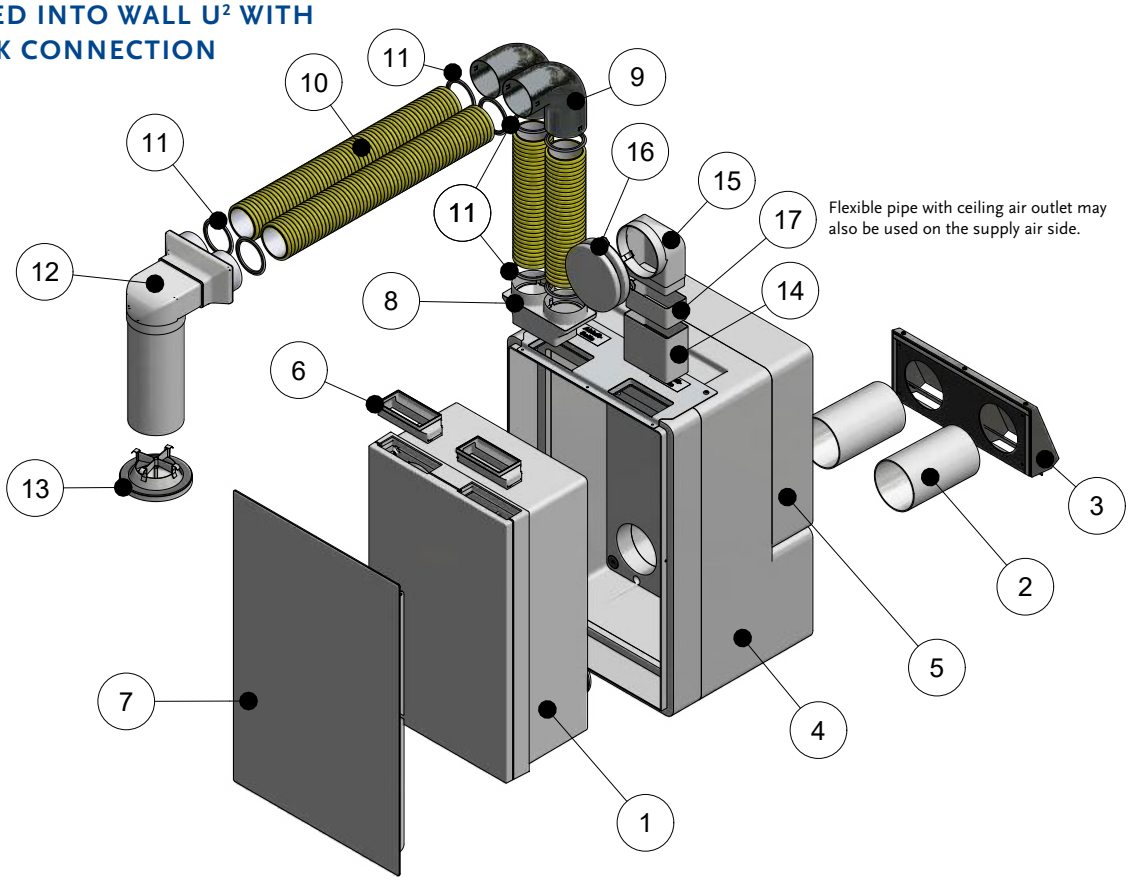
FLUSH-MOUNT VERSION WITH DUCTWORK CONNECTION



List of components			
	Part no.	Type	Description
1		Unit type	M-WRG-II ventilation unit (no condensate connection needed for enthalpy heat exchanger)
2	5574	M-WRG-LR 50	Outdoor air and exhaust air pipe DN 100 - 2 x 0.5 m
3	730000	M-WRG-II ES	Outer wall terminal stainless steel pod
4	711000	M-WRG-II M/MB	Flush-mount installation kit for solid construction
5	735003	M-WRG-II M/FÜ	Filler piece installation kit
6	731003	M-WRG-II AD-UP	Ductwork connection adapter for flush-mount installation kit, includes flat ductwork elbow 90°
7	5590	M-WRG-FK-F	Flat ductwork 110 x 54 mm, alternatively M-WRG-FSA fitting adapter
8	731002	M-WRG-II KA-UP	Duct adapter for flush-mount M-WRG-II units
9	5056-00/75	M-WRG-FRA75	Flexible pipe adapter 75 mm to flat ductwork system 110 x 54 mm
10	5056-41/75	M-WRG-FR-DR75	Flexible pipe sealing ring DN 75
11	5056-42/75	M-WRG-FR-B75	Flexible pipe 90° bend DN 75
12	5056-40/75	M-WRG-FR75	Flexible pipe 75 mm
13	5056-10/75	M-WRG-DK 2x75/100	Ceiling box, flexible pipe connection 2 x 75 mm to DN 100, alternatively as steel sheet version
14	5056-30/A	M-WRG-FR-TVA	Poppet valve, extract air DN 100, alternatively as a plastic version

