

redge[®] FORMERLY
LENNOX



ONEAIR

Compact AHU



Application guide



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COMPACT

ONEAIR EDGE

- 50 mm Magnelis structure
- Mineral Wool Insulation
- Rotary HE - Air flow up to 8.000 m³/h
- Counterflow HE - Airflow up to 6.000 m³/h
- High Efficiency - Up to 93% HR
- Compliant with EN1886 STD: T2,TB2,L1,D1,F9



ONEAIR S

- Ceiling suspended AHU
- 40 mm Aluzinc AZ150 (MW)
- Air flow up to 3.300 m³/h
- Counterflow HE
- Mineral Wool Insulation
- Up to 93% HR Efficiency
- Compliant with EN1886 STD: T2,TB3,L1,D1,F9



COMPACT

ONEAIR FM

- Floor mounting AHU
- 40 mm Aluzinc AZ150
- Air flow up to 16.000 m³/h
- Mineral Wool Insulation
- Rotary & Counterflow HE
- Compliant with EN1886 STD: T2,TB3,L1,D1,F9



MODULAIR

ONEAIR M

- 50 mm Aluzinc AZ150
- PU foam insulation
- Air flow up to 80.000 m³/h
- Up to 92% of Energy recovery Efficiency





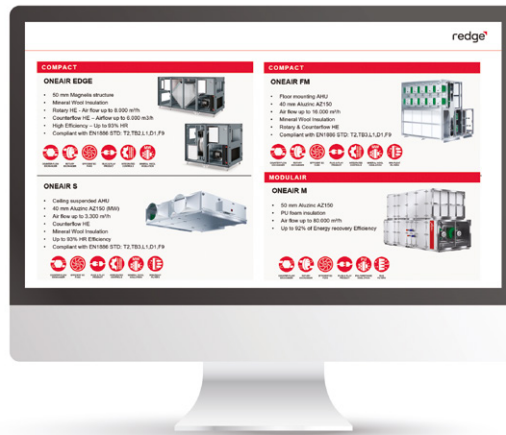
Support
for designers



SELECTION SOFTWARE

Infinite number
of configurations

Friendly
user interface



Simple
and easy selection

Integration with CRM,
ERP & WMA systems

ONEAIRCALC OPTIMIZED FOR

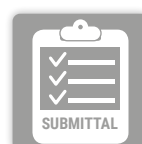
» any
web-browser



» any operating system



DATA EXPORT TO





OneairCalc utilises latest technologies and software platforms. The tool has been developed in SaaS model (Software as a Service). It's best advantage is, that service is accessible wherever in the world. Any device equipped with web-browser and internet access is all you need to experience the power of our OneairCalc.

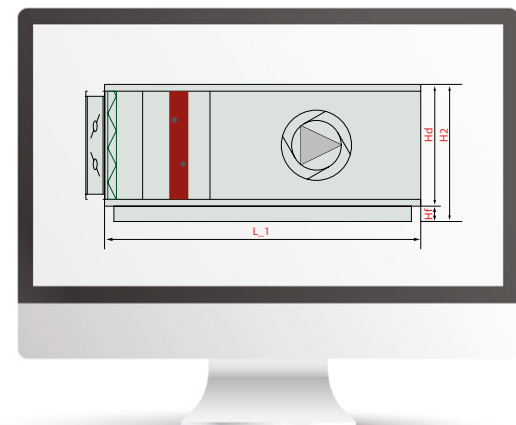
DESIGN VERSATILITY

- » Infinite units configurations.
- » Detecting of configurations errors.



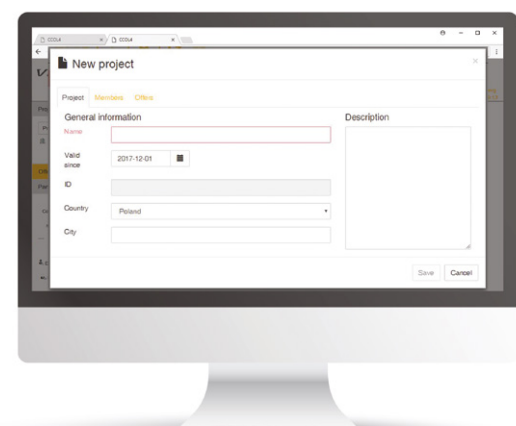
DYNAMIC AHU LENGTH DEFINITION

- » OneairCalc applies dynamic optimizing of AHU length based on automatic air treatment functions. placements with regard to minimum gaps between them in order to secure their proper performance.



MANAGING OF YOUR DATA BASE

- » Self-creating and development by designer of own projects and AHU selections data base.
- » Sharing of self-made AHU selections with Redge engineers for pricing.







ONEAIR M



DURABLE
AND TIGHT
STRUCTURE



RELIABLE
COMPONENTS

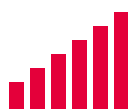


Airflow

from **1 100** m³/h
from **100 000** m³/h



Up to **92%**
of energy recovery
efficiency



14
sizes



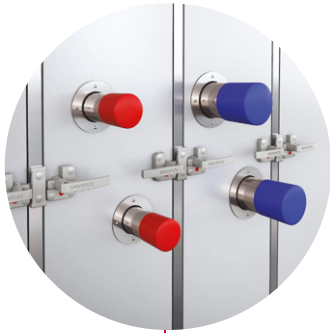
SMART
CONTROLS



USER
SAFETY

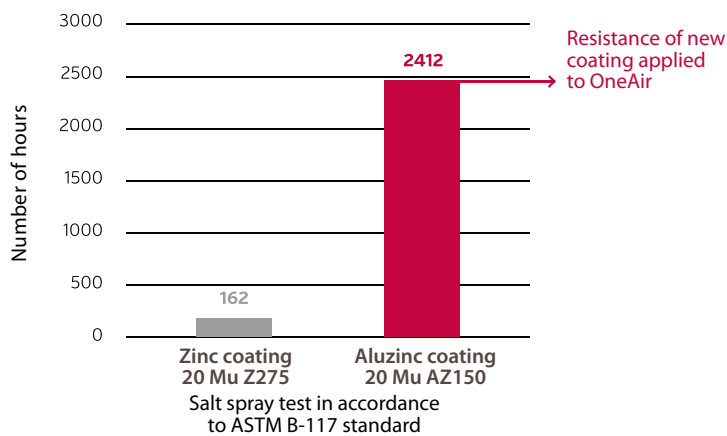


STRUCTURE



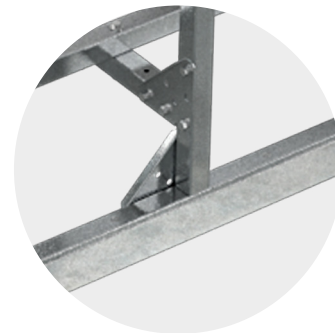
STEEL SKIN COATED
WITH ALUZINC AZ 150

CORROSION RESISTANCE



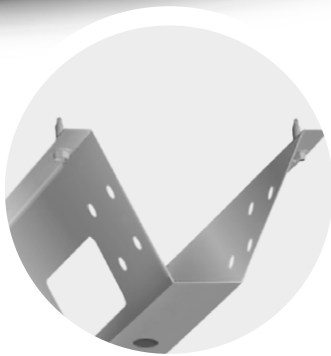
CASING SKIN

- » Rigid, durable structure of the casing.
- » Low absorption of heat radiation and UV.
- » High resistance to weather conditions.



FAN SECTION CAGE

- » Improved longitudinal rigidity of the structure.
- » Facilitated sections joining.



PROFIL V

LX 021-180



PROFIL C

LX 230-650

STEEL BASE FRAME
AS **STANDARD** FOR ANY TYPE
OF UNITS

ALUMINUM
POSTS
OF SPECIAL
CONSTRUCTION
IN EACH AHU
TYPE

FOUNDATION

- » Transport facilitation.
- » High resistance of the frame to deflection.

STRUCTURAL POSTS

- » Broken thermal bridges as standard.
- » High resistance to weather conditions and UV radiation.



TIGHTNESS



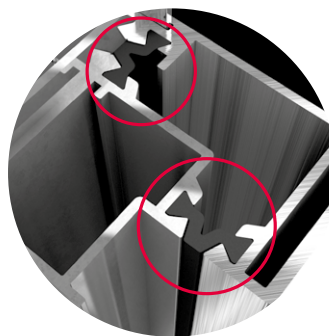
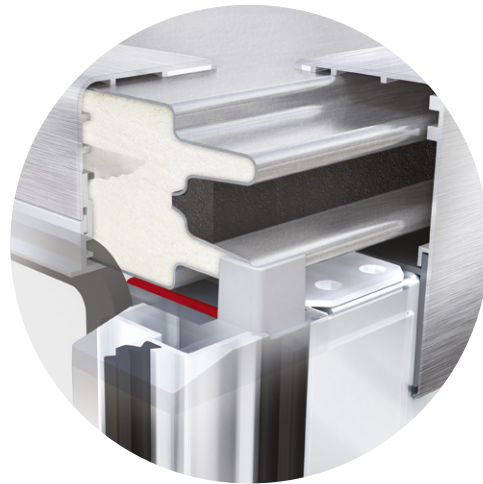
CANOPY

- » The canopy is made of 0,5 mm steel sheet, double side coated with 185 um of zinc (DX51D AZ185).
- » Canopy is assembled of modules equipped with self-latching grooves securing perfect tightness of the joints. Modular structure of the canopy ensures its easy and safe assembly.

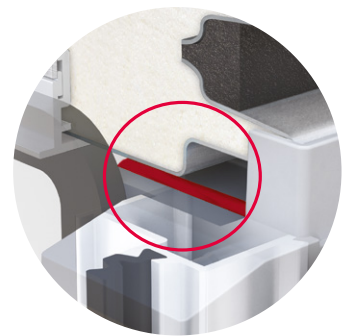


ERGONOMIC INSPECTION PANEL LOCK

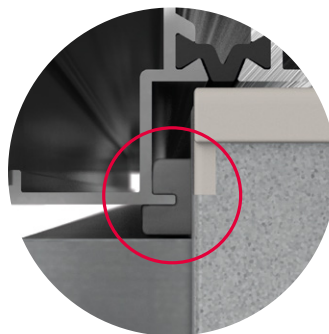
- » Highly aesthetic and ergonomic handles securing perfect tightness of inspection panels.



**THERMAL
BREAK**



**LABYRINTH
TIGHTENING**



**ADDITIONAL
POST SEALING**



**ADDITIONAL
SEALING BLADE**

ALUMINUM STRUCTURAL POSTS WITH ADDITIONAL SEALING BLADE AND THERMAL BREAK

- » Broken thermal bridge as standard – eliminates humidity condensation on units structural elements.
- » Blade along the inspection window ensures labyrinth tightening between panel and AHU body – currently the most effective solution on the market, mainly applied to laboratory equipment.
- » Symmetrical groove in the vertical post's mounting feet secures its 100% tightness with the AHU casing structure.

