# ENDURA® TWIST

Decentralized ventilation solution with heat recovery



RENSON®
Creating healthy spaces
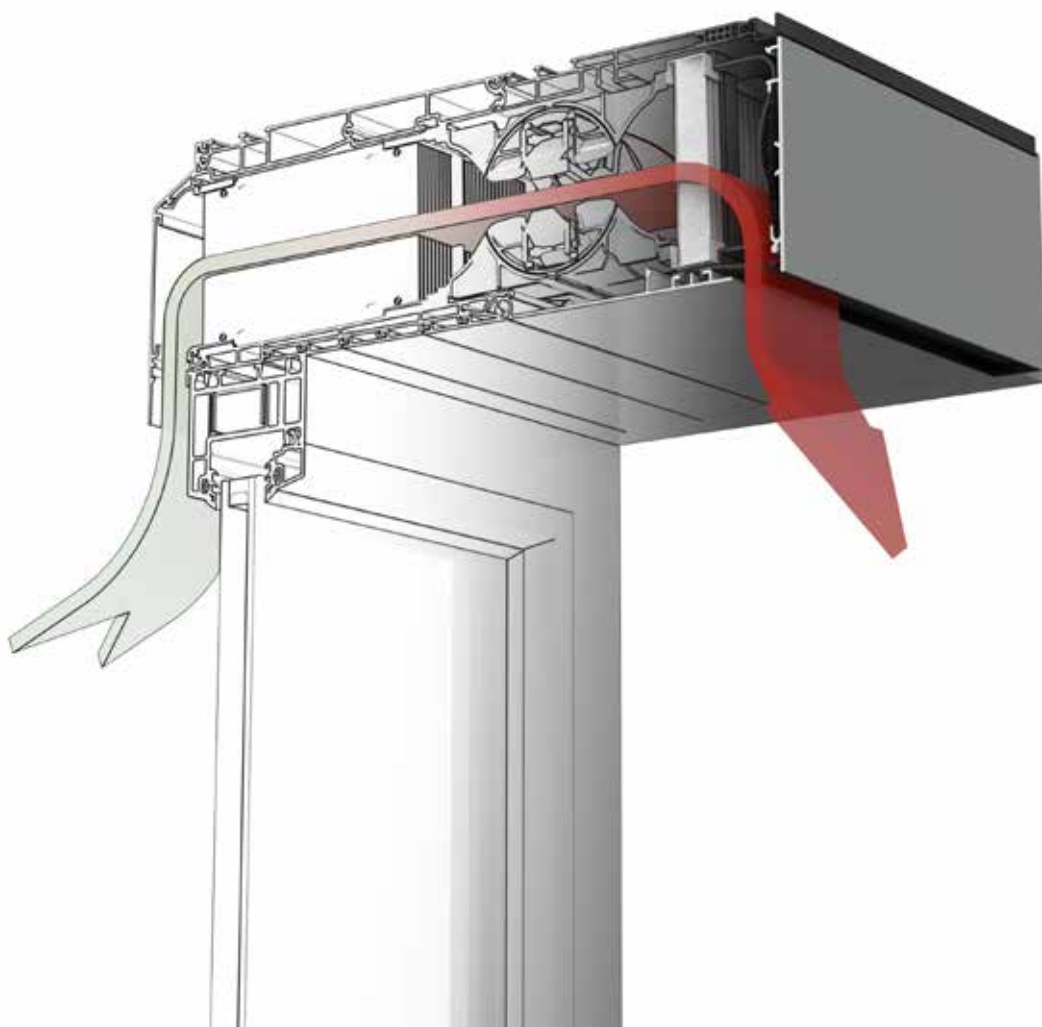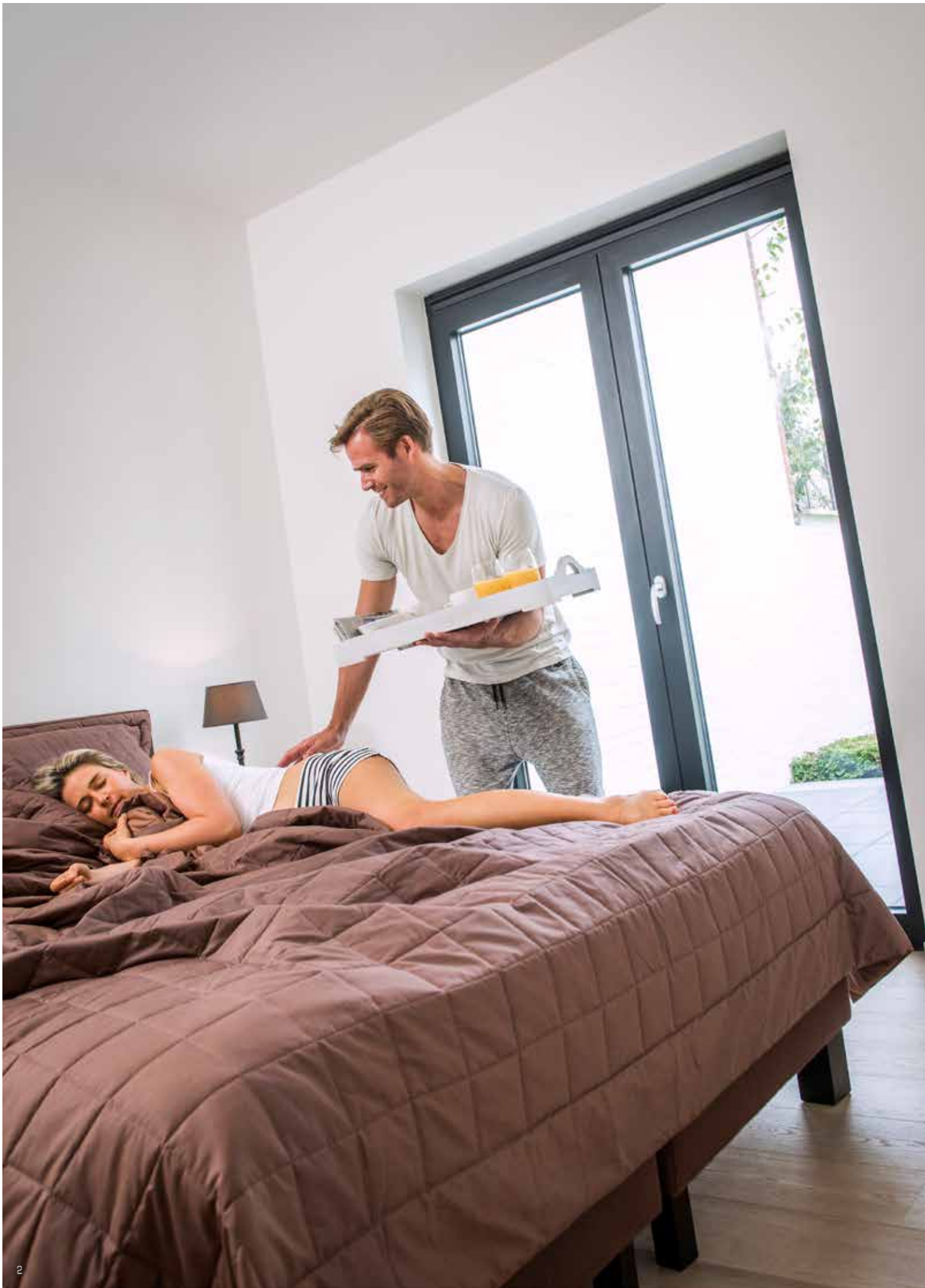
# HEALTHY LIVING

