CIC
JAN HŘEBEC

H-Pool swimming pool units

- Integrated dehumidification, cooling, heating
- Heat pump circuit with electronic expansion valve
- Measuring and control system

H-Pool swimming pool units

Usage and working conditions

H-Pool swimming pool air-conditioning units provide complex optimization of air in one unit suitable for dehumidification in swimming pool areas and for energetically balanced installations where a high efficiency plate exchanger with and heat pump is used. Furthermore they are suitable in places where it is necessary to cool space but it is not possible to place the condensation unit outside, or for any other applications where easy assembly and placement putting into operation is important.

The units are produced in a design suitable for internal spaces.

Structure

H-Pool units are made of frameless sandwich panels.

The shell of the panel consists of two steel-coated plates with a thickness of 0.8 mm, peripherally connected by single cap rivets. The outer cover of the unit is finished in shade RAL9002 – elephant bone.

Inside the panel is mineral wool insulation with volume weight 50 kg/m³, inflammability level A1. The thickness of the panel is 50 mm.

The strength of the chamber is ensured by special joints registered with the Industrial Property Office in its data-base of industrial designs.

Fig. 1 Air performance

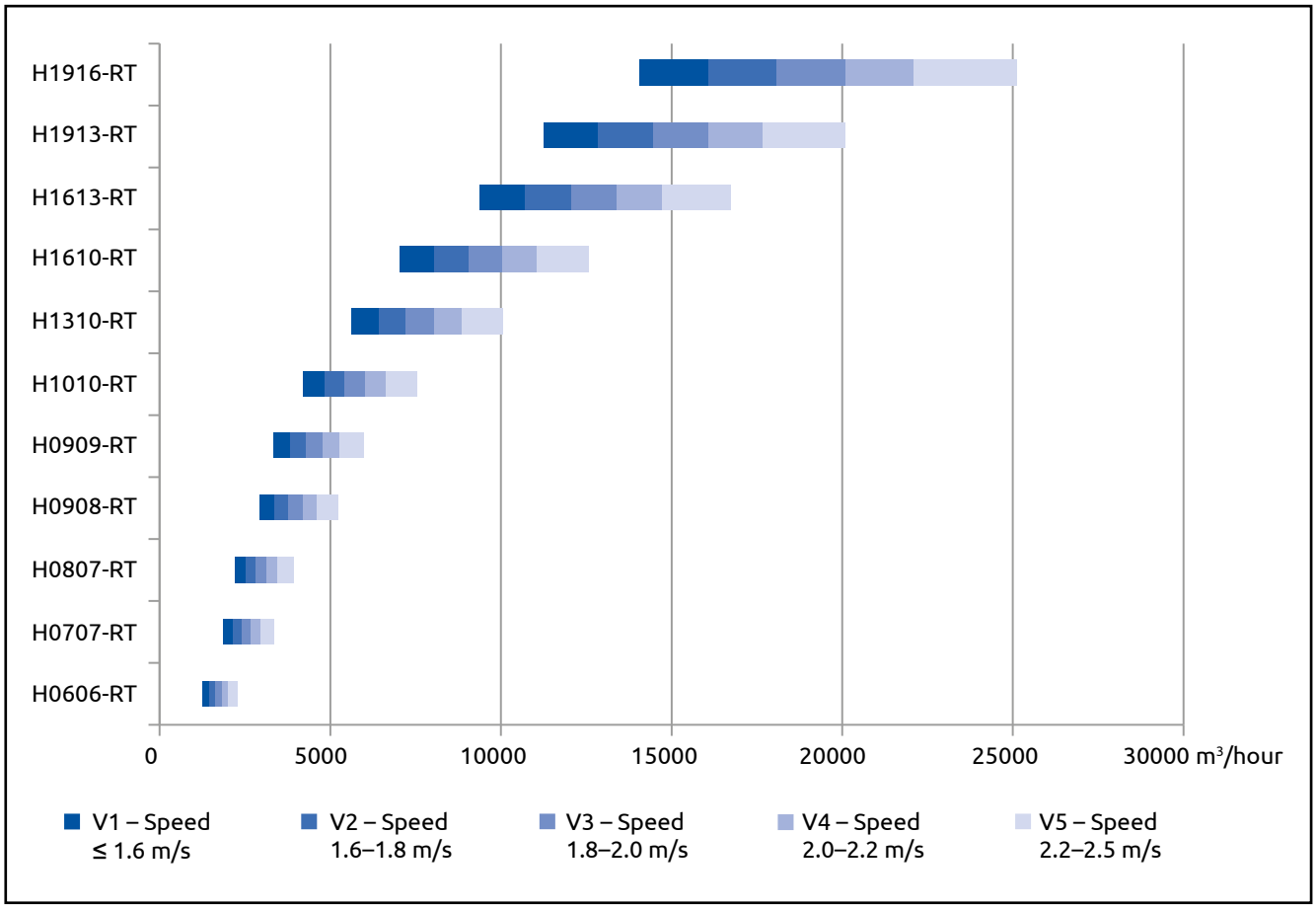

Fig. 2 Preview of unit

H-control system of measurement and regulation

The units are equipped with the MaR H-Control autonomous controlling system. This system is easy to operate by PC and web browser. Furthermore it is possible to control the unit via a remote control with LCD display or Building Automation and Control (BAC) systems.

Controlling and action components are assembled, connected and tested during production. The system thus enables:

- smooth fan operation control
- control and protection of water heating
- control and protection of plate heat exchanger
- control of flaps
- signalization of air filters clogging
- heat pump compressor control

Description

Air-conditioning units are manufactured units. The units are designed for installation on the floor, and are delivered with a base frame in two transportable blocks.

Exchanger output pipes, all other fittings and service openings are located on the front of the unit.

Access to fans, filters and compressors is provided through a service door.

It is necessary to leave free service space in front of the unit in an area equal to 1.15 % of the depth of the unit. In front of the electricity distribution panel on the side it is necessary to leave free space of 800 mm.

Advantages of frameless structure

- excellent strength of the structure
- reduced heat transmission loss through the shell of the unit
- clear inner area of the unit
- easy maintenance of the unit

