

HPS-FLEX

Heat recovery unit
WITH HIGH EFFICIENCY
MODULATING HEAT
PUMP CIRCUIT AND
COUNTER-FLOW HEAT RECOVERY
from 1.500 to 23.000 m³/h

The high efficiency recovery units with integrated heat pump circuit have been designed and created for commercial and industrial applications and combine the need for air recirculation with maximum energy saving, thanks to the adoption of very high efficiency components. By their very nature, they are units that are generally well suited for use within traditional heating/cooling systems, even if, under certain environmental conditions, they can be used completely autonomously.



HOSPITALS



SCHOOLS



SHOPPING CENTRES



HEAT PUMP



PLATES



EFFICIENCY



DEHUMIDIFY

EC
FANSINVERTER
COMPRESSORS

PLUG&PLAY

INDOOR
INSTALLATIONOUTDOOR
INSTALLATION

R410A

ADVANTAGES

- Very high recovery efficiency
- Reduced energy consumption
- Separate flow plate recovery unit suitable for hospital use
- Integration with the most common supervision systems
- Easy to install



HPS-FLEX OPERATION

The units in the HPS range recirculate the air in the environments to be treated, recovering up to 90% of the air exhaust and containing the additional energy supply to reach the air intake temperature in the environment.

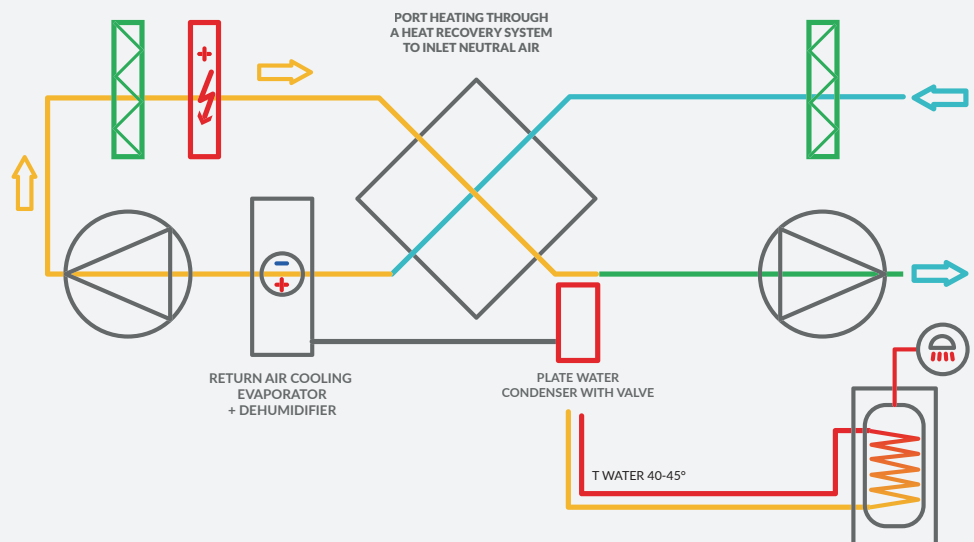
An additional kit is used to dehumidify the ambient air in summer.

KIT SUMMER DEHUMIDIFIER (AVAILABLE FOR SIZES 35/50/80/92 RIGHT VERSIONS)

KIT COMPOSITION:

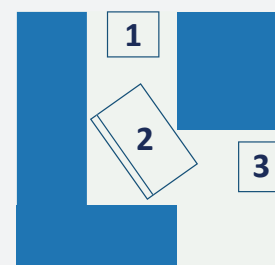
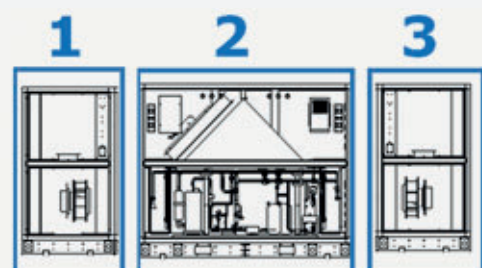
- 3 modulating damper
- Plate water condenser with valve
- Humidity sensor

Outside air goes through a heat recovery system before entering the building. The heat recovery system has the function of post heating the air after going through the dehumidifying process. During the dehumidifying process the unit produces warm water (with a temperature of 45°C) for free use (e.g. boiler DHW).