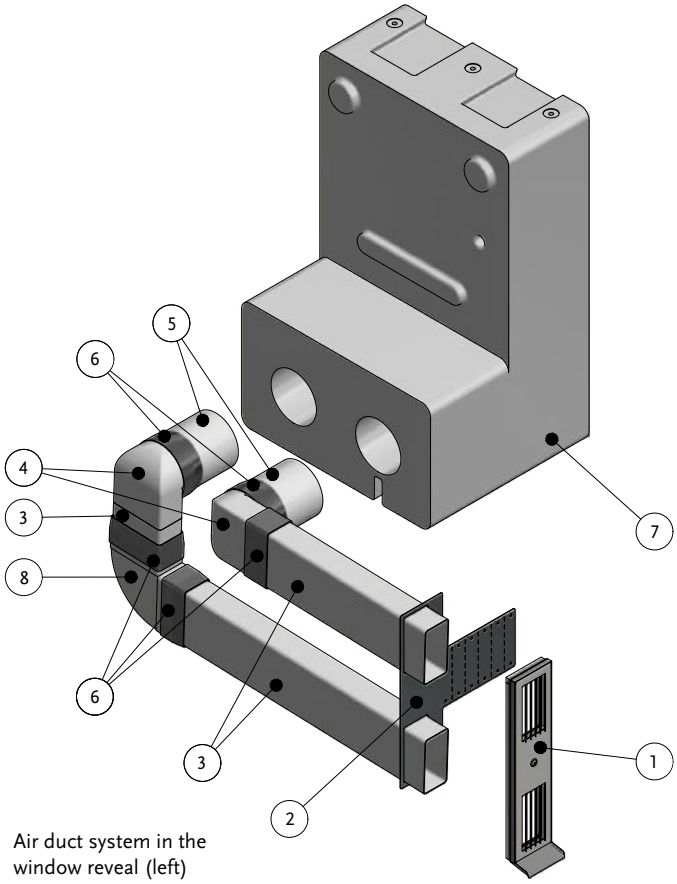
SYSTEM OVERVIEW

INTEGRATED INTO WALL U² WITH DUCTWORK CONNECTION

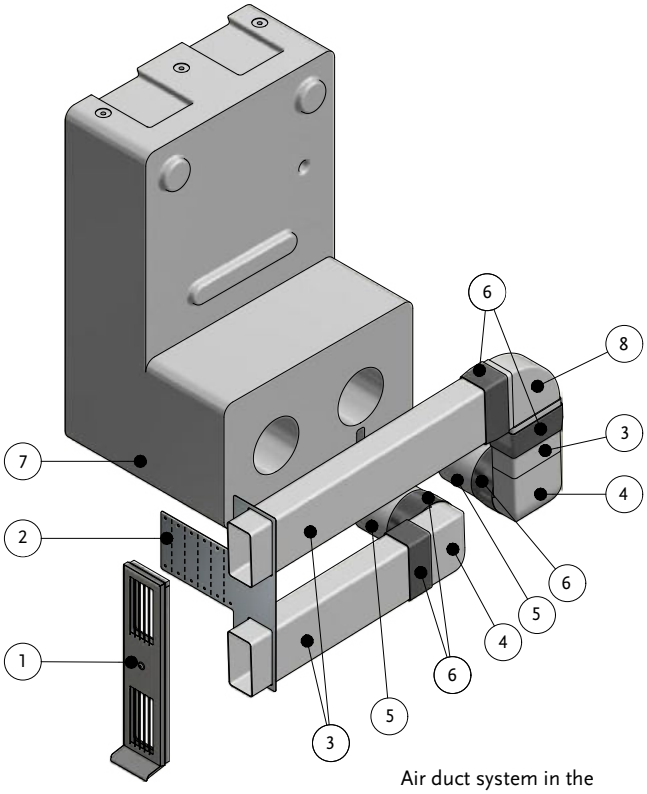


List of components			
	Part no.	Type	Description
1		Unit type	All M-WRG-II units with external controller (no condensate connection needed for enthalpy heat exchanger)
2	5574	M-WRG-LR 50	Outdoor air and exhaust air pipe DN 100 - 2 x 0.5 m
3	730000	M-WRG-II ES	Outer wall terminal stainless steel pod
4	712000	M-WRG-II M-U²	Integrated into wall U² installation kit
5	735003	M-WRG-II M/FÜ	Filler piece installation kit
6	731001	M-WRG-II U² AK	U² adapter kit
7	735100	M-WRG-II U² AD/WS	U² cover
8	5056-00/75	M-WRG-FRA75	Flexible pipe adapter 75 mm to flat ductwork system 110 x 54 mm
9	5056-42/75	M-WRG-FR-B75	Flexible pipe 90° bend DN 75
10	5056-40/75	M-WRG-FR75	Flexible pipe 75 mm
11	5056-41/75	M-WRG-FR-DR75	Flexible pipe sealing ring DN 75
12	5056-10/75	M-WRG-DK 2x75/100	Ceiling box, flexible pipe connection 2 x 75 mm to DN 100, alternatively as steel sheet version
13	5056-30/A	M-WRG-FR-TVA	Poppet valve, extract air DN 100, alternatively as a plastic version
14	5591	M-WRG-FK-V	Flat ductwork connector 110 x 54 mm
15	5579-10	M-WRG-RR-FK	Adapter 90° DN 100 to flat ductwork 110 x 54 mm
16	5056-30/Z	M-WRG-FR-TVZ	Poppet valve, supply air DN 100, alternatively as a plastic version
17	5590	M-WRG-FK-F	Flat ductwork 110 x 54 mm

AIR DUCT SYSTEM IN THE WINDOW REVEAL



Air duct system in the window reveal (left)



Air duct system in the window reveal (right)

No condensate connection needed for enthalpy heat exchanger.

List of components			
	Part no.	Type	Description
1	5159	M-WRG-EFL/AP	Outer wall terminal for window reveal, surface-mount
2	5512-01	M-WRG-EFL/MHL	Assembly aid for window reveal
3	5590	M-WRG-FK-F	Flat ductwork 110 x 54 mm
4	5579-10	M-WRG-RR-FK	Adapter 90° DN 100 to flat ductwork 110 x 54 mm
5	5574	M-WRG-LR 50	Outdoor air and exhaust air pipe DN 100 - 2 x 0.5 m
6	5599	M-WRG-BB	Butyl tape (20 m/roll)
7	711000	M-WRG-II M/MB	Flush-mount installation kit
8	5592	M-WRG-FK-B	Flat ductwork 90° bend, horizontal, sleeves on both sides

