

# Heat Recovery Units



VENTAS Isıtma, Sogutma, Enerji Sistemleri, Insaat Sanayi ve Ticaret Anonim Sirketi; has been established in 2011 for production, in heating, cooling, air-conditioning and energy efficiency areas. VENTAS, which is established on top of twenty years of know-how and experience of its founders in the aforementioned sectors, is serving at its Istanbul Catalca production centre.

The product portfolio of VENTAS includes Air Handling Units, Rooftop Package Units, Fancoil Units, Heat Recovery Units, Duct Type Fans, Roof Type Fans, Kitchen Exhaust Systems and Trench Heaters.

Having ISO 9001:2015, CE, EAC and EN 1886 certificates and benefiting all advantages of modern high technology, in VENTAS production centre, high quality and durable products are manufactured by a dynamic and experienced expert team with a meticulous and neat workmanship, and a solution oriented approach.

VENTAS brand's main principles are to serve its customers as a high quality solution partner and to provide excellent service with a dynamic structure both in pre-sales and after-sales. Having reached a fast and continuous growth track since it has been established, VENTAS has managed to become a well-known company in heating, cooling, air-conditioning and energy efficiency sectors throughout the country. Moreover, the Turkish brand VENTAS has penetrated its excellent and high quality products into international markets in a very short time frame, and offered a complete product supply chain to these markets through its wide dealer and service structure.

Paying the utmost attention in its products to energy efficiency, endurance, reliability, sustainable technology and competitive price policy, VENTAS offers to be the corporate solution partner of all investors and mechanical construction companies in Turkey and all over the world, and shares its dynamic vision, renewed and developed continuously, with all its customers.

## Contents

	VHRV P - Medium Efficient Single Skin Heat Recovery Units.....	4-15
	VHRV PLUS - Medium Efficient Double Skin Heat Recovery Units with Coils Inside.....	16-21
	VHRV DX - Medium Efficient Double Skin Heat Recovery Units with DX Heat Pump.....	22-25
	VHRV C - High Efficient Double Skin Heat Recovery Units with Counterflow Heat Exchanger.....	26-35
	VHRV R - High Efficient Double Skin Heat Recovery Units with Rotary Heat Exchanger.....	36-47
	VENTASTAR Controller.....	48-49
	Additional Accessories .....	50

### VHRV Unit Order Codes

VHRV - P - 500 - PAC - F1 - H

1      2      3      4      5      6

- 1: Type of Unit
- 2: Type of heat recovery  
P: Plate type (Cross flow)  
C: Counter flow  
R: Rotary
- 3: Air flowrate and construction type  
500: 500m<sup>3</sup>/h, single skin unit  
501: 500m<sup>3</sup>/h, double skin unit (without coil)  
502: 500m<sup>3</sup>/h, double skin unit (with integrated coil)
- 4: Type of fans  
PAC: AC plug fan  
RAC: AC radial fan  
PEC: EC plug fan
- 5: Type of filters  
F1: G4 / G4  
F2: M5+F7 / M5 or G4+F7 / F7  
F3: Special
- 6: Type of installation  
H: Horizontal  
V: Vertical  
VT: Vertical, top inlet/outlet  
HS: Horizontal, side inlet/outlet

### VHRV Unit with DX Heat Pump Order Codes

VHRV - P - 501 - DX - NI - PEC - F1 - H

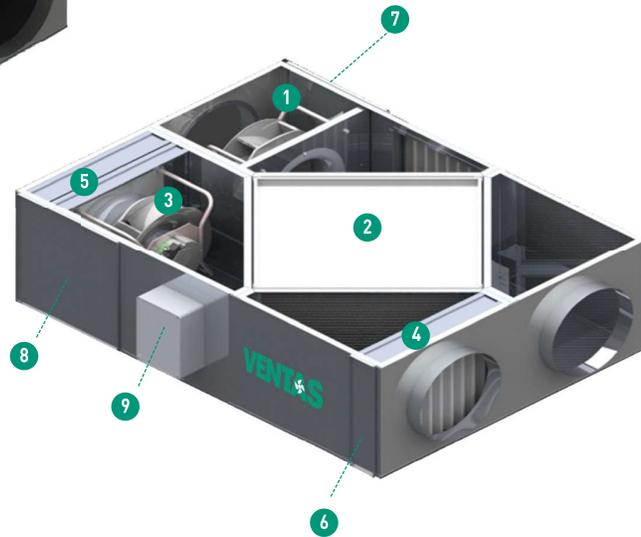
1      2      3      4      5      6      7      8

