

SIMPLY THE BEST  
SOLUTIONS | HVAC  
SYSTEMS

# TEVER

Recovery Ventilator

## TEVER SERIES



**TEKNOGEN®**

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# Teknogen

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## Who we are, what we do?

TEKNOGEN, a trademark of BY HVAC SYSYEM INC. has been operating since 2011 in selling of products that have been manufactured with superior quality and service mentality. Teknogen product range covers air handling units, fancoil units, hygienic air handling units, swimming pool air handling units, unit heaters, floor convectors, rooftop package units and heat recovery units.

National and international standards are considered during manufacturing. Proper and high-end components are used throughout all manufacturing processes to ensure that performance of all units are measurable and standards are met. Therefore we cooperate with leading component manufacturers in order to observe innovations and to introduce these developments to our production.

Heating, Ventilating and Air Conditioning (HVAC) sector has been growing significantly in recent years and energy efficiency has become prominent due to the developments in construction technology. As Teknogen, we are manufacturing devices with high energy efficiency and make them available to be used in buildings with low energy consumption.

If you are looking for high quality production and a solution partner, we Teknogen are ready.

TEVER Silver units are designed to meet the fresh air demand for shops, offices, hotels, day care centers, schools and similar premises. With the high end energy recovery exchanger, thermal efficiency of the unit exceeds 70% and with the perfectly engineered Radical blade AC fans Specific Fan Power of the unit goes as low as 0,80 kW/m<sup>3</sup>/s<sup>-1</sup> (EN 13779). With the standard remote LCD control panel and IQ Control the user is flexible with several control settings like 3 speed fans and unbalanced ventilation, weekly timer, filter monitoring and by-pass ventilation. More control settings are available with optional accessories. Class 0 flame retardant insulation is used for sound and thermal insulation of the unit.

## Functions

TEVER Units;

- Supply fresh air for indoors.
- Exhaust stale indoor air.
- Transfer heat from or to supply air from the exhaust air stream.
- Transfer humidity from or to supply air from the exhaust air stream and reduce A/C load.
- Filter supply air.

## Energy Savings and Responsibility for Nature

TEVER Units;

- Reduces up to 70% of the energy required to condition fresh air to ambient temperature.
- With high efficient Radical blade AC fans, reduces power consumption.
- Reduces the cooling load, as a result of the humidity transfer from fresh air to exhaust air stream and decreases installed and operational capacity of the air conditioning devices.
- Reduces CO<sub>2</sub> emission, as the result of energy saving, and prevents environmental pollution.
- Reduces initial investment cost and operational costs of air-conditioning systems, as a result of exhausted air's energy recovery.

## Advantages

- High Thermal Efficiency with patented heat exchanger design.
- Low Power Consumption with RadiCal Blade AC Fans.
- Low Sound Level with Engineered Unit Design.
- Humidity Transfer.
- Standard LCD Remote Control with IQ Control.
- Easy Service and Maintenance with Engineered Unit Design.

## Models

TEVER units are designed in 5 different types with nominal airflows varying between 650 m<sup>3</sup>/h and 2500 m<sup>3</sup>/h.

## Unit Notation

Series Name	Nominal Air Flow	Fresh Air Heater	Ventilation On Demand						
TEVER	650	AH	<table border="1" style="width: 100%; height: 100%; text-align: center;"> <tr> <td>00</td> <td>00</td> </tr> <tr> <td>CO<sub>2</sub></td> <td>IAQ</td> </tr> <tr> <td></td> <td>RH</td> </tr> </table>	00	00	CO <sub>2</sub>	IAQ		RH
	00			00					
	CO <sub>2</sub>			IAQ					
				RH					
	1000								
1500									
2000									
2500									

### EXAMPLE

TEVER - 650 - AH - CO<sub>2</sub>

The notation indicates TEVER unit with 650 m<sup>3</sup>/h nominal airflow with electrical fresh air heater and Ventilation On Demand control with CO<sub>2</sub> sensor.