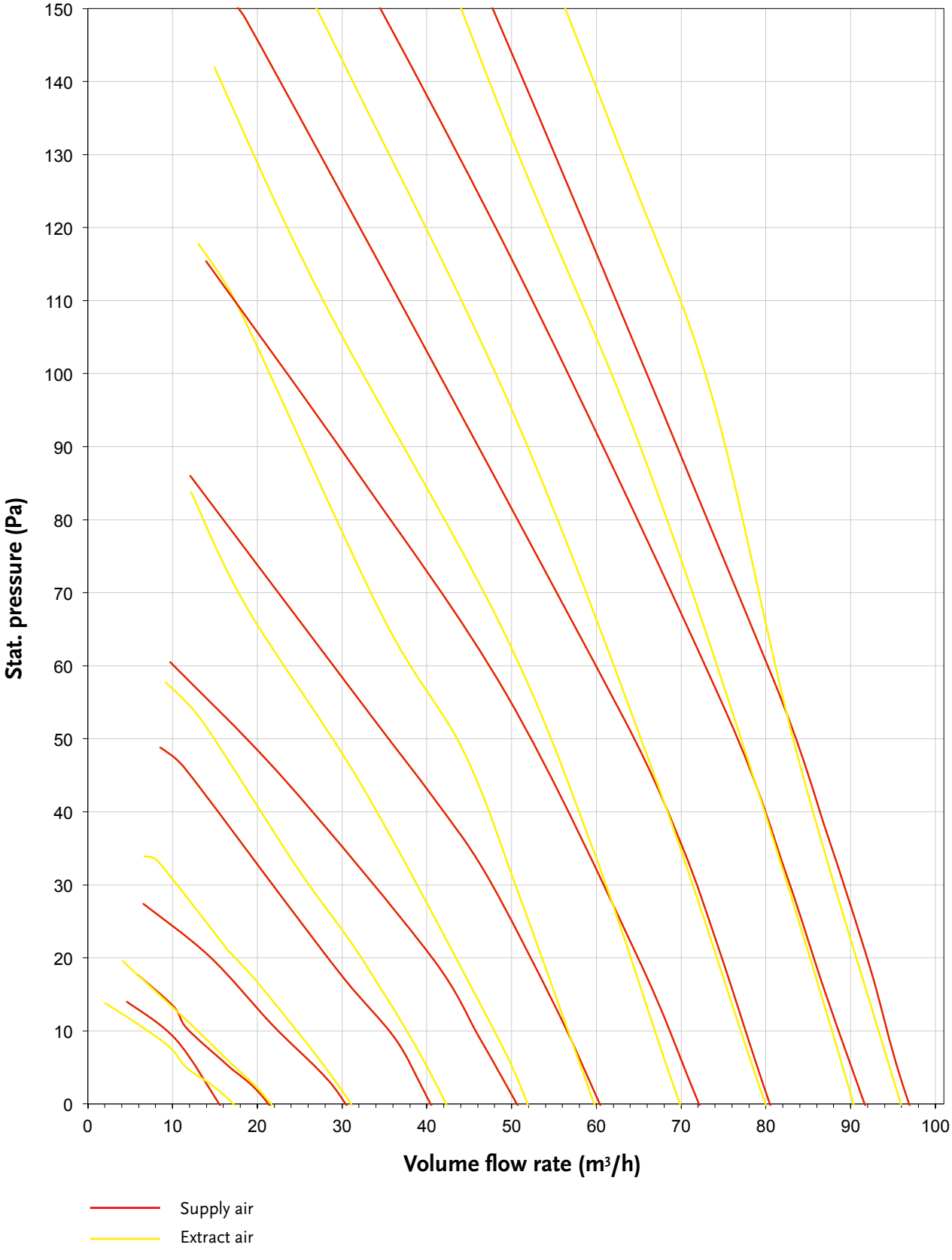
TECHNICAL DATA FOR THE M-WRG

Unit types	M-WRG-S	M-WRG-S/Z-T (F, FC)
Type of system	Decentralised, heat recuperation	
Air flow (m³/h)	15 to 100	
Output control	4-level on the unit, 10-level with accessories	6-level on the pushbutton sensor, 10-level with accessories, infinitely variable with humidity/CO_2 sensors
Heat exchanger	Cross-flow	
Max. heat recovery efficiency, DIBt (%)	76	
Moisture recovery ηx (%)	No	
Motor / supply air / extract air fan	EC direct current, radial	
Electrical power consumption (W), free blowing	3.8 to 37	
Standby power consumption (W)	Roughly 1 W (according to manufacturer)	
Volume flow rate-related power consumption of the fans (W/m³/h) at 30 m³/h / ref. vol. flow rate 70 m³/h, free blowing	0.17 / 0.24	
Constant volume flow rate / balanced ventilation	No / Yes	
Max. current consumption (A)	0.16	
Operating voltage (V) / mains frequency (Hz)	85 – 265 / 50 – 60	
Sound pressure level surface-mount (LpA in dB, 10 m²)	19.0 to 46	
Sound pressure level flush-mount (LpA in dB, 10 m²)	15.5 to 46.5	
Sound pressure level for integrated into wall U² with ductwork connection on extract air side (LpA in dB, 10 m²)	12.4 to 41.9	
Sound insulation for weighted standardised sound level difference, unit in use, depending on installation version ($D_{n,e,w}$ in dB)	50 to 56	
Weight (kg)	8.1	
Colour	White similar to RAL 9010	
Outdoor air / exhaust air connection (DN)	100	
Dimensions (W x H x D) in mm	388 x 409 x 196	
Possible installation methods	Surface-mount, flush-mount, integrated into wall U²	
Ductwork connection possible?	Yes, with accessories	
Visible unit depth surface-mount/flush-mount/integrated into wall U² (mm)	196 / 66 / -	
Filter type	Round filter cartridges for outdoor air and extract air	
Outdoor air / extract air filter class, optional allergy filter/activated charcoal filter for outdoor air (ISO 16890-1:2016-12 or EN 779: 2012-10)	ISO ePM10 65 % (G4) / ISO ePM10 65 % (G4), ISO ePM1 60 % (F7) / ISO ePM10 60 % (M6)	
Filter monitoring with filter change indicator	Time-dependent, audible	Time-dependent, audible or visual via InControl pushbutton sensor
Condensate drain	Via exhaust air pipe/outer wall terminal or condensate conn. provided by the customer	
Fully automatic cover flap control (when switching On / Off, in Standby mode and if the power fails)	Yes	
"Unit OFF" input (smoke detector, window contact)	No	
IP code (standard/with protective cap for mains switch/with integrated into wall U² installation version)	IPX1 / IPX4 / IPX5	
Humidity control	Optional with accessories	Optional with accessories or with F unit version
CO_2 control	Optional with accessories	Optional with accessories or with FC unit version
Automatic mode (humidity and CO_2 control)	Optional with accessories	Optional with accessories or with FC unit version
TÜV-tested	Yes	
Tested to/compliant with VDI 6022 sheet 1	Yes, no. W-301330-18-WD	
Passivhaus certificate (PHI)	No	
National technical approval (DIBt)	Z-51.3-138	
Energy efficiency class	B/A[1]	B/A[1]

[1] In combination with the external wireless humidity / CO_2 sensor or with humidity / CO_2 sensors (F, FC unit version)

PRESSURE-VOLUME FLOW RATE CHARACTERISTICS SUPPLY AIR/EXTRACT AIR

Meltem®
VENTILATION & HEAT RECOVERY



VARIABLE UNIT FUNCTIONS

Functions \ Unit types	M-WRG functions																	
		Central																
	Decentralised																	
	Operation at the unit	4-way wireless pushbutton switch			Wireless remote control			InControl pushbutton sensor			App			BMS, EIB and KNX			RS-485		
	M-WRG-S	M-WRG-S....-S/Z-T	M-WRG-S/Z-T-F	M-WRG-S/Z-T-FC	M-WRG-S/....S/Z-T	M-WRG-S/Z-T-F	M-WRG-S/Z-T-FC	M-WRG-S/Z-T	M-WRG-S/Z-T-F	M-WRG-S/Z-T-FC	M-WRG-S/Z-S....-S/Z-T	M-WRG-S/Z-T-F	M-WRG-S/Z-T-FC	M-WRG-S/Z-EIB-/Z24-/Z-KNX	M-WRG-S/Z-KNX-F	M-WRG-S/Z-KNX-FC	M-WRG-S 485	M-WRG-S 485-F	M-WRG-S 485-FC
10 ventilation levels					X	X	X				X	X	X	X			X	X	X
4 ventilation levels	X	X	X	X				X	X	X				X[1]	X	X			
Extract air operation								X						X	X	X			
Supply air operation								X	X					X	X	X			
Variable extract air operation					X	X	X				X	X	X				X	X	X
Variable supply air operation					X	X	X				X	X	X				X	X	X
Humidity control (RH)			X						X	X					X	X			
Variable humidity control (RH)						X	X					X	X					X	X
CO_2 control										X						X			
Variable CO_2 control							X						X						X
Automatic mode RH+CO_2				X															
Variable automatic mode RH+CO_2							X						X						
Temporary intensive ventilation	X	X	X	X				X	X	X					X	X			
Variable temporary intensive ventilation					X	X	X				X	X	X				X	X	X
Variable timer program											X	X	X				X	X	X
Control input	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Min. ventilation program to DIN 18017-3, factory setting, CANNOT BE SWITCHED OFF, optional	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
Ventilation for moisture protection with humidity control, CANNOT BE SWITCHED OFF, optional			X	X		X	X		X	X		X	X		X	X			
Audible/visual filter change indicator	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Reading the operating hours					X	X	X				X	X	X						
Reading the operating hours with accessories	X	X	X	X				X	X	X				X	X	X	X	X	X
Sensor values display						X	X				X	X	X				X	X	X
RH supply air > RH extract air display									X	X		X	X		X	X			
Visual fault indicator LED / symbol		X	X	X	X	X	X	X	X	X	X	X	X	X[1]	X	X	X	X	X
Operating status					X	X	X				X	X	X	X	X	X	X	X	X
Operating status LED		X	X	X				X	X	X				X[1]	X	X			
Frost protection function	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

