

## HRS Heat recovery unit

*Variable Multi Flow*

**VMF**



### HORIZONTAL INSTALLATION

These units allow to extract a determined amount of air from the environment and replace it with fresh air.

An aluminium plate recovery unit allows effective heat exchange between the expulsion air flow and that of fresh air: the fresh air is pre-heated or pre-cooled in this way, depending on the season, at the cost of the expelled air.

The air introduced is filtered before passing through the recovery unit, which is protected from dirtying with a filter of the same type also on the expulsion side. The air introduced can also be post-heated in the versions with hot water heating coil.

### Features

- Available in 8 sizes and 2 versions:
  - HRS:** standard version
  - HRS W:** version with additional hot water coil. It is used when post-heating is necessary. Available in models from 090 to 390.
- Horizontal installation.
- Panels realised in Aluzink sheet steel, removable for inspection and maintenance.
- Acoustic and heat insulation of the panels using polyethylene/polyester with average thickness of 20 mm.
- Condensate drip tray in ABS (030-300) INOX (390) with low condensate drain connection.
- Air filters with G4 efficiency, easily extractable laterally, to allow periodical cleaning.
- Double intake centrifugal fans, coupled directly onto electric motors (with single intake for HRS 030).
- Terminal board on machine to ease the electric connections and fan control.
- Aluminium plate heat recovery unit housed in condensate drip tray.

## Accessories

- **HRS\_CS**: Section of water cooling/heating (with stainless steel condensate drip tray).  
ATTENTION  
the standard version of section HRS\_CS he attacks battery claims, it goes to the HRS and HRS\_W oriented type 03 (standard) and type 02. For the HRS guidelines and HRS\_W with type 01 and type 04, you must request at time of order, the section HRS\_CS with attacks right battery.
- **HRS\_ED**: Regulation shutter.
- **HRS\_S**: N° 4 circular connection kits for direct connection of the unit to the circular conduits.
  - HRS030S (ø 200 mm)
  - HRS090S (ø 315 mm)
  - HRS160S (ø 315 mm)
  - HRS190S (ø 355 mm)
  - HRS230S (ø 400 mm)
- **HRS\_SC**: Electronic speed regulator.
- **HRS\_AT**: Anti-freeze thermostat, allows to control that the temperature does not fall

below a pre-established value. **Accessory installed in the factory, to be requested when placing the order for the HRS/HRS\_W version.**

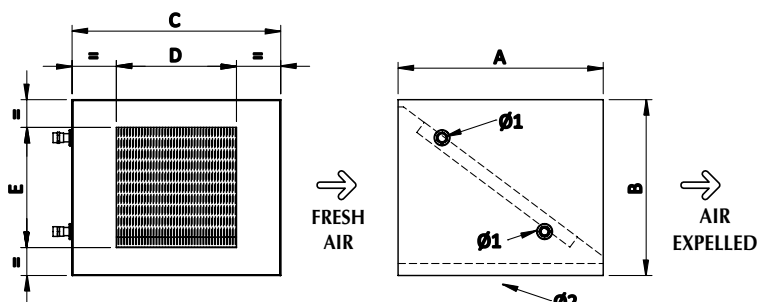
- **PX**: Control panel with switch-over. Wall installation. (from size 090 to 300)
- **PX2**: Control panel with switch-over. Wall installation. (from size 090 to 300)

**Compatibility with the VMF system**

For further system information please refer to the specific documentation.

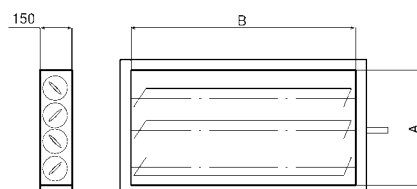
	HRS030	HRS060	HRS090 HRS090W	HRS160 HRS160W	HRS190 HRS190W	HRS230 HRS230W	HRS300 HRS300W	HRS390 HRS390W
HRS030CS	•							
HRS060CS		•						
HRS090CS			•					
HRS160CS				•				
HRS190CS					•			
HRS230CS						•		
HRS300CS							•	
HRS390CS								•
HRS030ED	•	•						
HRS090ED			•					
HRS160ED				•				
HRS190ED					•			
HRS230ED						•	•	•
HRS030S	•	•						
HRS090S			•					
HRS160S				•				
HRS190S					•			
HRS230S						•	•	•
HRS030SC	•							
HRS060SC		•						
HRS01AT	•	•	•	•	•	•	•	•
PX			•	•	•	•	•	•
PX2			•	•	•	•	•	•

HRS_CS		030	060	090	160	190	230	300	390
A	mm	430	430	500	600	700	700	700	700
B	mm	290	290	410	500	500	600	600	600
C	mm	395	395	450	450	480	660	660	710
D	mm	250	250	260	290	310	410	410	410
E	mm	230	230	210	310	330	410	410	410
ø1	mm	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
ø2	mm	22	22	22	22	22	22	22	22
Peso	kg	14	14	17	21	24	29	29	34