- 1: Type of Unit
- 2: Type of heat recovery  
P: Plate type (Cross flow)  
C: Counter flow  
R: Rotary
- 3: Air flowrate and construction type  
501: 500m<sup>3</sup>/h, double skin unit
- 4: Cooling circuit detail  
DX-NI: DX heat pump with non-inverter compressor  
DX-I: DX heat pump with inverter compressor
- 5: Type of fans  
PAC: AC plug fan  
RAC: AC radial fan  
PEC: EC plug fan
- 6: Type of filters  
F1: G4 / G4  
F2: M5+F7 / M5 or G4+F7 / F7  
F3: Special
- 7: Type of installation  
H: Horizontal  
V: Vertical

# Heat Recovery Units

## VENTASTAR VHRV-P Models

### Medium Efficient Heat Recovery Units with AC Fan, Horizontal Type



- 1 Fresh air fan
- 2 Heat exchanger
- 3 Exhaust air fan
- 4 Fresh air filter
- 5 Exhaust air filter
- 6 Service door for fresh air filter
- 7 Service door for fresh air fan
- 8 Service door for exhaust air filter and fan
- 9 Electronic card

#### General Specifications

- Casing is made of painted galvanized sheets, single skin panel structure with 10 mm nfa insulation provides heat and noise insulation. Service doors allow easy access to internal components.
- Provides energy savings with cross flow aluminium air to air heat exchangers comply with standard EN 308 and are Eurovent certified.
- AC plug-fan technology provides stepped speed control (5 steps for plug fans and 3 steps for radial fans).
- G4 minipleat filter class performances are according to EN 779:2012 and ISO 16890 standards, and filters are Eurovent certified.
- Bypass module is optional.
- Condensation pan is available and drain connection is on the bottom of the units.
- Wide capacity range allows design variety
- Equipped with Ventastar Control Unit which allows operation with various scenarios and is compatible with BMS.
- Low noise levels allow comfortable operation in indoor zones.

## VENTASTAR VHRV-P Models

### Medium Efficient Heat Recovery Units with AC Fan, Horizontal Type

VHRV Units with Cross Flow Recuperator, AC Plug Fan, Horizontal	VHRV-P-500-PAC-F1-H	VHRV-P-750-PAC-F1-H	VHRV-P-1000-PAC-F1-H	VHRV-P-1500-PAC-F1-H	VHRV-P-2000-PAC-F1-H	VHRV-P-3000-PAC-F1-H
Air Flowrate (m <sup>3</sup> /h)	500	750	1000	1500	2000	3000
External Static Pressure (Pa)	200	100	105	110	135	150
Heat Recovery Efficiency Value (%)	Depending on operational temperature and conditions, up to 60% efficiency.					
Power Supply	230 Volt / 50 Hz / 1					
Input Power (Watt)	2 x 102	2 x 155	2 x 210	2 x 225	2 x 515	2 x 680
Input Current (Ampere)	2 x 0,45	2 x 0,68	2 x 0,93	2 x 1	2 x 2,25	2 x 3
Noise Level db(A)	44	46	47	56	49	51

#### Selection Criterias

- 1) Outdoor design temperature in summer: 35°C, 50% RH; Indoor design temperature in summer: 25°C, 50% RH.
- 2) Outdoor design temperature in winter: -3°C, 90% RH; Indoor design temperature in winter: 25°C, 60% RH.
- 3) Noise levels are measured at 1 mt distance.