Our indoor climate is often polluted by unhealthy air, which has a major impact on the quality and comfort of our daily lives: too much moisture in our homes can lead to molds, while polluted air with too much $CO_2$ will cause headaches, respiratory problems, allergies, sleep disorders and concentration problems.

Natural ventilation ensures a healthy living climate.
A continuous smart supply of fresh air creates a comfortable indoor climate, without unnecessary energy losses.
The quiet, decentralized Endura Twist with heat recovery offers a maximum comfort with a minimal consumption and can be tailored to the lifestyle of its users!
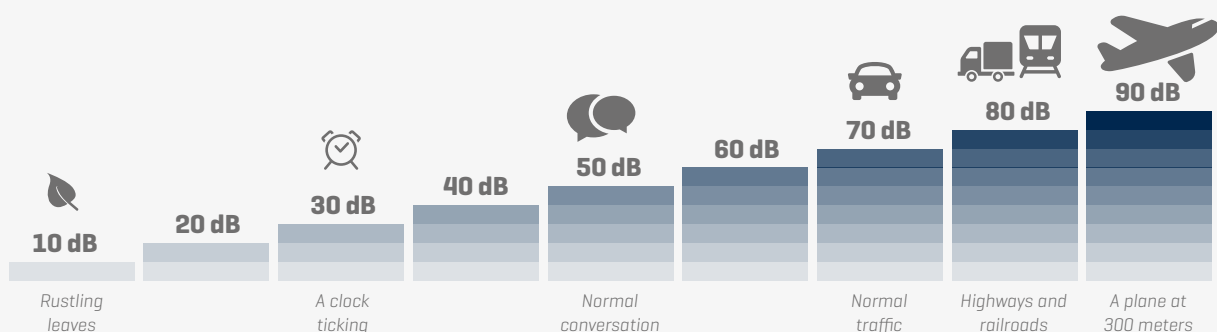
We're constantly surrounded by noises (traffic, industry, etc.) from the rushed society we live in.