# Unit Specifications

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## Control

TEVER units are equipped with IQ Control. IQ Control is capable of controlling AC fans, by-pass clamp, frost heater and operation timer. The control of fans can be done with 3 speed settings/unbalanced ventilation/ventilation on demand. 2 permanent temperature sensors measure return air/fresh air temperatures and control the bypass. Filters are checked with timer and the user is informed for filter maintenance periodically.

## Complete Package

TEVER units have by-pass ventilation as standard. With by-pass ventilation it is possible to use fresh air directly to cool down indoors at summer. The controller checks both indoor and outdoor air temperatures and user set temperature and switches on/off the clamp integrated directly to the unit.

## Decrease in Air Conditioning Load

TEVER units are capable of not only heat exchange but also moisture exchange. It is possible to move the humidity in fresh air to exhaust air stream in summer and recover the moisture of the exhaust air to fresh air in winter. As a result of the humidity exchange in summer, the air conditioning load resulted from the fresh air is reduced dramatically.



## Slim Design

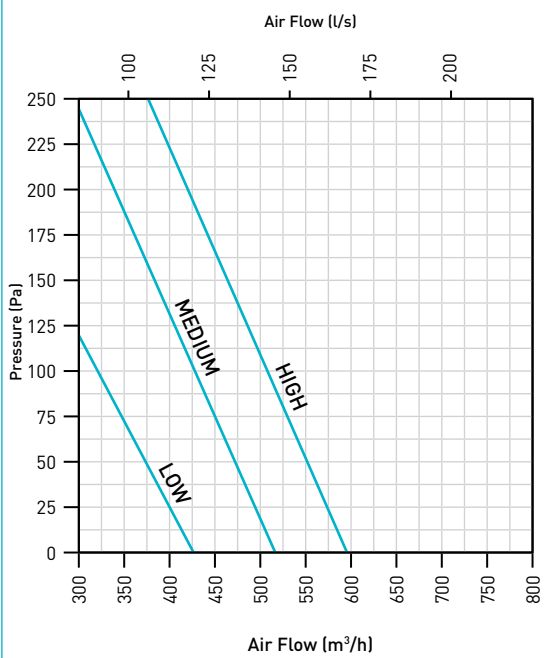
TEVER units are designed to meet tough installation conditions like limited ceiling space. TEVER units are limited to a maximum height of 385 mm until TEVER 1500 and 550 mm until TEVER 2500.

## Low Sound Level

With the innovative RadiCal blade design and the decreased pressure drop of both components and internal design, the sound level of the unit is reduced along with the reduced fan speed.

# Performance Data

## TEVER - 650 • AIR PERFORMANCE



Model		TEVER - 650		
Power Supply	220 - 240 V / Single Phase / 50 Hz			
Fan Speed	High	Medium	Low	
Max. Power Consumption	W	205		
Air Flow	m³/h	500	450	350
Air Flow	l/s	140	125	100
External St. Pressure	Pa	108	75	70
Temp. Exc. Efficiency	%	72	73	75
Sound	dB	36	35	32

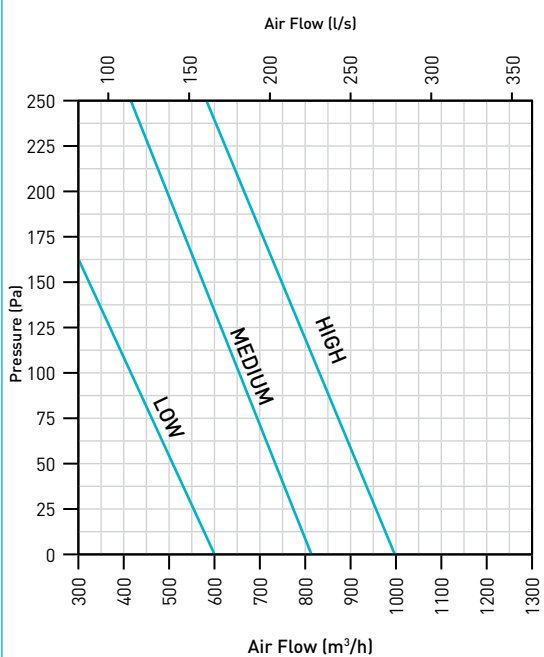
$$\text{Temperature Efficiency; } \eta_T = \frac{T_2 - T_1}{T_3 - T_1} \times 100 \%$$