LX 021-120 – RECUPERATOR (HEX & PREMIUM PLUS)

[illegible]

Selected configurations		Dimension	Length of selected configurations							
										
										
										
 FPDV/FVPD_cd	L2	[mm]	2 928	3 294	3 294	3 294	3 294	4 026	4 026	
	L1		2 562	2 928	2 928	2 928	3 294	4 026	4 026	
	K		366	366	366	366	0	0	0	
	Lt		2 928	3 294	3 294	3 294	3 294	4 026	4 026	
 FPDHV/FVPD_cd	L2		2 928	3 294	3 294	3 294	3 294	4 026	4 026	
	L1		2 562	2 928	2 928	2 928	3 294	4 026	4 026	
	K		366	366	366	366	0	0	0	
	Lt		2 928	3 294	3 294	3 294	3 294	4 026	4 026	
 FPDHV/FVPD_cd	L2		2 928	3 294	3 294	3 294	3 294	4 026	4 026	
	L1		2 928	3 294	3 294	3 294	3 294	3 660	4 392	4 392
	K		0	0	0	0	0	0	0	
	Lt		2 928	3 294	3 294	3 294	3 660	4 392	4 392	
 FPDMHV/FVMPD_cd	L2		2 928	3 294	3 294	3 294	3 294	4 026	4 026	
	L1		2 928	3 294	3 294	3 294	3 660	4 392	4 392	
	K		0	0	0	0	0	0	0	
	Lt		2 928	3 294	3 294	3 294	3 660	4 392	4 392	
 FPHCV/FVPD_cd	L2	2 928	3 294	3 294	3 294	3 294	4 026	4 026		
	L1	3 294	3 660	3 660	3 660	4 026	4 758	4 758		
	K	0	0	0	0	0	0	0		
	Lt	3 294	3 660	3 660	3 660	4 026	4 758	4 758		
 FPDMHCV/FVMPD_cd	L2	2 928	3 294	3 294	3 294	3 294	4 026	4 026		
	L1	3 294	3 660	3 660	3 660	4 026	4 758	4 758		
	K	0	0	0	0	0	0	0		
	Lt	3 294	3 660	3 660	3 660	4 026	4 758	4 758		

Entire range of configuration
in OneairCalc selection tool.

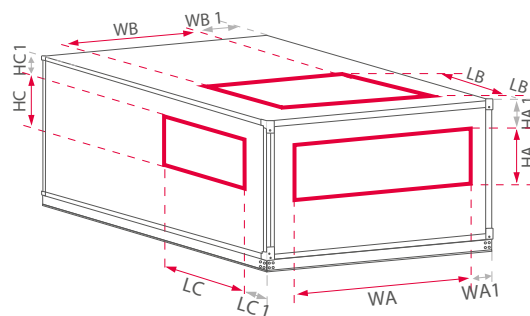
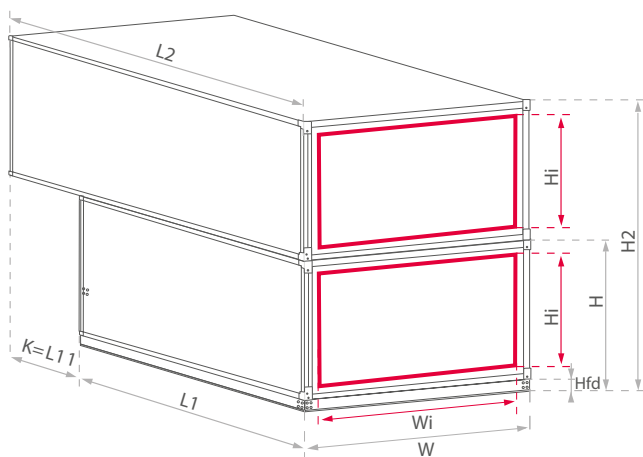
www.oneaircalc.com





DIMENSIONS - LX 021-120

– RECUPERATOR (HEX & PREMIUM PLUS)



Full-face horizontal outlet
END (FF)



Size	WA	HA	WA1	HA1
LX021	821	313	70	67,5
LX030	821	440	70	70
LX040	1 028	440	70	70
LX055	1 199	575	70	70
LX075	1 340	695	70	70
LX100	1 520	795	70	70
LX120	1 751	832	70	70

Small horizontal inlet-outlet
END (FS)



Size	WA	HA	WA1	HA1
LX021	500	220	228	112
LX030	500	220	228	178
LX040	660	250	252	163
LX055	821	440	257	135
LX075	1 028	440	224	195
LX100	1 199	575	228	200
LX120	1 199	575	344	196

Vertical inlet-outlet
END (US)



Size	WB	LB	WB1	LB1
LX021	500	220	228	200
LX030	500	220	228	200
LX040	660	250	252	200
LX055	821	440	257	200
LX075	1 028	440	224	200
LX100	1 199	575	228	125
LX120	1 199	575	344	125

Vertical outlet
END (US)



Size	WB	LB	WB1	LB1
LX021	660	250	152	212
LX030	613	380	173	127
LX040	821	440	175	127
LX055	1 028	440	157	212
LX075	1 199	575	142	212
LX100	1 340	695	162	212
LX120	1 520	795	187	127

Side inlet-outlet
END (BS)



Size	HC	LC	HC1	LC1
LX021	213	380	115	165
LX030	313	380	131	165
LX040	313	380	131	165
LX055	413	380	149	165
LX075	413	380	209	165
LX100	613	380	159	165
LX120	613	380	177	165

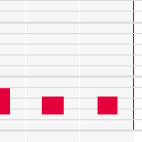
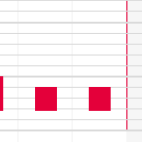
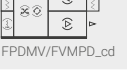
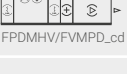
Side outlet
END (BS)



Size	HC	LC	HC1	LC1
LX021	213	380	114	202
LX030	313	380	180	202
LX040	313	380	165	202
LX055	413	380	137	202
LX075	413	380	197	202
LX100	613	380	158	127
LX120	613	380	198	127

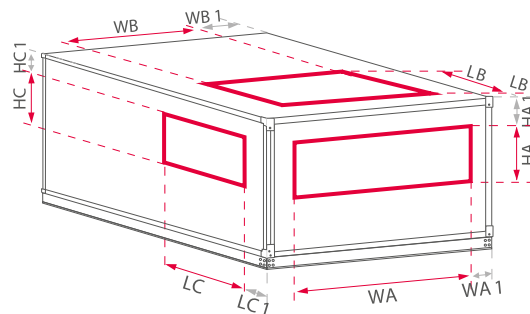
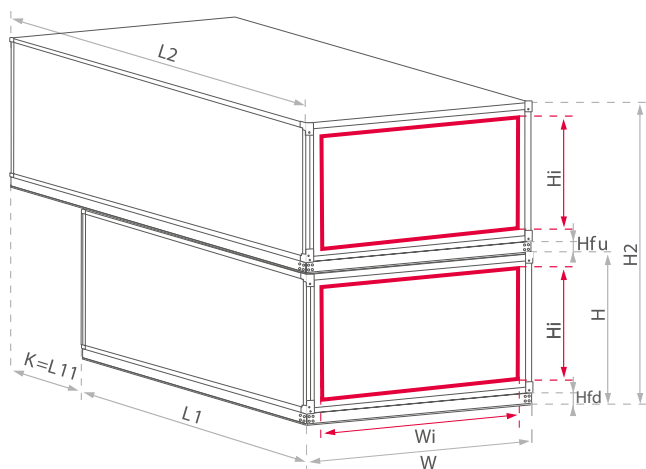


LX 150-650 - RECUPERATOR (PREMIUM PLUS)

Nominal parameters			Recommended airflow range																							
Unit size			LX150			LX180			LX230			LX300			LX400			LX500			LX650					
90 000 60 000 30 000 0		[m³/h]																								
																										
			7 167	7 167	7 167	8 640	8 640	8 640	10 398	10 398	10 398	13 491	13 491	13 491	18 704	18 704	18 704	21 817	21 817	21 817	28 725	28 725	28 725			
			19 500	15 600	15 450	23 400	18 720	18 540	29 900	23 920	23 690	39 000	31 200	30 900	52 000	41 600	41 200	71 500	57 200	56 650	84 500	67 600	66 950			
			Min airflow																							
Max airflow																										
H _{fd}	[mm]		90			120			120			120			120			120			120					
H _{fu}		0			80			80			80			80			80			80						
H		1 163			1 397			1 397			1 696			1 929			1 929			2 406						
W		2 085			2 085			2 493			2 585			3 085			3 585			3 697						
H _i		993			1 197			1 197			1 496			1 729			1 729			2 206						
W _i		2 005			2 005			2 413			2 505			3 005			3 505			3 617						
H ₂		2 236			2 754			2 754			3 352			3 818			3 818			4 772						
I			40			40			40			40			40			40			40					
Selected configurations Dimension			Length of selected configurations																							
																										
			 																							
 FPDV/FVPD_cd	L2		4 392			4 392			4 392			5 490			5 490			5 490			5 856					
	L1		4 026			4 026			4 026			5 124			5 124			5 124			5 490					
	K		366			366			366			366			366			366			366					
	Lt		4 392			4 392			4 392			5 490			5 490			5 490			5 856					
 FPDMV/FVMPD_cd	L2		4 392			4 392			4 392			5 490			5 490			5 490			5 856					
	L1		4 026			4 026			4 026			5 124			5 124			5 124			5 490					
	K		366			366			366			366			366			366			366					
	Lt		4 392			4 392			4 392			5 490			5 490			5 490			5 856					
 FPDHV/FVPD_cd	L2		4 392			4 392			4 392			5 490			5 490			5 490			5 856					
	L1		4 392			4 392			4 392			5 490			5 490			5 490			5 856					
	K		0			0			0			0			0			0			0					
	Lt		4 392			4 392			4 392			5 490			5 490			5 490			5 856					
 FPDMHV/FVMPD_cd	L2		4 392			4 392			4 392			5 490			5 490			5 490			5 856					
	L1		4 392			4 392			4 392			5 490			5 490			5 490			5 856					
	K		0			0			0			0			0			0			0					
	Lt		4 392			4 392			4 392			5 490			5 490			5 490			5 856					
 FPDHCV/FVPD_cd	L2		4 392			4 392			4 392			5 490			5 490			5 490			5 856					
	L1		4 758			4 758			4 758			5 856			5 856			5 856			6 222					
	K		0			0			0			0			0			0			0					
	Lt		4 758			4 758			4 758			5 856			5 856			5 856			6 222					
 FPDMHCV/FVMPD_cd	L2		4 392			4 392			4 392			5 490			5 490			5 490			5 856					
	L1		4 758			4 758			4 758			5 856			5 856			5 856			6 222					
	K		0			0			0			0			0			0			0					
	Lt		4 758			4 758			4 758			5 856			5 856			5 856			6 222					



DIMENSIONS - LX 150-650 - RECUPERATOR (PREMIUM PLUS)



Full-face horizontal outlet
END (FF)



Size	WA	HA	WA1	HA1
LX150	1 945	933	70	70
LX180	1 945	1 137	70	70
LX230	2 353	1 137	70	70
LX300	2 445	1 436	70	70
LX400	2 945	1 669	70	70
LX500	3 445	1 669	70	70
LX650	3 557	2 146	70	70

Small horizontal inlet-outlet
END (FS)



Size	WA	HA	WA1	HA1
LX150	1520	795	280	137
LX180	1520	713	280	239
LX230	1945	813	272	200
LX300	1945	813	318	319
LX400	2650	813	215	436
LX500	3150	813	215	436
LX650	3250	813	220	674

Vertical inlet-outlet
END (US)



Size	WB	LB	WB1	LB1
LX150	1520	795	280	200
LX180	1520	713	280	239
LX230	1945	813	272	151
LX300	1945	813	318	151
LX400	2650	813	215	151
LX500	3150	813	215	151
LX650	3250	813	220	151

Vertical outlet
END (US)



