



American
VENTUS

2019



VTS

The image features a 3D metallic logo. The letters 'VTS' are rendered in a bold, sans-serif font with a brushed metal texture and a slight shadow beneath them. Above the letters is a curved, arch-like element, also with a metallic finish, that spans across the width of the 'V' and 'T'.



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VTS Group

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ventus

ventus



01

VTS Group



VTS GROUP is a manufacturer of technologically advanced equipment for the HVAC Sector; using innovative technologies in the spheres of project research, production and logistics.



MARKET'S **BEST** LEAD **TIME** **

* Logistics center

** Factory will confirm lead time based on the units selected.





OUR MISSION

AHU#1





THE 3 ELEMENTS OF SUCCESS

Consistently superior product quality. Unbeatable market prices. The shortest lead time. These three elements of market policy ensure that VTS is always one step ahead, in every region of the world.

Following the proven assembly method of the automotive Industry, VTS created a network of 6 efficiently functioning logistics centers: **Atlanta, Dubai, Moscow, Shanghai, Warsaw and Bangalore**. Thereby guaranteeing the shortest delivery terms in the market, regardless of the region in the world.

Mass scale production of reproducible devices makes it possible for VTS to offer our product at the **most competitive price while retaining the best quality**.

Multilevel quality control systems enables VTS to offer the longest warranty in the market. **A 2-year warranty of trouble free equipment operation.**

MARKET'S LEAD
BEST TIME

LOGISTICS
6 CENTERS

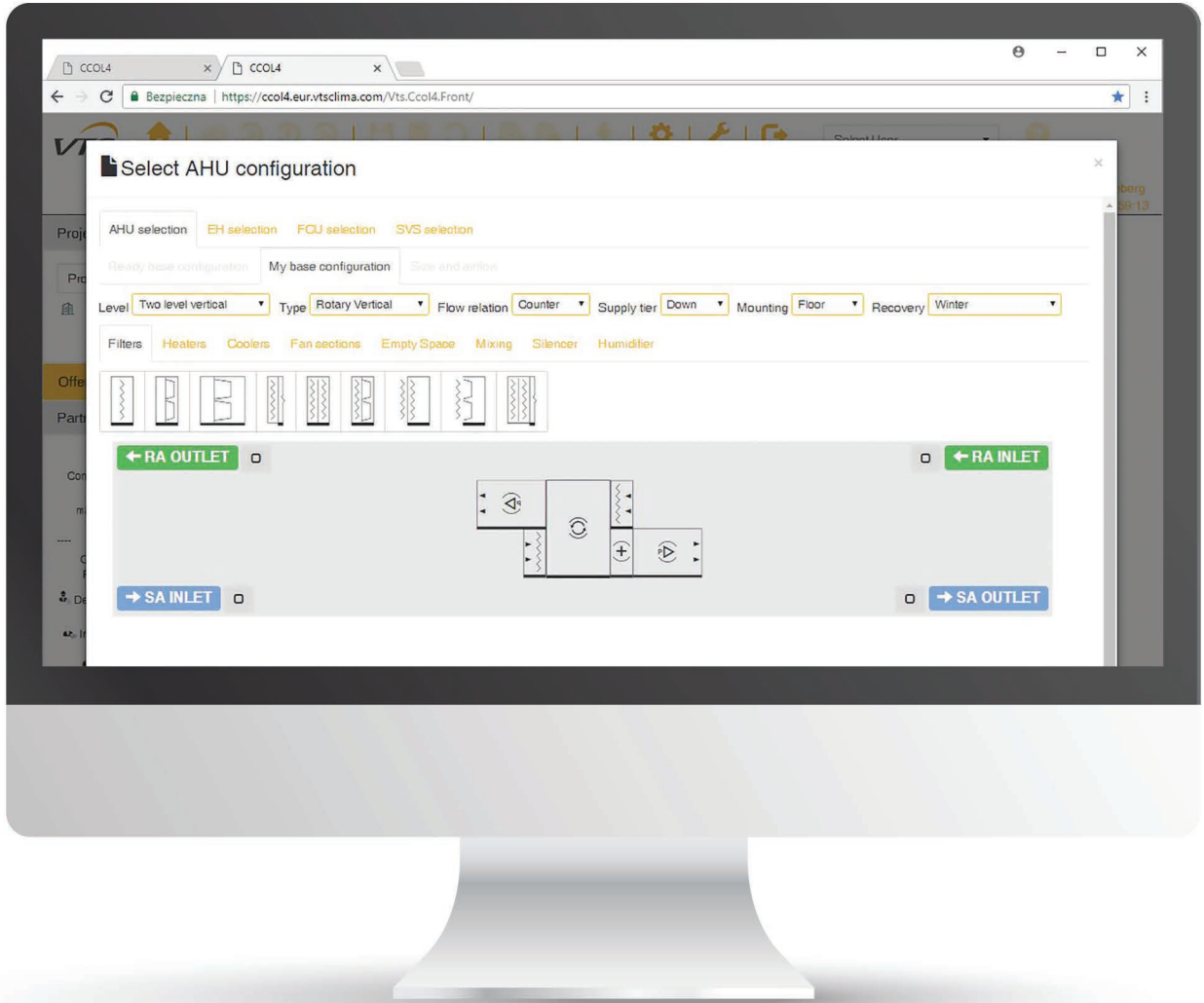
competitive
\$ price

110 000
UNITS
SOLD ANNUALLY

the highest
Q quality

optional warranty
2 YEARS FOR EACH UNIT







02

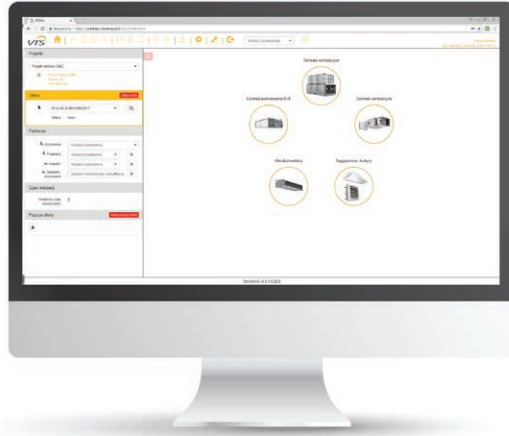
Designer support



ClimaCAD Online 4.0 [CCOL 4]

Customized configuration

User friendly interface



Fast&Easy selection

Integrated with CRM, ERP, WMA system

CCOL 4 IS ADJUST TO

» all browsers



» all operating system



» all devices



DATA EXPORT TO





CCOL 4.0 uses the latest technology and development platforms, which will be accessible from anywhere in the world through our software as service models. All you need is a device with a web browser and access to the internet.

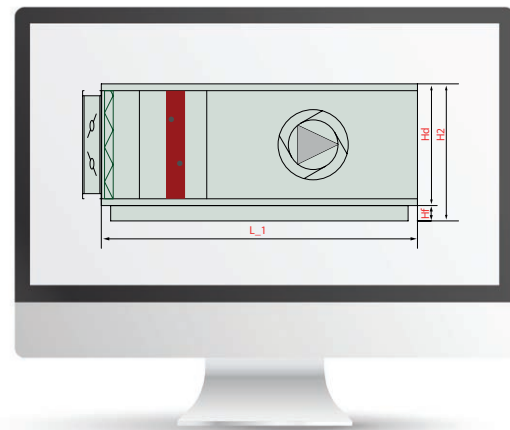
THE VERSATILITY OF DESIGNING

- » unlimited number of device configurations
- » detection of illogical configurations



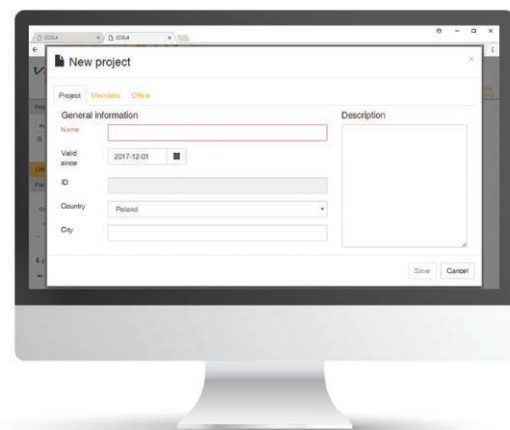
DYNAMIC COUNTING OF DEVICES DIMENSIONS

- » CCOL offers the optimal length of the control panel and the optimal section length adapted to the device functions and device design



MANAGING YOUR OWN DATABASE

- » the possibility of creating your own project database (selection)
- » the possibility of exporting own selections to quotation by VTS technical engineers





VTS BIM - a new approach to digital models of air-handling units

VTS has created the possibility of generating digital models of VENTUS VS and American VENTUS air-handling models on-line. This is possible thanks to the implementation of a new ClimaCAD OnLine 4.0 selection tool, equipped with .rfa (Revit®) files generator.