Outdoor Air; -3°C, 75% RH

Return Air; 22°C, 55% RH

Sound Power Level is measured 1.5 m away from the unit at 250 HZ.

## TEVER - 1000 • AIR PERFORMANCE



Model		TEVER - 1000		
Power Supply	220 - 240 V / Single Phase / 50 Hz			
Fan Speed	High	Medium	Low	
Max. Power Consumption	W	310		
Air Flow	m³/h	800	700	500
Air Flow	l/s	220	195	140
External St. Pressure	Pa	115	75	55
Temp. Exc. Efficiency	%	72	74	76
Sound	dB	37	35	33

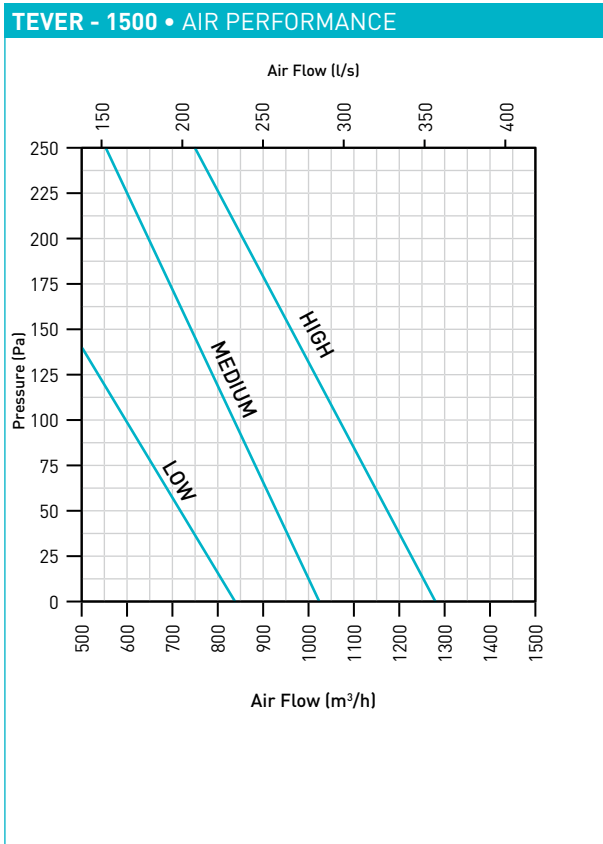
$$\text{Temperature Efficiency; } \eta_T = \frac{T_2 - T_1}{T_3 - T_1} \times 100 \%$$

Outdoor Air; -3°C, 75% RH

Return Air; 22°C, 55% RH

Sound Power Level is measured 1.5 m away from the unit at 250 HZ.