DIMENSIONS (Service doors on left and right side)						
MODEL	VHRV-P-500-PAC-F1-H	VHRV-P-750-PAC-F1-H	VHRV-P-1000-PAC-F1-H	VHRV-P-1500-PAC-F1-H	VHRV-P-2000-PAC-F1-H	VHRV-P-3000-PAC-F1-H
L (mm)	850	850	985	1350	1350	1700
W (mm)	665	665	705	980	980	1180
*W (with bypass) (mm)	895	895	935	1210	1210	1410
*wxh (bypass connection) (mm)	175 x 210	175 x 210	250 x 210	350 x 310	350 x 310	350 x 410
H (mm)	310	310	340	420	420	540
ØD (mm) Duct Connection	Ø200	Ø200	Ø250	Ø300	Ø300	Ø355
Weight (kg)	42	45	48	95	105	180
*Weight - With Bypass (kg)	44	47	52	101	112	190

\*Only valid for units with bypass module.

VHRV Units with Cross Flow Recuperator, AC Radial Fan, Horizontal	VHRV-P-2000-RAC-F1-H	VHRV-P-2500-RAC-F1-H	VHRV-P-3000-RAC-F1-H	VHRV-P-4000-RAC-F1-H	VHRV-P-5000-RAC-F1-H	VHRV-P-6000-RAC-F1-H	VHRV-P-8000-RAC-F1-H
Air Flowrate (m <sup>3</sup> /h)	2000	2500	3000	4000	5000	6000	8000
External Static Pressure (Pa)	165	170	190	210	165	245	360
Heat Recovery Efficiency Value (%)	Depending on operational temperature and conditions, up to 60% efficiency.						
Power Supply	230 Volt / 50 Hz / 1						
Input Power (Watt)	2 x 420	2 x 420	2 x 550	2 x 750	4 x 550	4 x 550	4 x 750
Input Current (Ampere)	2 x 5	2 x 5	2 x 4,9	2 x 7,7	4 x 4,9	4 x 4,9	4 x 7,7
Noise Level db(A)	52,4	53,6	54,1	54,5	54,7	54,1	55,5

#### Selection Criterias

- 1) Outdoor design temperature in summer: 35°C, 50% RH; Indoor design temperature in summer: 25°C, 50% RH.
- 2) Outdoor design temperature in winter: -3°C, 90% RH; Indoor design temperature in winter: 25°C, 60% RH.
- 3) Noise levels are measured at 1 mt distance.

DIMENSIONS (Service doors on left and right side)							
MODEL	VHRV-P-2000-RAC-F1-H	VHRV-P-2500-RAC-F1-H	VHRV-P-3000-RAC-F1-H	VHRV-P-4000-RAC-F1-H	VHRV-P-5000-RAC-F1-H	VHRV-P-6000-RAC-F1-H	VHRV-P-8000-RAC-F1-H
L (mm)	1350	1700	1700	1800	2220	2220	2220
W (mm)	980	1180	1180	1180	2025	2025	2025
*W (with bypass) (mm)	1210	1410	1410	1410	2255	2255	2255
*wxh (bypass connection) (mm)	350 x 310	350 x 410	350 x 410	410 x 410	610 x 510	610 x 510	610 x 510
H (mm)	420	540	540	540	640	640	640
ØD (mm) Duct Connection	300	355	355	400	795*395	795*395	795*395
Weight (kg)	95	170	180	185	305	360	370
*Weight - With Bypass (kg)	98	175	185	192	315	370	380

\*Only valid for units with bypass module.

# Heat Recovery Units

## VENTASTAR VHRV-P Models

### Accessories

#### Duct Type Electric Heater

DUCT TYPE ELECTRIC HEATER DETAILS			
MODEL	For VHRV Models with Air Flowrate (m <sup>3</sup> /h)	Capacity (kW)	Power Supply
VDTEH 1,5	500	1,5	230 Volt / 50 Hz / 1
VDTEH 2,0	750	2,0	230 Volt / 50 Hz / 1
VDTEH 3,0	1000	3,0	230 Volt / 50 Hz / 1
VDTEH 4,5	1500	4,5	380 Volt / 50 Hz / 3
VDTEH 6,0	2000	6,0	380 Volt / 50 Hz / 3
VDTEH 9,0	2500	9,0	380 Volt / 50 Hz / 3
VDTEH 9,0	3000	9,0	380 Volt / 50 Hz / 3
VDTEH 12,0	4000	12,0	380 Volt / 50 Hz / 3
VDTEH 18,0	5000	18,0	380 Volt / 50 Hz / 3
VDTEH 18,0	6000	18,0	380 Volt / 50 Hz / 3
VDTEH 24,0	8000	24	380 Volt / 50 Hz / 3