Size	WB	LB	WB1	LB1
LX150	1520	795	280	127
LX180	1520	713	293	127
LX230	1945	813	284	127
LX300	1945	813	330	127
LX400	2650	813	228	127
LX500	3150	813	228	212
LX650	3250	813	234	212

Side inlet-outlet
END (BS)



Size	HC	LC	HC1	LC1
LX150	713	740	178	165
LX180	913	740	180	165
LX230	913	740	180	165
LX300	1 213	740	179	165
LX400	1 513	740	146	165
LX500	1 513	740	146	165
LX650	1 913	740	184	165

Side outlet
END (BS)

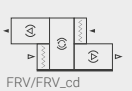
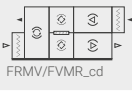
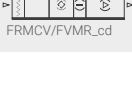


Size	HC	LC	HC1	LC1
LX150	713	740	139	202
LX180	913	740	241	202
LX230	913	740	142	127
LX300	1 213	740	321	127
LX400	1 513	740	438	127
LX500	1 513	740	438	127
LX650	1 913	740	676	127



LX 021-120 - ROTARY HEAT WHEEL

Nominal parameters			Recommended airflow range																										
Unit size			LX021			LX030			LX040			LX055			LX075			LX100			LX120								
18 000 12 000 6 000 0	[m³/h]																												
Min airflow			806	806	806	1 180	1 180	1 180	1 958	1 958	1 958	2 878	2 878	2 878	3 805	3 805	3 805	4 863	4 863	4 863	5 815	5 815	5 815						
Max airflow			2 730	2 415	2 163	3 900	3 450	3 090	5 200	4 600	4 120	7 150	6 325	5 665	9 750	8 625	7 725	13 000	11 500	10 300	15 600	13 800	12 360						
H _{fd}			90			90			90			90			90			90			90								
H _{fu}			0			0			0			0			0			0			0								
H			538			670			670			805			925			1 025			1 062								
W			961			961			1 168			1 339			1 480			1 660			1 891								
H _i			368			500			500			635			755			855			892								
W _i			881			881			1 088			1 259			1 400			1 580			1 811								
H ₂			986			1 250			1 250			1 520			1 760			1 960			2 034								
I			40			40			40			40			40			40			40								

Selected configurations		Length of selected configurations																										
Dimension																												
	[mm]	L2	1 830	1 830	1 830	2 196	2 196	2 562	2 562																			
		L1	1 830	1 830	1 830	2 196	2 196	2 562	2 562																			
		K	366	366	366	732	732	1 098	1 098																			
		Lt	1 830	1 830	1 830	2 196	2 196	2 562	2 562																			
	[mm]	L2	2 562	2 562	2 562	2 928	2 928	3 294	3 294																			
		L1	2 562	2 562	2 562	2 928	2 928	3 294	3 294																			
		K	366	366	366	366	366	366	366																			
		Lt	2 562	2 562	2 562	2 928	2 928	3 294	3 294																			
	[mm]	L2	1 830	1 830	1 830	2 196	2 196	2 562	2 562																			
		L1	2 196	2 196	2 196	2 562	2 562	2 928	2 928																			
		K	366	366	366	732	732	1 098	1 098																			
		Lt	2 196	2 196	2 196	2 562	2 562	2 928	2 928																			
	[mm]	L2	2 562	2 562	2 562	2 928	2 928	3 294	3 294																			
		L1	2 928	2 928	2 928	3 294	3 294	3 660	3 660																			
		K	0	0	0	0	0	0	0																			
		Lt	2 928	2 928	2 928	3 294	3 294	3 660	3 660																			
	[mm]	L2	1 830	1 830	1 830	2 196	2 196	2 562	2 562																			
		L1	2 196	2 196	2 196	2 562	2 562	2 928	2 928																			
		K	366	366	366	732	732	1 098	1 098																			
		Lt	2 196	2 196	2 196	2 562	2 562	2 928	2 928																			
	[mm]	L2	2 562	2 562	2 562	2 928	2 928	3 294	3 294																			
		L1	2 928	2 928	2 928	3 294	3 294	3 660	3 660																			
		K	0	0	0	0	0	0	0																			
		Lt	2 928	2 928	2 928	3 294	3 294	3 660	3 660																			

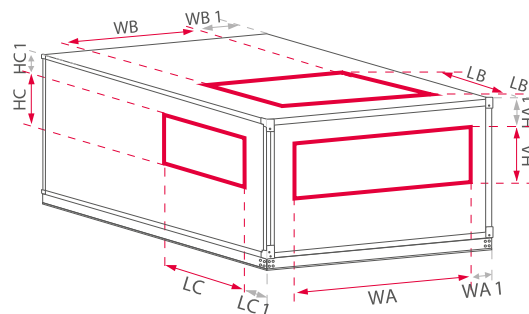
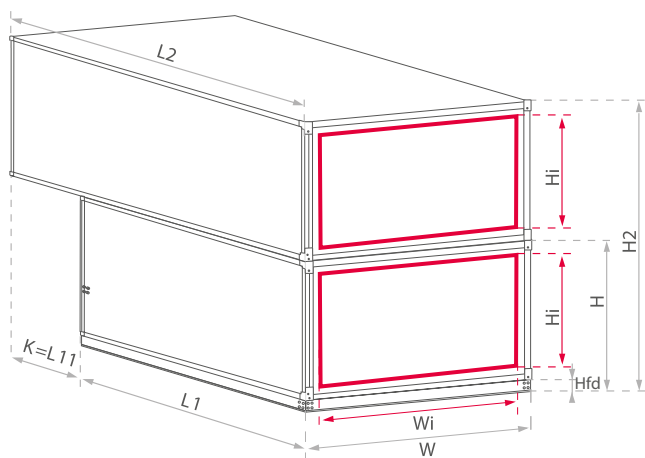
Entire range of configuration
in OneairCalc selection tool.

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DIMENSIONS - LX 021-120 - ROTARY HEAT WHEEL



Full-face horizontal outlet
END (FF)



Size	WA	HA	WA1	HA1
LX021	821	313	70	67,5
LX030	821	440	70	70
LX040	1 028	440	70	70
LX055	1 199	575	70	70
LX075	1 340	695	70	70
LX100	1 520	795	70	70
LX120	1 751	832	70	70

Small horizontal inlet-outlet
END (FS)



Size	WA	HA	WA1	HA1
LX021	500	220	228	112
LX030	500	220	228	178
LX040	660	250	252	163
LX055	821	440	257	135
LX075	1 028	440	224	195
LX100	1 199	575	228	200
LX120	1 199	575	344	196

Vertical inlet-outlet
END (US)



Size	WB	LB	WB1	LB1
LX021	500	220	228	200
LX030	500	220	228	200
LX040	660	250	252	200
LX055	821	440	257	200
LX075	1 028	440	224	200
LX100	1 199	575	228	125
LX120	1 199	575	344	125

Vertical outlet
END (US)



Size	WB	LB	WB1	LB1
LX021	660	250	152	212
LX030	613	380	173	127
LX040	821	440	175	127
LX055	1 028	440	157	212
LX075	1 199	575	142	212
LX100	1 340	695	162	212
LX120	1 520	795	187	127

Side inlet-outlet
END (BS)



Size	HC	LC	HC1	LC1
LX021	213	380	115	165
LX030	313	380	131	165
LX040	313	380	131	165
LX055	413	380	149	165
LX075	413	380	209	165
LX100	613	380	159	165
LX120	613	380	177	165

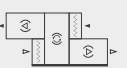
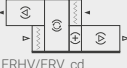
Side outlet
END (BS)



Size	HC	LC	HC1	LC1
LX021	213	380	114	202
LX030	313	380	180	202
LX040	313	380	165	202
LX055	413	380	137	202
LX075	413	380	197	202
LX100	613	380	158	127
LX120	613	380	198	127



LX 150-650- ROTARY HEAT WHEEL

Nominal parameters				Recommended airflow range																									
Unit size		LX150			LX180			LX230			LX300			LX400			LX500			LX650									
90 000 60 000 30 000 0	[m³/h]																												
		Min airflow			8 640			10 398			13 491			18 704			21 817			28 725									
		Max airflow			23 400			29 900			39 000			52 000			71 500			84 500									
H _{fd}		90			120			120			120			120			120			120									
H _{fu}		0			80			80			80			80			80			80									
H		1 163			1 397			1 397			1 696			1 929			1 929			2 406									
W		2 085			2 085			2 493			2 585			3 085			3 585			3 697									
H _i		993			1 197			1 197			1 496			1 729			1 729			2 206									
W _i		2 005			2 005			2 413			2 505			3 005			3 505			3 617									
H ₂		2 236			2 754			2 754			3 352			3 818			3 818			4 772									
I		40			40			40			40			40			40			40									
Selected configurations				Length of selected configurations																									
	L2	2 562			2 562			2 562			2 928			2 928			2 928			2 928									
	L1	2 562			2 562			2 562			2 928			2 928			2 928			2 928									
	K	1 098			1 098			1 098			1 464			1 464			1 464			1 464									
	Lt	2 562			2 562			2 562			2 928			2 928			2 928			2 928									
	L2	3 660			3 660			3 660			4 026			4 026			4 026			4 026									
	L1	3 660			3 660			3 660			4 026			4 026			4 026			4 026									
	K	0			0			0			0			0			0			0									
	Lt	3 660			3 660			3 660			4 026			4 026			4 026			4 026									
	L2	2 562			2 562			2 562			2 928			2 928			2 928			2 928									
	L1	2 928			2 928			2 928			3 294			3 294			3 294			3 294									
	K	1 098			1 098			1 098			1 464			1 464			1 464			1 464									
	Lt	2 928			2 928			2 928			3 294			3 294			3 294			3 294									
	L2	3 660			3 660			3 660			4 026			4 026			4 026			4 026									
	L1	4 026			4 026			4 026			4 392			4 392			4 392			4 392									
	K	0			0			0			0			0			0			0									
	Lt	4 026			4 026			4 026			4 392			4 392			4 392			4 392									
	L2	2 562			2 562			2 562			2 928			2 928			2 928			2 928									
	L1	2 928			2 928			2 928			3 294			3 294			3 294			3 294									
	K	1 098			1 098			1 098			1 464			1 464			1 464			1 464									
	Lt	2 928			2 928			2 928			3 294			3 294			3 294			3 294									
	L2	3 660			3 660			3 660			4 026			4 026			4 026			4 026									
	L1	4 026			4 026			4 026			4 392			4 392			4 392			4 392									
	K	0			0			0			0			0			0			0									
	Lt	4 026			4 026			4 026			4 392			4 392			4 392			4 392									

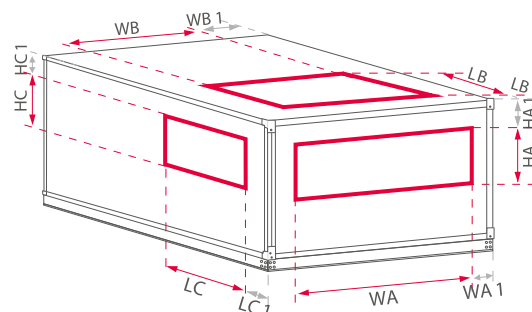
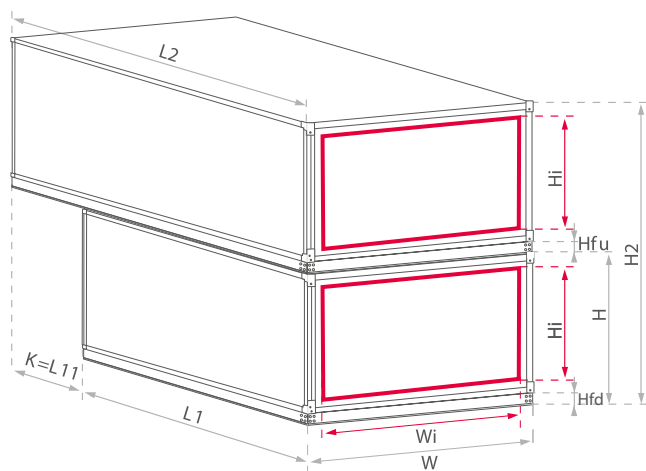
Entire range of configuration
in OneairCalc selection tool.

