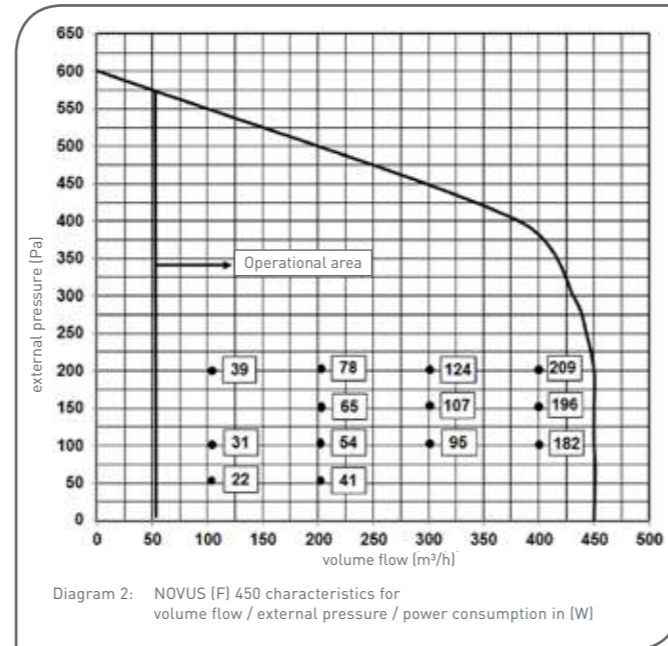
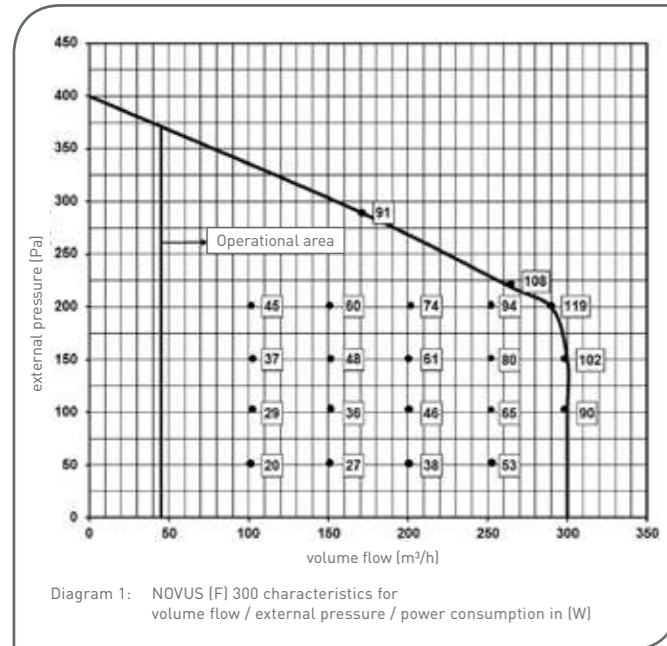


## Characteristics



Note: the figured number values in the diagram of the p-V-characteristic curve give the power consumption in [W] in the corresponding operating points and are valid for NOVUS 300 (diagram 1) or NOVUS 450 (diagram 2) respectively with standard heat exchanger without integrated defroster.

## Other instructions

### Connection of control panels and components:

- Delivery contains 1,5 m CAT-5 cable for the connection between RJ-45-jack at the ventilation device and RJ-45-jack of the adapter board
- For the installation of the control panels the flush mounted box is necessary
- Control line: J-Y(St)Y 2x2x0,6 screened, max. 25 m
- Flush mounted box, data cable, terminal box by customer

### Adjustment values of the fan speeds at the LED control panel in relation to the nominal value setting:

Fan speeds LED control panel	NOVUS 300 version left	NOVUS 300 version right	NOVUS 450 version left	NOVUS 450 version right
	nominal value setting (%)			
1	17	17	25	20
2	29	29	39	32
3	41	44	50	43
4	53	57	61	53
5	65	70	74	65
6	74	81	84	74
7	100	100	100	100

## PAUL . The passive activists



Since the foundation by Grad.-Engineer Eberhard Paul in the year 1994, the company is among the pioneers and technology leaders in the ventilation sector. The starting point was already, at the beginning of the nineties, the idea of a new heat exchanger in counter flow channel principle. From the beginning, the west saxonian company has committed itself as specialist of high-efficient heat recovery in the living spaces ventilation and already in 1996 presented the first ventilation unit with heat recovery. Many innovative product developments, patents and distinctions succeeded.

For the living space ventilation device THERMOS PAUL received in 2002, as a first company in Germany, the certificate „passive house adequate components“ of the Passive house Institute Dr. Wolfgang Feist in Darmstadt. In 2009 moved into today's head office in Reinsdorf in Zwickau. Consequently, following the company philosophy, the new administration wing was erected in passive house building method. In the year 2010, with the new NOVUS 300, PAUL brought to the market the device with today's best passive house certificated heat recovery.