DUCT TYPE ELECTRIC HEATER DIMENSIONS			
MODEL	Duct Connection (mm)	L <sub>Total</sub> (mm)	H <sub>Total</sub> (mm)
VDTEH 1,5	Ø 200	565	355
VDTEH 2,0	Ø 200	565	355
VDTEH 3,0	Ø 250	565	410
VDTEH 4,5	Ø 300	565	460
VDTEH 6,0	Ø 300	565	460
VDTEH 9,0	Ø 355	585	535
VDTEH 9,0	Ø 355	585	535
VDTEH 12,0	Ø 400	585	580
VDTEH 18,0	Ø 400	880	580
VDTEH 18,0	Ø 400	880	580
VDTEH 24,0	Ø 400	880	580



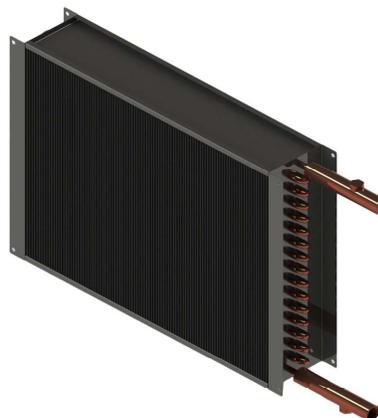
\*Advised electric heater capacities are for final heating. Please consult sales representative for suitable pre heater capacity selection according to your outdoor design temperature in winter.

#### Duct Type Heating Coil

HEATING COIL DETAILS									
Water Temperature		90 / 70 °C		80 / 60 °C		70 / 50 °C		50 / 40 °C	
MODEL	For VHRV Models with Air Flowrate (m <sup>3</sup> /h)	Heating Coil Capacity (kW)	Air Pressure Drop (Pa)	Heating Coil Capacity (kW)	Air Pressure Drop (Pa)	Heating Coil Capacity (kW)	Air Pressure Drop (Pa)	Heating Coil Capacity (kW)	Air Pressure Drop (Pa)
VDTWH-P-500	500	5,24	16	4,39	12	3,53	16	2,40	15
VDTWH-P-750	750	6,79	35	5,69	35	4,59	34	3,16	25
VDTWH-P-1000	1000	9,11	56	7,63	31	6,14	31	4,14	31
VDTWH-P-1500	1500	15,96	37	13,50	20	11,04	20	7,72	20
VDTWH-P-2000	2000	19,19	35	16,26	35	13,32	35	9,39	34
VDTWH-P-2500	2500	24,22	16	20,34	27	26,45	26	11,42	26
VDTWH-P-3000	3000	27,10	38	22,78	38	18,43	37	12,84	37
VDTWH-P-4000	4000	37,89	37	32,08	37	26,26	36	18,51	36
VDTWH-P-5000	5000	45,99	24	38,78	38	31,53	37	22,11	37
VDTWH-P-6000	6000	55,67	39	47,06	38	38,42	38	26,97	38
VDTWH-P-8000	8000	75,12	38	63,60	38	52,04	38	36,72	37

\*Heating capacities are according to heat exchanger outlet temperature for outdoor design temperature in winter: -3°C, 90% RH; indoor design temperature in winter: 25°C, 60% RH. Please consult your sales representative to determine actual capacity for different design temperature values.