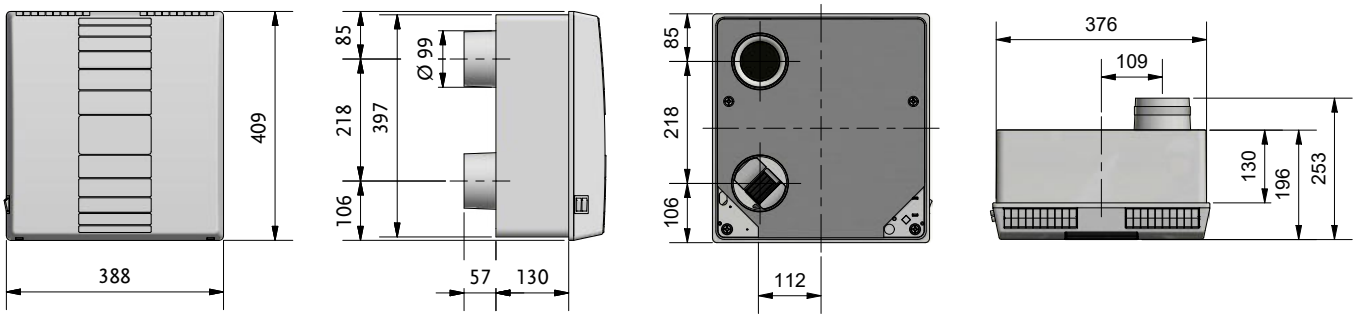
1 For KNX only

Use of external 3-way stepping switch, functions as for 4-way wireless pushbutton switch apart from LED display
App works in combination with operation on the unit, 4-way wireless pushbutton switch, wireless remote control, InControl pushbutton sensor

DIMENSIONS

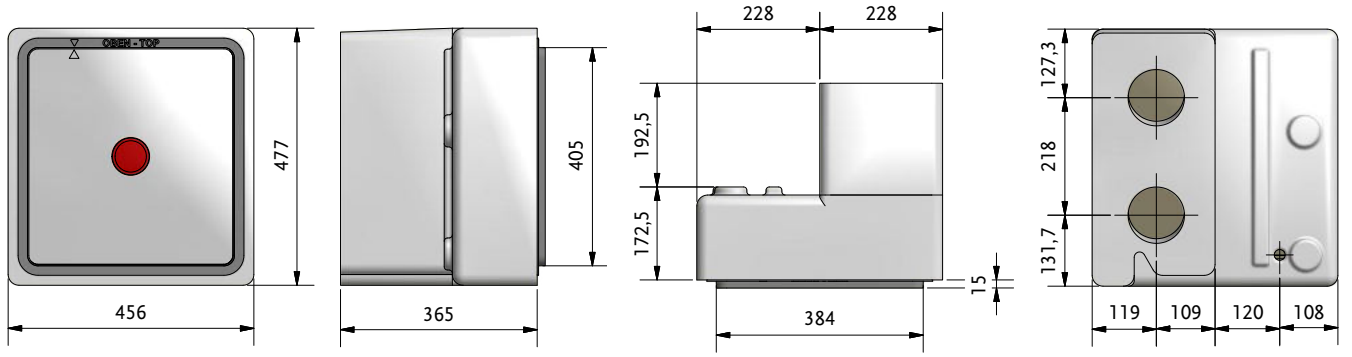
Meltem®
VENTILATION & HEAT RECOVERY

VENTILATION UNIT



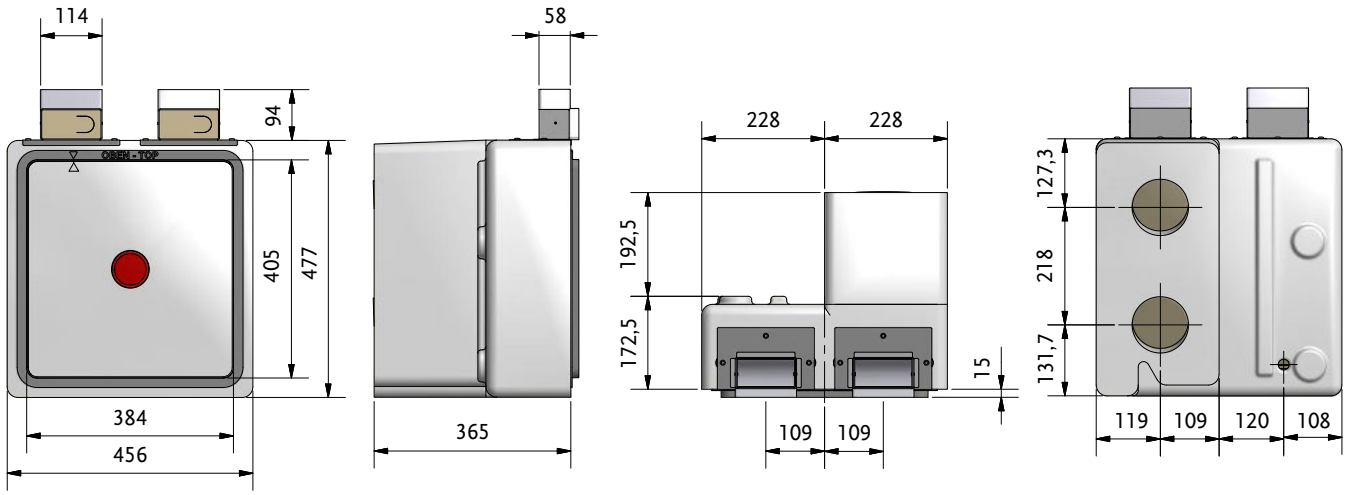
FLUSH-MOUNT INSTALLATION KIT FRAME CONSTRUCTION / SOLID CONSTRUCTION

Dimension 365 mm variable, can be cut to length according to the wall structure (including internal plaster, external render and insulation); min. 175 mm thick, max. variable (wall structures that are greater than 600 mm will be compensated through longer ventilation pipes, part no. 5580)



Installation depth with plastering trim
at least 187.5 mm (solid construction only)