MODULARITY

The new configuration of the HP units, into 3 sections at the time of installation, allows easier handling and the installation of additional accessories on site (e.g. silencers, additional filters, coils).



TECHNICAL SPECIFICATIONS

- Supporting structure in extruded aluminium profiles, panels (th. 42 mm), sandwich type, with special sealing gaskets; external finish RAL 9002; thermoacoustic insulation in high density 0 class rockwool.
- Filter sections on recirculation air in efficiency class ISO ePM1 50% and ISO ePM10 50% on return air.
- Fan sections with backward curved blade plug-fans, directly coupled to EC brushless electronic motors.
- Static air-to-air flow recovery unit with high efficiency countercurrent flows, Eurovent certified, equipped with aluminium exchange plates complete with bypass damper for free-cooling and modulating servomotor
- Thermodynamic recovery section created with R410A reversible refrigerant circuit, consisting of: EC twin rotary brushless hermetic compressor(s) with dedicated inverter, Cu/Al finned tube evaporator/condenser, electronic expansion valve, cycle reversing valve, high pressure switch, high and low pressure transducers, liquid separators and receivers.
- Electrical panel complete with on-board machine display and microprocessor to manage the temperature set-point in supply, based on operating logics designed to maximise energy savings and environmental comfort, thanks to the modulation of cooling capacity and air flow guaranteed by the inverter technology. The unit is prepared for connection via RS485 to supervision systems based on Modbus RTU/Modbus RTU/RS 485/Modbus TCP/IP protocol; Bacnet TCP; Webserver.

ACCESSORIES

Sanitation module with UVC plasma and antivirus filter	Kvir-P
Electric pre-heater	SKEp
Modulating electric reheater	SKEr
Ball siphon kit	BTS
Hot water preheater coil with valve	SKWp V33
Hot water reheater coil with valve	SKWr V33
Heating/cooling coil section	CCS V33
Twin damper with modulating servomotors	SKR2
F9 (ISO ePM1 85%) fresh air filter	FC9
Air Filter pressure switch	PSTD
Differential pressure sensor – constant airflow	DPSa
Differential pressure sensor – constant pressure	DPSp
CO2 sensor	AQS
Twin sound attenuator	SILm/SILf
Room winter temp. Speed-up kit	MRE/MRW
Dehumidification kit	DEU
Flexible connection	GAT
Rain Hood	CFA A/ CFA B
Roof cover	TPR/ TPRs/ TPRc

MODELS

HPS-FLEX			35	50	80	92	144	205	250
Airflow	Nom	m ³ /h	2800	4500	6200	8100	11000	14000	17500
Available static pressure	Nom	Pa	250						
sound power at 1 m	Nom	dB(A)	65	68	74	78	73	78	76
ELECTRICAL ABSORPTION									
Total current	Nom (1)		11	15	19	25	33	45	50
	Nom (2)	A	15	24	29	37	52	69	79
	Max (3)		29	37	41	57	78	104	134
Total absorbed power	Nom (1)		2.2	3.6	5.3	7.0	8.6	12.4	15.1
	Nom (2)	kW	4.2	7.8	9.6	13.5	18.1	23.6	29.2
	Max (3)		9.0	14.0	17.0	23.0	32.0	42.0	56.0
Electrical power supply	V-Ph-Hz	400-3-50							
ENERGY RECOVERY (1)									
Recovered power		kW	27.8	44.5	61.3	80.9	109.8	138.6	173.2
Recovery efficiency		%	92.6	92.3	92.4	92.8	92.8	92.0	92.0
Power transferred by the heat pump		kW	5.1	8.4	11.3	14.5	19.7	26.1	32.6
Total power transferred		kW	32.9	52.9	72.6	95.4	129.5	164.7	205.8
Net COP		W/W	14.4	14.7	13.7	13.6	15.0	13.3	13.6
Input temperature		°C	25.0						
ENERGY RECOVERY (2)									
Recovered power		kW	4.6	7.3	10.4	13.8	18.7	23.5	29.4
Recovery efficiency		%	79.7	79.2	82.7	83.4	83.4	82.2	82.2
Power transferred by the heat pump		kW	12.3	20.4	26.8	35.1	48.1	60.6	76.0
Total power transferred		kW	16.9	27.7	37.2	48.9	66.8	84.1	105.4
Net EER		W/W	4.0	3.6	3.9	3.6	3.7	3.6	3.6
Input temperature		°C	20.0						
OPERATING LIMITS (BASE UNIT)									
Winter outdoor air temperature min.					-12°C (ambient min. 20°C 50% UR (A))				
Summer outdoor air max.					36°C - 45% (ambient max. 27°C) (B)				