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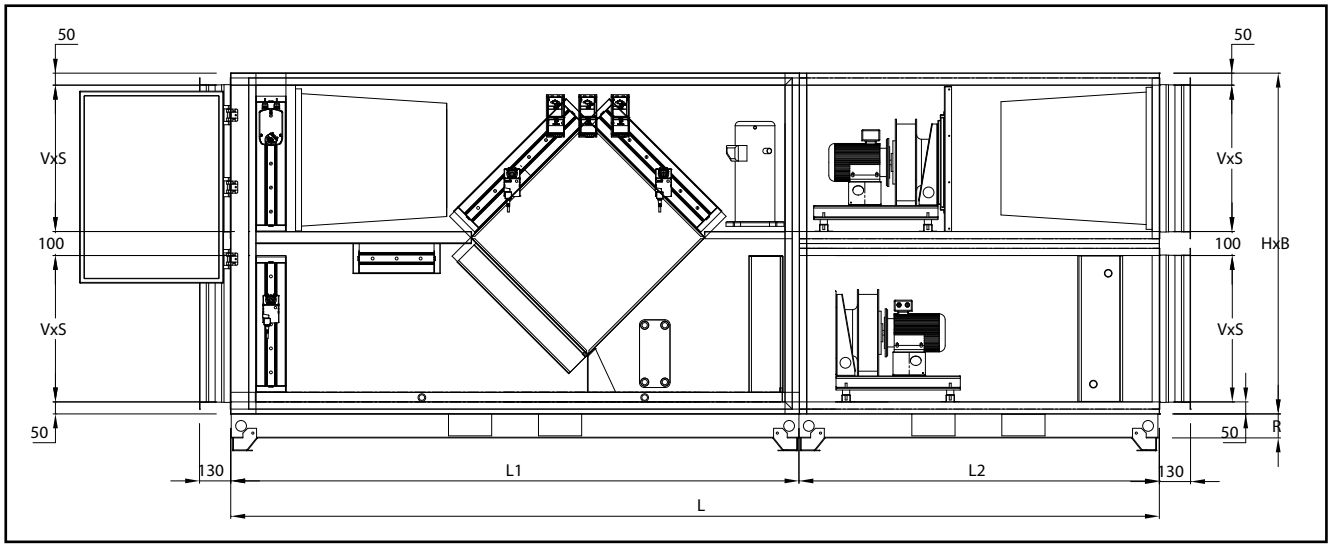
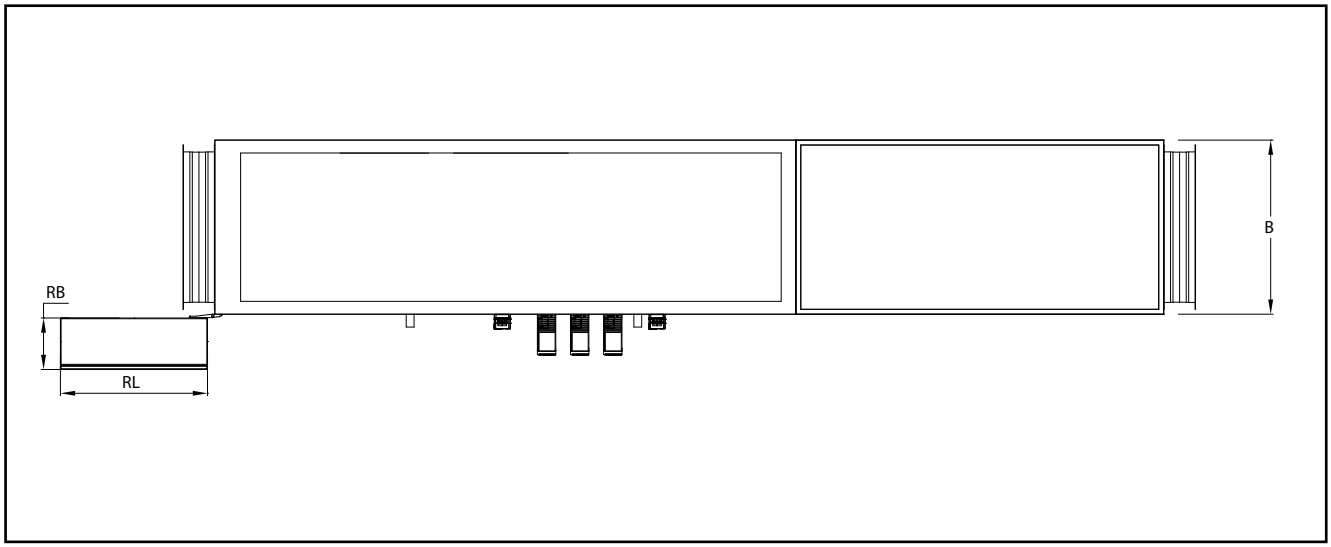
Fig. 3 Dimensions of unit



Size [mm]	H0606-RT	H0707-RT	H0807-RT	H0908-RT	H0909-RT
L	3660	3870	3870	4150	4240
B	610	710	815	915	915
H	1220	1420	1420	1630	1830
R	150	150	150	150	150
L1	2200	2370	2370	2580	2580
L2	1460	1500	1500	1570	1660
V	510	610	610	715	815
S	510	610	715	815	815
RB	210	210	210	210	210
RL	500	500	500	600	600

Fig. 4 Dimensions of unit – floor plan



H1010-RT	H1310-RT	H1610-RT	H1613-RT	H1913-RT	H1916-RT
4380	4380	4380	5290	5290	6260
1015	1320	1625	1625	1930	1930
2030	2030	2030	2640	2640	3250
150	150	150	150	150	150
2580	2580	2580	3080	3080	3860
1800	1800	1800	2210	2210	2400
915	915	915	1220	1220	1525
915	1220	1525	1525	1830	1830
210	210	210	210	210	210
600	600	600	600	600	600