A good night's rest is an important condition for a healthy, high-quality and stress-free life. The silent Endura Twist provides us with the healthy fresh air we need and blocks out disturbing noises at the same time.

## $CO_2$-MONITOR

The $CO_2$-concentration is an important indicator of good indoor air quality and can be measured with the Renson® $CO_2$-monitor. Air quality is expressed in particles $CO_2$ per million air particles (ppm = parts per million).

The assumed maximum value is 1200 ppm $CO_2$. If it exceeds this value, people could suffer from headaches, drowsiness, fatigue or irritation of the mucous membranes. Research has also shown that if the $CO_2$ concentration exceeds 1000 ppm, it decreases the ability to concentrate.

| 10 dB | 20 dB | 30 dB | 40 dB | 50 dB | 60 dB | 70 dB | 80 dB | 90 dB |
|---|---|---|---|---|---|---|---|---|
| Rustling leaves | | A clock ticking | | Normal conversation | | Normal traffic | Highways and railroads | A plane at 300 meters |

# HIGH EFFICIENCY, LOW ENERGY BILL

## COMFORTABLE, ENERGY-EFFICIENT AND ECONOMICAL

The heat of the used indoor air won't be lost during cold winter months, but will optimally preheat the incoming fresh air. Heat recovery implies an immediate decrease in heating costs and reduces our ecological footprint.

Thanks to its innovative technology, the **economical** and **highly efficient** Endura Twist can boast with an extremely economical consumption, with a thermal efficiency up to 75% and an A+ Ecolabel*.

*\* With demand control*

**Sunclips® luifel**

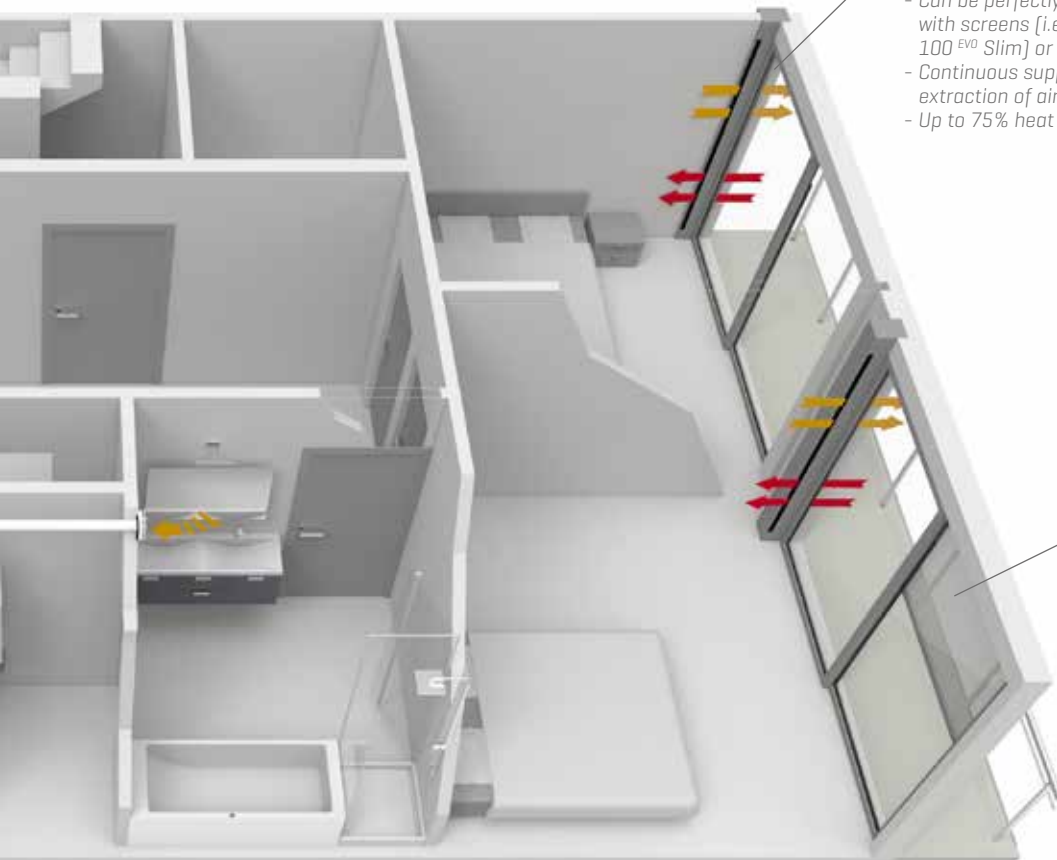- Brise-soleil
- Architectural eye-catcher