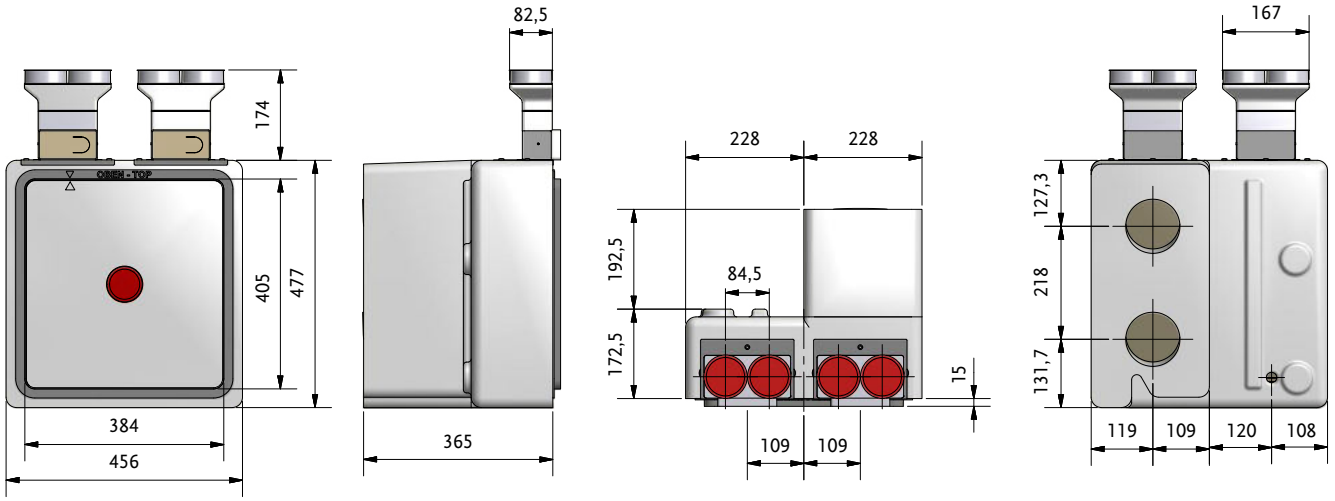
FLUSH-MOUNT INSTALLATION KIT WITH FLAT DUCTWORK CONNECTION



Installation depth with plastering trim
at least 187.5 mm (solid construction only)

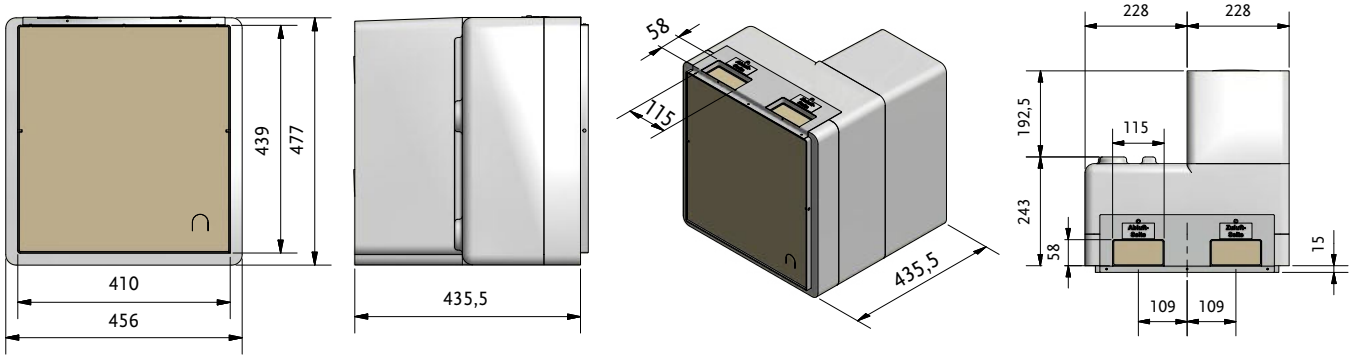
DIMENSIONS

FLUSH-MOUNT INSTALLATION KIT WITH FLEXIBLE PIPE CONNECTION



Installation depth with plastering trim
at least 187.5 mm (solid construction only)

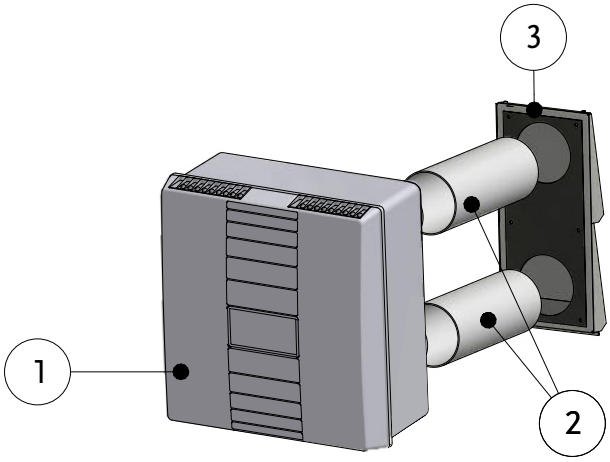
U² FLUSH-MOUNT INSTALLATION KIT



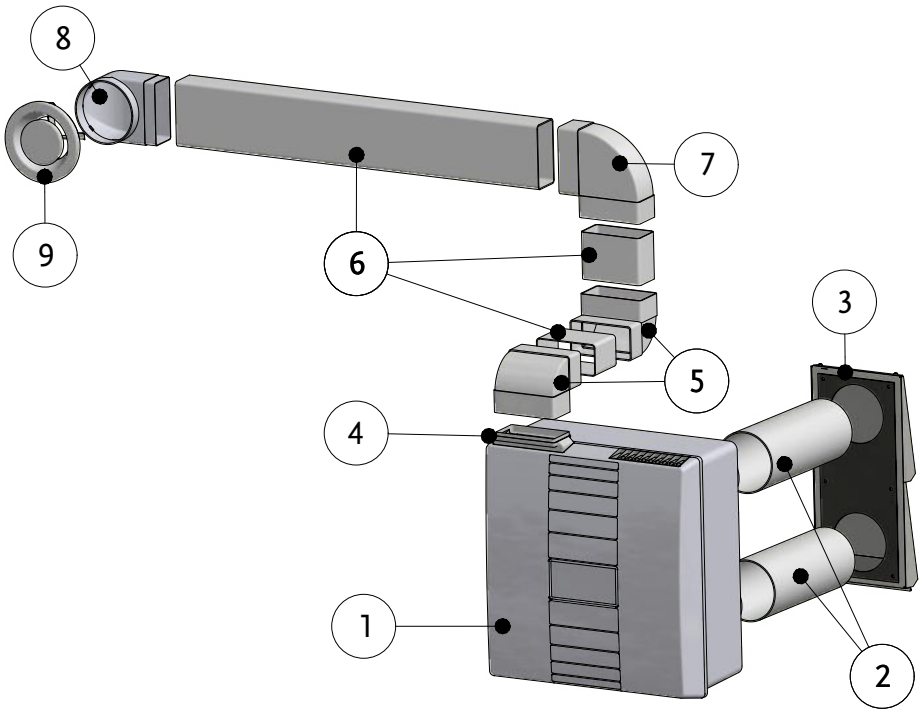
Dimension 435.5 mm variable, can be cut to length according to the wall structure (including internal plaster, external render and insulation); min. 243 mm thick, max. variable (wall structures that are greater than 670 mm will be compensated through longer ventilation pipes, part no. 5580)