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DIMENSIONS - LX 150-650 - ROTARY HEAT WHEEL



Full-face horizontal outlet
END (FF)



Size	WA	HA	WA1	HA1
LX150	1 945	933	70	70
LX180	1 945	1 137	70	70
LX230	2 353	1 137	70	70
LX300	2 445	1 436	70	70
LX400	2 945	1 669	70	70
LX500	3 445	1 669	70	70
LX650	3 557	2 146	70	70

Small horizontal inlet-outlet
END (FS)



Size	WA	HA	WA1	HA1
LX150	1520	795	280	137
LX180	1520	713	280	239
LX230	1945	813	272	200
LX300	1945	813	318	319
LX400	2650	813	215	436
LX500	3150	813	215	436
LX650	3250	813	220	674

Vertical inlet-outlet
END (US)



Size	WB	LB	WB1	LB1
LX150	1520	795	280	200
LX180	1520	713	280	239
LX230	1945	813	272	151
LX300	1945	813	318	151
LX400	2650	813	215	151
LX500	3150	813	215	151
LX650	3250	813	220	151

Vertical outlet
END (US)



Size	WB	LB	WB1	LB1
LX150	1520	795	280	127
LX180	1520	713	293	127
LX230	1945	813	284	127
LX300	1945	813	330	127
LX400	2650	813	228	127
LX500	3150	813	228	212
LX650	3250	813	234	212

Side inlet-outlet
END (BS)



Size	HC	LC	HC1	LC1
LX150	713	740	178	165
LX180	913	740	180	165
LX230	913	740	180	165
LX300	1 213	740	179	165
LX400	1 513	740	146	165
LX500	1 513	740	146	165
LX650	1 913	740	184	165

Side outlet
END (BS)



Size	HC	LC	HC1	LC1
LX150	713	740	139	202
LX180	913	740	241	202
LX230	913	740	142	127
LX300	1 213	740	321	127
LX400	1 513	740	438	127
LX500	1 513	740	438	127
LX650	1 913	740	676	127



LX 021-120 - SUPPLY & EXHAUST

Nominal parameters		Recommended airflow range																											
Unit size		LX021				LX030				LX040				LX055				LX075				LX100				LX120			
20 000	[m³/h]																												
15 000																													
10 000																													
5 000																													
0																													
		⊖	⊕	⊗	⊙	⊖	⊕	⊗	⊙	⊖	⊕	⊗	⊙	⊖	⊕	⊗	⊙	⊖	⊕	⊗	⊙	⊖	⊕	⊗	⊙	⊖	⊕	⊗	⊙
Min airflow		806	806	806	806	1180	1180	1167	1167	1958	1958	1958	1958	2878	2878	2878	2878	3805	3805	3805	3805	4863	4863	4863	4863	5815	5815	5815	5815
Max airflow		2163	2730	3570	3780	3090	3900	5100	5400	4120	5200	6800	7200	5665	7150	9350	9900	7725	9750	12750	13500	10300	13000	17000	18000	12360	15600	20400	21600
H _{fd}	[mm]	90				90				90				90				90				90				90			
H		538				670				670				805				925				1 025				1 062			
W		961				961				1 168				1 339				1 480				1 660				1 891			
H _i		368				500				500				635				755				855				892			
W _i		881				881				1 088				1 259				1 400				1 580				1 811			

Selected configurations		Dimension		Length of selected configurations							
	V	Lt	[mm]	732	732	732	1 098	1 098	1 464	1 464	1 464
	FV	Lt		1 098	1 098	1 098	1 464	1 464	1 830	1 830	1 830
	FHV	Lt		1 464	1 464	1 464	1 830	1 830	2 196	2 196	2 196
	FCV	Lt		1 464	1 464	1 464	1 830	1 830	2 196	2 196	2 196
	FHCV	Lt		1 830	1 830	1 830	2 196	2 196	2 562	2 562	2 562
	FGHV	Lt		1 830	1 830	1 830	2 196	2 196	2 562	2 562	2 562
	FGV	Lt		1 464	1 464	1 464	1 830	1 830	2 196	2 196	2 196
	FGCVH	Lt		2 196	2 196	2 196	2 562	2 562	2 928	2 928	2 928

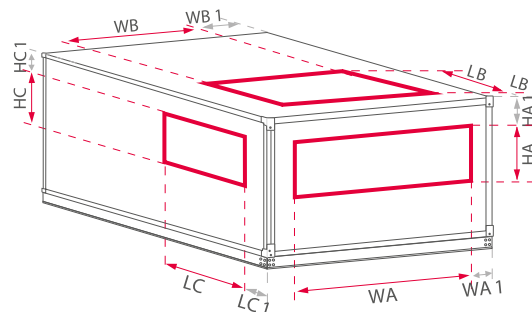
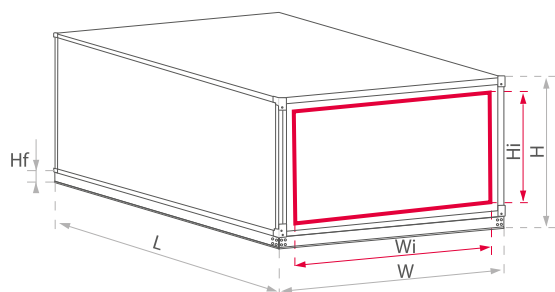
Entire range of configuration
in OneairCalc selection tool.

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DIMENSIONS - LX 0 21-120 - SUPPLY & EXHAUST



Full-face horizontal outlet
END (FF)



Size	WA	HA	WA1	HA1
LX021	821	313	70	67,5
LX030	821	440	70	70
LX040	1 028	440	70	70
LX055	1 199	575	70	70
LX075	1 340	695	70	70
LX100	1 520	795	70	70
LX120	1 751	832	70	70

Small horizontal inlet-outlet
END (FS)



Size	WA	HA	WA1	HA1
LX021	500	220	228	112
LX030	500	220	228	178
LX040	660	250	252	163
LX055	821	440	257	135
LX075	1 028	440	224	195
LX100	1 199	575	228	200
LX120	1 199	575	344	196

Vertical inlet-outlet
END (US)



Size	WB	LB	WB1	LB1
LX021	500	220	228	112
LX030	500	220	228	178
LX040	660	250	252	163
LX055	821	440	257	135
LX075	1 028	440	224	195
LX100	1 199	575	228	200
LX120	1 199	575	344	196

Vertical outlet
END (US)



Size	WB	LB	WB1	LB1
LX021	660	250	152	212
LX030	613	380	173	127
LX040	821	440	175	127
LX055	1 028	440	157	212
LX075	1 199	575	142	212
LX100	1 340	695	162	212
LX120	1 520	795	187	127

Side inlet-outlet
END (BS)



Size	HC	LC	HC1	LC1
LX021	213	380	115	165
LX030	313	380	131	165
LX040	313	380	131	165
LX055	413	380	149	165
LX075	413	380	209	165
LX100	613	380	159	165
LX120	613	380	177	165

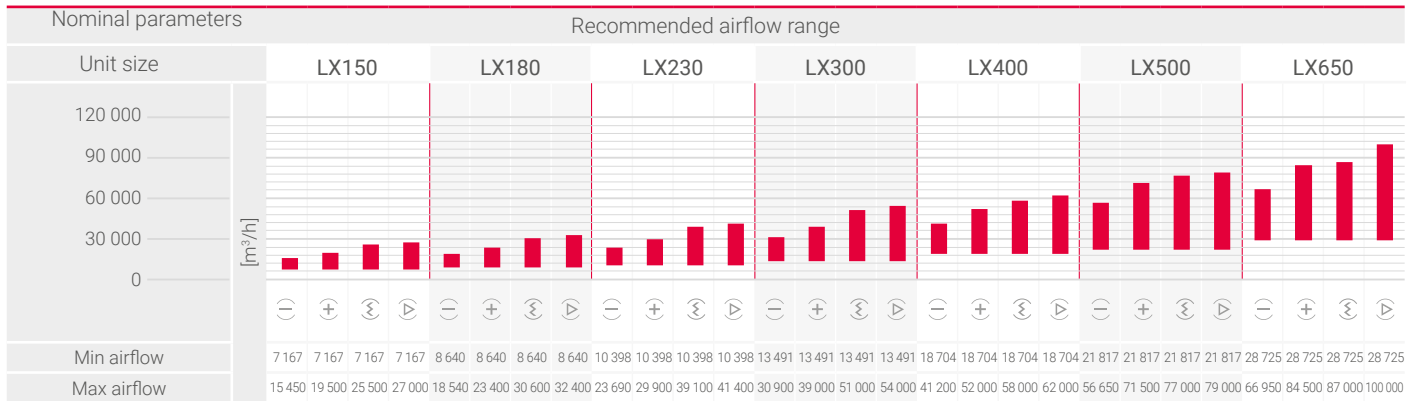
Side outlet
END (BS)



Size	HC	LC	HC1	LC1
LX021	213	380	114	202
LX030	313	380	180	202
LX040	313	380	165	202
LX055	413	380	137	202
LX075	413	380	197	202
LX100	613	380	158	127
LX120	613	380	198	127



LX 150-650 - SUPPLY & EXHAUST



Selected configurations Dimension			Length of selected configurations						
	Lt	[mm]	1 464	1 464	1 464	1 830	1 830	1 830	1 830
V									
	Lt		1 830	1 830	1 830	2 196	2 196	2 196	2 196
FV									
	Lt		2 196	2 196	2 196	2 562	2 562	2 562	2 562
FHV									
	Lt		2 196	2 196	2 196	2 562	2 562	2 562	2 562
FCV									
	Lt		2 562	2 562	2 562	2 928	2 928	2 928	2 928
FHCV									
	Lt		2 562	2 562	2 562	2 928	2 928	2 928	2 928
FGHV									
	Lt		2 196	2 196	2 196	2 562	2 562	2 562	2 562
FGV									
	Lt		2 928	2 928	2 928	3 294	3 294	3 294	3 294
FGCVH									

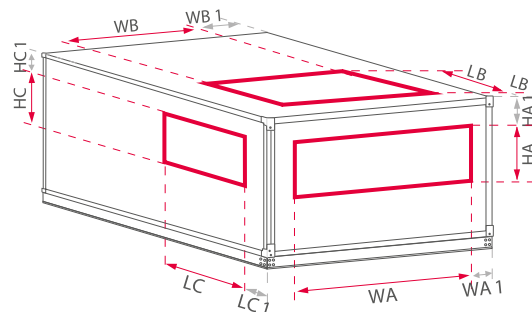
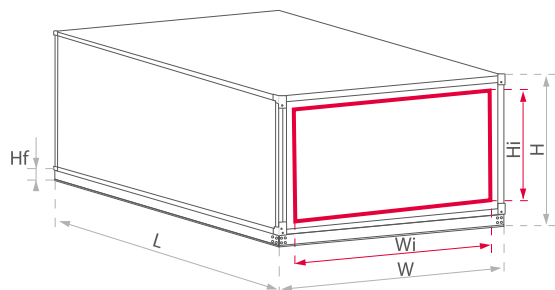
Entire range of configuration
in OneairCalc selection tool.