**Endura® Twist**

- Horizontal installation
- Continuous supply and extraction of air
- Up to 75% heat recovery

ENDURA®* TWIST **A+**

**A**

**B**

**C**

**D**

**E**

**F**

**G**

## Endura® Twist

- Vertical installation
- Can be perfectly combined with screens (i.e. Fixscreen 100 $^{EVO}$ Slim) or shutters
- Continuous supply and extraction of air
- Up to 75% heat recovery

## Fixscreen® 100 $^{EVO}$ Slim

- Sun protection
- Hidden installation
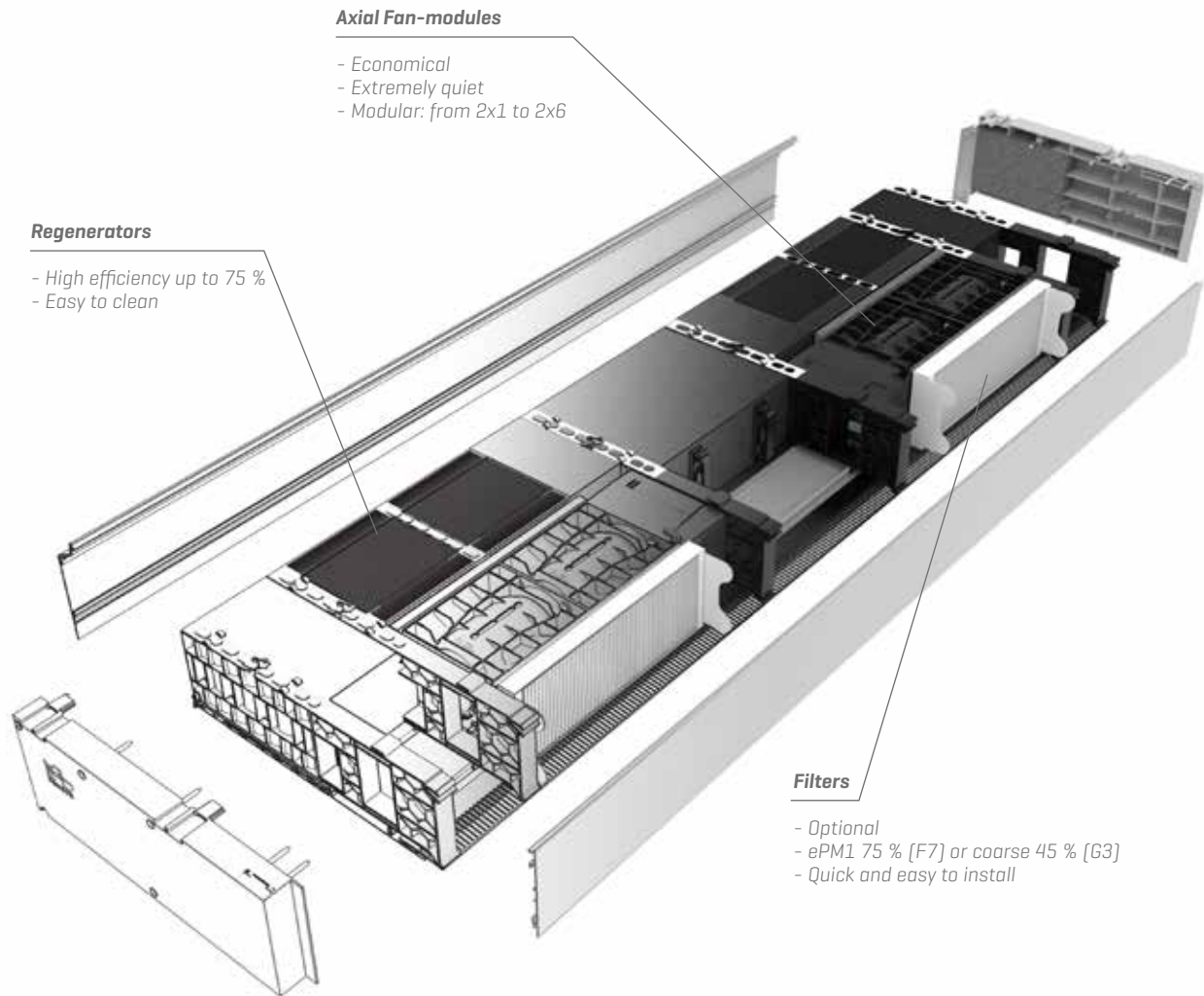- Wind tight thanks to ingenious zip system