HEATING COIL DIMENSIONS					
MODEL	L (mm)	W (mm)	H (mm)	Coil Connection	Weight (kg)
VDTWH-P-500	180	400	320	1/2"	5
VDTWH-P-750	180	400	320	1/2"	5
VDTWH-P-1000	180	500	320	1/2"	6
VDTWH-P-1500	180	650	420	1/2"	8
VDTWH-P-2000	180	650	420	1/2"	8
VDTWH-P-2500	180	725	520	1/2"	10
VDTWH-P-3000	180	725	520	1/2"	10
VDTWH-P-4000	180	810	620	3/4"	13
VDTWH-P-5000	180	960	620	3/4"	14
VDTWH-P-6000	180	1110	620	3/4"	16
VDTWH-P-8000	180	1440	620	1"	22



## VENTASTAR VHRV-P Models Accessories Duct Type Cooling/DX Coil

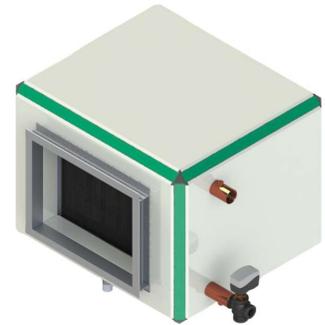
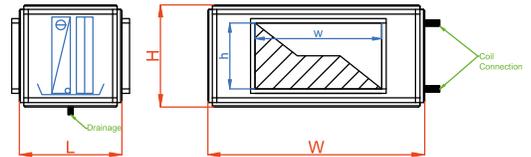
COOLING COIL DETAILS							
Water Temperature		6 / 11 °C		7 / 12 °C		8 / 13 °C	
MODEL	For VHRV Models with Air Flowrate (m <sup>3</sup> /h)	Cooling Coil Capacity (kW)	Air Pressure Drop (Pa)	Cooling Coil Capacity (kW)	Air Pressure Drop (Pa)	Cooling Coil Capacity (kW)	Air Pressure Drop (Pa)
VDTWC-P-500	500	4,63	40	4,36	40	4,09	40
VDTWC-P-750	750	6,06	74	5,71	74	5,35	73
VDTWC-P-1000	1000	8,39	74	7,93	74	7,45	74
VDTWC-P-1500	1500	12,55	53	11,80	53	11,02	52
VDTWC-P-2000	2000	15,22	83	14,31	83	13,38	82
VDTWC-P-2500	2500	20,80	60	19,57	60	20,80	60
VDTWC-P-3000	3000	23,42	79	22,05	79	20,65	79
VDTWC-P-4000	4000	30,48	81	28,66	81	26,79	81
VDTWC-P-5000	5000	39,41	83	37,15	83	34,84	83
VDTWC-P-6000	6000	49,71	79	46,97	79	44,21	78
VDTWC-P-8000	8000	65,26	80	61,68	80	57,97	79

\*Cooling capacities are according to heat exchanger outlet temperature for outdoor design temperature in summer: 35°C, 50% RH; indoor design temperature in summer: 25°C, 50% RH. Please consult your sales representative to determine actual capacity for different design temperature values.

DX COIL DETAILS					
MODEL	For VHRV Models with Air Flowrate (m <sup>3</sup> /h)	DX Coil Cooling Capacity (kW)	Air Pressure Drop (Pa)	DX Coil Heating Capacity (kW)	Air Pressure Drop (Pa)
VDTDX-P-500	500	4,14	37	2,58	24
VDTDX-P-750	750	5,29	67	3,28	45
VDTDX-P-1000	1000	7,13	68	4,49	45
VDTDX-P-1500	1500	11,80	49	8,51	32
VDTDX-P-2000	2000	14,06	76	10,23	52
VDTDX-P-2500	2500	18,87	55	13,20	36
VDTDX-P-3000	3000	21,00	73	14,67	49
VDTDX-P-4000	4000	29,93	75	22,54	51
VDTDX-P-5000	5000	35,98	77	26,67	51
VDTDX-P-6000	6000	46,60	73	34,91	49
VDTDX-P-8000	8000	55,84	67	40,88	77

\*\*Heating capacities are according to heat exchanger outlet temperature for outdoor design temperature in winter: -3°C, 90% RH; indoor design temperature in winter: 25°C, 60% RH. Please consult your sales representative to determine actual capacity for different design temperature values.