The process of model generation comes down to the following 3 steps:

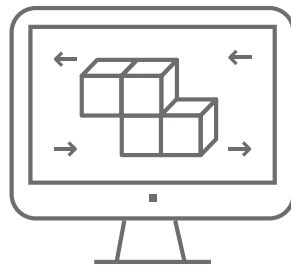


1

Login to CCOL 4.0 website

Login to the CCOL 4.0 using the following web address:

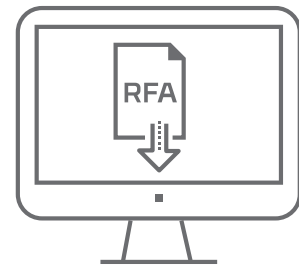
www.ccol4.com



2

Unit configuration

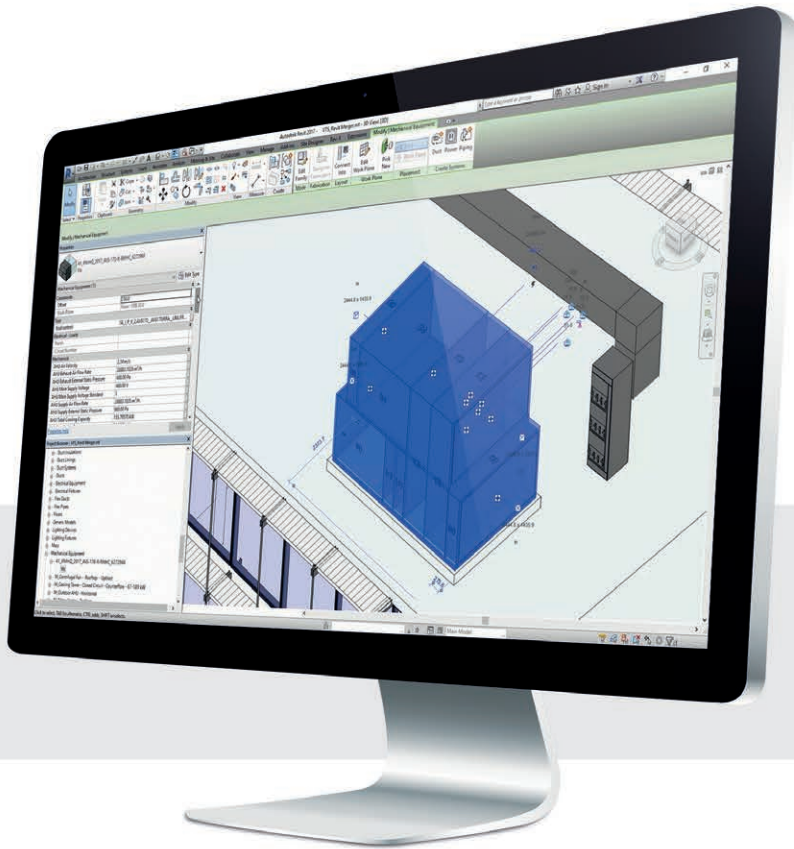
Use the intuitive selection tool to select your Air Handling Unit and set its working parameters to fit the specified project demands.



3

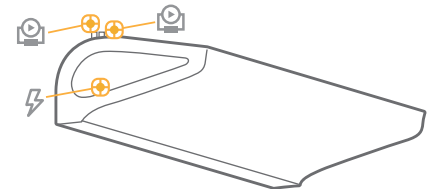
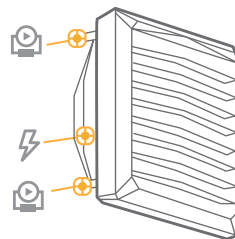
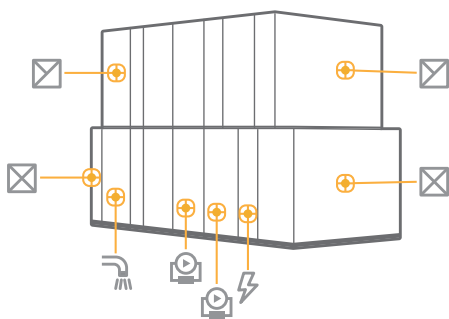
Data export to .rfa file

In order to generate a model in .rfa file, it is enough to enter the name and surname plus the email address of the person dedicated to receive the file. The system will automatically send a link to download the model. The entire process lasts approximately 15 minutes.



The release of families for the Autodesk Revit® environment by VTS makes it easier to design agencies for model the building installations on the basis of using the same platform. At present the on-line generator is a unique solution in BIM environment. It enables the generation of a VENTUS air-handling unit model practically in no time in any configuration and with any parameters.

As a result, the client receives:



The generated objects contain detailed parameters connectors:

- » air systems,
- » hydraulic systems,
- » sanitary systems,
- » electric systems,

as well as the complete dimensional data, the device **maintenance zone** and the service (**repair**) zone.

VTS also provides digital models of WING air curtains and VOLCANO air heaters.

The models contain:

- » parametrized electric and hydraulic connectors,
- » mount options vertically and horizontally,
- » presentation of the range of air stream,
- » parameter of any inclination angle of an air heater in relation to the horizontal plane.

Models can be downloaded from: <http://vtsgroup.us/vtsbim.html>





03

Units



AVS



from **800 CFM**
to **38 000 CFM**
in total **capacity**



premium efficiency motors
energy recovery system:

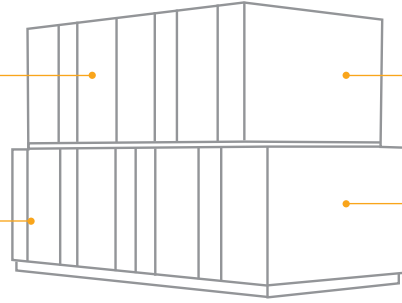
- cross-flow plate
- energy wheel



2 000 h
salt spray test
resistance
on the external coating

right or left hand
inspection site

fully assembled unit
or delivered by
sections



inlet and outlet
locations

2 inch polyurethane
sandwich panels
which eliminates
thermal bridges





AVS LITE



from **800 CFM**
to **4 000 CFM**
in total **capacity**



premium efficiency motors
energy recovery system:

- cross-flow plate
- energy wheel



2 000 h
salt spray test
resistance
on the external coating



from **800 CFM**
to **4 000 CFM**
in total **capacity**



premium
efficiency
motors

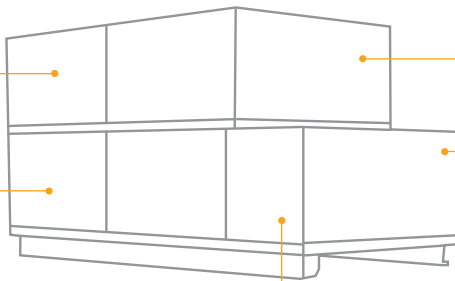


2 000 h
salt spray test
resistance
on the external coating

right or left hand
inspection site

factory
assembled unit

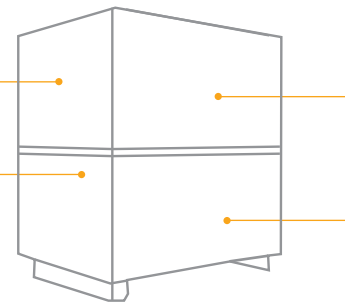
right or left hand
inspection site



inlet and outlet
locations

horizontal
or vertical
configurations.

2 inch polyurethane
sandwich panels
which eliminates
thermal bridges

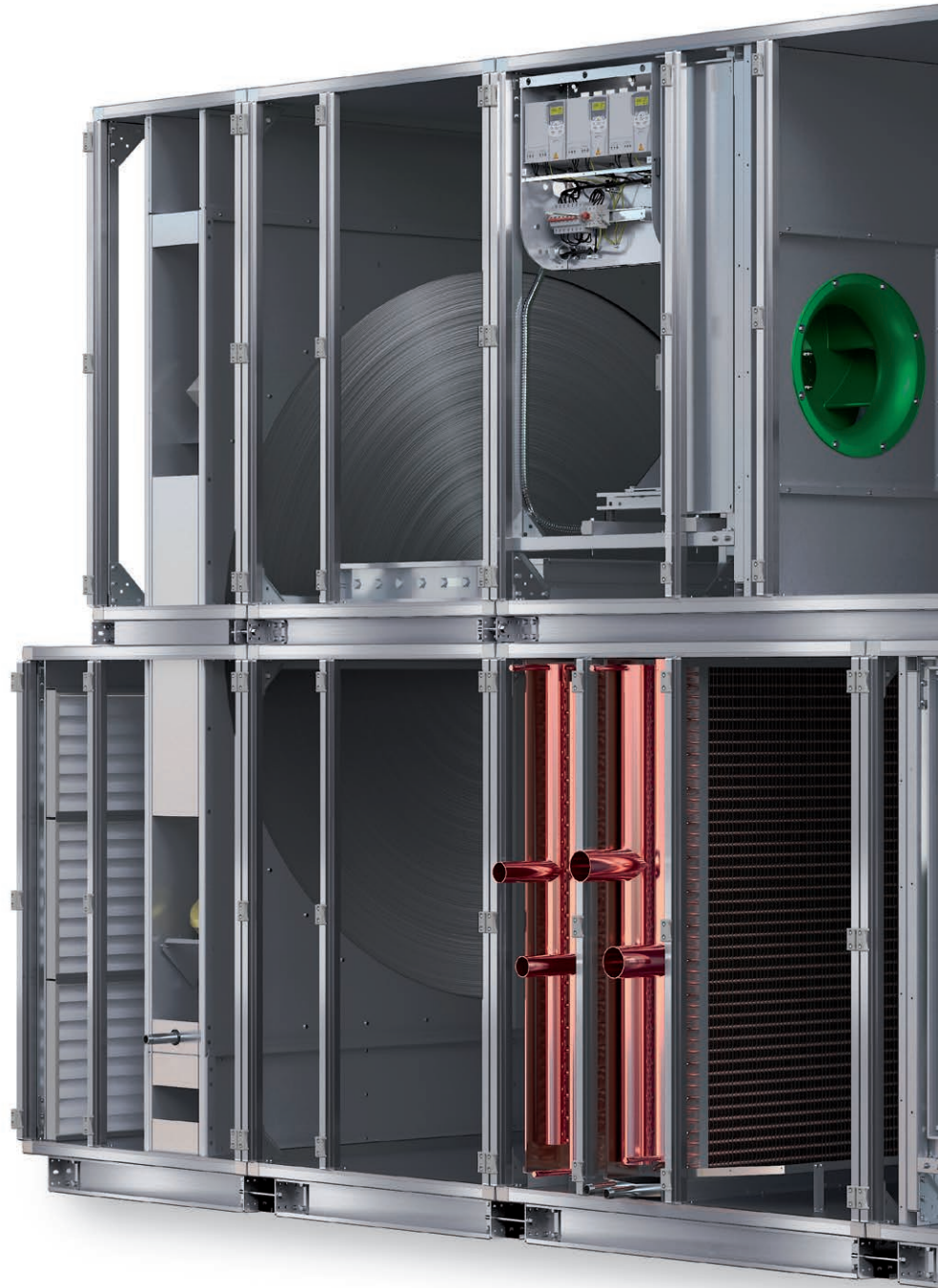


inlet and outlet
locations





American
VENTUS



RELIABLE
AND TIGHT
CONSTRUCTION



TOP QUALITY
COMPONENTS



INTELLIGENT
CONTROLS
SYSTEMS



SAFETY
OF USE

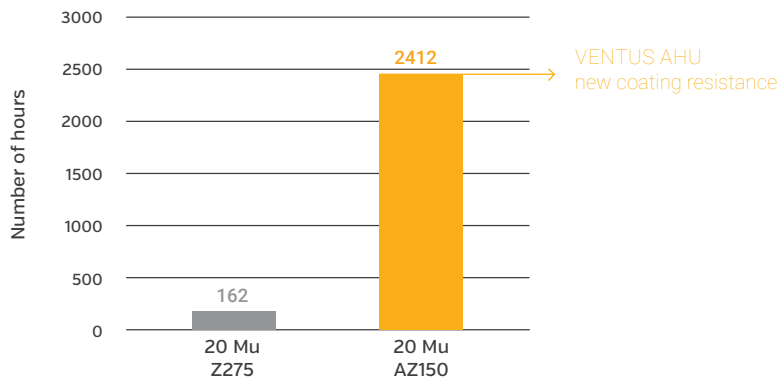


DESIGN



MORE THAN 2,000 HOURS SALT SPRAY TEST PROTECTION

RESISTANCE TO CORROSION



Salt spray test according to ASATMB - 117



CASING SKIN

- » high rigidity and durability of the AHU structure
- » low absorption of heat radiation and UV
- » perfect resistance to weather conditions