# INTELLIGENT TECHNOLOGY

## DECENTRALIZED VENTILATION SYSTEM WITH HEAT RECOVERY

The Endura Twist stores the heat of the indoor air in the regenerators. As the fans turn every 30 seconds, the regenerators pass the stored heat to the fresh incoming air and a pleasant, preheated air is blown into the room.

Due to the continuous cyclic operation of the alternating fans, which ensures a constant air supply and air extraction, the customer can enjoy an optimal air quality at any time. The quick installation without ducts and easy maintenance make the Endura Twist ideal for both new-builds as renovations.

**Axial Fan-modules**

- Economical
- Extremely quiet
- Modular: from 2x1 to 2x6

**Regenerators**

- High efficiency up to 75 %
- Easy to clean

**Filters**

- Optional
- ePM1 75 % [F7] or coarse 45 % [G3]
- Quick and easy to install

## FILTERS

In order to keep pollen, dust and pollution out, the Endura Twist can be equipped with efficient filters (coarse 45% [G3] or ePM1 75% [F7]) which are very easy and quick to replace. The appliance itself indicates when the filters should be replaced, therefore the customer can always enjoy healthy and clean air without any worries.

# A VENTILATION SYSTEM FOR ALL SEASONS

During the cool nights of a hot summer, the system automatically switches to **bypass mode** due to the integrated temperature sensors: the Endura Twist blows fresh outdoor air in, extracts hot indoor air without any heat recovery and in doing so, it freshens the house.

To prevent overheating, the vertical Endura Twist can be combined with an integrated sun protection screen or shutters. The combination of a comfortable ventilation with a beautiful and efficient sun protection provides the perfect aesthetic solution for beautiful warm summers.
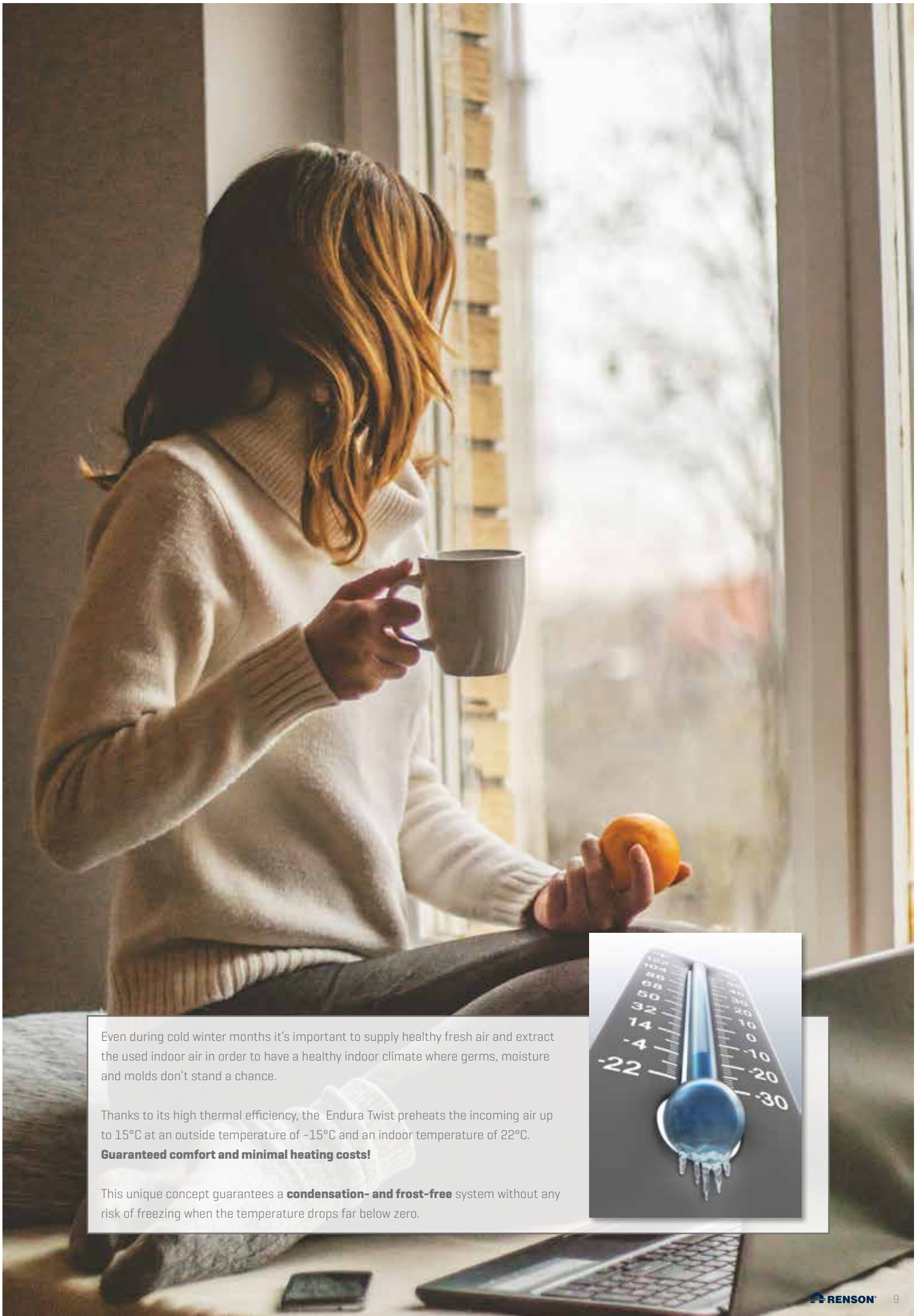
Even during cold winter months it's important to supply healthy fresh air and extract the used indoor air in order to have a healthy indoor climate where germs, moisture and molds don't stand a chance.