Installation depth with plastering trim
at least 258 mm (solid construction only)

SURFACE-MOUNT VERSION



SURFACE-MOUNT VERSION WITH DUCTWORK CONNECTION

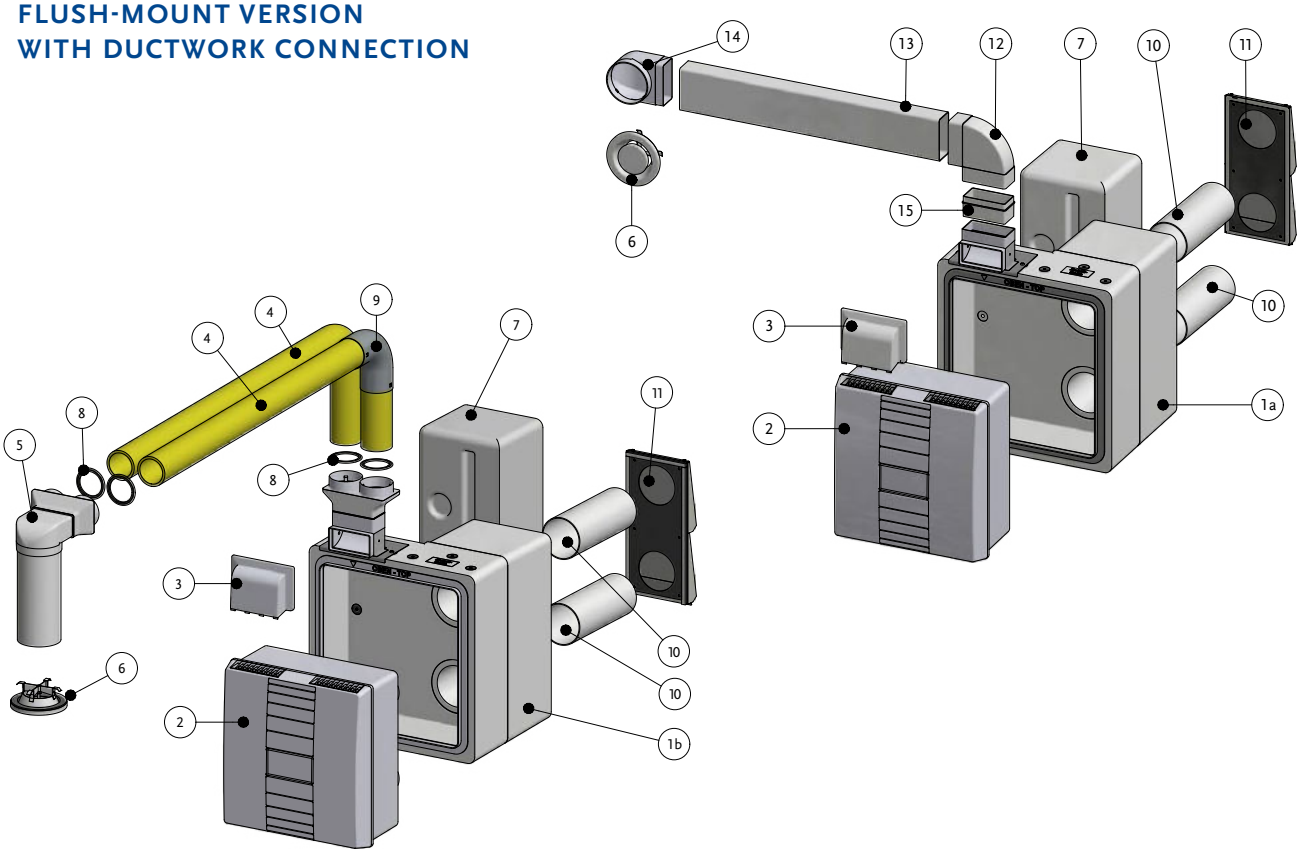


List of components			
	Part no.	Type	Description
1		Unit type	All M-WRG units
2	5574	M-WRG-LR 50	Outdoor air and exhaust air pipe DN 100 - 2 x 0.5 m*
3	5150	M-WRG-ES	Outer wall terminal stainless steel pod
4	5374	M-WRG-KA	Duct adapter when running surface-mount flat ductwork
5	5593	M-WRG-FK-W	Flat ductwork elbow 90° vertical, sleeves on both sides
6	5590	M-WRG-FK-F	Flat ductwork 110 x 54 mm
7	5592	M-WRG-FK-B	Flat ductwork 90° bend, horizontal, sleeves on both sides
8	5579-10	M-WRG-RR-FK	Adapter 90° DN 100 to flat ductwork 110 x 54 mm
9	5056-30/A	M-WRG-FR-TVA	Poppet valve, extract air DN 100, alternatively as a plastic version

* For wall structures (including internal plaster, external render and insulation) that are more than 470 mm thick, use longer ventilation pipes, part no. 5580.

SYSTEM OVERVIEW

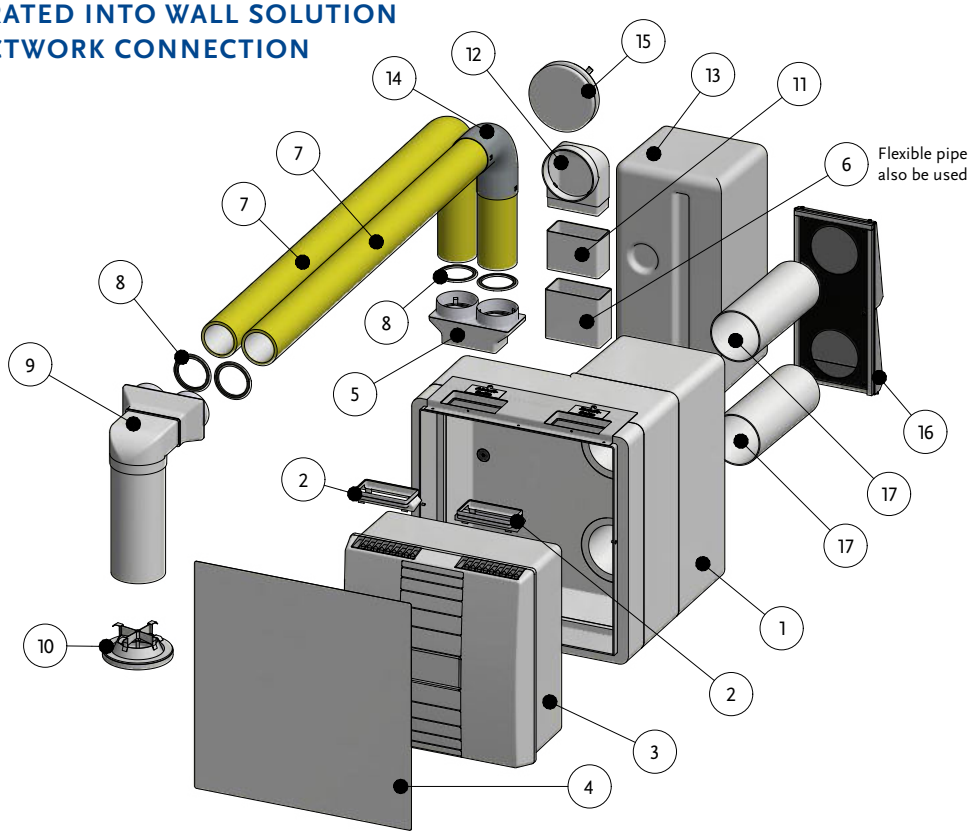
FLUSH-MOUNT VERSION WITH DUCTWORK CONNECTION