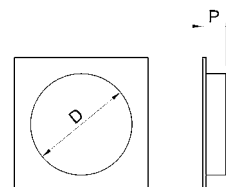
### REGULATION SHUTTER (HRS\_ED)

		030	090	160	190	230
A	mm	210	210	310	310	410
B	mm	180	260	290	330	410



### KIT 4 CIRCULAR CONNECTION (HRS\_S)

		030	090	160	190	230
D	mm	200	315	315	355	400
P	mm	50	100	100	100	100



## Technical data

Model		HRS030	HRS060	HRS090	HRS160	HRS190	HRS230	HRS300	HRS390
Nominal air flow rate	m <sup>3</sup> /h	300	620	920	1580	1850	2250	2950	3920
Useful static pressure <sup>1</sup>	Pa	265	55	65	70	77	80	100	100
Total max input	A	1,2	1,8	2,2	4,4	4,8	5,2	8,3	5
Sound pressure <sup>2</sup>	dB(A)	47	51	50	53	52	51	54	56
<b>FANS</b>									
Fans	n°	2	2	2	2	2	2	2	2
Power	W	90 x 2	90 x 2	147 x 2	350 x 2	350 x 2	350 x 2	550 x 2	750 x 2
Poles	n°					4			
Number of speeds	n°	1 <sup>3</sup>				3 <sup>4</sup>			2 <sup>4</sup>
Protection rating	IP			44			55	44	55
Isolation class						F			
Power supply	V/Ph/Hz				230/1/50Hz				400V/3N/50Hz
<b>RECUPERATOR</b>									
Efficiency	%	53	54	55	54	54	54	51	57
Recovered heating capacity	kW	1,5	3,1	4,7	7,9	9,2	11,2	13,9	20,6
Conditioned air temperature	°C	8,3	8,5	8,8	8,5	8,5	8,5	7,8	9,3
Efficiency	%	46	47,7	48,6	47,5	47,3	47,5	45,1	49,8
Recovered heating capacity	kW	0,27	0,58	0,88	1,48	1,73	2,11	2,63	3,86
Conditioned air temperature	°C	29,2	29,1	29,1	29,2	29,2	29,2	29,3	29,0
<b>FILTERS</b>									
Efficiency						G4			

### Features of the water post-heating coil (HRS W)

Model				HRS090W	HRS160W	HRS190W	HRS230W	HRS300W	HRS390W
Heating capacity	kW	/	/	8.2	12.2	14.4	20.3	24.2	29.9
Geometry		/	/			25x22			
Pipes for row	n°	/	/	14	18	18	22	22	22
Rows	n°	/	/			2			
Louver pitch	mm	/	/			2.5			
Air outlet temperature	°C	/	/	33.4	30.8	30.2	33.2	31.3	29.7
Air side pressure drop	Pa	/	/	25	32	30	25	33	43
Water side pressure drop	kPa	/	/	8	14	15	17	22	30
Collectors diameter	ø	/	/			3/4"			
Weight	kg	/	/	2.5	2.5	2.5	5	5	6.5

The performance refers to the following conditions

- Values referring to the nominal air flow rate including recovery unit and filters G4
- Noise pressure level: values referring to 1.5 m from machine intake in free field

- Electronically adjustable regulator HRS\_SC
- Selectable control panel

Winter nominal conditions:

external air temperature -5 °C BS, UR 80 %  
environmental air temperature 20 °C BS, UR 50 %

Summer nominal conditions:

external air temperature 32 °C BS, UR 50 %  
environmental air temperature 26 °C BS, UR 50 %

Features of the water post-heating/cooling coil (HRS_CS)		030	060	090	160	190	230	300	390
Geometry		25x22	25x22	25x22	25x22	25x22	25x22	25x22	25x22
Pipes for row	n°	13	13	16	22	25	26	26	26
Rows	n°	3	3	3	3	3	3	3	3
Louver pitch	mm	2,1	2,1	2,1	2,1	2,1	2,1	2,1	2,1
Heating capacity	kW	4,7	8,2	12	19,7	23,7	30,5	37	46,2
Air outlet temperature	°C	52,8	45,6	45	43,4	44,5	46,5	43,7	41,5
Water flow rate	m <sup>3</sup> /h	0,4	0,7	1,1	1,7	2,1	2,7	3,3	4,1
Water side pressure drop	kPa	3	7	6	20	34	30	43	36
Air side pressure drop	Pa	10	13	27	38	34	25	38	50
Cooling capacity	kW	2	3,5	5	8,8	11,1	14,7	17,4	20,9
Sensitive cooling capacity	kW	1,3	2,3	3,3	5,8	7,2	9,4	11,4	13,9
Air outlet temperature	°C	16,9	18,7	19	18,9	18,7	17,3	18,3	19,3
Water flow rate	m <sup>3</sup> /h	0,3	0,6	0,9	1,5	1,9	2,5	3	3,6
Water side pressure drop	kPa	3	7	6	21	39	36	49	39
Air side pressure drop	Pa	20	30	38	48	45	35	52	65