# Performance Data



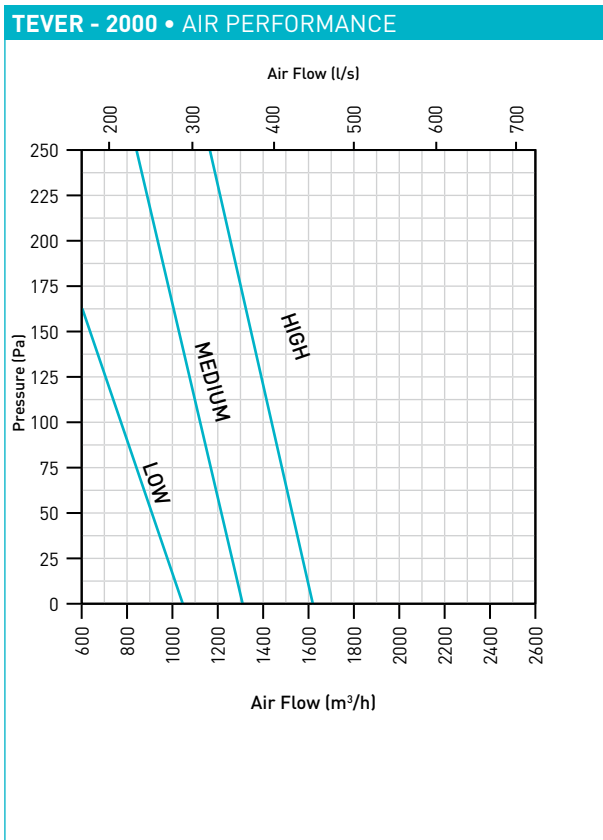
Model		TEVER - 1500		
Power Supply	220 - 240 V / Single Phase / 50 Hz			
Fan Speed	High	Medium	Low	
Max. Power Consumption	W	420		
Air Flow	m³/h	1000	850	700
Air Flow	l/s	280	235	195
External St. Pressure	Pa	130	90	55
Temp. Exc. Efficiency	%	72	73	75
Sound	dB	39	38	36

$$\text{Temperature Efficiency; } \eta_T = \frac{T_2 - T_1}{T_3 - T_1} \times 100 \%$$

Outdoor Air; -3°C, 75% RH

Return Air; 22°C, 55% RH

Sound Power Level is measured 1.5 m away from the unit at 250 Hz.



Model		TEVER - 2000		
Power Supply	220 - 240 V / Single Phase / 50 Hz			
Fan Speed	High	Medium	Low	
Max. Power Consumption	W	580		
Air Flow	m³/h	1500	1100	700
Air Flow	l/s	415	305	195
External St. Pressure	Pa	65	105	125
Temp. Exc. Efficiency	%	71	72	73
Sound	dB	43	41	40

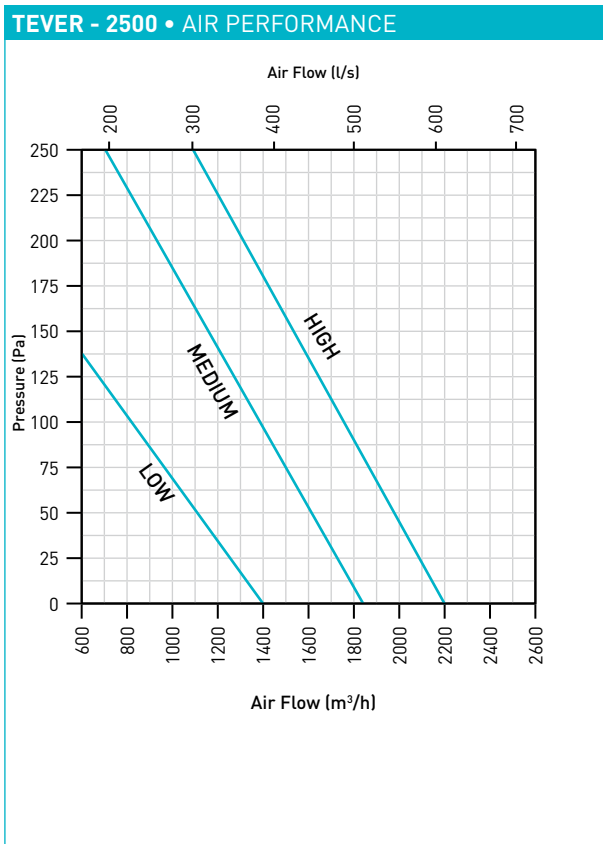
$$\text{Temperature Efficiency; } \eta_T = \frac{T_2 - T_1}{T_3 - T_1} \times 100 \%$$

Outdoor Air; -3°C, 75% RH

Return Air; 22°C, 55% RH

Sound Power Level is measured 1.5 m away from the unit at 250 Hz.

