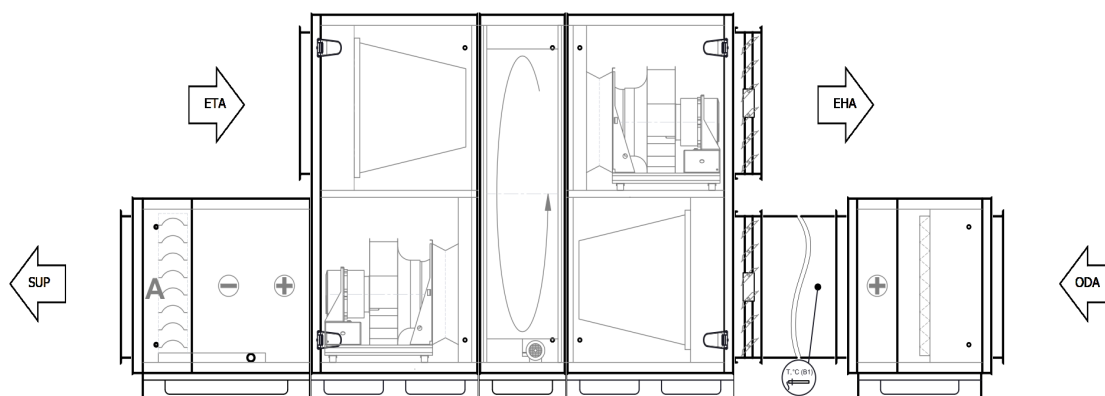


Projekt: TechHUB KI

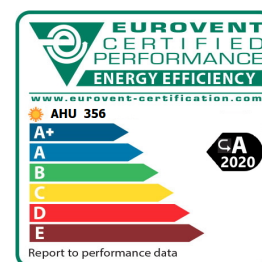
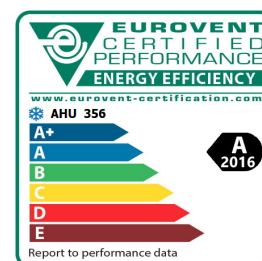
Naslov: Medetaža

Model:

**VERSO-R-40-L/AZ-H-PM/IE5/4.4/2-F7-M5-HW/3R/2.6-CW/4R/2.6-L1-C5-O/G4/HW/1R/4**


## TEHNI NA SPECIFIKACIJA

velikost klimata	40		
Tipologija	NSPE		
	DPE		
Vrsta HRS	Rotacijski toplotni izmenjevalec		
Air handling unit data			
RLT class	A		
		Vtok	Odtok
Nominalna stopnja pretoka	[m³/h]	6880	4500
	[m³/s]	1,91	1,25
Nazivni zunanji tlak	[Pa]	400	400
Hitrost dotoka pri na rtovani stopnji pretoka	[m/s]	1,94	
SFPv	[kW/m³/s]	2,16	
The thermal efficiency of HRS	[%]	76	
Calculation data			
		Zima	Poletje
Design outdoor temperature	[°C]	-13	32
Outdoor relative humidity	[%]	90	40
Indoor temperature	[°C]	20	24



VERSO-R-40-L/AZ-H-PM/IE5/4.4/2-F7-M5-HW/3R/2.6-CW/4R/2.6-L1-C5-O/G4/HW/1R/4

Datum: 04.09.2024

Indoor relative humidity	[%]	40	55
Atmosferski tlak	[Pa]	101325	
Gostota zraka	[kg/m³]	1,2	
Air handling unit location		Ljubljana, Slovenia	
Dry-bulb temperature (TdryS)	[°C]	31,9	
Wet-bulb temperature (TwetS)	[°C]	20,9	
Dew-point temperature (Tdw-pS)	[°C]	15,5	
Dry-bulb temperature (TdryW)	[°C]	-6,8	

#### Electrical data

Number of electrical input	1
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#### AHU

Electrical connection	~400V / 50Hz / 3-phase / 5x2,5mm² / 16,6A
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#### Avtomatsko krmiljenje

Tip	C5
Control panel	C5.1

#### functions

Two flow VAV
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#### accessories