FAN SECTION CAGE

- » high longitudinal stiffness of the structure
- » easy section assembly



**ALUMINUM
POSTS**
AS **STANDARD**
FOR ALL TYPES
OF UNITS



Z PROFILE

AVS040-AVS085



C PROFILE

AVS100-AVS380



CURB READY RAILS

AVS040-AVS380

GALVANIZED STEEL SUPPORT
AS **STANDARD**
FOR ALL TYPES OF UNITS

CONVENIENT

- » easy transport
- » great profile resistance to deflection

STRUCTURAL POSTS

- » thermally broken as standard
- » high resistance to weather conditions and UV radiation



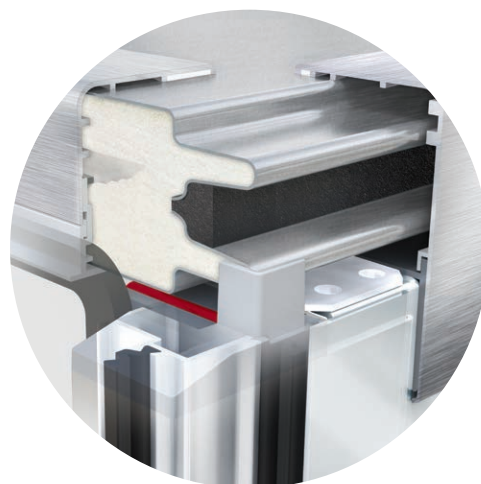
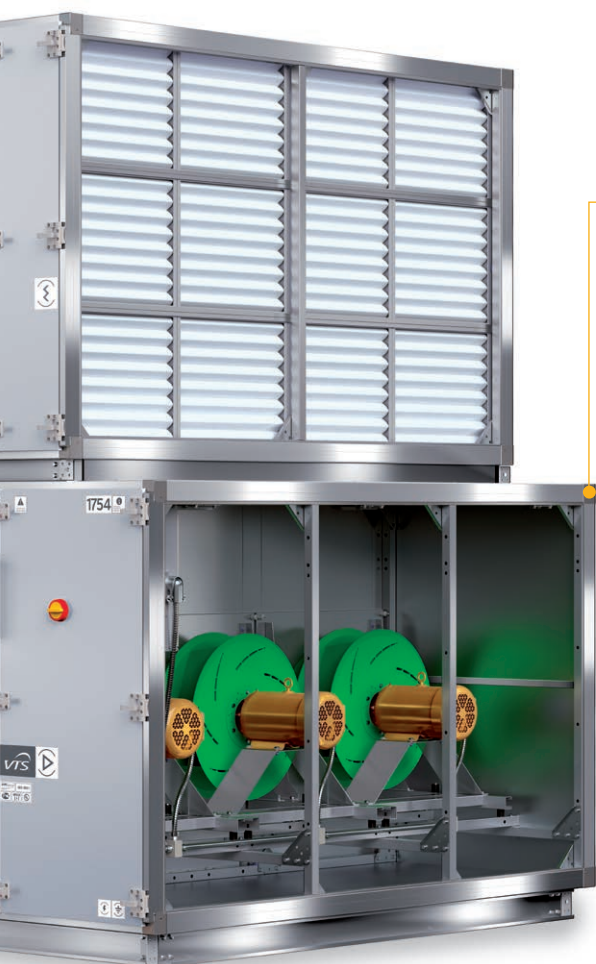
AIR TIGHTNESS



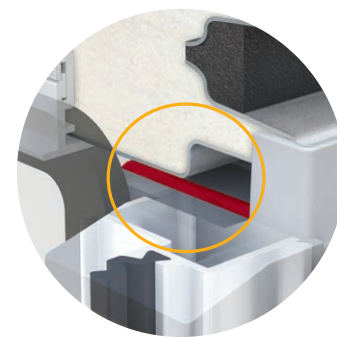
ERGONOMIC INSPECTION PANEL LOCK

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

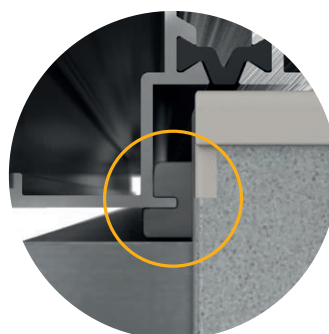
* patent pending; information will be published after it's formal validation.



**THERMAL
BREAK**



**ADDITIONAL
POST SEALING**



**LABYRINTH
SEALING**



**ADDITIONAL
SEALING EDGE**

ALUMINUM STRUCTURAL POSTS WITH AN ADDITIONAL SEALING FIN AND A THERMAL INSERT

- » thermal break as standard - ensures no condensation outside the AHU
- » the fin ensures labyrinth sealing – currently the most effective solution on the market, mainly used in laboratory equipment
- » original solution consisting in the use of symmetrical channel tension filled with a sealing compound, which provides 100% tightness of the connection between the column and construction structure



ROOFTOP APPLICATIONS



SECTIONAL ROOF

- » prevents water penetration during service
- » additional weather protection

VARIABLE INTAKE CONFIGURATIONS

- » top, bottom and side intake options
- » end – optional full face intake damper available units
- » dampers:
 - gear system for even distribution of the torque
 - extruded aluminum construction
 - low leakage
 - double wall blade construction



CURB READY RAILS

- » design -overhangs the side of the curb to avoid the need of flashing
- » integrated lifting lugs

VARIABLE DISCHARGE CONFIGURATION

- » end, top, bottom and side discharge options
- » optional discharge dampers and full end discharge dampers available



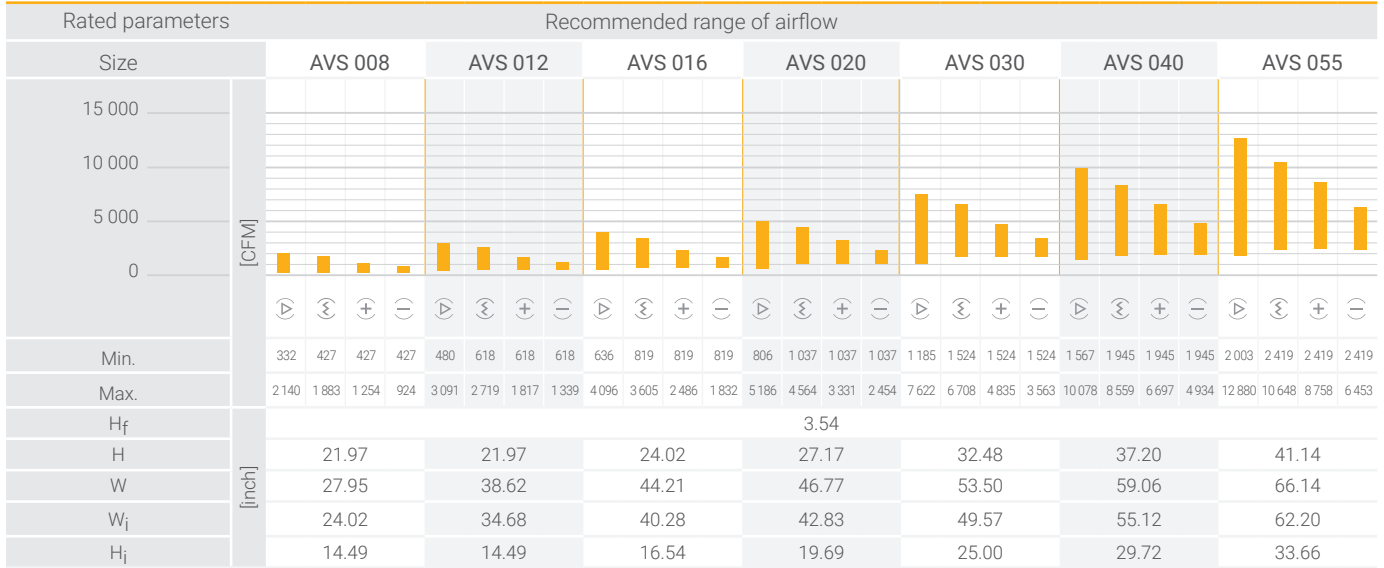


04

Technical
Parameters



AVS 8-55 - SUPPLY & EXHAUST



Main configuration	DE*	Basic configurations						
AVS-XXX-R-V	-	44.26	44.26	44.26	44.26	58.65	58.65	73.05
AVS-XXX-R-FV	-	58.65	58.65	58.65	58.65	73.05	73.05	87.45
AVS-XXX-R-FHV	-	73.05	73.05	73.05	73.05	87.45	87.45	101.85
AVS-XXX-R-FCV	✓	73.05	73.05	73.05	73.05	87.45	87.45	101.85
AVS-XXX-R-FHCV	✓	101.85	101.85	101.85	101.85	101.85	101.85	116.24
AVS-XXX-R-FHCV	✓	116.24	116.24	116.24	116.24	116.24	116.24	130.64
AVS-XXX-R-FGHV	-	87.45	87.45	87.45	87.45	101.85	101.85	116.24
AVS-XXX-R-FGV	-	73.05	73.05	73.05	73.05	87.45	87.45	101.85
AVS-XXX-R-FGCVH	✓	116.24	116.24	116.24	116.24	116.24	116.24	130.64