PAUL offers Europe-wide a range of high quality, passive house certified devices Made in Germany and is among the sector leaders in the segment living spaces ventilation. In 2014, the around seventy members team of the „passive activists“, celebrates the 20th anniversary of the foundation.

## Technical description

- Universal heat recovery unit for the central comfort ventilation
- for dwellings up to 220 m<sup>2</sup> floor area (NOVUS 300) or up to 350m<sup>2</sup> floor area (NOVUS 450)
- Volume flow rates: 45 up to 300 m<sup>3</sup>/h (NOVUS 300) or 50 up to 450 m<sup>3</sup>/h (NOVUS 450)
- Passive house certified heat recovery rate up to 94,4 % in an electric efficiency of 0,24 Wh/m<sup>3</sup> (NOVUS 300)
- automatic bypass control with motorised 100% bypass flap for the summer bypass operation
- optional with humidity recovery (enthalpy exchanger)
- optional with integrated defroster
- Installation versions: Can be mounted vertically or horizontally on wall bracket or floor standing frame
- left and right unit version
- Equipped as standard with intake air filter and extract air filter of the filter class G4, optional pollen filter F7
- control panel: TFT touch panel with colour display, optional: LED control panel
- Casing of galvanised powder-coated sheet steel, high quality polypropylene internal lining for high heat insulation and good device noise protection

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Modifications reserved in the sense of the technical progress.

### TFT touch panel with colour display

#### Function keys:

- Stand by (shaded display), power consumption <1W
- Fan speeds 1 - 3 (in 1 % steps programmable)
- Absence mode (interval controlled fan speeds 1)
- Boost ventilation (duration between 15 to 120 min, individually adjustable)
- Automatic mode operation time controlled (individually adjustable weekly time program in 15 min. steps for every day of the week)
- Sensor automatic mode, optional with external sensors (CO<sub>2</sub>, humidity, air quality)
- Menu (access to information, adjustment and set up menus)
- Password protected key lock for inactive display surface

#### Displays:

- Text and symbol driven menu representation
- Filter change control display (days of the remaining run-time of the filter)
- Error message through message symbol
- Info error display in the menu informations

### LED control panel

#### Function keys:

- Stand by (no LED display of the fan speeds), power consump. <1W
- Fan speeds 1 to 7 (fixed adjusted values)
- Boost ventilation (duration 15 min, level 7 fixed adjusted)
- Operating mode „only supply air“ or „only exhaust air“
- Reset for filter change

#### Displays:

- Filter change control display (LED display through button reset filter change)
- Error message by means of LED codification



## Control



# NOVUS (F) 300/450

## Central ventilation device with heat recovery



# NOVUS (F) 300/450

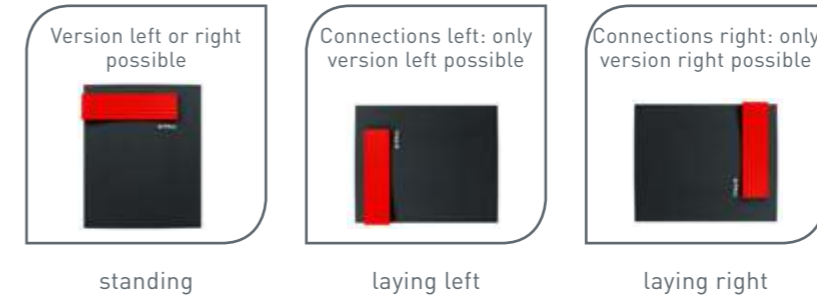
## Central ventilation device with heat recovery