VAVsensor x 2
Surface temperature sensor(PavTMP/J) x 2



#### COMMISSION REGULATION (EU) No 1253 (ecodesign requirements)

		Value	2018
The thermal efficiency of HRS, $\eta_{nrvu}$ (EN308)	[%]	76	73
Internal specific fan power, SFPint	[W/m³/s]	795	938
Type of drive - variable speed		Installed	Necessary
Thermal by-pass facility		Exist	Necessary
Warning - filter is clogged		Exist	Necessary
Unit conformity assessment			Complies

Notranji padec tlaka prezra evalnih elementov ( $P_s$ , int)	[Pa]	494
Notranji padec tlaka neprezra evalnih elementov ( $P_s$ , add)	[Pa]	371
Effective electric power input of the fans (clean filter)	[kW]	4,13

#### Osnovna sestava STANDART5

Paneli iz dveh pocinkanih ploevin, polnilo iz termo in zvo ne izolacije požarno odporna miner. volna ( $\lambda = 0,036$  W/mK).

AHU painted C3 class, RAL 7035.

Indoor unit.

When filters gets dirty, unit control panel gives notice to change the filters.

Dirty filters cause increased energy consumption, which decreases performance and energy efficiency of the unit, so it is very important to change the filters regularly.

AHU shall operate with variable speed drive.

Instructions: [www.komfovent.com/en/downloads](http://www.komfovent.com/en/downloads)

Thermal insulation class	T2
Thermal bridging class	TB2
Casing strength	D1 (M)
Filter bypass leakage	F9 (M)
Casing air leakage	L1(R)

Casing air leakage (Model Box, EN 1886)

-400 Pa (L1)	[dm <sup>3</sup> /(s·m <sup>2</sup> )]	0,03
+700 Pa (L1)	[dm <sup>3</sup> /(s·m <sup>2</sup> )]	0,14

Najve ja stopnja zunanega puš anja - 400 Pa (R)	[%]	< 1
Najve ja stopnja zunanega puš anja + 400 Pa (R)	[%]	< 1
Najve ja stopnja notranjega puš anja ali prenos	[%]	0,06

### AHU configuration

Separate sections with base frame connected to each section

Debelina panela	[mm]	45
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### Teža klimata

Teža (neto)	[kg]	1007
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### Pallets

VKA	[mm]	750x1850(136kg)
AVK	[mm]	950x1750(181kg)
FVS(S)+RO	[mm]	1500x1650(461kg)
FVS	[mm]	1000x1650(229kg)

### Dodatna oprema

Adjustable feet (RegKoj)
Screwed dampers (PrisSkl)

## GLASNOST

Nivo zvo nega tlaka Lw	na kanale				v okolico
	Pretok vto nega zraka [dB]		Pretok odto nega zraka [dB]		[dB]
F[Hz]	Zajem	Izpuh	Zajem	Izpuh	
63	61,3	71,2	57,0	64,7	63,1
125	58,4	69,5	55,9	62,5	59,1
250	64,0	76,7	63,1	68,2	57,9
500	57,3	74,3	57,7	66,6	49,3
1000	53,5	74,4	50,5	69,2	51,7
2000	49,4	68,2	46,5	64,6	43,6
4000	44,4	63,2	43,9	62,1	36,8

8000	39,2	55,3	38,7	58,8	34,4
dB(A)	60	78	59	73	55

**Preheater**
**Prefilter**

Tip	Panel air filter	
Energy efficiency class		
Razred filtra:	G4	
Razred filtra (EN ISO 16890)	Coarse 65%	
Dimenzije bxhxl	[mm]	645x470x46
Energijska u inkovitost	[kWh/a]	
Število filtrov	3	
Tla ni padec (nov filter)	[Pa]	62
Tla ni padec	[Pa]	87
Priporo eni max tla ni padec (EN 13779 2007)	[Pa]	112

**Vodni grelec zraka**

HW-G20-01R-1277-0540-100-1x04C-40F-M1-C40-IS2-XX-1xR¾/1xR¾-180		
Kapaciteta	[kW]	23,1
Standardni zra ni pretok	[m³/h]	6880
Hitrost	[m/s]	2,45
Tla ni padec	[Pa]	19
Temperatura zajema	[°C]	-13,0
Rel. vlaga zajema	[%]	90
Outlet air temperature	[°C]	-3,0
Rel. vlaga izpuha	[%]	38
Absolutna vlaga	[g/kg]	1,10
Medij	Voda	
Temperatura zajema	[°C]	50
Temperatura izpuha	[°C]	40
Notranji volumen	[dm³/h]	2155
Tla ni padec	[kPa]	18,39
Etilenglikol volumen	[%]	30