List of components			
	Part no.	Type	Description
1a	5051-11 (5051-12)	M-WRG-M/MB-FK-1 (-FK2)*	Flush-mount installation kit for solid construction with adapter(s) for flat ductwork connection 110 x 54 mm
1b	5051-21/75 (5051-22/75)	M-WRG-M/MB-FR75/1 (-FR75/2)*	Flush-mount installation kit for solid construction with adapter(s) for 75 mm flexible pipe connection
2		Unit type	All M-WRG units
3	5365	M-WRG-KA/UP	Duct adapter when running flush-mount flat ductwork or flexible pipe
4	5056-40/75	M-WRG-FR75	Flexible pipe 75 mm
5	5056-10/75	M-WRG-DK 2x75/100	Ceiling box flexible pipe connection 2 x 75 mm to DN 100
6	5056-30/A (5056-31-00)	M-WRG-FR-TVA	Poppet valve, extract air, DN 100
7	5575-5	M-WRG-M/Fü	Optional: Filler piece for all flush-mount installation kits
8	5056-41/75	M-WRG-FR-DR75	Flexible pipe sealing ring DN 75
9	5056-42/75	M-WRG-FR-B75	Flexible pipe 90° bend DN 75 (sealing rings needed)
10	5574	M-WRG-LR 50	Outdoor air and exhaust air pipe DN 100 - 2 x 0.5 m
11	5150	M-WRG-ES	Outer wall terminal stainless steel pod
12	5592	M-WRG-FK-B	Flat ductwork 90° bend, horizontal, sleeves on both sides
13	5590	M-WRG-FK-F	Flat ductwork 110 x 54 mm
14	5579-10	M-WRG-RR-FK	Adapter 90° DN 100 to flat ductwork 110 x 54 mm
15	5375-00 or 5590	M-WRG-FSA lang or M-WRG-FK-F	Fitting adapter, long – for connecting two flat ductwork fittings or flat ductwork 110 x 54 mm, 1 m long

* For frame constructions use the M-WRG-M/FK1 / -M/FK2 or -M/FR75/1 / -M/FR75/2 types

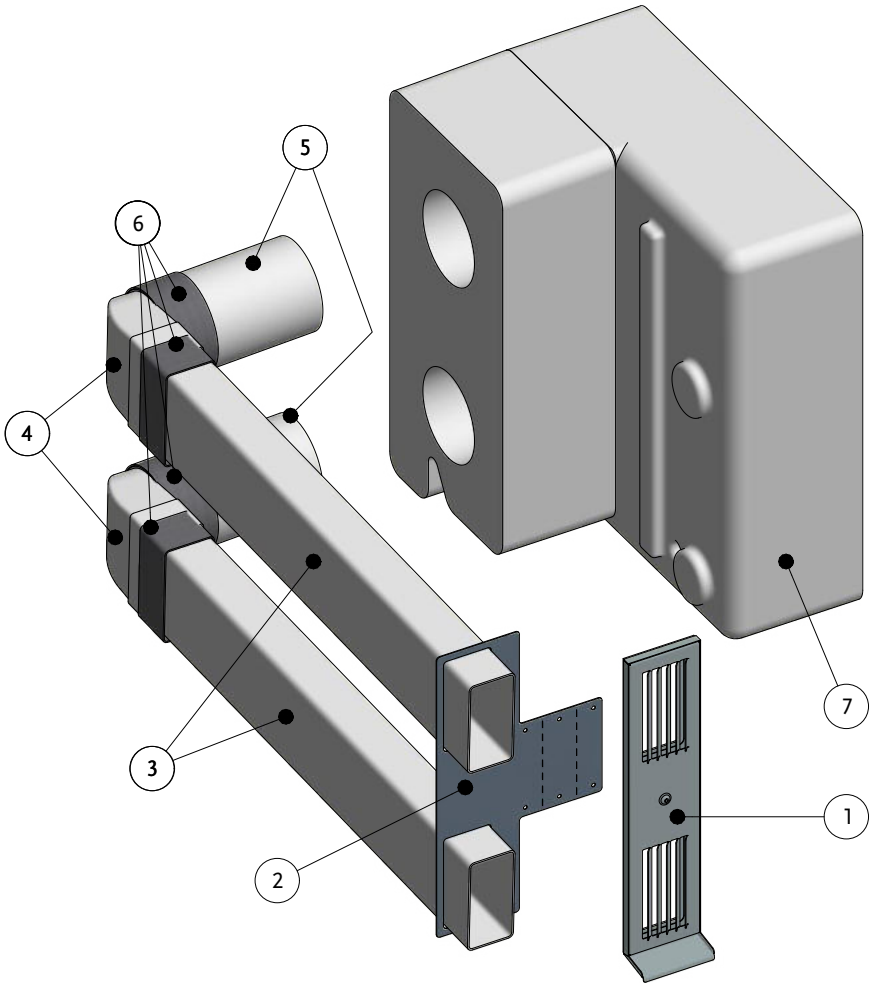
U² INTEGRATED INTO WALL SOLUTION WITH DUCTWORK CONNECTION