◆ Summer dehumidification kit available (DEU)

(A) Input temperature ≤ 20°C; balanced air flow rates

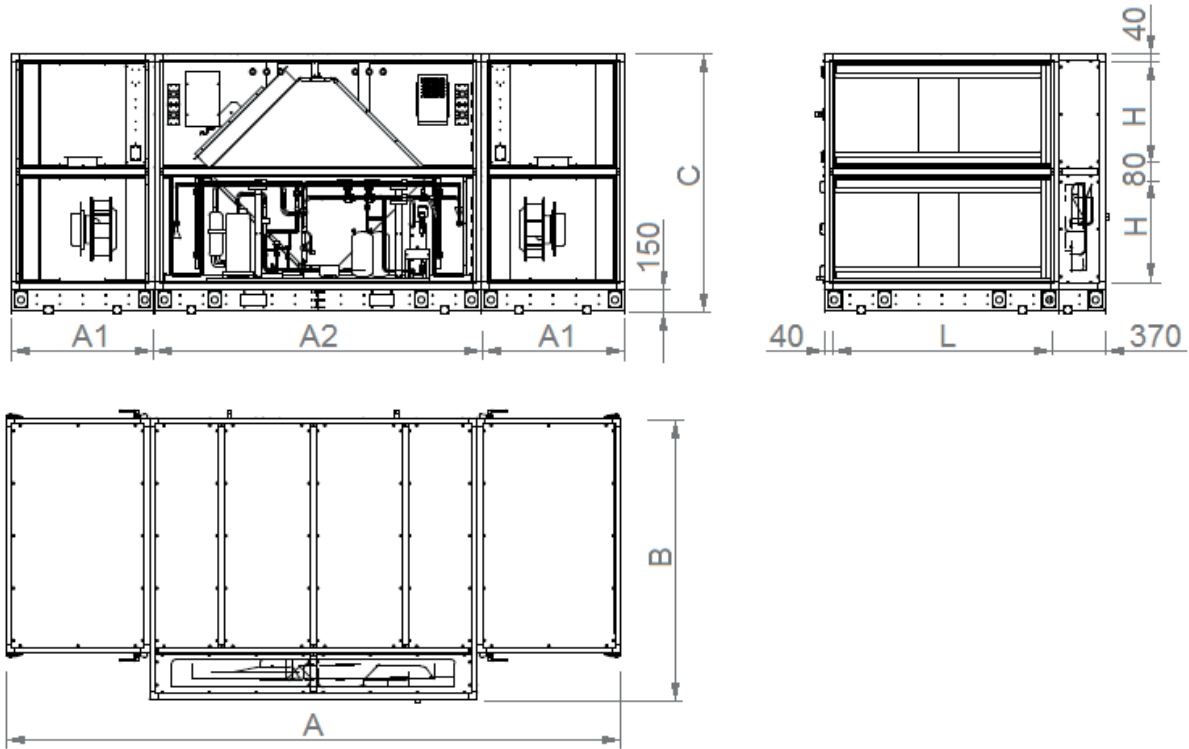
(B) Input temperature ≥ 22°C; balanced air flow rates

(1) outdoor air at -10°C 90% RH, ambient air at 22°C 50% RH; nominal air flow rate

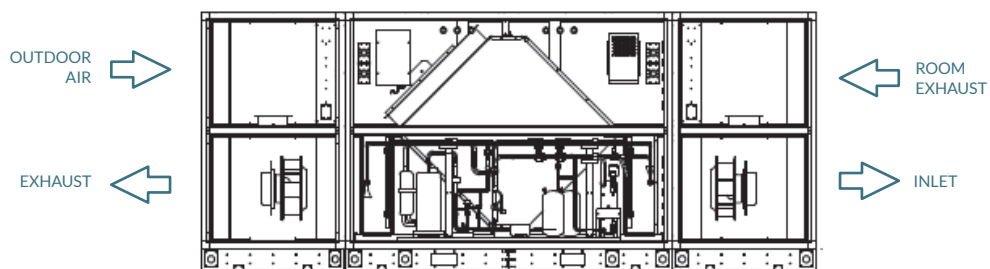
(2) outdoor air at 32°C 50% RH, ambient air at 26°C 50% RH; nominal air flow rate

