

HEAVY VENTAL 2.1

Heavy Vental has been developed for existing school buildings, kindergartens and large open commercial premises, where a complete reconstruction of the ventilation system using centralized systems would be time-consuming and expensive. The emphasis in the development of the device has been on quick installation, autonomy, reliability and ease of maintenance.

In our room-based heat recovery ventilation solution, two devices mounted to the ceiling at different corners of the room work synchronously and in cycles: if one device blows in fresh air at a rate of, for example 700 m³/h, the other device pulls out an airflow of 700 m³/h at the same time. After for example 30 seconds, the direction of the air flow changes, i.e. the second device blows in and the first device draws the air out. The algorithm, which controls the unit's airflow, cycle time and other parameters, takes input from the following sensors:

- temperature in the room
- temperature entering the room from outside
- CO2 level in the room
- motion sensor in the room
- various user-defined parameters like pre-workday ventilation starting from 6.00 etc

To ensure a stable inlet temperature, the unit regulates the supply air heating according to the temperature of the air taken from outside.

Airforced Systems' Heavy Vental allows you to quickly and energy-efficiently upgrade the poorly ventilated premises of existing school buildings, kindergartens and commercial buildings without having to undertake expensive, long-term changes to the ventilation system and structural changes to the building. If desired, the devices can be integrated into the existing air distribution pipeline. The installation time of one unit is about 7 hours, so there is no need to close the rooms or floors for a long time due to construction work.

Heavy Vental 2.1 technical data

Directives	EMC 2014/30/EL LVD 2014/35/EL RoHS 2011/65/EL
Standards	EVS-EN IEC 61439-1:2021 EVS-EN IEC 61439-2:2021 EVS-EN IEC 61439-3:2012 EVS-EN 61000-6-4:2019 EVS-EN 61000-6-2:2019 EVS-EN 61000-6-3:2021 EVS-EN 1886:2007 EVS-EN 13053:2019 EVS-EN 308:2000 EN 308:2000_2020 EVS-EN 13141-8:2014
Notified bodies	Kiwa Certification Estonia (number 1336)
Testing facilities	Tallinn University of Technology, Republic of Estonia Health Board, Danish Technological Institute (Eurovent Certita Certification certified lab)
Ventilation unit configuration	Room-based / central
Ventilation configuration	Balanced / negative pressure / positive pressure
Ducting to outdoor	Through wall/window and snow / rain grate
Air distribution	Nozzle duct
Max airflow ePM1 55% (F7)	983 m ³ /h
Heat recovery efficiency	83% (fan speed 100%), 87% (fan speed 80%), 95% (fan speed 25%)
Panel filters	Prefilter: PPI 10 (658 x 267 x 20) – 2pc Supply: ePM1 55% (F7) (650 x 279 x 48) – 2pc. or HEPA13 (medical) – 2pc Extract: ePM10 50% (M5) (650 x 279 x 48) – 2pc
Filter change notification	Indicator light on the unit / web application notification / email
Maximum energy consumption without heaters (max airflow)	650 W, 2.8 A, 230 V
Max energy consumption with heaters (nominal airflow)	2.65 kW, 11.5 A, 230 V
Main fuse	16 A
Connection to internet	Ethernet cable CAT5e / mobile router
Compatibility with AFD	Yes
User interface	Web application
Parameters used to operate the unit	Room temperature, inlet temperature, co2 level, motion in the room
Dimensions (one device)	37 cm (height), 76 cm (width), 434/358 cm (length)
Standard color	White matte RAL 9003

Heavy Vental 2.1 cycling airflow, SFP and sound pressure with external pressure

Number of people (8 l/s)	External pressure Pa	Supply airflow through ePM1 55% filter (F7)		Power consumption kW	Specific fan power SFP kW/(m3/s)	Fan speed %	Sound pressure LpA ¹ dB
		m3/h	L/s				
In	Pa	m3/h	L/s	kW	kW/(m3/s)	%	dB
27	386	766	213	0.541	2.54	100%	37.1
28	264	812	226	0.541	2.40		
29	165	845	235	0.536	2.28		
31	109	891	247	0.543	2.19		
32	66	927	257	0.552	2.15		
25	343	713	198	0.459	2.32	90%	35.7
25	224	734	204	0.436	2.14		
26	134	742	206	0.410	1.99		
27	86	765	213	0.398	1.87		
27	51	769	213	0.389	1.82		
21	261	613	170	0.319	1.88	80%	33.3
22	163	630	175	0.303	1.73		
22	100	642	178	0.298	1.67		
22	62	643	179	0.289	1.62		
23	37	656	182	0.287	1.57		
18	188	531	147	0.245	1.66	70%	30.7
19	121	548	152	0.238	1.56		
20	74	562	156	0.231	1.48		
18	40	529	147	0.219	1.49		
19	25	552	153	0.226	1.47		
15	128	446	124	0.196	1.58	60%	27.7
16	81	456	127	0.191	1.51		
16	47	457	127	0.191	1.50		

¹ Results are from a test report measured by the Estonian Health Board in semi-echo free room at a distance of 2m.

Airflow vs. external pressure on different fan speeds while cycling