Thanks to its high thermal efficiency, the Endura Twist preheats the incoming air up to 15°C at an outside temperature of -15°C and an indoor temperature of 22°C. **Guaranteed comfort and minimal heating costs!**

This unique concept guarantees a **condensation- and frost-free** system without any risk of freezing when the temperature drops far below zero.
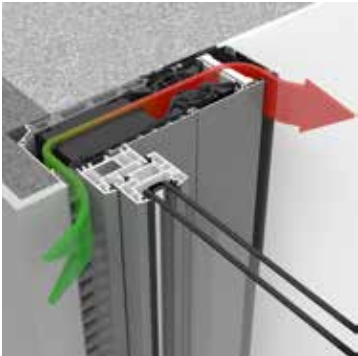
# INSTALLATION MODELS

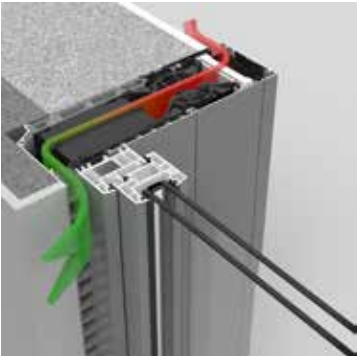There is a perfect Endura Twist for every type of home!
Considering the installation possibilities, the device can be placed on top or next to the window, depending on the customer's wishes.
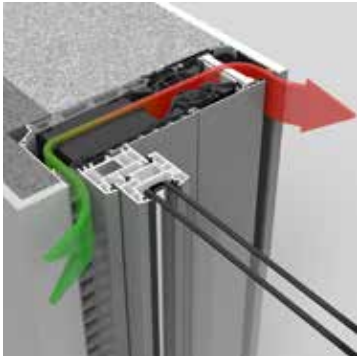
## VERTICAL


Air supply towards the window


Air supply towards the wall


Air supply towards the window + plastered

## HORIZONTAL


Downwards air supply


Downwards air supply + plastered


Upwards air supply

# OPERATIONS

## TOUCHDISPLAY

The TouchDisplay completely aligns the Endura Twist to the rhythm of its users. The built-in $CO_2$ equivalent sensor constantly monitors the air quality and automatically controls the unit to ensure an optimal and comfortable air quality with as little energy consumption as possible. The TouchDisplay is very easy to install thanks to its wireless communication with the Endura Twist.

## BUTTON CONTROL

The wireless button control is a simple control with a button cell battery. This control doesn't require a power supply, making it extremely easy to install as you can hang it anywhere you want.