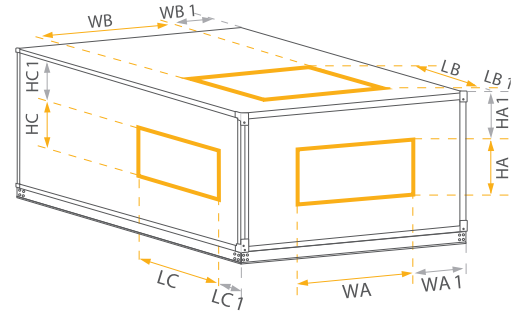
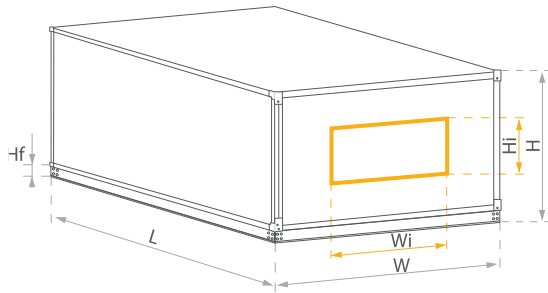
Units with external filters instead of internal are shorter by 14.4 inches

		Additional functions						
Empty section	L _{min}	29.86	29.86	29.86	29.86	29.86	29.86	29.86
	L _{max}	29.86	29.86	29.86	29.86	29.86	29.86	29.86
Mixing box	L	29.86	29.86	29.86	29.86	29.86	29.86	29.86

* Include Droplet Eliminator after Cooling Coil



DIMENSIONS - AVS 8-55 - SUPPLY & EXHAUST



AIR INLET / DISCHARGE DIMENSIONS

END FULL (FF)

UNIT	WA	HA	WA1	HA1
AVS 008	21.65	12.13	3.15	3.15
AVS 012	32.32	12.13	3.15	3.15
AVS 016	37.91	14.17	3.15	3.15
AVS 020	40.47	17.32	3.15	3.15
AVS 030	47.20	22.64	3.15	3.15
AVS 040	52.76	27.36	3.15	3.15
AVS 055	59.84	31.30	3.15	3.15

END (FS)

UNIT	WA	HA	WA1	HA1
AVS 008	17.99	7.99	5.03	5.23
AVS 012	25.98	7.99	6.33	5.23
AVS 016	34.02	7.99	5.13	6.23
AVS 020	25.98	12.01	10.43	5.83
AVS 030	34.02	12.01	9.83	8.53
AVS 040	40.47	17.32	9.29	8.19
AVS 055	47.20	22.64	9.47	7.48

Top (US)

UNIT	WB	LB	WB1	LB1
AVS 008	17.99	7.99	5.03	4.33
AVS 012	25.98	7.99	6.33	4.33
AVS 016	34.02	7.99	5.13	4.33
AVS 020	25.98	12.01	10.43	4.33
AVS 030	34.02	12.01	9.83	4.33
AVS 040	40.47	17.32	9.29	8.27
AVS 055	47.20	22.64	9.47	5.31

Top (US)

UNIT	WB	LB	WB1	LB1
AVS 008	17.94	7.94	5.00	11.46
AVS 012	25.94	7.94	6.34	11.46
AVS 016	33.94	7.94	5.16	11.46
AVS 020	25.94	11.94	10.43	9.46
AVS 030	33.94	11.94	9.80	9.46
AVS 040	47.20	22.64	5.93	8.66
AVS 055	52.76	27.36	6.69	8.66

UNIT CODING

AVS - XXX - R/L - EM / HC / EM

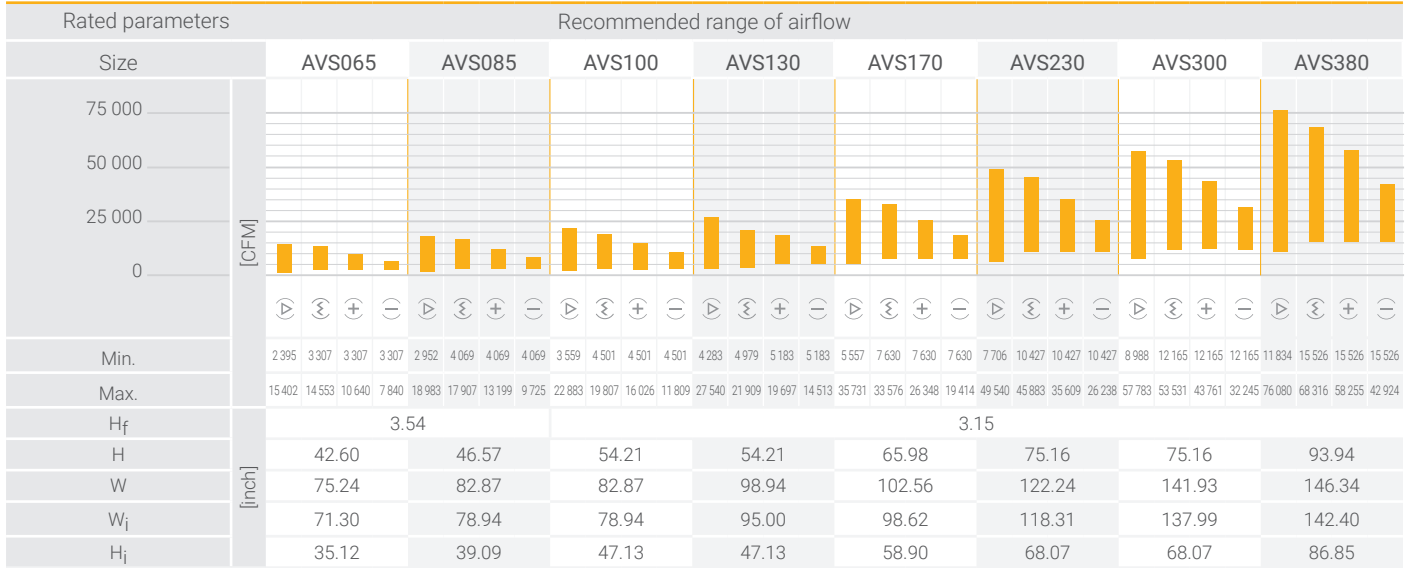
- AVS - type of AHU family
- XXX - size of unit (equal to the rated air flow in cfm)
- R/L - inspection side (R- right, L -left)
- EM - symbols of additional functions upstream main functions
- HC - symbols of main thermodynamic functions (basic functions)
- EM - symbols of additional functions downstream main functions
- Length depends on AHU equipment

Side (BS)

UNIT	HC	LC	HC1	LC1
AVS 008	10.94	7.94	4.33	3.74
AVS 012	10.94	7.94	4.33	3.74
AVS 016	12.94	7.94	4.33	3.74
AVS 020	15.94	11.94	4.33	3.82
AVS 030	20.94	11.94	4.33	3.98
AVS 040	16.26	14.96	6.89	8.70
AVS 055	24.13	14.96	6.89	6.73



AVS 65-380 - SUPPLY & EXHAUST



Main configuration	DE*	Basic configurations							
AVS-XXX-R-V	-	73.05	73.05	58.65	58.65	73.05	73.05	73.05	73.05
AVS-XXX-R-FV	-	87.45	87.45	73.05	73.05	87.45	87.45	87.45	87.45
AVS-XXX-R-FHV	-	101.85	101.85	87.45	87.45	101.85	101.85	101.85	101.85
AVS-XXX-R-FCV	✓	101.85	101.85	87.45	87.45	101.85	101.85	101.85	101.85
AVS-XXX-R-FHCV	✓	116.24	116.24	101.85	101.85	116.24	116.24	116.24	116.24
AVS-XXX-R-FHCVH	✓	130.64	130.64	116.24	116.24	130.64	130.64	130.64	130.64
AVS-XXX-R-FGHV	-	116.24	116.24	101.85	101.85	116.24	116.24	116.24	116.24
AVS-XXX-R-FGV	-	101.85	101.85	87.45	87.45	101.85	101.85	101.85	101.85
AVS-XXX-R-FGCVH	✓	130.64	130.64	116.24	116.24	130.64	130.64	130.64	130.64

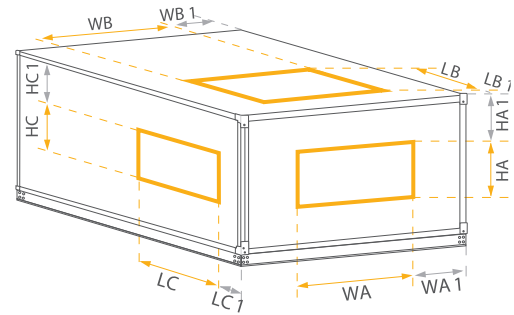
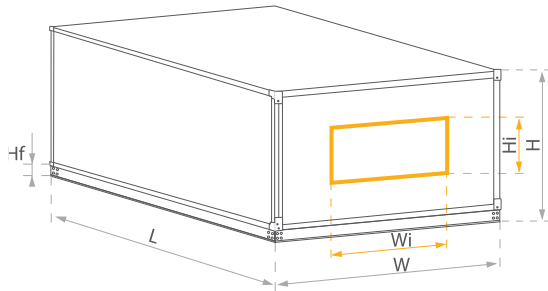
Units with external filters instead of internal are shorter by 14.4 inches

		Additional functions							
Empty section	L _{min}	29.86	29.86	29.86	29.86	29.86	29.86	29.86	29.86
	L _{max}	29.86	44.26	44.26	44.26	44.26	44.26	44.26	44.26
Mixing box	L	29.86	44.26	44.26	44.26	44.26	44.26	44.26	44.26

* Include Droplet Eliminator after Cooling Coil



DIMENSIONS - AVS 65-380 - SUPPLY & EXHAUST



AIR INLET / DISCHARGE DIMENSIONS

END FULL (FF)				
UNIT	WA	HA	WA1	HA1
AVS 065	68.94	32.76	3.15	3.15
AVS 085	76.57	36.73	3.15	3.15
AVS 100	76.57	44.76	3.15	3.15
AVS 130	92.64	44.76	3.15	3.15
AVS 170	96.26	56.54	3.15	3.15
AVS 230	115.94	65.71	3.15	3.15
AVS 300	135.63	65.71	3.15	3.15
AVS 380	140.04	84.49	3.15	3.15

Top (US)				
UNIT	WB	LB	WB1	LB1
AVS 065	47.20	22.64	14.02	5.31
AVS 085	59.84	31.30	11.52	8.27
AVS 100	59.84	31.30	11.52	8.27
AVS 130	76.57	36.73	11.18	5.31
AVS 170	76.57	36.73	12.99	5.31
AVS 230	104.33	36.73	8.96	5.31
AVS 300	124.02	36.73	8.96	5.31
AVS 380	127.95	36.73	9.19	5.31