# Performance Data



Model	TEVER - 2500			
Power Supply	220 - 240 V / Single Phase / 50 Hz			
Fan Speed	High	Medium	Low	
Max. Power Consumption	W	980		
Air Flow	m³/h	1900	1400	1000
Air Flow	l/s	525	385	275
External St. Pressure	Pa	70	95	60
Temp. Exc. Efficiency	%	70	71	72
Sound	dB	49	47	46

Temperature Efficiency;  $\eta_T = \frac{T_2 - T_1}{T_3 - T_1} \times 100 \%$

Outdoor Air; -3°C, 75% RH

Return Air; 22°C, 55% RH

Sound Power Level is measured 1.5 m away from the unit at 250 Hz.

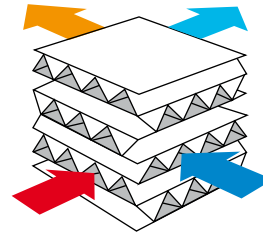
# Components

## Heat Exchanger

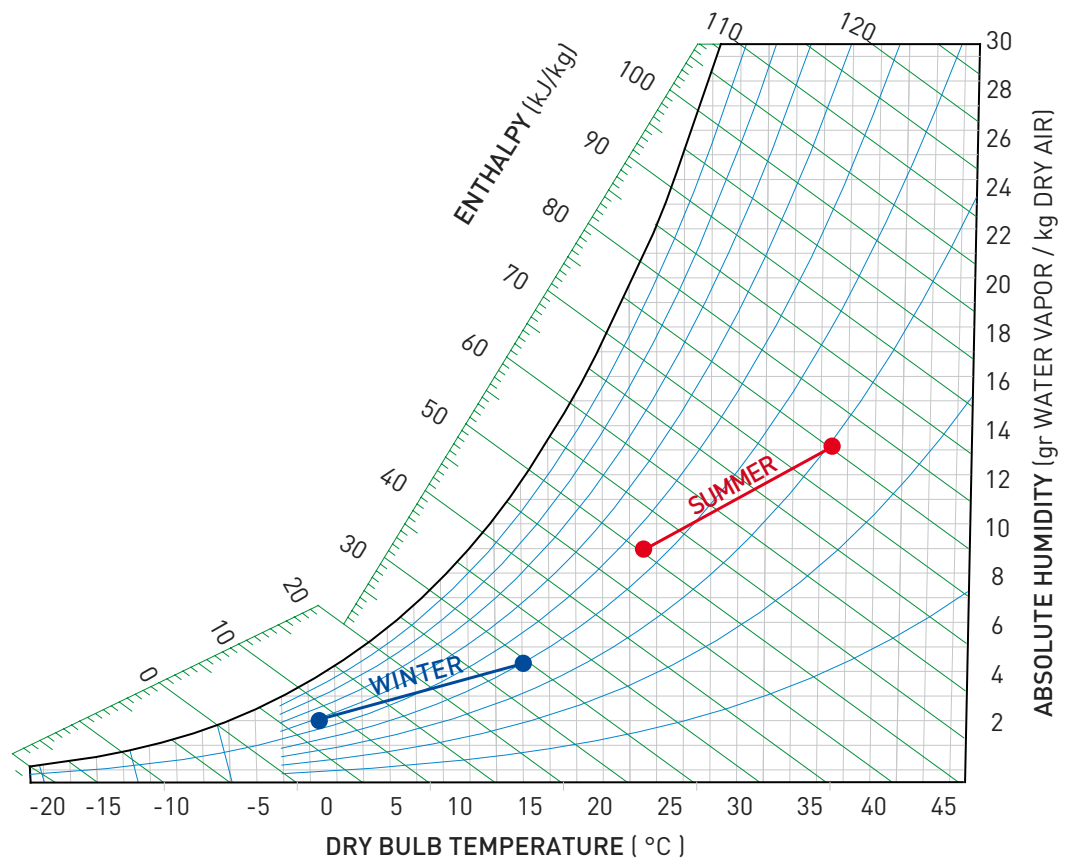
The energy recovery exchanger used in TEVER products are made from a unique thin paper film that allows both heat and humidity transfer from the two separated air streams with a very high performance rate. Since the paper is thin (app ~0,05 mm) both temperature and humidity can be effectively exchanged. The unique structure of the paper allows the transfer of only the water molecules from the heat exchange surface and as a result of the solid molecular structure the leakage through air streams is minimized.