(3) with ventilation regulation signals and heat pump at the maximum permissible value

DIMENSIONS AND WEIGHTS

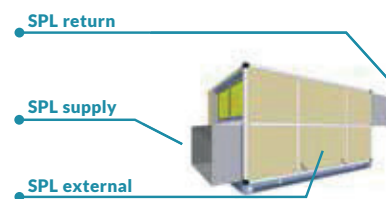


HPS-FLEX		35	50	80	92	144	205	250
A	mm	3750	3750	4410	4410	4740	4410	4410
A1	mm	1030	1030	1030	1030	1030	1030	1030
A2	mm	1690	1690	2350	2350	2680	2350	2350
B	mm	1360	1690	1855	2020	2350	2350	2845
C	mm	1510	1510	1840	1840	2170	2500	2500
L	mm	950	1280	1445	1610	1940	1940	2440
H	mm	600	600	765	765	930	1095	1095
Peso	kg	980	1100	1460	1670	2200	2450	2700



SOUND LEVELS

With reference to the nominal operating conditions, the following table shows the sound power values (SWL) in octave band and the related results; the sound pressure values (SPL) at 1m, 5m and 10m in supply, in return and outside of the unit are also highlighted, under ducted unit conditions.



HPS FLEX	SWL [dB] IN OCTAVE BAND [HZ]								SWL		SPL SUPPLY			SPL RETURN			SPL EXTERNAL		
	63	125	250	500	1000	2000	4000	8000	dB	dB(A)	1 m	5 m	10 m	1 m	5 m	10 m	1 m	5 m	10 m
	63	125	250	500	1000	2000	4000	8000	dB	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
35	71	75	73	71	72	68	63	58	80	76	65	58	55	48	41	38	42	28	22
50	69	74	77	75	75	71	67	63	83	79	68	61	58	52	45	42	44	30	24
80	73	73	83	80	81	77	73	74	88	85	74	67	64	56	49	46	50	36	30
92	76	78	87	84	84	82	77	76	91	89	78	71	68	58	51	48	53	39	33
144	72	77	82	80	80	76	72	71	87	84	73	66	63	55	48	45	49	35	29
205	77	79	86	85	85	82	78	75	91	89	78	71	68	58	51	48	54	40	34
250	74	76	85	82	83	79	75	74	90	87	76	69	66	63	55	51	52	38	32



Large compartment outside the airflow for access to the electrical panel and to the refrigerant circuit



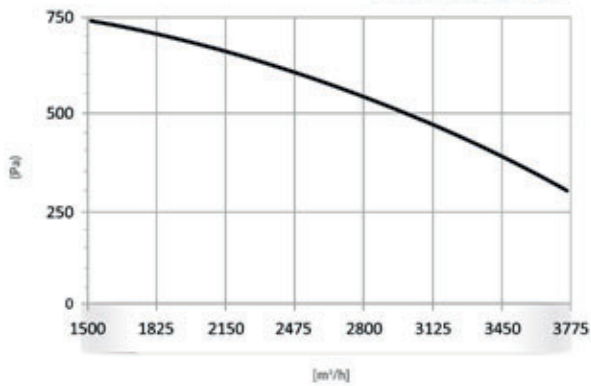
Standard electronic control with graphic display



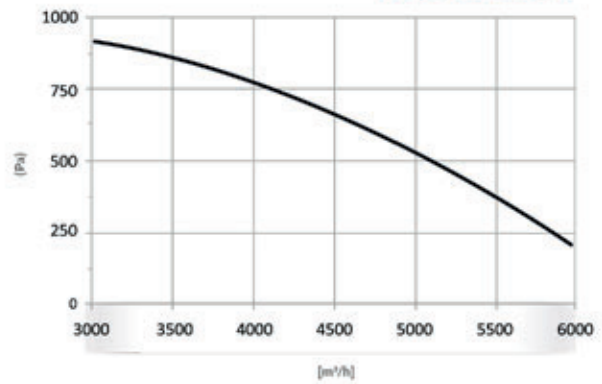
High efficiency recovery unit with built-in by-pass