The performance refers to the following conditions

### HEATING

air input temperature 8°C  
water input temperature 70°C  
water output temperature 60°C  
Nominal air flow

### COOLING

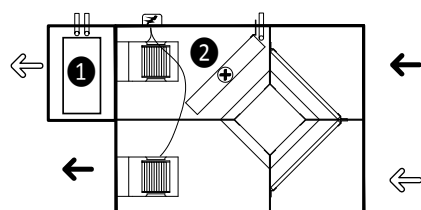
air input temperature 30°C  
relative Humidity 50%  
water input temperature 7°C  
water output temperature 12°C  
Nominal air flow

## Internal layout (configurations available)

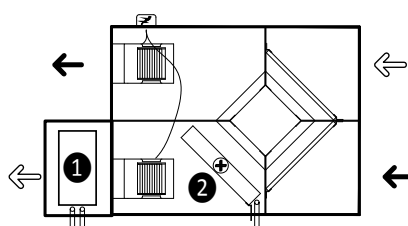
The guidelines are depicted relative to the car top view



ORIENTATION TYPE 01

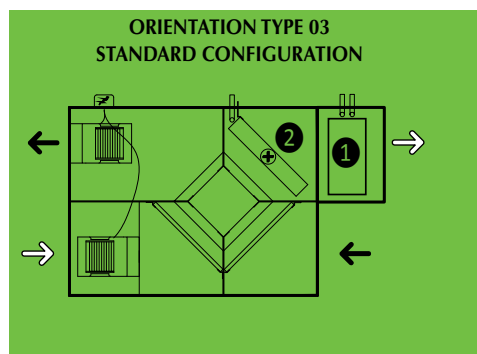


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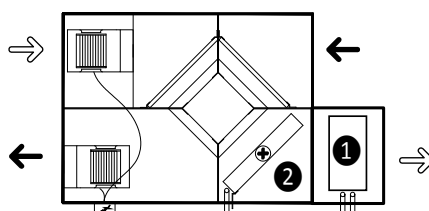


- ① HRS\_CS Section of water cooling/heating (with stainless steel condensate drip tray). densa
- ② Post heating coil only HRS\_W version

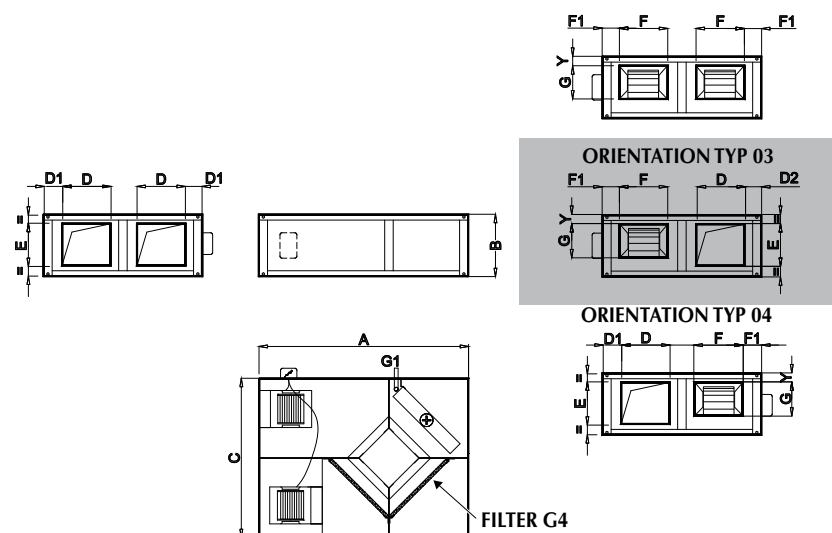
ORIENTATION TYPE 03  
STANDARD CONFIGURATION



ORIENTATION TYPE 04



## Dimensional data (mm)



	DIMENSIONS											WEIGHT	
	A (mm)	B (mm)	C (mm)	D (mm)	D1 (mm)	D2 (mm)	E (mm)	F (mm)	F1 (mm)	G (mm)	G1 <sup>1</sup> (mm)	Y (mm)	(kg)
HRS030	990	290	750	240	79	79	180	100	94	100	/	95	41
HRS060	990	290	750	240	79	79	180	220	90	90	/	130	45
HRS090	1140	410	860	260	95	115	210	220	115	200	3/4"	50	80
HRS160	1300	500	860	290	77	77	310	225	109	255	3/4"	75	125
HRS190	1380	500	960	310	87	87	330	225	129	255	3/4"	75	138
HRS230	1650	600	1230	410	91	91	410	288	152	255	3/4"	162	160
HRS300	1650	600	1230	410	91	91	410	321	135	280	3/4"	125	174
HRS390	1750	600	1330	410	116	116	410	321	160	280	3/4"	125	190

### ATTENTION

1. Hydraulic connections of the battery post-heating  
THIS JUST IN VERSION HRS\_W

Aermec reserves the right to make all modification deemed necessary for improving the product at any time with any modification of technical data.

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