COOLING COIL / DX COIL DIMENSIONS									
MODEL	L (mm)	W (mm)	H (mm)	w (mm)	h (mm)	Coil Connection	Drainage	Cooling Coil Weight (kg)	DX Coil Weight (kg)
VDTWC/DX-P-500	672	570	450	250	200	1/2"	3/4"	7	6
VDTWC/DX-P-750	672	570	450	250	200	1/2"	3/4"	7	6
VDTWC/DX-P-1000	672	670	450	350	200	3/4"	3/4"	8	7
VDTWC/DX-P-1500	672	770	600	450	350	1"	1"	14	12
VDTWC/DX-P-2000	672	770	600	450	350	1"	1"	14	12
VDTWC/DX-P-2500	672	870	750	550	500	1 1/4"	1"	20	16
VDTWC/DX-P-3000	672	870	750	550	500	1 1/4"	1"	20	16
VDTWC/DX-P-4000	672	1050	750	700	500	1 1/4"	1"	25	20
VDTWC/DX-P-5000	672	1225	750	850	500	1 1/2"	1"	28	25
VDTWC/DX-P-6000	672	1450	750	1050	500	2"	1"	38	30
VDTWC/DX-P-8000	672	1775	750	1325	500	2"	1"	50	41



## Duct Type Silencer

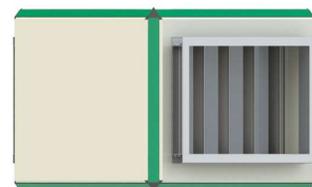
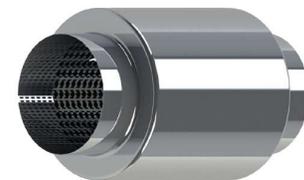
MODEL	For VHRV Models with Air Flowrate (m <sup>3</sup> /h)	Sound Attenuation (dB)	Pressure Drop (Pa)	L (mm)	ØD (mm)	Ød (mm)	Weight (kg)
VSA-500	500	12	10	750	300	200	12
VSA-750	750	12	10	750	300	200	12
VSA-1000	1000	14	13	750	350	250	18
VSA-1500	1500	17	16	1000	400	300	28
VSA-2000	2000	17	16	1000	400	300	28
VSA-2500	2500	18	16	1500	455	355	37
VSA-3000	3000	18	16	1500	455	355	37
VSA-4000	4000	23	19	1500	500	400	39

\*Sound attenuation in 250 Hz.

MODEL	For VHRV Models with Air Flowrate (m <sup>3</sup> /h)	Sound Attenuation (dB)	Pressure Drop (Pa)	L (mm)	W (mm)	H (mm)	Weight (kg)
VSA-5000	5000	26	24	1500	900	600	67
VSA-6000	6000	26	24	1500	900	600	67
VSA-8000	8000	23	27	1500	1200	600	85