END (FS)				
UNIT	WA	HA	WA1	HA1
AVS 065	47.20	22.64	14.02	8.23
AVS 085	59.84	31.30	11.52	5.87
AVS 100	59.84	31.30	11.52	9.88
AVS 130	76.57	36.73	11.18	7.17
AVS 170	76.57	36.73	12.99	13.07
AVS 230	104.33	36.73	8.96	17.64
AVS 300	124.02	36.73	8.96	17.64
AVS 380	127.95	36.73	9.19	27.05

Top (US)				
UNIT	WB	LB	WB1	LB1
AVS 065	59.84	31.30	7.70	5.31
AVS 085	59.84	31.30	11.52	5.31
AVS 100	59.84	31.30	11.52	5.31
AVS 130	75.31	29.13	11.81	5.31
AVS 170	76.57	36.73	12.99	5.31
AVS 230	104.33	36.73	8.96	5.31
AVS 300	124.02	36.73	8.96	8.66
AVS 380	127.95	36.73	9.19	8.66

Side (BS)				
UNIT	HC	LC	HC1	LC1
AVS 065	24.13	14.96	6.89	7.46
AVS 085	28.07	29.13	6.89	7.48
AVS 100	35.94	29.13	6.89	7.56
AVS 130	35.94	29.13	6.89	7.56
AVS 170	47.76	29.13	6.89	7.54
AVS 230	59.57	29.13	6.89	6.22
AVS 300	59.57	29.13	6.89	6.22
AVS 380	75.31	29.13	6.89	7.74

UNIT CODING

AVS - XXX - R/L - EM / HC / EM

- AVS - type of AHU family
- XXX - size of unit (equal to the rated air flow in cfm)
- R/L - inspection side (R- right, L -left)
- EM - symbols of additional functions upstream main functions
- HC - symbols of main thermodynamic functions (basic functions)
- EM - symbols of additional functions downstream main functions
- Length depends on AHU equipment











AVS 8-55 - CROSS-FLOW PLATE

Rated parameters			Recommended range of airflow																		
Size	AVS 008			AVS 012			AVS 016			AVS 020			AVS 030			AVS 040			AVS 055		
10 000																					
7 500																					
5 000																					
2 500																					
0																					
Min.	446	427	427	697	618	618	846	819	819	1 067	1 037	1 037	1 526	1 524	1 524	2 089	1 945	1 945	2 732	2 419	2 419
Max.	1 699	1 254	924	2 650	1 817	1 339	3 218	2 486	1 832	4 058	3 331	2 454	5 799	4 835	3 563	7 939	6 697	4 934	10 386	8 758	6 453
H _f	3.54																				
H	21.97			21.97			24.02			27.17			32.48			37.20			41.14		
W	27.95			38.62			44.21			46.77			53.50			59.06			66.14		
W _i	24.02			34.68			40.28			42.83			49.57			55.12			62.20		
H _i	14.49			14.49			16.54			19.69			25.00			29.72			33.66		
Main configuration DE*			Basic configurations																		
	L2		116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	145.04	145.04	145.04	145.04	145.04	145.04	173.83	173.83	173.83	
AVS-XXX-R-FPV/FVPD_cd	L1		101.85	101.85	101.85	101.85	101.85	101.85	101.85	101.85	101.85	130.64	130.64	130.64	130.64	130.64	130.64	159.44	159.44	159.44	
	L2		101.85	101.85	101.85	101.85	101.85	101.85	101.85	101.85	101.85	130.64	130.64	130.64	130.64	130.64	130.64	159.44	159.44	159.44	
AVS-XXX-R-FPV/FVPD_cu	L1		116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	145.04	145.04	145.04	145.04	145.04	145.04	173.83	173.83	173.83	
	L2		101.85	101.85	101.85	101.85	101.85	101.85	116.24	116.24	116.24	130.64	130.64	130.64	145.04	145.04	145.04	173.83	173.83	173.83	
AVS-XXX-R-FPV/FPDV_pd	L1		101.85	101.85	101.85	101.85	101.85	101.85	101.85	101.85	101.85	130.64	130.64	130.64	130.64	130.64	130.64	159.44	159.44	159.44	
	L2		101.85	101.85	101.85	101.85	101.85	101.85	101.85	101.85	101.85	130.64	130.64	130.64	130.64	130.64	130.64	159.44	159.44	159.44	
AVS-XXX-R-FPV/FPDV_pu	L1		116.24	116.24	116.24	116.24	116.24	116.24	130.64	130.64	130.64	145.04	145.04	145.04	159.44	159.44	159.44	188.23	188.23	188.23	
	L2		116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	145.04	145.04	145.04	145.04	145.04	145.04	173.83	173.83	173.83	
AVS-XXX-R-FPHV/FVPD_cd	L1		116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	145.04	145.04	145.04	145.04	145.04	145.04	173.83	173.83	173.83	
	L2		116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	145.04	145.04	145.04	145.04	145.04	145.04	173.83	173.83	173.83	
AVS-XXX-R-FPHV/FPDV_cu	L1		116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	145.04	145.04	145.04	145.04	145.04	145.04	173.83	173.83	173.83	
	L2		101.85	101.85	101.85	101.85	101.85	101.85	116.24	116.24	116.24	130.64	130.64	130.64	145.04	145.04	145.04	173.83	173.83	173.83	
AVS-XXX-R-FPHV/FPDV_pd	L1		116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	145.04	145.04	145.04	145.04	145.04	145.04	173.83	173.83	173.83	
	L2		116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	145.04	145.04	145.04	145.04	145.04	145.04	173.83	173.83	173.83	
AVS-XXX-R-FPHV/FPDV_pu	L1		101.85	101.85	101.85	101.85	101.85	101.85	116.24	116.24	116.24	130.64	130.64	130.64	145.04	145.04	145.04	173.83	173.83	173.83	
	L2		116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	145.04	145.04	145.04	145.04	145.04	145.04	173.83	173.83	173.83	
AVS-XXX-R-FPMHV/FVMPD_cd	L1		116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	145.04	145.04	145.04	145.04	145.04	145.04	173.83	173.83	173.83	
	L2		116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	145.04	145.04	145.04	145.04	145.04	145.04	173.83	173.83	173.83	
AVS-XXX-R-FPMHV/FVMPD_cu	L1		116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	116.24	145.04	145.04	145.04	145.04	145.04	145.04	173.83	173.83	173.83	

* Include Droplet Eliminator after Cooling Coil

L1- doesn't cover empty space in bottom deck

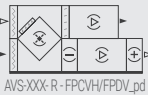
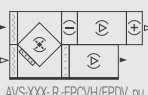
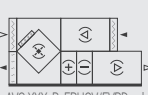
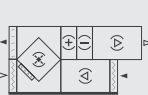
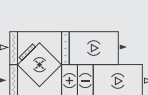
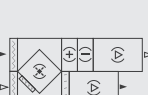

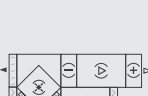


Main configuration DE*		Basic configurations							
 AVS-XXX-R-FPCV/FVPD_cd	-	L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	✓	L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83
		L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
		L1	130.64	130.64	130.64	130.64	145.04	145.04	173.83
 AVS-XXX-R-FPCV/FVPD_cu	-	L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	✓	L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83
		L2	130.64	130.64	130.64	130.64	145.04	145.04	173.83
		L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83
 AVS-XXX-R-FPCV/FPDV_pd	-	L2	101.85	101.85	101.85	116.24	130.64	145.04	173.83
	✓	L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83
		L2	101.85	101.85	101.85	116.24	130.64	145.04	173.83
		L1	130.64	130.64	130.64	130.64	145.04	145.04	173.83
 AVS-XXX-R-FPCV/FPDV_pu	-	L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	✓	L1	101.85	101.85	101.85	116.24	130.64	145.04	173.83
		L2	130.64	130.64	130.64	130.64	145.04	145.04	173.83
		L1	101.85	101.85	101.85	116.24	130.64	145.04	173.83
 AVS-XXX-R-FPMC/FVMPD_cd	-	L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	✓	L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83
		L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
		L1	130.64	130.64	130.64	130.64	145.04	145.04	173.83
 AVS-XXX-R-FPMC/FVMPD_cu	-	L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	✓	L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83
		L2	130.64	130.64	130.64	130.64	145.04	145.04	173.83
		L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83
 AVS-XXX-R-FPCVH/FVPD_cd	-	L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	✓	L1	130.64	130.64	130.64	130.64	159.44	159.44	188.23
		L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
		L1	145.04	145.04	145.04	145.04	159.44	159.44	188.23
 AVS-XXX-R-FPCVH/FVPD_cu	-	L2	130.64	130.64	130.64	130.64	159.44	159.44	188.23
	✓	L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83
		L2	145.04	145.04	145.04	145.04	159.44	159.44	188.23
		L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83