**Tehni na specifikacija**

Cevi	Baker	
Plates	Aluminij	
Volumen	[m³]	0,0037
Koristni prostor	[m²]	8,80
Razdalja med lamelami	[mm]	4,0

Rows		1
Circuits		4
Povezava vtoka	["]	1xR¾
Povezava iztoka	["]	1xR¾
L	[mm]	100
B	[mm]	1400
H	[mm]	620
Omejitve		
Max hidravli ni tlak	[bar]	21
Max temperatura medija	[°C]	130

**Rotacijski toplotni izmenjevalec**
**RR-AZ-1300-L-O-SN(1406x1430x310)-P2-C1-T**

Frekven cikl	[kW]	0,25
Enthalpy		
Purge sector		
Designed for dry conditions		
Preme	[mm]	1300
Višina vala	[mm]	1,7
Gostota	[kg/m³]	1,2
Heat recovery class (EN13053)		H4
Efficiency bonus (E), (EU 1253)		75

		Zima		Poletje	
		Vtok	Odtok	Vtok	Odtok
Izkoristek temperature	[%]	53,6		53,6	
Izkoristek vlage	[%]	78,9		75,7	
Tla ni padec	[Pa]	185	116	185	116
Hitrost	[m/s]	2,96	1,93	2,96	1,93
Standardni zra ni pretok	[m³/h]	6880	4500	6880	4500

**Zajem**

Temperatura	[°C]	-3	20	32	24
Relativna vlaga	[%]	38	40	40	55
Absolutna vlaga	[g/kg]	1,09	5,82	11,96	10,29
Enthalpy	[kJ/kg]	-0,30	34,89	62,81	50,32

**Izpuh**

Temperatura	[°C]	9,3	-0,6	27,7	31,2
Relativna vlaga	[%]	66	84	46	39
Absolutna vlaga	[g/kg]	4,82	3,04	10,70	11,22
Enthalpy	[kJ/kg]	21,52	6,99	55,17	60,05

**Povratek energije**

Sensible heat	[kW]	28,6	-10,1		
Latent heat	[kW]	21,5	-7,4		
Total heat	[kW]	50	-17,5		
Recovery of moisture	[g/kg]	3,7	-2,8	-1,3	0,9
OACF		1,15		1,15	
OACF at working point		1,01		1,01	
EATR at working point	[%]	0,2		0,2	

**PRETOK VTO NEGA ZRAKA**
**Žaluzija s pogonom**

Zra na žaluzija iz alu profila		
Tip pogona	ON/OFF with spring return (AC/DC 24V)	
Torque	[Nm]	4
Tla ni padec	[Pa]	6

**Filter zraka**

Filter correction (F), (EU 1253)	0	
Tip	Vre ast filter	
Energy efficiency class		
Air velocity class (EN13053)	V3	
Razred filtra:	F7	
Razred filtra (EN ISO 16890)	ePM1 60%	
Dimenzije bxhxl	[mm]	592x592x500
Energijska u inkovitost	[kWh/a]	1009
Število vre	8	
Število filtrov	2	
Tla ni padec (nov filter)	[Pa]	88
Tla ni padec	[Pa]	138
Priporo eni max tla ni padec (EN 13779 2007)	[Pa]	188
Velocity in the AHU filter section	[m/s]	1,94
Effective filtration area	[m²]	9,36

**Vodni grelec zraka**

HW-G10-03R-1270-0540-100-1x13C-26F-M1-C40-IS2-XX-1xR1/1xR1-180		
Kapaciteta	[kW]	34,2
Standardni zra ni pretok		
Hitrost	[m³/h]	6880
Hitrost	[m/s]	2,68
Tla ni padec	[Pa]	60
Temperatura zajema		
Rel. vlaga zajema	[%]	66

Varnost pri kapaciteti	[%]	20
Outlet air temperature	[°C]	24,0
Rel. vlaga izpuha	[%]	26
Absolutna vlaga	[g/kg]	4,81
Medij		Voda
Temperatura zajema	[°C]	50
Temperatura izpuha	[°C]	40
Notranji volumen	[dm³/h]	3187
Tla ni padec	[kPa]	18,02
Etilenglikol volumen	[%]	30