www.oneaircalc.com





DIMENSIONS - LX 150-650 - SUPPLY & EXHAUST



Full-face horizontal outlet
END (FF)



Size	WA	HA	WA1	HA1
LX021	821	313	70	67,5
LX030	821	440	70	70
LX040	1 028	440	70	70
LX055	1 199	575	70	70
LX075	1 340	695	70	70
LX100	1 520	795	70	70
LX120	1 751	832	70	70

Small horizontal inlet-outlet
END (FS)



Size	WA	HA	WA1	HA1
LX150	1520	795	280	137
LX180	1520	713	280	239
LX230	1945	813	272	200
LX300	1945	813	318	319
LX400	2650	813	215	436
LX500	3150	813	215	436
LX650	3250	813	220	674

Vertical inlet-outlet
END (US)



Size	WB	LB	WB1	LB1
LX150	1520	795	280	200
LX180	1520	713	280	239
LX230	1945	813	272	151
LX300	1945	813	318	151
LX400	2650	813	215	151
LX500	3150	813	215	151
LX650	3250	813	220	151

Vertical outlet
END (US)



Size	WB	LB	WB1	LB1
LX150	1520	795	280	127
LX180	1520	713	293	127
LX230	1945	813	284	127
LX300	1945	813	330	127
LX400	2650	813	228	127
LX500	3150	813	228	212
LX650	3250	813	234	212

Side inlet-outlet
END (BS)



Size	HC	LC	HC1	LC1
LX021	213	380	115	165
LX030	313	380	131	165
LX040	313	380	131	165
LX055	413	380	149	165
LX075	413	380	209	165
LX100	613	380	159	165
LX120	613	380	177	165

Side outlet
END (BS)



Size	HC	LC	HC1	LC1
LX021	213	380	114	202
LX030	313	380	180	202
LX040	313	380	165	202
LX055	413	380	137	202
LX075	413	380	197	202
LX100	613	380	158	127
LX120	613	380	198	127



ADDITIONAL CONFIGURATION CUNCTIONS - LX 021-650 - RECUPERATOR (HEX & PREMIUM PLUS), REGENERATOR (HEAT WHEEL), SUPPLY & EXHAUST

Dimension			Function version	Remaining configuration functions – typical lengths of function arrangement						
				LX021	LX030	LX040	LX055	LX075	LX100	LX120
	L	[mm]	F7/F9	762	762	762	762	762	762	762
F			EU4/F5	366	366	366	366	366	366	366
	L		H	366	366	366	366	366	366	366
H										
	L		C	366	366	366	366	366	366	366
C										
	L		S	1098	1098	1098	1098	1098	1098	1098
S										
	L		E(e1)	366	366	366	366	366	366	366
			E(e2)	762	762	762	762	762	762	762
			E(e3)	1098	1098	1098	1098	1098	1098	1098
	L	M	762	762	762	762	762	762	762	
M										
	L	W	1098	1098	1098	1098	1098	1098	1098	
W										

Dimension		Function version		Remaining configuration functions – typical lengths of function arrangement							
					LX150	LX180	LX230	LX300	LX400	LX500	LX650
 F	L	[mm]	F7/F9	762	762	762	762	762	762	762	762
			EU4/F5	366	366	366	366	366	366	366	366
 H	L		H	366	366	366	366	366	366	366	366
			C	366	366	366	366	366	366	366	366
 C	L		S	1098	1098	1098	1098	1098	1098	1098	1098
			E(e1)	366	366	366	366	366	366	366	366
 E	L		E(e2)	762	762	762	762	762	762	762	762
			E(e3)	1098	1098	1098	1098	1098	1098	1098	1098
			M	1098	1098	1098	1098	1098	1098	1098	1098
 M	L		W	1098	1098	1098	1098	1098	1098	1098	1098



COMPONENTS

DIRECT DRIVE PLUG FAN SET



Design and application

- » Centrifugal fan, without casing, single inlet, PLUG type, with backward curved blades.
- » Impeller made of SAN (styrene/acrylonitrile) construction material with 20% glass fiber.
- » Direct drive – fan impeller installed directly on motor shaft.
- » Fan section consisting of single or multiple fans (fan array) in order to ensure optimum working parameters.

Specification

- » Low and medium pressure ventilation systems with fan static pressure not exceeding 2000 Pascals.
- » Maximum fan set working temperature: 60°C.

> AC MOTORS



- » Fan and motor mounted on common housing, separated from AHU casing by set of rubber vibration absorbing mounts.
- » Motors of TEFC type (Totally Enclosed, Fan-Cooled).
- » Motors fitted for IEC standard.
- » Variable Frequency Drive (VFD) – standard equipment of the fan-set.

- » Available Energy classes: IE2, IE3
- » Rated voltage: 3x230V AC, 3x400V AC.
- » Number of poles: 2 or 4.
- » Motor winding insulation class: F (fitted for VFD operations).
- » Bearings lifetime: $L_{10} = 20000h$ / $L_{50} = 100000h$.
- » Protection degree: IP55.
- » Maximum working ambient temperature: 60°C.

> EC MOTORS



- » Set of fan and motor mounted on common rail, fixed to the AHU fan diaphragm.
- » EC motors are Permanent Magnet motor, characterised by much higher efficiency vs traditional inductive AC motors.
- » EC motors (Electronically Commutated) – where mechanical commutator switching the windings has been replaced with electronic one.
- » Change of revolutions is done by means of changing the frequency rate of windings switching (rate or magnetic field rotating).
- » Highly inductive permanent magnets have applied in EC motors used by Redge, which enabled to achieve high torque at relatively small dimensions, together with reaching IE4 efficiency class.

- » Available Energy classes: IE4.
- » Rated voltage: EC motors of nominal capacity exceeding 0,75kW - 3x400V AC.
- » Rated voltage: EC motors of nominal capacity equal or less 0,75kW - 1x230V AC.
- » Motor winding insulation class: F.
- » Protection degree: IP54.
- » Maximum working ambient temperature: 55°C.
- » Lifespan:
 - 70 000 hours at load not exceeding 70% of nominal capacity at ambient temperature not exceeding 35°C,
 - 30 000 hours at 100% capacity load at ambient temperature not exceeding 55°C.



CASING



Design and application

- » Casing structure made of 'sandwich' type panels formed in 'C' shape and reinforced by system of internal frames.
- » "Sandwich" double skin panels made of rigid polyurethane foam.
- » Indoor and outdoor application.
- » Inspection panels mounted on AHU side.
- » Casing supported on steel base rails.

Specification

- » Working temperature: $(-40)^{\circ}\text{C} \div (+90)^{\circ}\text{C}$.
- » Panel thickness: 40mm.
- » Thermal conductivity PPU $\lambda = 0,022 \text{ W/mK}$.
- » Casing fire resistance: non-flamable, non fire spreading (NRO).
- » Moisture absorption: 0,04%.
- » PPU density: $\rho = 42 \text{ kg/m}^3$.
- » Eurovent certification
 - Mechanical strength of casing: $-1000 \text{ Pa} \div 1000 \text{ Pa} < 2 \text{ mm}$ (D_1 - PN EN 1886: 2008),
 - Casing tightness: (MB): $(-400) \text{ Pa} - 0,05 \text{ l/sm}^2$, $(+700) \text{ Pa} - 0,13 \text{ l/sm}^2$ (L_1 - PN EN 1886: 2008); (RU): $(+400) \text{ Pa} - 0,93 \text{ l/sm}^2$,
 - Casing heat transfer coefficient: $K = 0,6 \text{ W/m}^2\text{K}$ (T_2 - PN EN 1886: 2008),
 - Thermal bridges coefficient: $K_b = 0,52$ (TB_3 - PN EN 1886: 2008).

PANEL FILTERS



Design and application

- » Pleated filtration fabric shielded by steel net, installed in 50 mm thick frame.
- » Filtration fabric made of polyester fibres.
- » Applied as initial air filtration stage.

Specification

- » Working temperature: max $(+70)^{\circ}\text{C}$, 100% RH.

Filtration classes available

- » ISO Coarse 75% (ISO 16890) - G4 (EN779).

BAG FILTERS



Design and application

- » Filtration fabric made of polyester fibres.
- » Bags fixed to 25 mm thick frame.
- » Filters of class M5 - bags length: 300 mm, Filters of class F7 & F9 - bags length: 600 mm.
- » Applied as initial, secondary of final air filtration stage.

Specification

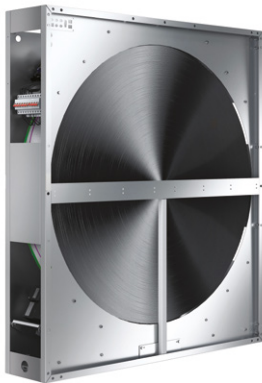
- » Working temperature: max $(+70)^{\circ}\text{C}$, 100% RH.

Filtration classes available

- » ISO ePM10 50% (ISO 16890) - M5 (EN779).
- » ISO ePM2,5 65% (ISO 16890) - F7 (EN779).
- » ISO ePM1 70% (ISO 16890) - F9 (EN779).



ROTARY HEAT WHEEL



Design and application

- » Rotor made of aluminum with shaft suspended on bearings, installed in steel housing.
- » Rotor filling – two layers of alternately winded aluminium foil – one flat, the other – corrugated – making small ducts for the air.
- » Rotor drive system with smooth revolutions control enabling to maintain highest recovery efficiency and to adjust degree of recovery performance.
- » Purge zone reducing the cross-contamination effect of contaminated exhaust air to supply to absolute minimum.
- » Set of gaskets installed both on the wheel outer edge and bar separating supply from exhaust air being an additional protection against cross-contamination.
- » Rotary heat wheel recovers sensible heat from return air to supply, which passes the unit in opposite direction. The process enables heat recovery in winter time, same as cool recovery in summer.
- » Humidity recovery from return to supply in case the rotor pad temperature is lower than dew point of return air – typically during winter season.

Specification

- » Up to 86% of energy recovery, depending on airflow rate and its velocity in the heat wheel window.

COUNTERFLOW HEXAGONAL RECUPERATOR



Design and application

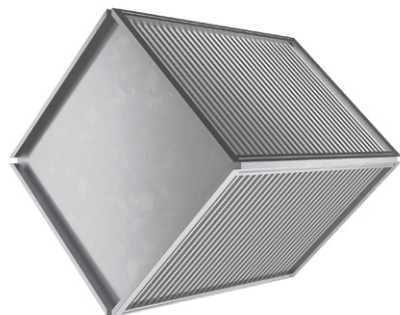
- » Hexagonal heat recovery recuperator made of crosswise stamped aluminum plates, between which supply and exhaust air passes alternately in counterflow arrangement.
- » As standard, the recuperator is equipped with by-pass damper, enabling its securing against frosting and heat recovery capacity regulation.
- » Optionally, the recuperator can be equipped with integrated mixing box.
- » The recuperator provides sensible heat recovery for warmer air to the colder one. For winter season – recovery of heat from return air to supply. For summer – recovery of chill from return air to supply.

Specification

- » Energy recovery at very high supply and exhaust air stream separation (reaching 99,9%).
- » Heat recovery reaching up to 93% depending on flow rate face velocity of the air passing the recuperator.