* Include Droplet Eliminator after Cooling Coil

L1- doesn't cover empty space in bottom deck



Main configuration		DE*	Basic configurations						
 AVS-XXX-R-FPCVH/FPDV_pd	-	L2	101.85	101.85	101.85	116.24	130.64	145.04	173.83
	✓	L1	130.64	130.64	130.64	130.64	159.44	159.44	188.23
	-	L2	101.85	101.85	101.85	116.24	130.64	145.04	173.83
	✓	L1	145.04	145.04	145.04	145.04	159.44	159.44	188.23
 AVS-XXX-R-FPCVH/FPDV_pu	-	L2	130.64	130.64	130.64	130.64	159.44	159.44	188.23
	✓	L1	101.85	101.85	101.85	116.24	130.64	145.04	173.83
	-	L2	145.04	145.04	145.04	145.04	159.44	159.44	188.23
	✓	L1	101.85	101.85	101.85	116.24	130.64	145.04	173.83
 AVS-XXX-R-FPHCV/FVPD_cd	-	L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	✓	L1	130.64	130.64	130.64	130.64	159.44	159.44	188.23
	-	L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	✓	L1	145.04	145.04	145.04	145.04	159.44	159.44	188.23
 AVS-XXX-R-FPHCV/FVPD_cu	-	L2	130.64	130.64	130.64	130.64	159.44	159.44	188.23
	✓	L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	-	L2	145.04	145.04	145.04	145.04	159.44	159.44	188.23
	✓	L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83
 AVS-XXX-R-FPHCV/FPDV_pd	-	L2	101.85	101.85	101.85	116.24	130.64	145.04	173.83
	✓	L1	130.64	130.64	130.64	130.64	159.44	159.44	188.23
	-	L2	101.85	101.85	101.85	116.24	130.64	145.04	173.83
	✓	L1	145.04	145.04	145.04	145.04	159.44	159.44	188.23
 AVS-XXX-R-FPHCV/FPDV_pu	-	L2	130.64	130.64	130.64	130.64	159.44	159.44	188.23
	✓	L1	101.85	101.85	101.85	116.24	130.64	145.04	173.83
	-	L2	145.04	145.04	145.04	145.04	159.44	159.44	188.23
	✓	L1	101.85	101.85	101.85	116.24	130.64	145.04	173.83
 AVS-XXX-R-FPMCWH/FWMPD_cd	-	L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	✓	L1	130.64	130.64	130.64	130.64	159.44	159.44	188.23
	-	L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	✓	L1	145.04	145.04	145.04	145.04	159.44	159.44	188.23
 AVS-XXX-R-FPMCWH/FWMPD_cu	-	L2	130.64	130.64	130.64	130.64	159.44	159.44	188.23
	✓	L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	-	L2	145.04	145.04	145.04	145.04	159.44	159.44	188.23
	✓	L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83

[inch]

* Include Droplet Eliminator after Cooling Coil

L1- doesn't cover empty space in bottom deck



Main configuration DE*		Basic configurations						
	L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	L1	130.64	130.64	130.64	130.64	159.44	159.44	188.23
	L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	L1	145.04	145.04	145.04	145.04	159.44	159.44	188.23
	L2	130.64	130.64	130.64	130.64	159.44	159.44	188.23
	L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	L2	145.04	145.04	145.04	145.04	173.83	173.83	202.63
	L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	L2	159.44	159.44	159.44	159.44	173.83	173.83	202.63
	L1	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	L2	116.24	116.24	116.24	130.64	145.04	159.44	188.23
	L1	145.04	145.04	145.04	145.04	173.83	173.83	202.63
	L2	116.24	116.24	116.24	130.64	145.04	159.44	188.23
	L1	159.44	159.44	159.44	159.44	173.83	173.83	202.63
	L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	L1	145.04	145.04	145.04	145.04	173.83	173.83	202.63
	L2	116.24	116.24	116.24	116.24	145.04	145.04	173.83
	L1	159.44	159.44	159.44	159.44	173.83	173.83	202.63

* Include Droplet Eliminator after Cooling Coil

L1- doesn't cover empty space in bottom deck



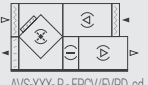

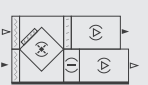





AVS 65-380 - CROSS-FLOW PLATE

Rated parameters			Recommended range of airflow																							
Size	AVS065			AVS085			AVS100			AVS130			AVS170			AVS230			AVS300			AVS380				
60 000	[CFM]																									
45 000	[CFM]																									
30 000	[CFM]																									
15 000	[CFM]																									
0	[CFM]																									
Min.	3 307	3 307	3 307	4 185	4 069	4 069	4 501	4 501	4 501	5 070	5 183	5 183	7 630	7 630	7 630	10 427	10 427	10 427	12 165	12 165	12 165	15 526	15 526	15 526		
Max.	11 972	10 640	7 840	15 905	13 199	9 725	15 905	16 026	11 809	19 268	19 697	14 513	28 041	26 348	19 414	33 749	35 609	26 238	39 471	43 761	32 245	47 778	58 255	42 924		
H _{fd}	3.54						3.15						3.15													
H _{fu}	0.00			0.00			2.36			2.36			2.36			2.36			2.36			2.36				
H	42.6			46.57			54.21			54.21			65.98			75.16			75.16			93.94				
W	75.24			82.87			82.87			98.94			102.56			122.24			141.93			146.34				
W _i	71.3			78.94			78.94			95.00			98.62			118.31			137.99			142.40				
H _i	35.12			39.09			47.13			47.13			58.90			68.07			68.07			86.85				
Main configuration DE*			Basic configurations																							
 AVS-XXX-R-FPV/FVPD_cd	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42																	
	L1	159.44	173.83	159.44	159.44	202.63	202.63	202.63	217.03																	
 AVS-XXX-R-FPV/FVPD_cu	L2	159.44	173.83	159.44	159.44	202.63	202.63	202.63	217.03																	
	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42																	
 AVS-XXX-R-FPV/FPDV_pd	L2	173.83	173.83	159.44	159.44	202.63	202.63	202.63	217.03																	
	L1	159.44	173.83	159.44	159.44	202.63	202.63	202.63	217.03																	
 AVS-XXX-R-FPV/FPDV_pu	L2	159.44	173.83	159.44	159.44	202.63	202.63	202.63	217.03																	
	L1	188.23	188.23	173.83	173.83	217.03	217.03	217.03	231.42																	
 AVS-XXX-R-FPHV/FVPD_cd	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42																	
	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42																	
 AVS-XXX-R-FPHV/FVPD_cu	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42																	
	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42																	
 AVS-XXX-R-FPHV/FPDV_pd	L2	173.83	173.83	159.44	159.44	202.63	202.63	202.63	217.03																	
	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42																	
 AVS-XXX-R-FPHV/FPDV_pu	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42																	
	L1	173.83	173.83	159.44	159.44	202.63	202.63	202.63	217.03																	
 AVS-XXX-R-FPMHV/FVMPD_cd	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42																	
	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42																	
 AVS-XXX-R-FPMHV/FVMPD_cu	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42																	
	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42																	

* Include Droplet Eliminator after Cooling Coil

L1- doesn't cover empty space in bottom deck

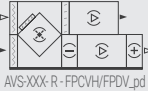
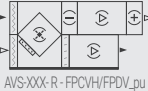
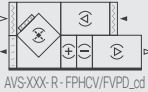
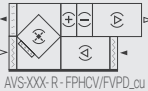
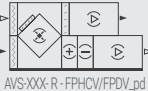
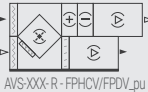
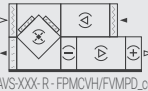
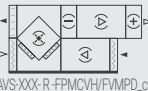


Main configuration DE*		Basic configurations								
 AVS-XXX-R-FPCV/FVPD_cd	-	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	✓	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
		L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
		L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
 AVS-XXX-R-FPCV/FVPD_cu	-	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	✓	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
		L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
		L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
 AVS-XXX-R-FPCV/FVPD_pd	-	L2	173.83	173.83	159.44	159.44	202.63	202.63	202.63	217.03
	✓	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
		L2	173.83	173.83	159.44	159.44	202.63	202.63	202.63	217.03
		L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
 AVS-XXX-R-FPCV/FVPD_pu	-	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	✓	L1	173.83	173.83	159.44	159.44	202.63	202.63	202.63	217.03
		L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
		L1	173.83	173.83	159.44	159.44	202.63	202.63	202.63	217.03
 AVS-XXX-R-FPMC/FVMPD_cd	-	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	✓	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
		L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
		L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
 AVS-XXX-R-FPMC/FVMPD_cu	-	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	✓	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
		L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
		L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
 AVS-XXX-R-FPCVH/FVPD_cd	-	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	✓	L1	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
		L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
		L1	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
 AVS-XXX-R-FPCVH/FVPD_cu	-	L2	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
	✓	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
		L2	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
		L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42

* Include Droplet Eliminator after Cooling Coil

L1- doesn't cover empty space in bottom deck


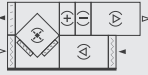



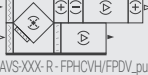




Main configuration		DE*	Basic configurations							
 AVS-XXX-R-FPCVH/FPDV_pd	-	L2	173.83	173.83	159.44	159.44	202.63	202.63	202.63	217.03
	✓	L1	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
	-	L2	173.83	173.83	159.44	159.44	202.63	202.63	202.63	217.03
	✓	L1	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
 AVS-XXX-R-FPCVH/FPDV_pu	-	L2	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
	✓	L1	173.83	173.83	159.44	159.44	202.63	202.63	202.63	217.03
	-	L2	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
	✓	L1	173.83	173.83	159.44	159.44	202.63	202.63	202.63	217.03
 AVS-XXX-R-FPHCV/FVPD_cd	-	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	✓	L1	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
	-	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	✓	L1	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
 AVS-XXX-R-FPHCV/FVPD_cu	-	L2	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
	✓	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	-	L2	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
	✓	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
 AVS-XXX-R-FPHCV/FPDV_pd	-	L2	173.83	173.83	159.44	159.44	202.63	202.63	202.63	217.03
	✓	L1	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
	-	L2	173.83	173.83	159.44	159.44	202.63	202.63	202.63	217.03
	✓	L1	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
 AVS-XXX-R-FPHCV/FPDV_pu	-	L2	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
	✓	L1	173.83	173.83	159.44	159.44	202.63	202.63	202.63	217.03
	-	L2	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
	✓	L1	173.83	173.83	159.44	159.44	202.63	202.63	202.63	217.03
 AVS-XXX-R-FPMCvH/FVMPD_cd	-	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	✓	L1	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
	-	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	✓	L1	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
 AVS-XXX-R-FPMCvH/FVMPD_cu	-	L2	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
	✓	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	-	L2	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
	✓	L1	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42