## BUILDING MANAGEMENT SYSTEM

The Endura Twist can be controlled by a building management system. The combination can be made of a control by the building management system with another mean of control: for example, employees can manage the device during working hours while after hours, the building management system takes over.
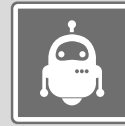
The **Automatic mode** allows the customer to tailor the Endura Twist to his life. The unit runs completely automatically according to the set time schedule. The desired ventilation schedule can be set per day/per week/ per weekend/for each hour of the day.
*[Automatic mode only available with TouchDisplay and building management system]*

The **Silent mode** ensures an extremely quiet, noiseless operation.

In hot summer months, the device detects the need for cooling during cool nights. The **automatic bypass** switches off the heat recovery, blows cooler air in and extracts the warm indoor air.

In order to never compromise the comfort of its users, the Endura Twist automatically closes when it detects extreme weather conditions [such as heavy winds or temperatures below -19° C].

With the boost function, the customer can run the fans at full speed. By switching the device to the highest level, the room will be aired in no time!

# A MODULAR SYSTEM

Endura Twist has a variable length: from **min. 750 mm to max. 6000 mm**.
The unit can be used as well for small windows as for large glass surfaces

Depending on the required air flow, the number of fans can be customized
from 2x1 to 2x6 modules.

## MODELS

| | |
|---|---|
| **Endura Twist 2x1**<br>2 x 1 fan – $Q_{nom}$ 12 m³/h | min. 750 mm |
| **Endura Twist 2x2**<br>2 x 2 fans – $Q_{nom}$ 24 m³/h | 1000 mm |
| **Endura Twist 2x3**<br>2 x 3 fans – $Q_{nom}$ 36 m³/h | 1250 mm |
| **Endura Twist 2x4**<br>2 x 4 fans – $Q_{nom}$ 48 m³/h | 1500 mm |
| **Endura Twist 2x5**<br>2 x 5 fans – $Q_{nom}$ 60 m³/h | 1750 mm |
| **Endura Twist 2x6**<br>2 x 6 fans – $Q_{nom}$ 72 m³/h | 2000 mm |

$Q_{nom}$ = 50% $Q_{max}$ with coarse 45 % filter (G3)