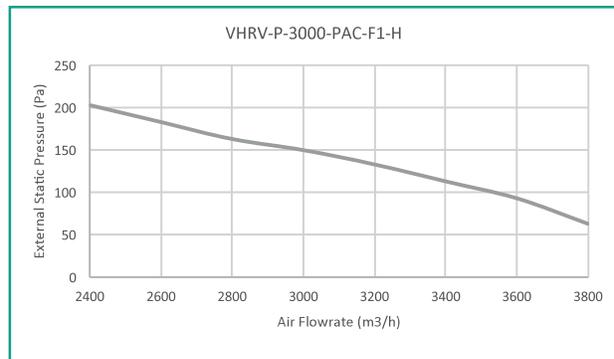
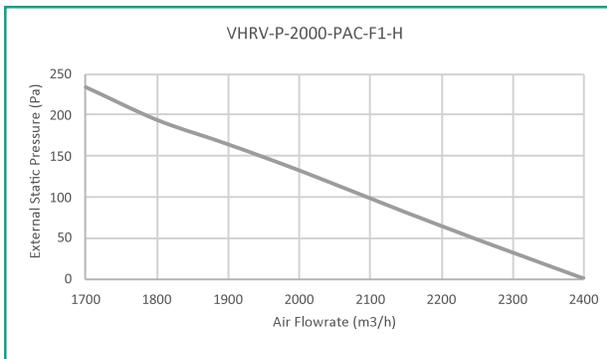
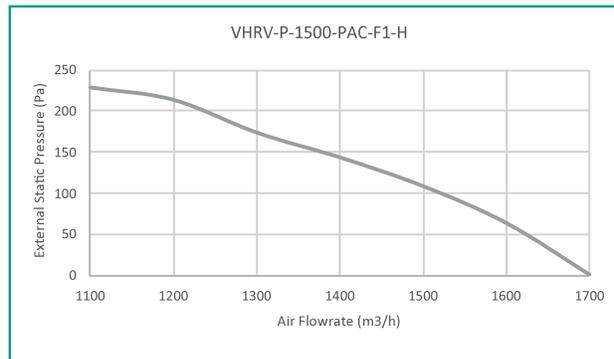
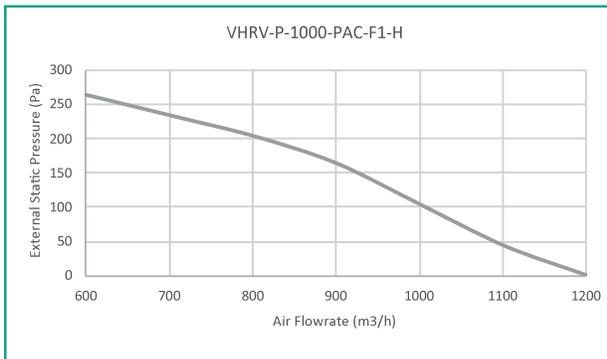
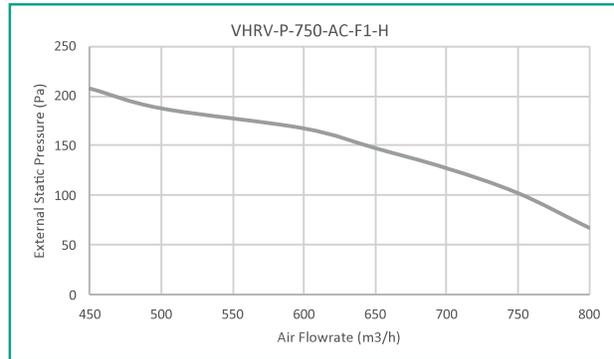
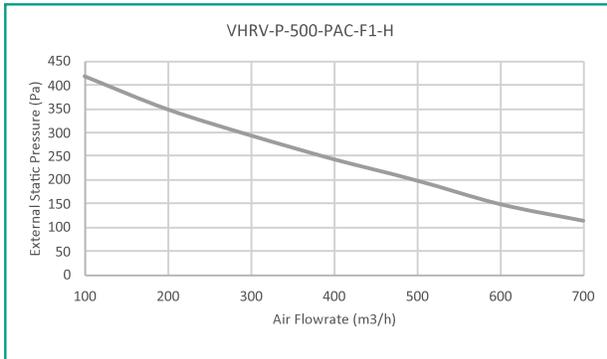
\*Sound attenuation in 250 Hz.

\*Rectangular.