List of components			
	Part no.	Type	Description
1	5052	M-WRG-M/MB-U²	U² flush-mount installation kit
2	5052-90	M-WRG-U² AK	U² adapter kit
3		Unit type	All M-WRG units with external control unit or central controller
4	5052-10-04	M-WRG-U² AD/WS-2	U² cover
5	5056-00/75	M-WRG-FRA-75	Flexible pipe adapter 75 mm to flat ductwork system 110 x 54 mm
6	5591	M-WRG-FK-V	Flat ductwork connector 110 x 54 mm
7	5056-40/75	M-WRG-FR/75	Flexible pipe 75 mm
8	5056-41/75	M-WRG-FR-DR/75	Flexible pipe sealing ring DN 75
9	5056-10/75	M-WRG-DK 2x75/100	Ceiling box flexible pipe connection 2 x 75 mm to DN 100
10	5056-30/A	M-WRG-FR-TVA	Poppet valve, extract air, DN 100
11	5590	M-WRG-FK-F	Flat ductwork 110 x 54 mm, 1 m long
12	5579-10	M-WRG-RR-FK	Adapter 90° DN 100 to flat ductwork 110 x 54 mm
13	5575-5	M-WRG-M/Fü	Optional: Filler piece for all flush-mount installation kits
14	5056-42/75	M-WRG-FR-B75	Flexible pipe 90° bend DN 75 (sealing rings needed)
15	5056-30/Z	M-WRG-FR-TVZ	Poppet valve, supply air, DN 100
16	5150	M-WRG-ES	Outer wall terminal stainless steel pod
17	5574	M-WRG-LR50	Outdoor air and exhaust air pipe DN 100 - 2 x 0.5 m

SYSTEM OVERVIEW

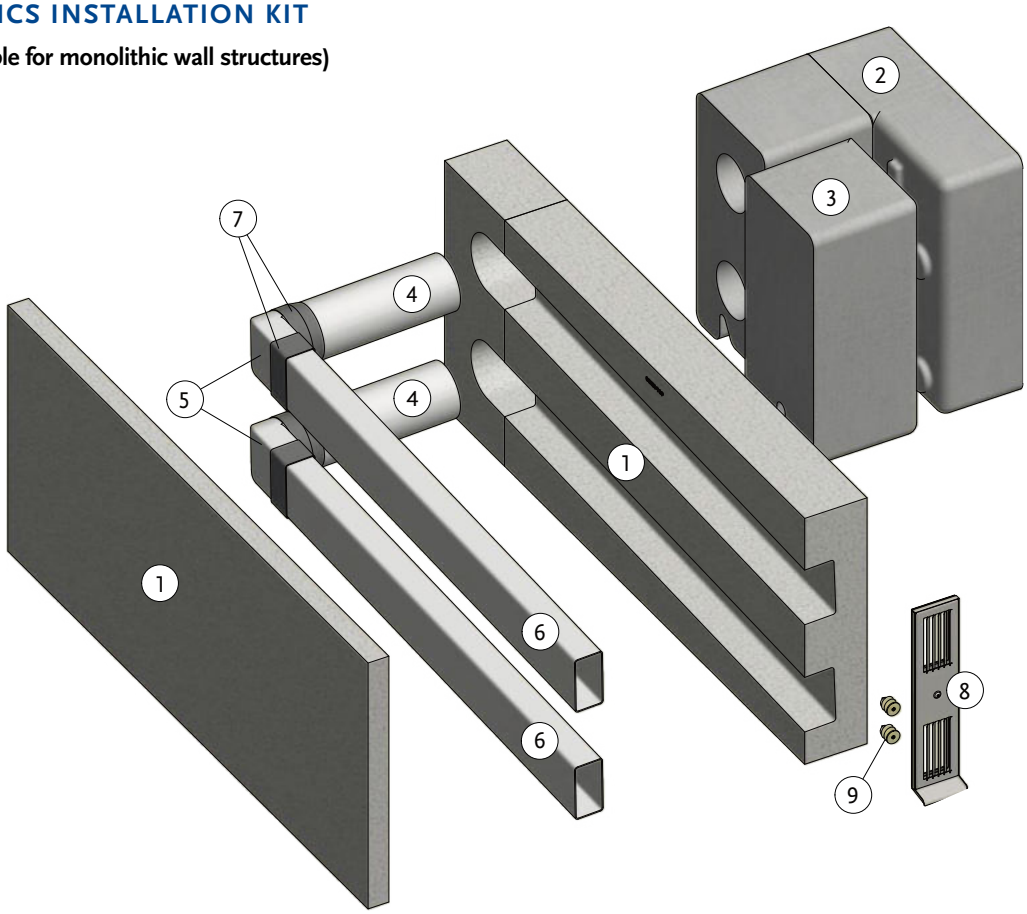
AIR DUCT SYSTEM IN THE WINDOW REVEAL



List of components			
	Part no.	Type	Description
1	5159	M-WRG-EFL/AP	Surface-mount outer wall terminal
2	5512-01	M-WRG-EFL/MHL	Assembly aid for window reveal
3	5590	M-WRG-FK-F	Flat ductwork 110 x 54 mm
4	5579-10	M-WRG-RR-FK	Adapter 90° DN 100 to flat ductwork 100 x 54 mm
5	5574	M-WRG-LR 50	Outdoor air and exhaust air pipe DN 100 - 2 x 0.5 m
6	5599	M-WRG-BB	Butyl tape (20 m roll)
7	5051	M-WRG-M/MB	Flush-mount installation kit

WINDOW REVEAL SOLUTION WITH ETICS INSTALLATION KIT

(also available for monolithic wall structures)



List of components			
	Part no.	Type	Description
1	5053-00 5053-01 5053-10 5053-11	M-WRG-MSF-W-re M-WRG-MSF-W-li M-WRG-MSF-M-re M-WRG-MSF-M-li	Window reveal installation kit M-WRG-MSF right (for ETICS) Window reveal installation kit M-WRG-MSF left (for ETICS) Window reveal installation kit M-WRG-MSF right (monolithic wall structure) Window reveal installation kit M-WRG-MSF left (monolithic wall structure)
2	5050... 5051... 5052	M-WRG-M... M-WRG-M/MB... M-WRG-M/MB-U2	Flush-mount installation kit
3	5575-5	M-WRG-M/Fü	Option: Filler piece for all flush-mount installation kits
4	5574	M-WRG-LR 50	Outdoor air and exhaust air pipe DN 100 - 2 x 0.5 m
5	5579-10	M-WRG-RR-FK	Adapter 90°, DN 100 to flat ductwork 110 x 54 mm
6	5590	M-WRG-FK-F	Flat ductwork 110 x 54 mm, 1 m long
7	5599	M-WRG-BB	Butyl tape, 20 m roll, one roll sufficient for roughly 10 installation kits
8	5159 5160	M-WRG-EFL/AP M-WRG-EFL/AP-P	Outer wall terminal for window reveal
9	–	–	e.g. Würth insulation anchors W-ID 50, part no. 090350050 (provided by the customer)

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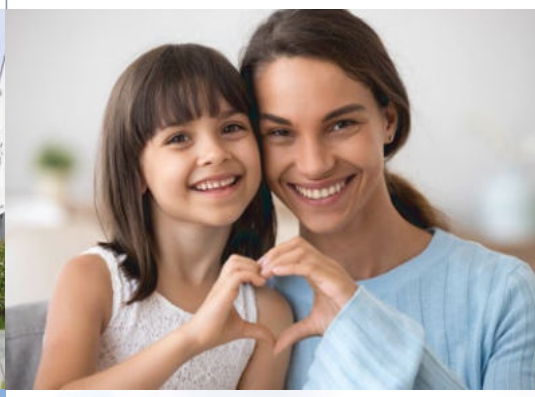

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