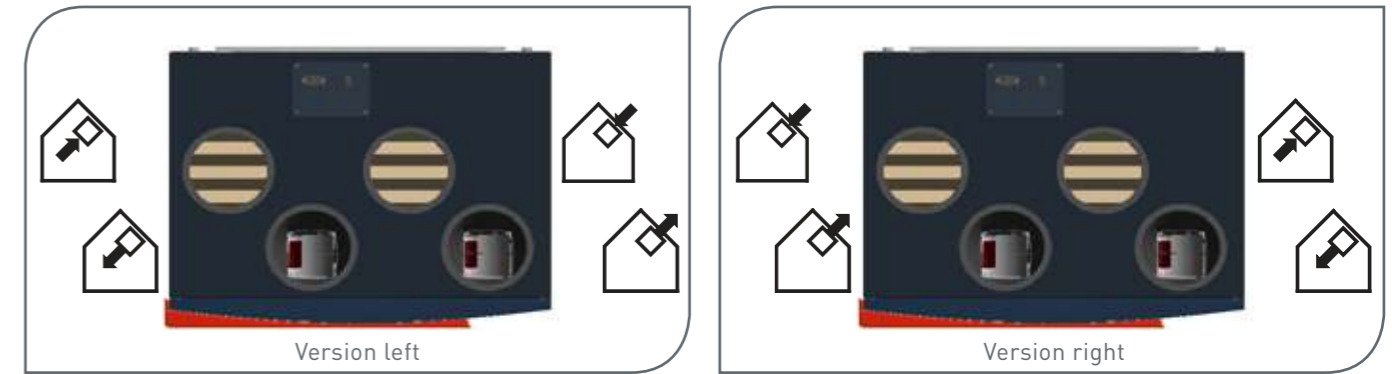
### Technical data

- Device dimensions: Width x Height x Depth (mm): 792 x 978 x 601
- Possible mounting positions:
- standing or laying as wall assembly or assembly frames
  - Assembly frames optional (frames height adjustable 280 - 320mm)
- Installation location: Frost-free interior area; ambient conditions < 70 % r. h. in 22 °C
- Tube connections: 4 air duct connectors DN 160 (sleeve dimensions)
- Condensate: Basin valve external thread 1¼"
- Material: Casing: galvanised steel plate, powder-coated, RAL 7016 (anthracite grey)  
Maintenance cover: Plastic, lakkered, RAL 3020 (traffic red)  
Internal lining: expanded polypropylene EPP for heat and sound insulation
- Heat exchanger type:
- Standard: Counter flow channel heat exchanger of plastic (patent PAUL), Freezing limit < 0°C
  - Optional (model „F“ or as accessory): Enthalpy exchanger (humidity heat exchanger) with washable polymer membrane, freezing limit < -8°C
- Weight: 50 kg
- Filter: Outside air: G4 or optional F7 (pollen filter), exhaust air: G4
- Electrical connection: 230 Vac, 50-60 Hz, ready-for-connection, cable with plug connection of a low power device
- Connection power: NOVUS (F) 300: 0,14 kW / 1,44 kW (with integrated defroster)  
NOVUS (F) 450: 0,36 kW / 1,66 kW (with integrated defroster)
- Cable lengths:
- Power cable (230 Vac): 2 m (scope of delivery)
  - CAT-5 cable: 1,5 m (scope of delivery)
  - variable between RJ-45 wall socket and control modules/external components (by customer)
- Control: Universal control
- Protection class & type: Protection class I (according to EN 60335), protection type IP 40 (according to DIN 40050)
- Ventilators: EC radial ventilators with integrated electronic, V constant controlled
- Bypass summer operation: motorised summer bypass, sensor controlled, 100% sealed closed
- Volume flow, external pressure, Power consumption:
- Volumen flow area NOVUS (F) 300: 45-300 m³/h  
Volumen flow area NOVUS (F) 450: 50-450 m³/h  
(characteristic curves see diagram 1 and 2)
- Efficiency criteria: (according to passive house certificate)
- NOVUS 300: 0,24 Wh/m³ (in 200 m³/h and 100 Pa)  
NOVUS F 300: 0,26 Wh/m³ (in 200 m³/h and 100 Pa)  
NOVUS 450: 0,29 Wh/m³ (in 285 m³/h) or 0,26 Wh/m³ (in 184 m³/h, respectively 100 Pa)
- Heat supply rate: (according to passive house certificate)
- NOVUS 300: 93 % (in 200 m³/h) or 94,4 % (in 145 m³/h)  
NOVUS F 300: 84 % (in 200 m³/h)  
NOVUS 450: 89 % (in 285 m³/h) or 90 % (in 184 m³/h)
- Enthalpish heat supply rate: NOVUS (F) 300: 116 % in 200 m³/h (enthalpy of the supply air flow in exterior luft humidity, tested according to DIN 4719)  
NOVUS (F) 450: 116 % in 200 m³/h (manufacturer data)
- Sound pressure level:
- | Volume flow [m³/h] | Sound pressure level [dB(A)] |
|--------------------|------------------------------|
| 200                | 21                           |
| 300                | 26                           |
- Table 1: noise data NOVUS (F) 300 according to DIN EN ISO 3744 (distance 3m)
- | Volume flow [m³/h] | Sound pressure level [dB(A)] |
|--------------------|------------------------------|
| 250                | 25                           |
| 450                | 36                           |
- Table 2: noise data NOVUS (F) 450 according to DIN EN ISO 3743-1 (distance 3m)
- Limitations of use: -20 °C to 40 °C (concerns electronic modules integrated in heat recovery unit)
- Freezing protection:
- Frost protection control or
  - internal / external defrost heating (option) or
  - geothermal heat exchanger (by customer)
- Air supplementary heating:
- Warm water supplementary heater battery or
  - electrical supplementary heater battery (optional respectively as external unit)
- Options control:
- digital I/O interface; analogue I/O interface 0-10V signal
  - Connecting possibility boost ventilation sensing device
  - Control external defrost heating, heat circuit or air-supplementary heater battery, as well as electrical regulating flap at geothermal heat exchanger (additional module necessary)

### Mounting positions



### Construction types



### Dimension drawings