* Include Droplet Eliminator after Cooling Coil

L1- doesn't cover empty space in bottom deck



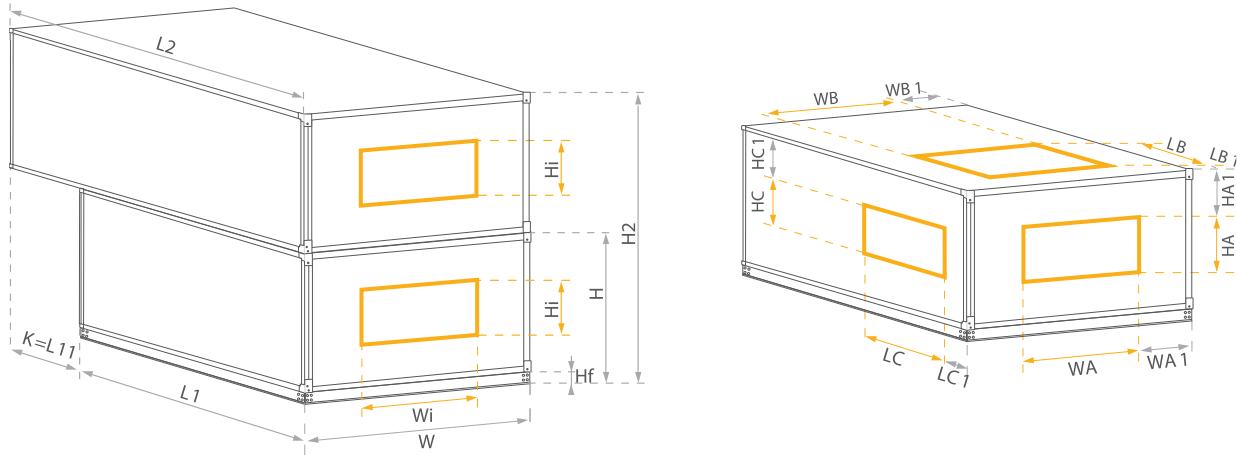
Main configuration DE*		Basic configurations							
 AVS-XXX-R-FPMHCV/FVMMPD_cd	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	L1	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
 AVS-XXX-R-FPMHCV/FVMMPD_cu	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	L1	188.23	202.63	188.23	188.23	231.42	231.42	231.42	245.82
 AVS-XXX-R-FPHCVH/FVPD_cu	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	L1	202.63	217.03	202.63	202.63	245.82	245.82	245.82	260.22
 AVS-XXX-R-FPMHCVH/FVMMPD_cu	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	L1	202.63	217.03	202.63	202.63	245.82	245.82	245.82	260.22
 AVS-XXX-R-FPHCVH/FPDV_pd	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	L1	202.63	217.03	202.63	202.63	245.82	245.82	245.82	260.22
 AVS-XXX-R-FPHCVH/FPDV_pu	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	L1	202.63	217.03	202.63	202.63	245.82	245.82	245.82	260.22
 AVS-XXX-R-FPHCVH/FVPD_cd	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	L1	202.63	217.03	202.63	202.63	245.82	245.82	245.82	260.22
 AVS-XXX-R-FPHCVH/FVPD_cu	L2	173.83	188.23	173.83	173.83	217.03	217.03	217.03	231.42
	L1	202.63	217.03	202.63	202.63	245.82	245.82	245.82	260.22

* Include Droplet Eliminator after Cooling Coil

L1- doesn't cover empty space in bottom deck



DIMENSIONS - AVS 8-55 - CROSS-FLOW PLATE



AIR INLET / DISCHARGE DIMENSIONS

END FULL (FF) 				
UNIT	WA	HA	WA1	HA1
AVS 008	21.65	12.13	3.15	3.15
AVS 012	32.32	12.13	3.15	3.15
AVS 016	37.91	14.17	3.15	3.15
AVS 020	40.47	17.32	3.15	3.15
AVS 030	47.20	22.64	3.15	3.15
AVS 040	52.76	27.36	3.15	3.15
AVS 055	59.84	31.30	3.15	3.15

END (FS) 				
UNIT	WA	HA	WA1	HA1
AVS 008	17.97	7.97	5.00	5.24
AVS 012	25.97	7.97	6.34	5.24
AVS 016	33.97	7.97	5.16	6.26
AVS 020	25.97	11.97	10.43	5.83
AVS 030	33.97	11.97	9.80	8.50
AVS 040	40.51	17.36	9.29	8.19
AVS 055	47.24	22.68	9.47	7.48

Side (BS) 				
UNIT	HC	LC	HC1	LC1
AVS 008	10.94	7.94	4.33	3.74
AVS 012	10.94	7.94	4.33	3.74
AVS 016	12.94	7.94	4.33	3.74
AVS 020	15.94	11.94	4.33	3.82
AVS 030	20.94	11.94	4.33	3.98
AVS 040	16.26	14.96	6.89	8.70
AVS 055	24.13	14.96	6.89	6.73

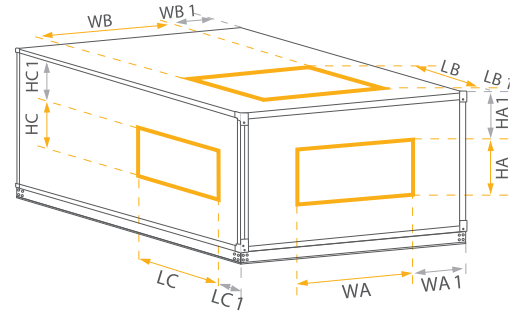
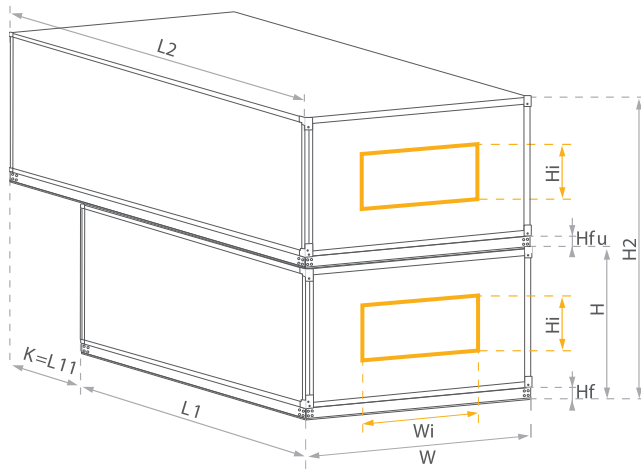
UNIT CODING

AVS - XX



AVS - type of AHU family
 XXX - size of unit (equal to the rated air flow in cfm*0.001)
 R/L - inspection side (R- right, L-left)
 PHC - symbols of main thermodynamic functions (basic functions)
 Length depends on AHU equipment



DIMENSIONS - AVS 65-380 - CROSS-FLOW PLATE



AIR INLET / DISCHARGE DIMENSIONS

END FULL (FF) 				
UNIT	WA	HA	WA1	HA1
AVS 065	68.94	32.76	3.15	3.15
AVS 085	76.57	36.73	3.15	3.15
AVS 100	76.57	44.76	3.15	3.15
AVS 130	92.64	44.76	3.15	3.15
AVS 170	96.26	56.54	3.15	3.15
AVS 230	115.94	65.71	3.15	3.15
AVS 300	135.63	65.71	3.15	3.15
AVS 300	140.04	84.49	3.15	3.15

END (FS) 		 		
UNIT	WA	HA	WA1	HA1
AVS 065	47.24	22.68	14.02	8.23
AVS 085	59.88	31.34	11.52	5.87
AVS 100	59.88	31.34	11.52	9.88
AVS 130	76.61	36.77	11.18	7.17
AVS 170	76.61	36.77	12.99	13.07
AVS 230	104.37	36.77	8.96	17.64
AVS 300	124.06	36.77	8.96	17.64
AVS 380	127.99	36.77	9.19	27.05

Side (BS) 		 		
UNIT	HC	LC	HC1	LC1
AVS 065	24.13	14.96	6.89	7.46
AVS 085	28.07	29.13	6.89	7.48
AVS 100	35.94	29.13	6.89	7.56
AVS 130	35.94	29.13	6.89	7.56
AVS 170	47.76	29.13	6.89	7.54
AVS 230	59.57	29.13	6.89	6.22
AVS 300	59.57	29.13	6.89	6.22
AVS 380	75.31	29.13	6.89	7.74

UNIT CODING

AVS - XX

AVS - type of AHU family
 XXX - size of unit (equal to the rated air flow in cfm*0.001)
 R/L - inspection side (R- right, L-left)
 PHC - symbols of main thermodynamic functions (basic functions)
 Length depends on AHU equipment



AVS 12 - 65 WITH ENERGY WHEEL

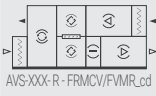
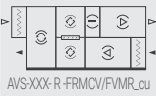
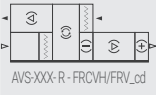
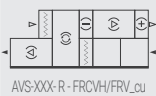
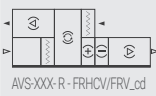
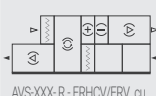
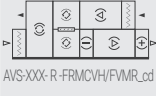
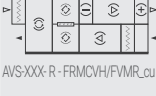
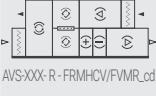
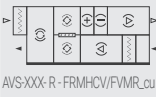
Rated parameters			Recommended range of airflow																				
Size	AVS 012			AVS 016			AVS 020			AVS 030			AVS 040			AVS 055			AVS 065				
12 000 8 000 4 000 0	[CFM]	[Bar chart showing airflow capacity for each model and size]																					
		Min.	618	618	618	819	819	819	1 037	1 037	1 037	1 524	1 524	1 524	1 945	1 945	1 945	2 419	2 419	2 419	3 307	3 307	3 307
		Max.	2 179	1 817	1 339	2 664	2 486	1 832	4 068	3 331	2 454	5 869	4 835	3 563	7 364	6 697	4 934	9 536	8 758	6 453	12 205	10 640	7 840
H _f	3.54																						
H	[inch]	21.97			24.02			27.17			32.48			37.20			41.14			42.60			
W		38.62			44.21			46.77			53.50			59.06			66.14			75.24			
W _i		34.68			40.28			42.83			49.57			55.12			62.20			71.30			
H _i		14.49			16.54			19.69			25.00			29.72			33.66			35.12			
H ₂		40.39			44.49			50.79			61.42			70.87			78.74			81.65			