PERFORMANCE

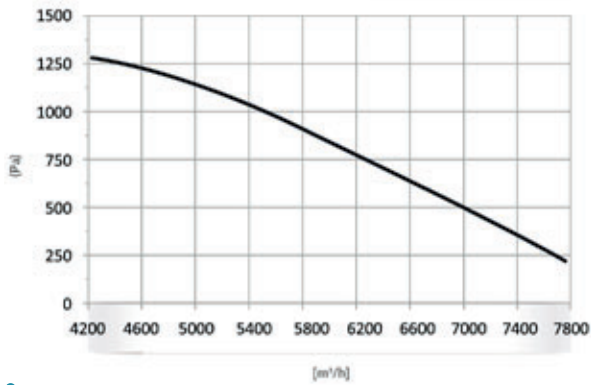
HPS-FLEX 35



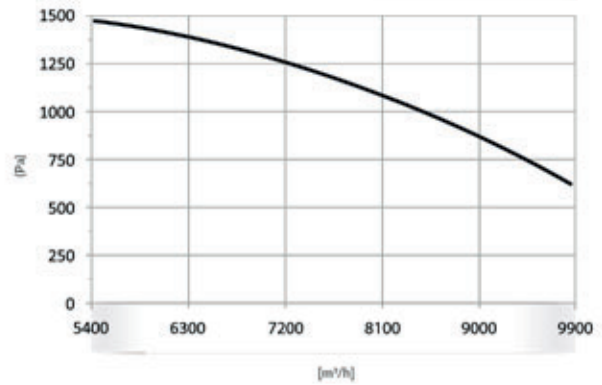
HPS-FLEX 50



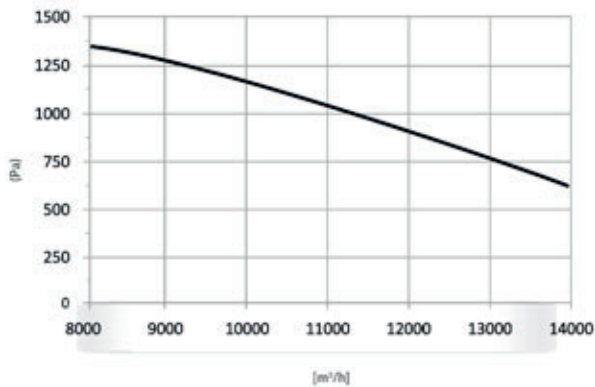
HPS-FLEX 80



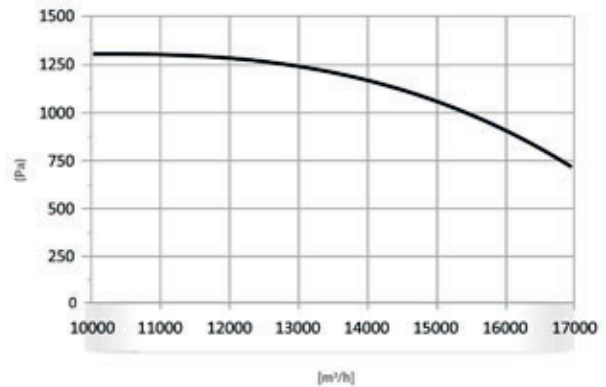
HPS-FLEX 92



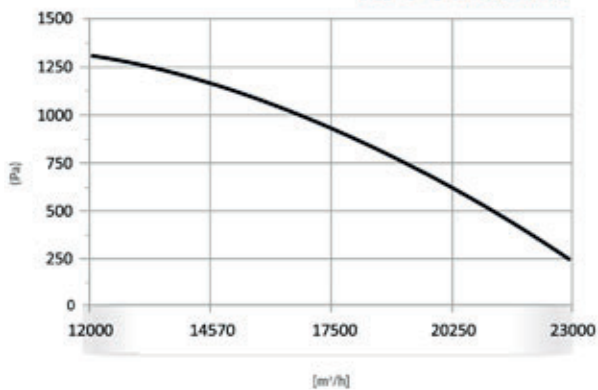
HPS-FLEX 144



HPS-FLEX 205



HPS-FLEX 250



The graphs provide an indication of the useful static pressure (Pa) as the airflow [m³/h] supplied by the base inlet unit varies. Consult the technical bulletin to check the specific data of the unit's aerualic performance.