CROSSFLOW PLATE HEAT RECUPERATOR



Design and application

- » Recuperator made of crosswise stamped aluminum plates, between which supply and exhaust air passes alternately in counterflow arrangement.
- » As standard, the recuperator is equipped with by-pass damper, enabling its securing against frosting and heat recovery capacity regulation.
- » Optionally, the recuperator can be equipped with integrated mixing box.
- » The recuperator provides sensible heat recovery for warmer air to the colder one. For winter season – recovery of heat from return air to supply. For summer – recovery of chill from return air to supply.

Specification

- » Energy recovery at very high supply and exhaust air stream separation (reaching 99,9%)
- » Heat recovery reaching up to 80% depending on flow rate face velocity of the air passing the recuperator.

RUN-AROUND COIL



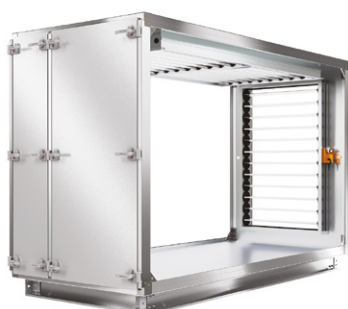
Design and application

- » Set of two water coils – one in supply, the other one in exhaust airstream.
- » The coil in return airstream recovers the heat (cooler) and passes it to the coil in the supply air (heater) by means of heat-transfer fluid (water-glycol mixture). In case of chill recovery, entire process is reversed.
- » System applied for supply and exhaust air handling units installed remotely to each other."

Specification

- » Indirect Energy recovery (sensible heat) at 100% supply and exhaust airstreams separation.
- » Max heat-transfer fluid operation pressure: 1,6MPa=16bar (tested 21 bar).
- » Max glycol concentration: 50%.

MIXIN SECTION



Design and application

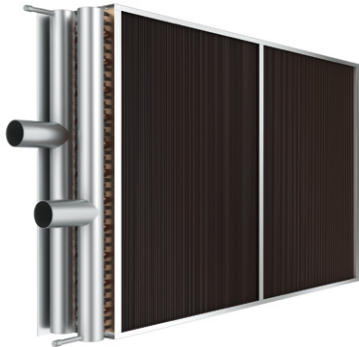
- » Section equipped with two air inlets/outlets aided with dampers, enabling regulation of fresh and recirculation air share (recirculation).

Specification

- » Direct Energy recovery (sensible and latent heat) resulting from partial mixing of fresh air with return one.
- » Control of fresh air share in entire airflow supplied to handled spaces.
- » Working temperature range: $-40 \div +70^{\circ}\text{C}$.



WATER HEATER



Design and application

- » Block of copper pipes integrated with another block of aluminum fins, creating expanded heat exchange surface. Pipes are bonded to the collectors, equipped with headers (for connecting entire coil to the medium supply system).
- » Heating of the air supplied to the handled spaces.
- » Re-heating of the air as a part of air dehumidifying process.
- » The coil can be applied if heating medium is available (local boiler or district heating system).
- » Coil headers are equipped with medium damping valve and air vent.
- » Connecting the coil in parallel medium flow vs air, will result in its capacity reduction by over a dozen percent.

Specification

- » Max glycol concentration: 50%.
- » Max medium temperature: 150°C.
- » Max medium working pressure: 1,6MPa = 16bar (test: 21bar).
- » Heating capacity: parameter resulting from individual performance calculation of selected unit (CCOL).
- » Medium side pressure drop – parameter resulting from individual performance calculation of selected unit (CCOL).

ELECTRIC HEATER



Design and application

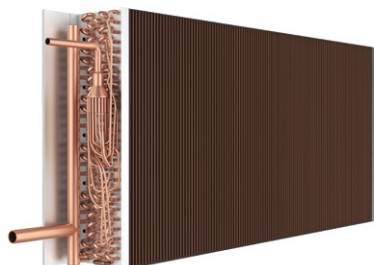
- » Set of resistive heating elements made of CR-Ni-Fe alloy, 6 kW/400V each.
- » Coils mounted on hot-dip galvanized steel frame.
- » Heater is equipped with power terminals and thermostat protecting against overheating.
- » In case of AHU with complete controls, heater is equipped with integrated capacity control module.
- » Heating capacity can be modified by means of smooth regulation module (HE module, set of Solid State Relays as optional parts of AHU controls) or by means of automatic engaging of next heating sections.

Specification

- » Max permissible ambient temperature around heating elements: 65°C.



DIRECT EXPANSION COIL AS CONDENSER IN HEAT PUMP CIRCUIT



Design and application

- » Block of copper pipes integrated with another block of aluminum fins, creating expanded heat exchange surface. Pipes are bonded to the collectors, equipped with headers (for connecting entire coil to the cooling system circuit).
- » Heating of the air supplied to the handled spaces.
- » Re-heating of the air as a part of air dehumidifying process.

Specification

- » Max medium temperature: 60°C.
- » Max medium working pressure: 3,84MPa = 38,4bar (test: 50bar).
- » Heating capacity: parameter resulting from individual performance calculation of selected unit (CCOL).

WATER COOLER



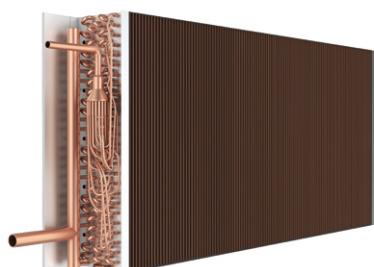
Design and application

- » Block of copper pipes integrated with another block of aluminum fins, creating expanded heat exchange surface. Pipes are bonded to the collectors, equipped with headers (for connecting entire coil to the medium supply system).
- » Cooling of the air supplied to handled spaces.
- » Cooling and dehumidifying of the air as a part of air complex dehumidifying process in summer season.
- » Coil can be applied in complex air conditioning systems consisting of few or over a dozen of units supplied from common chilling source (chiller) or in case of single unit of relatively high cooling capacity.

Specification

- » Max glyccol concentration: 50%.
- » Min supplying medium temperature: +2°C.
- » max medium working pressure: 1,6MPa = 16bar (test: 21bar).
- » Cooling capacity: parameter resulting from individual parameters of selected unit (CCOL).
- » Medium pressure drop / flow rate: parameter resulting from individual performance calculation of selected unit (CCOL).
- » For reversed operation mode (heating) max medium working temperature: 140°C.

DX COOLING COIL



Design and application

- » Block of copper pipes integrated with another block of aluminum fins, creating expanded heat exchange surface. Pipes are bonded to the collectors, equipped with headers (for connecting entire coil to the cooling system circuit).
- » DX cooler is also available as heater execution (so called Condenser).
- » Cooling and dehumidifying of the air as a part of air complex dehumidifying process in summer season.
- » Coil usually applied for smaller cooling capacity systems vs water coolers or for individual air conditioning systems.

Specification

- » Min. Refrigerant evaporation temperature: +3°C.
- » Max refrigerant working pressure: 2,2MPa=22bar (test: 29 bar).
- » Cooling capacity - parameter resulting from individual performance calculation of selected unit (CCOL).



EVAPORATIVE HUMIDIFIER



Design and application

- » Humidifying process based on water adiabatic evaporation from the humidifier pad.
- » Humidifying pad made of CELDEK II material.
- » Humidifier housing made of stainless steel.
- » System of direct water dropping (LX021-LX055).
- » System of water recirculation aided by pump (LX075-LX650).
- » Droplet eliminator integrated with humidifier filling (LX075-LX650).
- » System is equipped with water drainage system preventing against high water level in the pan and floating valve controlling its refilling (LX075-LX 650).

Specification

- » Max air face velocity across the humidifier pad: 3,00 m/s (VS 21-VS 55); 4,00 m/s (VS 75-VS 650).
- » Water pressure range: 0,15 ÷ 0,75 MPa.
- » Requirements regarding water quality – standard tap water.

SOUND ATTENUATING SECTION



Design and application

- » Sound attenuator consists of noise attenuating bars installed in the AHU casing.
- » Attenuating bars of 140 mm width filled with sound-absorbing, inflammable mineral wool (density: 60 and 80 kg/m³).
- » Attenuating bar housing: frame made of hot-dip galvanized steel.
- » Bar outer surface: thin veil preventing against bar filling migration to the air.
- » Number of attenuating bars: 2÷13, depending on block size.

Specification

- » Max air face velocity: v=5m/s.
- » Working conditions: -40 ÷ +70°C.

INTERNAL LIGHT



Design and application

- » Energy saving lamp with securing shade.
- » Facilitation of AHU inspection actions: filter, fan and humidifier compartment.

Specification

- » Working conditions: -40 ÷ +70°C.



AIR DAMPER



Design and application

- » Blades made of aluminium with rubber gasket on the edges.
- » Aluminum frame.
- » Blades drive realized by means of gears made of composite material, installed on frame internal side.
- » Damper is equipped with square pivot, fitted for actuator (dampers of cross section greater than 4 m² have 2 linked pivots).

Specification

- » Air leakage at closed damper: 50 m³/h*m² - at 100 Pascals of pressure difference.
- » Working temperature range: -40 ÷ +70°C.

FLEXIBLE CONNECTION



Design and application

- » Flexible connection made of 1 mm thick and 30 mm wide hot-dip galvanized steel profiles and polyester fabric coated with PVC.
- » Flame resistance: UL94 - HB [ISO 1210].
- » Flexible connection resistant to UV radiation.
- » Working temperature range: -30°C do +70°C.
- » Max connection length (fully spread position): 110 mm.
- » Flexible connection installed on each AHU/Duct joint eliminates transfer of possible AHU vibrations to the ventilation ductwork.

Specification

- » Max air face velocity: 5m/s.
- » Working conditions: -40 ÷ +70°C.

AIR INTAKE AND DISCHARGE LOUVERS



Design and application

- » Air intake louver made of aluminum profile, blades made of ABS material.
- » Air outlet louver made of aluminum profile, blades made of ABS material.
- » Protection of air handling unit installed outdoor against meteorological conditions (precipitation, sand).

Specification

- » Max air face velocity: 5m/s.
- » Working conditions: -40 ÷ +70°C.



CONTROLS

All controls for ONEAIR air handling units is available as optional equipment.

Range of controls is always fitted to configuration of the AHU selected in the OneairCalc tool. Controls is capable to regulate all user parameters: air temperature, its humidity, maximum permissible CO₂ concentration and the flow rate. Also, controls support preventive and securing functions like protection of the water heater against freezing or energy recovery system against icing, protection of motors against overloading, monitoring of air filters actual status of contamination and many other. Applied algorithms can optimize performance of all air treatment components in order to minimize consumption of all energy media supplied to the unit.

The system includes control and power supply circuit.



USER



HMI Basic

- » Engaging and disengaging the AHU, change of operational modes.
- » Change of temperature, airflow, humidity, max CO₂ level settings, etc.
- » Errors reporting.
- » Time schedule setting.



HMI Advanced

- » All users and service functions except visualization
 - AHU engaging and disengaging,
 - Change of operational modes.
- » Change of temperature, airflow, humidity, max CO₂ level settings, etc.
- » Parameters setting and reporting.
- » Errors reporting.
- » Time schedule setting.



BMS

- » User function like in HMI Advanced.
- » User's customized visualization (BMS).