With the unique energy recovery exchanger TEVER units reach a thermal efficiency of 70% in summer and 76% in winter. With the given performance it is evident that with TEVER units the total air conditioning load can decrease up to 15% in a regular cooling system.

TEVER units deliver not only absolute thermal efficiency but thanks to the optimized design, pressure drop across the heat exchanger is limited to meet not only today's but also tomorrow's energy efficiency regulations.



- EA Stale air exhaust
- SA Fresh air supply to the room
- OA Fresh air induction
- RA Stale air extraction from the room





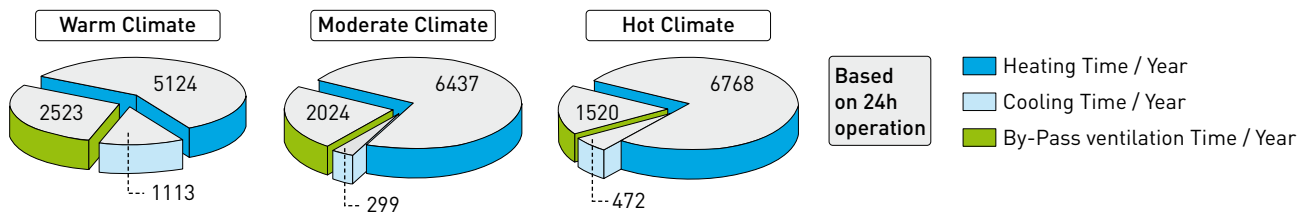
## Control

TEVER units are equipped with IQ Control. IQ Control is capable of controlling AC fans, by-pass clamp, frost heater and operation timer. The control of fans can be done with 3 speed settings/unbalanced ventilation/ventilation on demand. 2 permanent temperature sensors measure return air/fresh air temperatures and control the by-pass. Filters are checked with timer and the user is informed for filter maintenance periodically.



## By-Pass

By-pass ventilation is done during summer and allows return air to by-pass the heat exchanger introducing fresh air at outdoor air temperature and cools down indoors. TEVER Units are equipped with by-pass ventilation as standard. With the pre-installed temperature sensors IQ Control checks return air temperature, fresh air temperature and user set temperature. According to the evaluation in the PCB, the by-pass clamp is opened automatically.



## Fans

Innovative RadiCal blade fans with AC motors are used in TEVER units.