# TECHNICAL INFORMATION

**TECHNICAL SPECIFICATIONS:** without filter / with coarse 45% (G3) filter / with ePM1 75% (F7) filter

| Endura Twist | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Number of fans** | | **2 x 1** | **2 x 2** | **2 x 3** | **2 x 4** | **2 x 5** | **2 x 6** |
| **Without filter** | $Q_{min}$ [25%] | 6,8 m³/h | 13,5 m³/h | 20,3 m³/h | 27 m³/h | 33,8 m³/h | 40,5 m³/h |
| | $Q_{nom}$ [50%] | 13,5 m³/h | 27 m³/h | 40,5 m³/h | 54 m³/h | 67,5 m³/h | 81 m³/h |
| | $Q_{max}$ [100%] 13,8V | 27 m³/h | 54 m³/h | 81 m³/h | 108 m³/h | 135 m³/h | 162 m³/h |
| **Coarse 45%** | $Q_{min}$ [25%] | 6 m³/h | 12 m³/h | 18 m³/h | 24 m³/h | 30 m³/h | 36 m³/h |
| | $Q_{nom}$ [50%] | 12 m³/h | 24 m³/h | 36 m³/h | 48 m³/h | 60 m³/h | 72 m³/h |
| | $Q_{max}$ [100%] 13,8V | 24 m³/h | 48 m³/h | 72 m³/h | 96 m³/h | 120 m³/h | 144 m³/h |
| **ePM1 75%** | $Q_{min}$ [25%] | 4,9 m³/h | 9,8 m³/h | 14,7 m³/h | 19,6 m³/h | 24,5 m³/h | 29,4 m³/h |
| | $Q_{nom}$ [50%] | 9,8 m³/h | 19,6 m³/h | 29,4 m³/h | 39,2 m³/h | 49 m³/h | 58,9 m³/h |
| | $Q_{max}$ [100%] 13,8V | 19,6 m³/h | 39,2 m³/h | 58,8 m³/h | 78,4 m³/h | 98 m³/h | 117,7 m³/h |
| Thermical efficiency level [EN13141-8] | | max. 80% | | | | | |
| Sound reduction [ISO 10140-2] $D_{n,e,w}$ [C;C$_{tr}$] in open position | | 40 [0;-3] dB | | | | | |
| Sound reduction [ISO 10140-2] $D_{n,e,w}$ [C;C$_{tr}$] in closed position | | 50,6 [-3;-7] dB | | | | | |
| Sound generation [ISO 3741:2010] Lp, measured at 2 m distance from the window vent | | | | | | | |
| **Without filter** | $Q_{min}$ | 18,1 dB[A] | 21,1 dB[A] | 22,8 dB[A] | 24,1 dB[A] | 25,0 dB[A] | 25,8 dB[A] |
| | $Q_{nom}$ | 34,3 dB[A] | 37,3 dB[A] | 39,1 dB[A] | 40,3 dB[A] | 41,3 dB[A] | 42,1 dB[A] |
| | $Q_{max}$ | 40,0 dB[A] | 43,0 dB[A] | 44,8 dB[A] | 46,0 dB[A] | 47,0 dB[A] | 47,8 dB[A] |
| **Coarse 45%** | $Q_{min}$ | 18,0 dB[A] | 21,0 dB[A] | 22,8 dB[A] | 24,0 dB[A] | 25,0 dB[A] | 25,8 dB[A] |
| | $Q_{nom}$ | 34,2 dB[A] | 37,2 dB[A] | 39,0 dB[A] | 40,2 dB[A] | 41,2 dB[A] | 42,0 dB[A] |
| | $Q_{max}$ | 39,9 dB[A] | 42,9 dB[A] | 44,7 dB[A] | 45,9 dB[A] | 46,9 dB[A] | 47,7 dB[A] |
| **ePM1 75%** | $Q_{min}$ | 19,6 dB[A] | 22,6 dB[A] | 24,4 dB[A] | 25,6 dB[A] | 26,6 dB[A] | 27,4 dB[A] |
| | $Q_{nom}$ | 36,7 dB[A] | 39,7 dB[A] | 41,5 dB[A] | 42,7 dB[A] | 43,7 dB[A] | 44,5 dB[A] |
| | $Q_{max}$ | 42,7 dB[A] | 45,7 dB[A] | 47,5 dB[A] | 48,7 dB[A] | 49,7 dB[A] | 50,5 dB[A] |
| Power Consumption | | | | | | | |
| **Without filter** | $Q_{min}$ | 2,5 W | 3,4 W | 4,3 W | 5,2 W | 6,1 W | 7,0 W |
| | $Q_{nom}$ | 3,1 W | 4,6 W | 6,1 W | 7,6 W | 9,1 W | 10,6 W |
| | $Q_{max}$ | 5,2 W | 8,8 W | 12,4 W | 16,0 W | 19,6 W | 23,2 W |
| **Coarse 45%** | $Q_{min}$ | 2,7 W | 3,8 W | 4,8 W | 5,9 W | 6,9 W | 8,0 W |
| | $Q_{nom}$ | 3,6 W | 5,5 W | 7,4 W | 9,4 W | 11,3 W | 13,2 W |
| | $Q_{max}$ | 6,0 W | 10,4 W | 14,7 W | 19,1 W | 23,4 W | 27,7 W |
| **ePM1 75%** | $Q_{min}$ | 2,8 W | 3,9 W | 5,1 W | 6,2 W | 7,3 W | 8,4 W |
| | $Q_{nom}$ | 3,7 W | 5,7 W | 7,8 W | 9,8 W | 11,8 W | 13,9 W |
| | $Q_{max}$ | 6,2 W | 10,8 W | 15,3 W | 19,9 W | 24,4 W | 29,0 W |
| U-value [EN ISO 100077-2] | | 1,0 W/m²K | | | | | |
| Watertightness [in open position] [EN 13141-1:2004] | | up to 150 Pa | | | | | |
| Height | | 110 mm | | | | | |
| Min. width | | 750 mm | 1000 mm | 1250 mm | 1500 mm | 1750 mm | 2000 mm |
| Max. width | | 6000 mm | | | | | |
| Depth | | 320 mm [345 mm incl. rain cover] | | | | | |
| Filter | | optional coarse 45% [G3] or ePM1 80% [F7] filter | | | | | |
| Device class | | I | | | | | |
| Usable temperature-range | | from −15 °C to +45 °C | | | | | |
| Resistant to frost | | yes | | | | | |
| Condensation free | | yes | | | | | |
| Voltage | | 230 V / 50 Hz | | | | | |
| Voltage of device [internal] | | 15 V DC | | | | | |
| Supply voltage | | 230 V$_{AC}$ ± 10% | | | | | |

Technical specifications based upon internal test results. Possible variations in external testing.

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