#### Tehni na specifikacija

Cevi		Baker
Plates		Aluminij
Volumen	[m³]	0,0062
Koristni prostor	[m²]	41,37
Razdalja med lamelami	[mm]	2,6
Rows		3
Circuits		13
Povezava vtoka	["]	1xR1
Povezava iztoka	["]	1xR1
L	[mm]	100
B	[mm]	1400
H	[mm]	620
Omejitve		
Max hidravli ni tlak	[bar]	21
Max temperatura medija	[°C]	130

#### Hladilec zraka

CW-G10-04R-1253-0540-160-1x13C-26F-M1-C40-IS2-XX-1xR1¼/1xR1¼-180

Kapaciteta	[kW]	24,8
Sensible	[kW]	22,8
Latent	[kW]	2,0
Standardni zra ni pretok	[m³/h]	6880
Hitrost	[m/s]	2,90
Pressure drop (standard)	[Pa]	89
Pressure drop dry	[Pa]	86
Temperatura zajema	[°C]	27,7
Rel. vlaga zajema	[%]	46

Outlet air temperature	[°C]	18,0
Rel. vlaga izpuha	[%]	80
Absolutna vlaga	[g/kg]	10,39

Medij		Voda
Temperatura zajema	[°C]	9
Temperatura izpuha	[°C]	14
Notranji volumen	[dm³/h]	4694
Tla ni padec	[kPa]	44,50
Etilenglikol volumen	[%]	30
Kondenzacija	[kg/h]	2,82

#### Tehni na specifikacija

Cevi		Baker
Plates		Aluminij
Volumen	[m³]	0,0083
Koristni prostor	[m²]	54,37
Razdalja med lamelami	[mm]	2,6
Rows		4
Circuits		13
Povezava vtoka	["]	1×R1¼
Povezava iztoka	["]	1×R1¼
L	[mm]	160
B	[mm]	1390
H	[mm]	620
Omejitev		
Max hidravli ni tlak	[bar]	15
Max temperatura medija	[°C]	52

#### Separator kapljic z odvodom kondenza

Condensate drip pan material		Stainless steel
Tla ni padec	[Pa]	28

#### Impeller

Designed for wet conditions		
Tip		RH45C.CR
Premier kolesa	[mm]	450
Zra ni pretok	[m³/h]	6880
Built-in loss	[Pa]	46
Stati ni tlak	[Pa]	1057
Skupni tlak	[Pa]	1115
Izkoristek	[%]	75,1
Shaft power	[kW]	2,69
Shaft power (clean filters)	[kW]	2,49
Hitrost	[1/min]	2192



Max. speed	[1/min]	2970
K-value		197

**Motor PM**

Motor efficiency class		IE5 (Ultra Premium)
Motor power	[kW]	4,4
Hitrost	[1/min]	3000
Izkoristek	[%]	91.5
Input current at 400V 50 Hz	[A]	8,9
FOP	[Hz]	183
Frekvenca	[kW]	4.4

**Ventilator**

SFPv	[kW/m³/s]	1,50
SFP class (EN16798-3)		SFP 4
Electric power to motor (Pm)	[kW]	3,11
Electric power to motor (clean filters)	[kW]	2,87
Electric power to motor class (EN13053)		P1
Pm ref (EN13053)	[kW]	4,07
Total fan efficiency	[%]	68,6
Static fan efficiency	[%]	65
Overall efficiency ErP	[%]	64,45

**PRETOK ODTOKA NEGATIVNEGA**
**Žaluzija s pogonom**

Zračenje žaluzija iz alu profila		
Tip pogona		ON/OFF with spring return (AC/DC 24V)
Torque	[Nm]	5
Tlačni padec	[Pa]	3

**Filter zraka**

Filter correction (F), (EU 1253)		0
Tip		Vrednotilnik
Energy efficiency class		
Air velocity class (EN13053)		V1
Razred filtra:		M5
Razred filtra (EN ISO 16890)		ePM10 60%
Dimenzije b x h x l	[mm]	592x592x500
Energijska učinkovitost	[kWh/a]	1000
Število vre		8
Število filtrov		2
Tlačni padec (nov filter)	[Pa]	29
Tlačni padec	[Pa]	58

Priporo eni max tla ni padec (EN 13779 2007)	[Pa]	87
Velocity in the AHU filter section	[m/s]	1,27
Effective filtration area	[m²]	9,36