ERP2013  
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## Casing

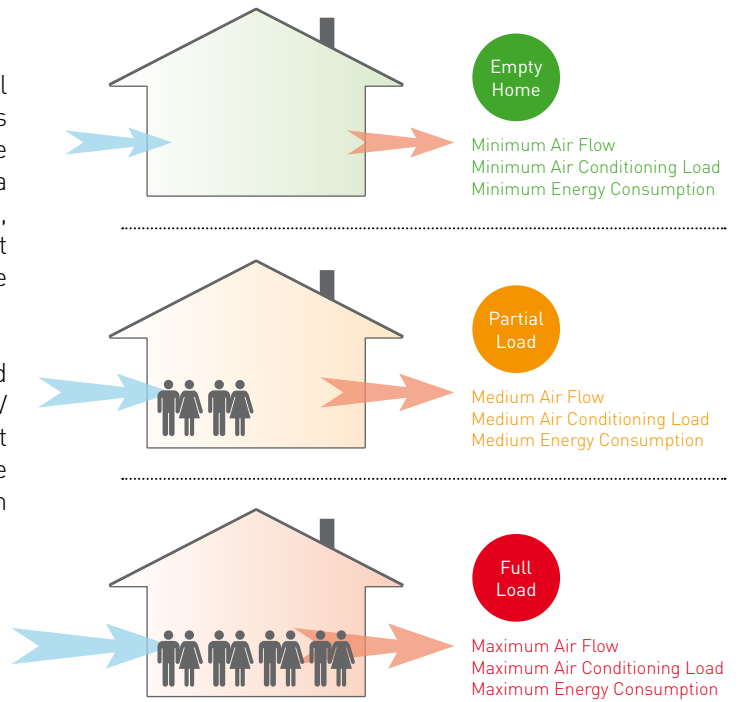
TEVER units are designed to have a compact and service-easy construction. All of the components can be disassembled without the need of dismantling the unit and ducts. The height of the product is minimized to have a compact design ensuring the minimum pressure drop inside the unit at the mean time. Galvanized sheet metal is used for TEVER units and the unit is insulated against thermal leakage and sound with M1 class flame retardant Polyurethane foam.

# Accessories

## Demand Controlled Ventilation

Ventilation On Demand; VOD, by use of additional CO<sub>2</sub>/IAQ or RH sensor the demand indoors is calculated and the fan speed settings are adjusted accordingly. To switch to VOD mode, a proper sensor must be installed and connected, to the duet system and also the user must select "VOD" on Select Mode menu of the Remote Control.

When VOD (Ventilation On Demand) is selected the fan speed is controlled by the analog 0..10V input signal. At 0...1V the fans are running at minimum VOD speed and at 9...10V the fans are running at maximum speed for VOD. In between the fan speed is linearly controlled.

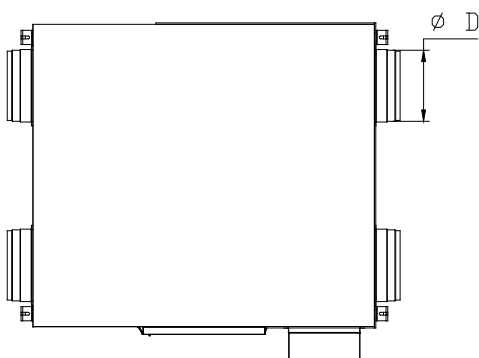
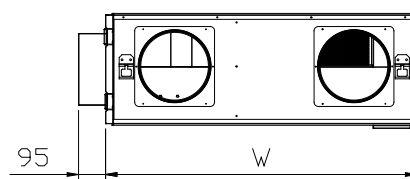
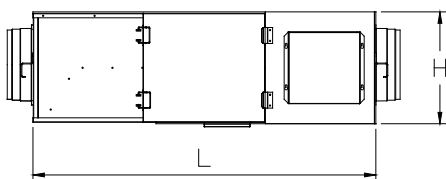


## Filters

Panel filters are used in TEVER units for standard filtration. Filtration class is G3 according to EN 779. G3 filters are medium efficiency disposable air filters suitable for ventilation applications with good dust holding capacity. The filters consist of a dry non-woven extended surface fabric media and create low initial pressure drop.



## Dimensions



Model	Dimensions					
	L	W	D	Weight	H	
	mm			kg	mm	
TEVER	650	1220	725	Ø 200	50	385
	1000	1220	1000	Ø 250	61	385
	1500	1370	1275	Ø 250	80	385
	2000	1535	1115	Ø 300	102	550
	2500	1535	1415	Ø 300	126	550

[www.teknogenvac.com](http://www.teknogenvac.com)



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