Remote visualization

- » All user function like in HMI Advanced:
 - Redge visualization.
- » Clear interface of schedule programming, presenting unit's operating time individually for each day of the week.
- » Energy consumption analysing module.
- » Individual parameters monitoring of each functional block.
- » Filing of all AHU's parameters recorded in few minutes intervals.





PAREMETERS REGULATION FUNCTIONS

Regulation of temperature and humidity

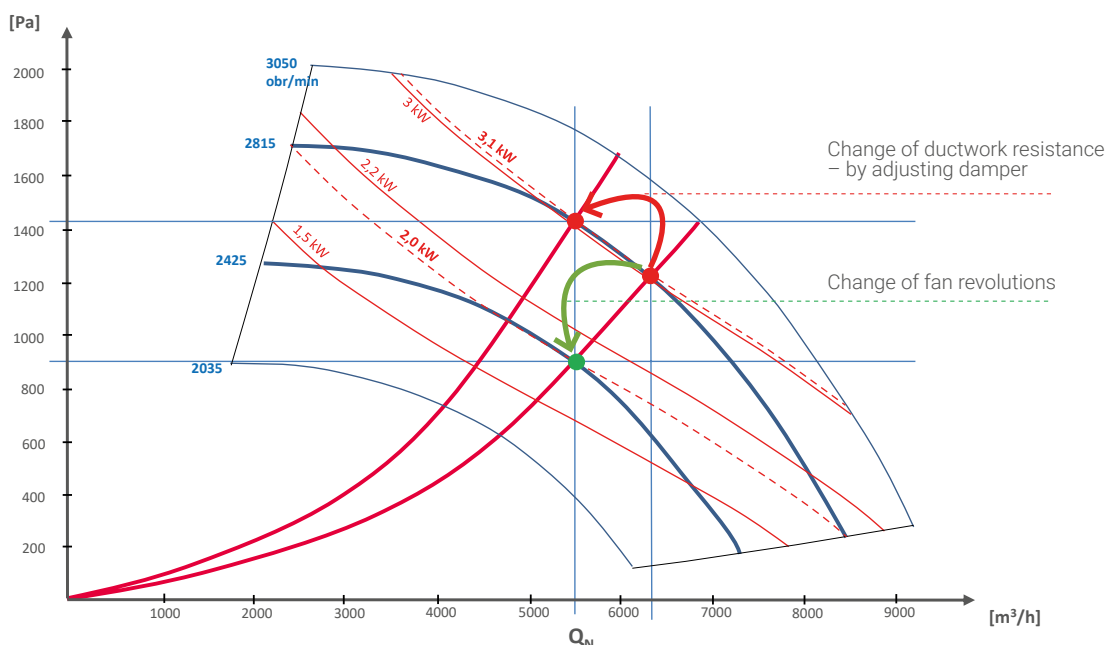
- » Regulation of supply, return air temperature and humidity in handled spaces.
- » Control of water coils valves (heater, cooler) and condensing unit.
- » Control of rotary heat wheel revolutions, by-pass damper and mixing box, depending on AHU type and configuration.

Airflow rate regulation

- » Constant Air Volume (CAV) available as standard.
- » Constant static pressure maintenance in trunk duct (Variable Air Volume – VAV) available as option.
- » Setting of constant revolutions for each fan individually – VFD setting for AC motors or constant revolutions percentage in case of EC motors.

CO₂ regulation

- » By means of mixing box – for units with air recirculation.
- » By means of airflow rate change – for all types of supply and exhaust units (function can be engaged together with mixing box control).



PROTECTION FUNCTIONS

- » Protection against rotary heat wheel icing, by means of wheel revolutions reduction.
- » Protection against hexagonal counterflow and cross-flow recuperator icing by means of by-pass damper opening. Functions realized as optional:
 - Optimizing of icing protection function by change of minimum return air temperature threshold downstream the energy recovery unit vs return air parameters.
 - Minimizing of recovery efficiency drop during defrosting
- » Anti-freezing protection of water heater
 - Antifreeze thermostat installed downstream the heater
 - Strap-on return water temperature sensor
- » Fans overload protection (functions realized by EC motors drives)
- » Fire alarm input – AHU immediate disengaging in case of lack of external start permission from overall fire protection system.



PREVENTIVE FUNCTIONS

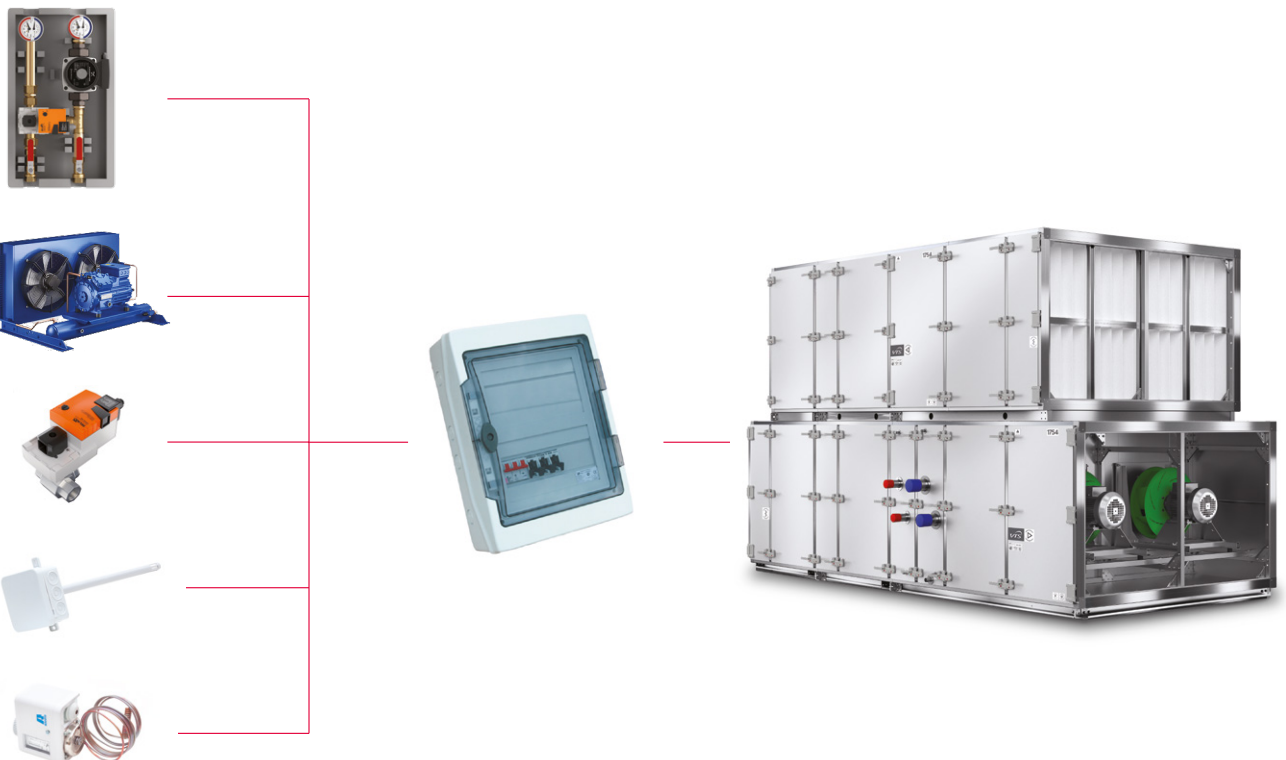
- » Constant filter contamination status control:
 - Constant monitoring of filter pressure drop by means of static pressure transducers,
 - Evaluation of filter contamination status for vs actual airflow rate.
- » Fans shutting-down delay – fan's run out for systems with electric heater
- » Water heater pre-heating before fan's start up.
- » Periodical heater pump engaging in summer – to prevent against limescale accumulation
- » Opening of water heater regulation valve before engaging the fans.

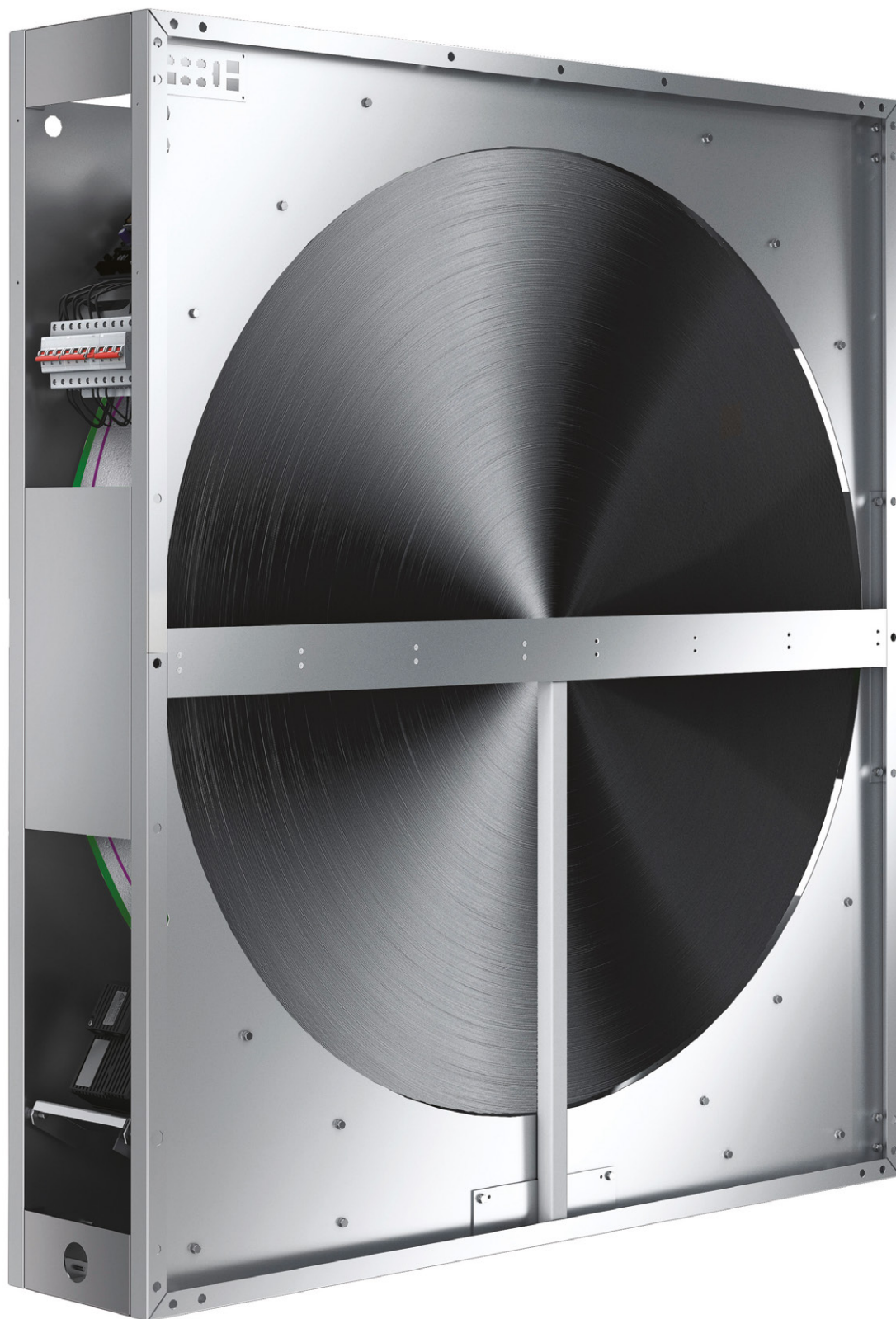
TIME SCHEDULE FUNCTIONS

- » Weekly schedule operational modes programming (HMI Advanced i Basic).
- » Clear visualization of schedule settings by means of web-browser (computers and mobile devices).