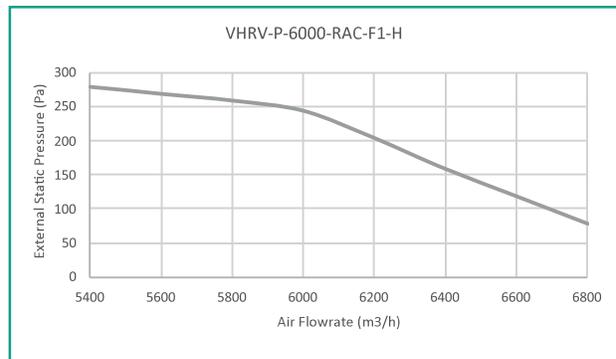
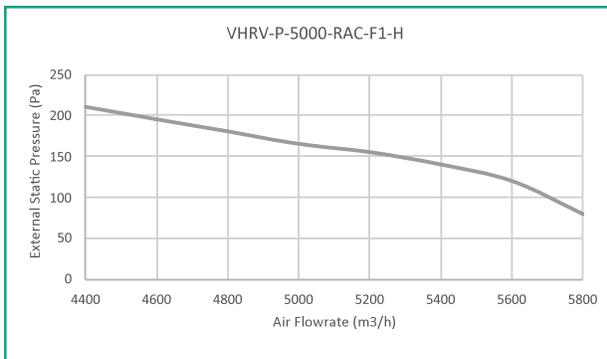
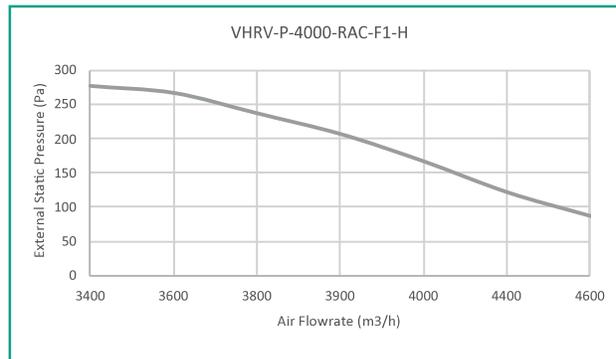
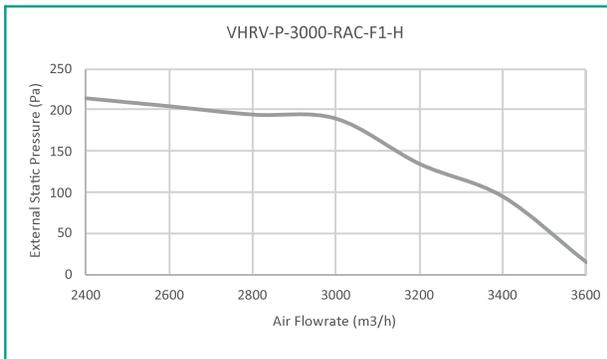
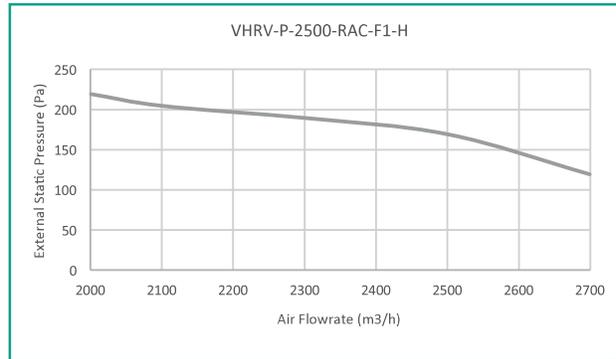
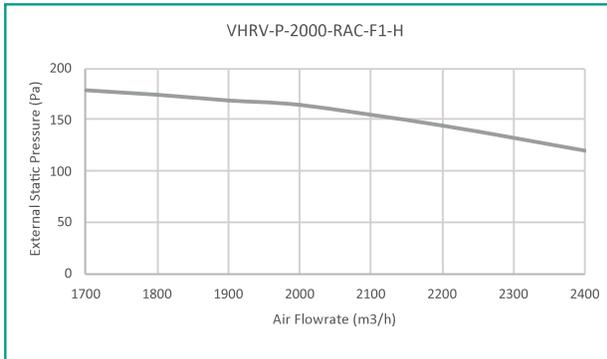


# Heat Recovery Units

## VENTASTAR VHRV-P Models Performance Curves VHRV-P Models with AC Plug Fan



## VENTASTAR VHRV-P Models Performance Curves VHRV-P Models with AC Radial Fan

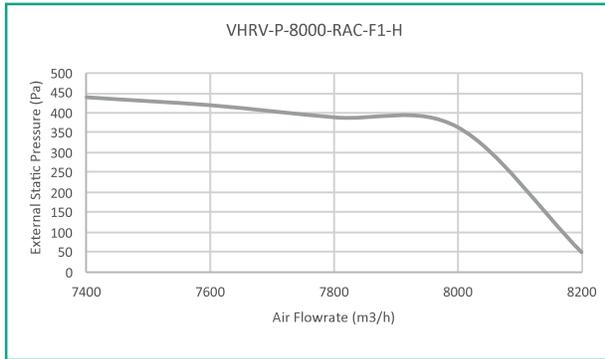


# Heat Recovery Units

## VENTASTAR VHRV-P Models

### Performance Curves

#### VHRV-P Models with AC Radial Fan



#### VHRV-P Models with EC Plug Fan