**Impeller**

Tip		RH40C.CR
Premier kolesa	[mm]	400
Zra ni pretok	[m³/h]	4500
Built-in loss	[Pa]	32
Stati ni tlak	[Pa]	608
Skupni tlak	[Pa]	648
Izkoristek	[%]	74,7
Shaft power	[kW]	1,02
Shaft power (clean filters)	[kW]	0,97
Hitrost	[1/min]	1923
Max. speed	[1/min]	3340
K-value		154

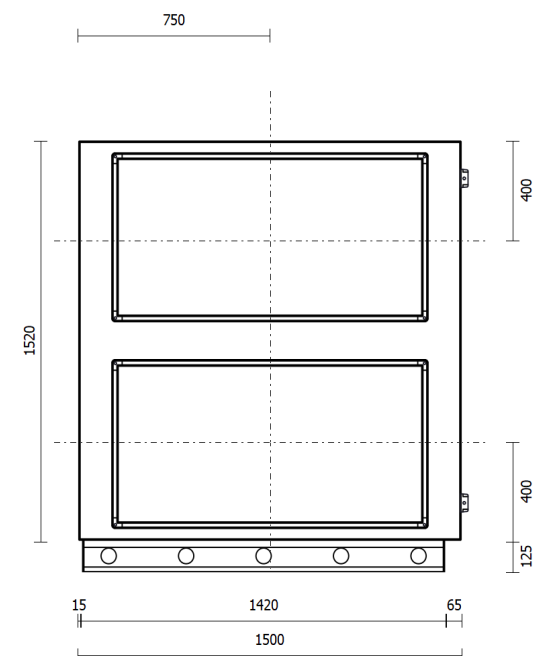
**Motor PM**

Motor efficiency class		IE5 (Ultra Premium)
Motor power	[kW]	2
Hitrost	[1/min]	3160
Izkoristek	[%]	92.5
Input current at 400V 50 Hz	[A]	4,1
FOP	[Hz]	160
Frekven nik	[kW]	2

**Ventilator**

SFPv	[kW/m³/s]	1,01
SFP class (EN16798-3)		SFP 3
Electric power to motor (Pm)	[kW]	1,32
Electric power to motor (clean filters)	[kW]	1,26
Electric power to motor class (EN13053)		P1
Pm ref (EN13053)	[kW]	1,65
Total fan efficiency	[%]	61,33
Static fan efficiency	[%]	57,51
Overall efficiency ErP	[%]	66,63

We reserve the rights to change technical data of the products in the process of their improvement without advance notice. Validity period of presented data - 1 month



Note: Due to the tolerances of the individual parts and the sealing gaskets used, the actual dimensions may vary slightly.

Ventilation equipment installation specification 04.09.2024

Ventilation device model VERSO-R-40-L/AZ-H-PM/IE5/4.4/2-F7-M5-HW/3R/2.6-CW/4R/2.6-L1-C5-O/G4/HW/1R/4

Notes

Kontaktna oseba:

Nr.	Title	AX code	Quantity
1	Avtomatsko krmiljenje C5		1

**Pretok vto nega zraka**

2	Filter zraka: 592x592x500\8	771400094	2
3	Rotacijski toplotni izmenjevalec RR-AZ-1300-L-O-SN(1406x1430x310)-P2-C1(C5)	764197295	1
4	Preheater HW-G20-01R-1277-0540-100-1x04C-40F-M1-C40-IS2-XX-1xR¾/1xR¾-180	0	1
5	Filter zraka: 645x470x46	774000067	3
6	Grelec zraka HW-G10-03R-1270-0540-100-1x13C-26F-M1-C40-IS2-XX-1xR1/1xR1-180	0	1
7	Hladilec zraka CW-G10-04R-1253-0540-160-1x13C-26F-M1-C40-IS2-XX-1xR1¼/1xR1¼-180	0	1
8	Ventilator RH45C.CR_4.4	1050481	1
9	Frekven niki DF2-442M0	1048627	1
10	Dodatna oprema		

**Pretok odto nega zraka**

11	Filter zraka: 592x592x500\8	771200195	2
12	Ventilator RH40C.CR_2	1032646	1
13	Frekven niki DF2-202M0	1027233	1
14	Dodatna oprema		