POWER SUPPLY AND CONTROL CIRCUITS

- » The main component of the controls is the control box – with microprocessor controller installed inside. The control box is usually mounted on side wall of the AHU or in units direct vicinity.
- » Control box is equipped with controller, power protection circuits, terminal block enabling connecting of all control elements.
- » Electric protection of fans, rotary heat wheel drive, control elements and heater pump are installed inside the control box.
- » Control of fan-sets (variable frequency drives in case of AC motors of specialized drives for EC ones) is realized by means of digital communication based on ModBUS protocol. Fan control elements are set with individual address enabling them to be properly identified in the control system.
- » Communication with static pressure and CO₂ transducers also realized by ModBUS protocol.
- » For other control elements, digital or analogue signals are used.







CONTROL ELEMENTS

CONTROL ELEMENTS



Functions and application

- » Regulation of supply and exhaust air temperature.
- » Protection of the energy recovery unit against freezing.
- » Outdoor air temperature measurement in order to identify need of heat/chill recovery and engagement protecting function for water heater.

Operational parameters

- » Measurement range: -50°C to +90°C.
- » Measurement accuracy: $\pm 0,5K$.
- » Sensor type: NTC 10k.
- » Air humidity range: 5 ÷ 100%.
- » Protection degree: IP67.
- » Shielded cable length: max. 100 m.

ROOM AIR TEMPERATURE SENSOR



Functions and application

- » Regulation of temperature in handled space.

Operational parameters

- » Measurement range: -20°C do +70°C.
- » Measurement accuracy: $\pm 0,5K$.
- » Sensor type: NTC 10k.
- » Air humidity range: 5 ÷ 95% no condensation.
- » Protection degree: IP20.
- » Shielded cable length: max. 100 m.

STRAP-ON MEDIUM TEMPERATURE SENSOR



Functions and application

- » Protection of water heater against freezing by means of return medium temperature monitoring.

(Function supported by controller. Sensor out of Redge offer.)

Operational parameters

- » Measurement range: -20°C do +70°C.
- » Measurement accuracy: $\pm 0,5K$.
- » Sensor type: NTC 10k.
- » Air humidity range: 5 ÷ 100%.
- » Protection degree: IP67.
- » Shielded cable length: max. 100 m.

ANTI-FREEZE THERMOSTATE



Functions and application

- » Protection of water heater against freezing by means of air off-coil temperature monitoring (recommended temperature threshold setting: +5°C).

Operational parameters

- » Measurement range: -18 ÷ +15°C.
- » Hysteresis: 1,7 ÷ 12K.
- » Nominal voltage: 30V DC or 230V AC.
- » Output signal: potential-free contact.
- » Protection degree: IP 44.



OVERHEAT PROTECTION THERMOSTATE FOR ELECTRIC HEATER



Functions and application

- » Protection of electric heater against overheating.

Operational parameters

- » Power cut-off temperature setpoint: 65°C.
- » Power re-switch on temperature setpoint : 45°C.
- » Nominal voltage: 20V DC or 230V AC.
- » Output signal: potential-free contact.

DIFFERENTIAL PRESSURE SWITCH



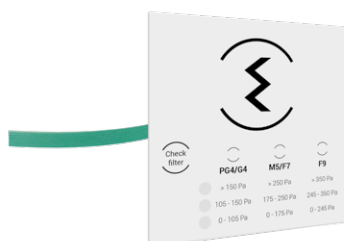
Functions and application

- » Monitoring of filter's contamination.
- » Control of the operation of a direct driven fan unit in case of cooperation with electric heater.

Operational parameters

- » Measurement range: 30 do 500 Pa.
- » Nominal operating voltage: 250V AC (Imax=3A).
- » Output signal: potential free contact.
- » Working temperature range: -20°C do 60°C.
- » Protection degree: IP 54.

FILTER CONTAMINATION INDICATOR



Functions and application

- » Measurement of air pressure drop on filters, activated manually (button).
- » Signal light (LED) informing about exceeding pressure drop thresholds.
- » Low battery warning light signal.

Operational parameters

- » Max. Pressure difference: 800 Pa.
- » Accuracy: 2,5% of the range.
- » Protection degree (interface side): IP 65.

DIFFERENTIAL PRESSURE TRANSDUCER



Functions and application

- » Regulation of supply and exhaust air (CAV function).
- » Regulation of static pressure in ventilation system trunk duct (VAV function).
- » Constant monitoring of filter pressure drop (control of filter contamination level).

Operational parameters

- » Measurement range: 6000 Pa.
- » Measurement accuracy: 0,25% of the range.
- » Communication: ModBus RTU.
- » Supply voltage: 21,5V to 30V DC or 21,5V do 26,5V AC.
- » Working temperature range: -20°C do 50°C.
- » Protection degree: IP 65.



AIR HUMIDITY TRANSDUCER



Functions and application

- » Regulation of supply and return air humidity in handled spaces (support for air humidifying and dehumidifying).
- » Measurement of return air humidity – automatic change of anti-freeze threshold temperature setting of cross-flow recuperator depending on return air parameters*.

Operational parameters

- » Measurement range: 0-100%.
- » Tolerance: +/- 3%.
- » Communication: ModBus RTU.
- » Supply voltage: 24V DC.
- » Working temperature: -40°C to 80°C.
- » Protection degree: IP 65.

* Also available as integrated with air temperature sensor

CO₂ TRANSDUCER



Functions and application

- » Regulation of CO₂ concentration in handled spaces (control of mixing box or airflow rate).

Operational parameters

- » Measurement range: 0 do 2000 ppm.
- » Tolerance:
 - between 400 and 1250 ppm: +/-3%,
 - between 1250 and 2000 ppm: +/-5%.
- » Communication: ModBus RTU.
- » Supply voltage: 24V DC.
- » Working temperature: 0 do 50°C.
- » Protection degree: IP 54.

ON/OFF DAMPER ACTUATOR



Functions and application

- » Airflow opening or closing in the AHU (connectors of air intake and discharge) – for units with water heater actuators with return spring are applied.

Operational parameters

- » Regulation mode: ON/OFF (two-point).
- » Angle of rotation: 90°.
- » Torque: 16 Nm (max damper cross-section: 4 m²).
- » Full open/close time: 120 s (with spring: 10 s).
- » Supply voltage: 24V AC/DC.
- » Working temperature: -20°C do 50°C.
- » Protection degree: IP 54.

SMOOTH CONTROL DAMPER ACTUATOR



Functions and application

- » Smooth regulation of return and fresh air mixing (recirculation) – for units with water heater actuators with return spring are applied.
- » Protection of cross-plate or hexagonal recuperator against frosting – smooth regulation of bypass damper opening.

Operational parameters

- » Regulation mode: 0 do 100% (smooth).
- » Control signal: 0-10V.
- » Angle de rotation: 90°.
- » Torque: 16 Nm (max damper cross-section: 4 m²).
- » Full open/close time: 90s (with spring: 10 s).
- » Supply voltage: 24V AC/DC.
- » Working temperature: -20°C do 50°C.
- » Protection degree: IP 54.



SET FOR WATER HEATER CAPACITY REGULATION (PUMP GROUP)



Functions and application

- » Smooth regulation of water heater capacity.

Operational parameters

- » Regulation mode: 0 to 100% (smooth).
- » Control signal: 0-10V.
- » Full open/close time: 90 s.
- » Valve supply voltage: 24V AC/DC.
- » Pump supply voltage: 230V AC.
- » Working temperature: +5°C do 50°C.
- » Medium temperature range: -10°C to 120°C.
- » Max glycol concentration: 50%.
- » Protection degree: IP 54.

THREE-WAY VALVE FOR WATER HEATER OR COOLER



Functions and application

- » Smooth regulation of water heater or cooler capacity.

Operational parameters

- » Regulation mode: 0 do 100% (smooth).
- » Control signal: 0-10V.
- » Full open/close time: 90 s.
- » Valve supply voltage: 24V AC/DC.
- » Working temperature: +5°C do 50°C.
- » Medium temperature range: -10°C do 120°C.
- » Max glycol concentration: 50%.
- » Protection degree: IP 54.

ELECTRIC HEATER CONTROL MODULE – MHE TYPE



Functions and application

- » Power supply, protection and smooth regulation of electric (heating) capacity of multi-stage electric heaters by means of PWM (Pulse Width Modulation).

Operational parameters

- » Regulation mode: 0 to 100% (smooth).
- » Nominal voltage: 3*400V/50Hz.
- » Control circuits supply voltage: 24V AC.
- » Binary input signal: 3 x 24V DC.
- » Binary output signal 6 x 24V DC.
- » PWM 1 x 24V DC.
- » Working temperature: 0°C do 50°C.

VARIABLE FREQUENCY DRIVE



Functions and application

- » Smooth regulation of fan-set capacity.
- » "Soft-start" of the fan without mechanical and electric shock.
- » Motor protection against overloading and stucking.

Operational parameters

- » Frequency regulation range: 10 ÷ 100 Hz.
- » Communication: ModBus RTU RS485.
- » Supply voltage:
 - single-phase 200 ÷ 240V AC,
 - three-phase 380 ÷ 480V AC.
- » Working temperature: 0°C to 40°C.
- » Protection degree: IP 20.



HMI BASIC USER INTERFACE



Functions and application

- » Maintenance of Air handling unit – temperatures setting and reading, change of operating modes, independent time schedule management, alarm codes displaying.
- » Configuration of controller's universal inputs and outputs.

Operational parameters

- » Power supply directly from the controller.
- » Communication with controller – RS485 serial port.
- » Max length of communication cable: max. 500 m.
- » Working temperature: -20°C to 60°C.
- » Humidity: <85% (no condensation).
- » Protection degree: IP 31.

HMI ADVANCED USER INTERFACE



Functions and application

- » Maintenance of Air handling Unit – parameters setting and reading (temperature, airflow, CO₂, humidity etc), change of operational modes.
- » Weekly schedule programming.
- » Service maintenance – configuration of all advanced AHU operating parameters, configuration controllers universal inputs and outputs.
- » Remote configuring of variable frequency drives.
- » AHU alarms and errors monitoring (full text description) and cancelling.

Operational parameters

- » Power supply directly from the controller
- » Communication with controller – RS485 serial port
- » Max length of communication cable: max. 1200 m,
- » Working temperature: -20°C to 60°C.
- » Humidity: <85% (no condensation).
- » Protection degree: IP 20.

SUPPLY AND CONTROL BOX



Functions and application

- » Control of all components and processes of Air Handling Unit, especially realization of regulation (temperature, airflow, CO₂, humidity) and protection functions (anti-freezing of energy recovery heat exchanger or water heater, fan-sets overloading etc).
- » Alarms handling, self-diagnostics.
- » Filling of all operating parameters history.
- » Communication with user interfaces (HMI).

Operational parameters

- » Supply voltage: 3x400 VAC or 1x230 V AC.
- » Supply frequency: 50 Hz, +/- 1 Hz.
- » Control circuits supply voltage: 24 V AC.
- » Water heater pump supply voltage: 230 V AC (max.10A).
- » Communication with internal controls circuits, VFD's or EC motors controller: ModBus RTU.
- » ModBus communication: TCP/IP.
- » Working temperature: 0 to 50°C.
- » Humidity: <85% (no condensation).
- » Protection degree: IP 54.





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