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Size of the unit		H0606-RT	H0707-RT	H0807-RT
Area of swimming pool				
private swimming pool	**[m²]**	67	84	104
swimming pool with a depth over 1.35 m	**[m²]**	50	63	78
swimming pool with waves	**[m²]**	28	35	44
Dehumidification				
with 30% of fresh air	**[kg/h]**	10.8	13.6	16.8
in compliance with VDI 2089/1	**[kg/h]**	5.9	8.3	10.0
air flow	**[m³/h]**	1850	2600	3150
external pressure loss	**[Pa]**	300	300	300
filtration category according to ČSN EN 779		F7	F7	F7
		M5	M5	M5
heat requirement for HVAC at 30% of fresh air -15 °C	**[kW]**	1.3	1.1	1.4
max. heating performance of the heater at 20 °C	**[kW]**	13	18	21.1
water flow 70/50 °C	**[l/s]**	0.57	0.79	0.93
dP on water	**[kPa]**	1.3	1.1	0.8
connecting size of the heater		1"	1"	1"
Efficiency of heat recovery at 30 % of fresh air -15 °C	**[%]**	67.1	71.6	71.6
Ventilator supply	**[kW]**	0.7	0.8	0.9
In	**[A]**	2.3	2.3	2.5
Ventilator exhaust	**[kW]**	0.5	0.6	0.7
In	**[A]**	1.7	2.3	2.5
Compressor		ZR22	ZR22	ZR28
P	**[kW]**	1.6	1.6	2.1
In	**[A]**	3.1	3.1	4.0
Electricity connection 3×400 V, 50 Hz, TN–S	**[kW]**	3.1	3.3	4.0
In	**[A]**	7.7	8.3	9.7
protection	**[A]**	16	16	16
Peripheral conductors section	**[mm²]**	2.5	2.5	2.5

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H0908-RT	H0909-RT	H1010-RT	H1310-RT	H1610-RT	H1613-RT	H1913-RT	H1916-RT
132	154	193	248	322	406	496	621
99	116	145	186	242	305	372	465
56	65	81	104	135	171	208	261
21.3	24.8	31.1	40.0	51.9	65.4	79.9	99.9
13.0	15.1	19.1	25.4	33.1	41.7	50.9	63.6
4100	4750	6000	8000	10400	13100	16000	20000
300	300	300	300	300	300	300	300
F7	F7	F7	F7	F7	F7	F7	F7
M5	M5	M5	M5	M5	M5	M5	M5
3.9	3.9	3.6	4.8	6.2	7.3	8.9	10.9
27.5	33.4	42.2	56.3	73.2	92.2	112.6	140.7
1.21	1.47	1.86	2.48	3.22	4.06	4.95	6.19
0.7	0.7	0.8	0.7	0.7	1.5	1.2	1.3
5/4"	5/4"	5/4"	2"	2"	2"	2 1/2"	2 1/2"
76.7	80.1	75.5	75.6	75.5	82.1	82.3	83.1
1.3	1.3	1.7	2.4	3.1	3.8	4.8	5.6
3.3	3.3	4.7	6.4	4.8	6.4	7.0	9.2
0.7	1.0	1.3	1.8	2.5	3.0	3.7	4.4
2.5	2.5	3.3	4.7	6.4	4.8	5.3	7.0
ZR34	ZR40	ZR48	ZR61	ZR72	ZR81	ZR94	ZR125
2.4	2.9	3.5	4.3	5.0	5.6	6.7	8.6
4.8	5.6	6.9	7.9	9.1	11.2	13.4	15.8
4.9	5.7	7.1	9.3	11.6	13.7	16.7	20.5
11.5	12.3	16.1	20.5	21.9	24.2	27.8	34.6
16	20	20	25	25	32	32	40
2.5	4	4	4	4	6	6	10

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TP12114_EN – v.1 11/2017