Main configuration DE*		Basic configurations						
 AVS-XXX-R-FRV/FRV_cd	L2	87.45	87.45	87.45	101.85	101.85	116.24	116.24
	L1	87.45	87.45	87.45	101.85	101.85	116.24	116.24
	L11	28.80	28.80	28.80	43.19	43.19	57.59	57.59
 AVS-XXX-R-FRV/FRV_cu	L2	87.45	87.45	87.45	101.85	101.85	116.24	116.24
	L1	87.45	87.45	87.45	101.85	101.85	116.24	116.24
	L11	28.80	28.80	28.80	43.19	43.19	57.59	57.59
 AVS-XXX-R-FRHV/FRV_cd	L2	87.45	87.45	87.45	101.85	101.85	116.24	116.24
	L1	101.85	101.85	101.85	116.24	116.24	130.64	130.64
	L11	28.80	28.80	28.80	43.19	43.19	57.59	57.59
 AVS-XXX-R-FRHV/FRV_cu	L2	101.85	101.85	101.85	116.24	116.24	130.64	130.64
	L1	87.45	87.45	87.45	101.85	101.85	116.24	116.24
	L11	43.19	43.19	43.19	57.59	57.59	71.99	71.99
 AVS-XXX-R-FRMHV/FVMR_cd	L2	116.24	116.24	116.24	130.64	130.64	145.04	145.04
	L1	130.64	130.64	130.64	145.04	145.04	159.44	159.44
	L11	116.24	116.24	116.24	130.64	130.64	145.04	145.04
 AVS-XXX-R-FRMHV/FVMR_cu	L2	87.45	87.45	87.45	101.85	101.85	116.24	116.24
	L1	101.85	101.85	101.85	116.24	116.24	130.64	130.64
	L11	28.80	28.80	28.80	43.19	43.19	57.59	57.59
 AVS-XXX-R-FRCV/FRV_cd	L2	87.45	87.45	87.45	101.85	101.85	116.24	116.24
	L1	116.24	116.24	116.24	116.24	116.24	130.64	130.64
	L11	28.80	28.80	28.80	43.19	43.19	57.59	57.59
 AVS-XXX-R-FRCV/FRV_cu	L2	101.85	101.85	101.85	116.24	116.24	130.64	130.64
	L1	87.45	87.45	87.45	101.85	101.85	116.24	116.24
	L11	43.19	43.19	43.19	57.59	57.59	71.99	71.99
 AVS-XXX-R-FRCV/FRV_cu	L2	101.85	101.85	101.85	116.24	116.24	130.64	130.64
	L1	87.45	87.45	87.45	101.85	101.85	116.24	116.24
	L11	43.19	43.19	43.19	57.59	57.59	71.99	71.99

* Include Droplet Eliminator after Cooling Coil

L1- doesn't cover empty space in bottom deck



Main configuration		DE*	Basic configurations						
 AVS-XXX-R-FRMCV/FVMR_cd	-	L2	116.24	116.24	116.24	130.64	130.64	145.04	145.04
	✓	L1	130.64	130.64	130.64	145.04	145.04	159.44	159.44
	-	L2	116.24	116.24	116.24	130.64	130.64	145.04	145.04
	✓	L1	145.04	145.04	145.04	145.04	145.04	159.44	159.44
 AVS-XXX-R-FRMCV/FVMR_cu	-	L2	130.64	130.64	130.64	145.04	145.04	159.44	159.44
	✓	L1	116.24	116.24	116.24	130.64	130.64	145.04	145.04
	-	L2	130.64	130.64	130.64	145.04	145.04	159.44	159.44
	✓	L1	116.24	116.24	116.24	130.64	130.64	145.04	145.04
 AVS-XXX-R-FRCVH/FRV_cd	-	L2	101.85	101.85	101.85	116.24	116.24	130.64	130.64
	✓	L1	145.04	145.04	145.04	159.44	159.44	173.83	173.83
	-	L11	28.80	28.80	28.80	43.19	43.19	57.59	57.59
	✓	L2	101.85	101.85	101.85	116.24	116.24	130.64	130.64
	-	L1	159.44	159.44	159.44	159.44	159.44	173.83	173.83
	✓	L11	28.80	28.80	28.80	43.19	43.19	57.59	57.59
 AVS-XXX-R-FRCVH/FRV_cu	-	L2	145.04	145.04	145.04	159.44	159.44	173.83	173.83
	✓	L1	101.85	101.85	101.85	116.24	116.24	130.64	130.64
	-	L11	57.59	57.59	57.59	71.99	71.99	86.39	86.39
	✓	L2	145.04	145.04	145.04	159.44	159.44	173.83	173.83
	-	L1	101.85	101.85	101.85	116.24	116.24	130.64	130.64
	✓	L11	57.59	57.59	57.59	71.99	71.99	86.39	86.39
 AVS-XXX-R-FRHCV/FRV_cd	-	L2	87.45	87.45	87.45	101.85	101.85	116.24	116.24
	✓	L1	116.24	116.24	116.24	130.64	130.64	145.04	145.04
	-	L11	28.80	28.80	28.80	43.19	43.19	57.59	57.59
	✓	L2	87.45	87.45	87.45	101.85	101.85	116.24	116.24
	-	L1	130.64	130.64	130.64	130.64	130.64	145.04	145.04
	✓	L11	28.80	28.80	28.80	43.19	43.19	57.59	57.59
 AVS-XXX-R-FRHCV/FRV_cu	-	L2	116.24	116.24	116.24	130.64	130.64	145.04	145.04
	✓	L1	87.45	87.45	87.45	101.85	101.85	116.24	116.24
	-	L11	57.59	57.59	57.59	71.99	71.99	86.39	86.39
	✓	L2	116.24	116.24	116.24	130.64	130.64	145.04	145.04
	-	L1	87.45	87.45	87.45	101.85	101.85	116.24	116.24
	✓	L11	57.59	57.59	57.59	71.99	71.99	86.39	86.39
 AVS-XXX-R-FRMCVH/FVMR_cd	-	L2	116.24	116.24	116.24	130.64	130.64	145.04	145.04
	✓	L1	145.04	145.04	145.04	159.44	159.44	173.83	173.83
	-	L2	116.24	116.24	116.24	130.64	130.64	145.04	145.04
	✓	L1	159.44	159.44	159.44	159.44	159.44	173.83	173.83
 AVS-XXX-R-FRMCVH/FVMR_cu	-	L2	145.04	145.04	145.04	159.44	159.44	173.83	173.83
	✓	L1	116.24	116.24	116.24	130.64	130.64	145.04	145.04
	-	L11	14.40	14.40	14.40	14.40	14.40	14.40	14.40
	✓	L2	145.04	145.04	145.04	159.44	159.44	173.83	173.83
	-	L1	116.24	116.24	116.24	130.64	130.64	145.04	145.04
	✓	L11	14.40	14.40	14.40	14.40	14.40	14.40	14.40
 AVS-XXX-R-FRMHCV/FVMR_cd	-	L2	116.24	116.24	116.24	130.64	130.64	145.04	145.04
	✓	L1	145.04	145.04	145.04	159.44	159.44	173.83	173.83
	-	L2	116.24	116.24	116.24	130.64	130.64	145.04	145.04
	✓	L1	159.44	159.44	159.44	159.44	159.44	173.83	173.83
 AVS-XXX-R-FRMHCV/FVMR_cu	-	L2	145.04	145.04	145.04	159.44	159.44	173.83	173.83
	✓	L1	116.24	116.24	116.24	130.64	130.64	145.04	145.04
	-	L11	14.40	14.40	14.40	14.40	14.40	14.40	14.40
	✓	L2	145.04	145.04	145.04	159.44	159.44	173.83	173.83
	-	L1	116.24	116.24	116.24	130.64	130.64	145.04	145.04
	✓	L11	14.40	14.40	14.40	14.40	14.40	14.40	14.40

* Include Droplet Eliminator after Cooling Coil

L1- doesn't cover empty space in bottom deck



AVS 85-380 WITH ENERGY WHEEL



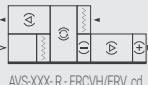


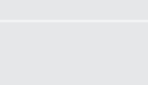
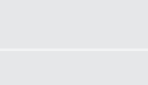
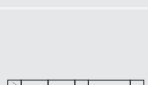


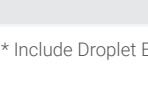
Rated parameters			Recommended range of airflow																					
Size				AVS085			AVS100			AVS130			AVS170			AVS230			AVS300			AVS380		
60 000 40 000 20 000 0	[CFM]		[Bar chart showing airflow ranges for each model and direction]																					
		Min.	4 069	4 069	4 069	4 501	4 501	4 501	4 979	5 183	5 183	7 630	7 630	7 630	10 427	10 427	10 427	12 165	12 165	12 165	15 526	15 526	15 526	
		Max.	15 121	13 198	9 724	15 122	16 026	11 809	21 698	19 697	14 513	23 578	26 348	19 414	32 704	35 609	26 238	45 678	43 761	32 245	48 968	58 255	42 924	
		H _{fd}	3.54			3.15																		
H _{fu}	0.00			2.36			2.36			2.36			2.36			2.36			2.36					
H	46.57			54.21			54.21			65.98			75.16			75.16			93.94					
W	82.87			82.87			98.94			102.56			122.24			141.93			146.34					
W _i	78.94			78.94			95.00			98.62			118.31			137.99			142.4					
H _i	39.09			47.13			47.13			58.9			68.07			68.07			86.85					
H ₂	89.61			107.64			107.64			131.18			149.53			149.53			187.09					

Main configuration DE*		Basic configurations						
 AVS-XXX-R-FRV/FRV_cd	L2	116.24	101.85	101.85	116.24	116.24	116.24	116.24
	L1	116.24	101.85	101.85	116.24	116.24	116.24	116.24
 AVS-XXX-R-FRV/FRV_cu	L2	116.24	101.85	101.85	116.24	116.24	116.24	116.24
	L1	116.24	101.85	101.85	116.24	116.24	116.24	116.24
 AVS-XXX-R-FRHV/FRV_cd	L2	116.24	101.85	101.85	116.24	116.24	116.24	116.24
	L1	130.64	116.24	116.24	130.64	130.64	130.64	130.64
 AVS-XXX-R-FRHV/FRV_cu	L2	130.64	116.24	116.24	130.64	130.64	130.64	130.64
	L1	116.24	101.85	101.85	116.24	116.24	116.24	116.24
 AVS-XXX-R-FRMHV/FVMR_cd	L2	159.44	145.04	145.04	159.44	159.44	159.44	159.44
	L1	173.83	159.44	159.44	173.83	173.83	173.83	173.83
 AVS-XXX-R-FRMHV/FVMR_cu	L2	173.83	159.44	159.44	173.83	173.83	173.83	173.83
	L1	159.44	145.04	145.04	159.44	159.44	159.44	159.44
 AVS-XXX-R-FRCV/FRV_cd	L2	116.24	101.85	101.85	116.24	116.24	116.24	116.24
	L1	130.64	116.24	116.24	130.64	130.64	130.64	130.64
	L11	57.59	43.19	43.19	57.59	57.59	57.59	57.59
 AVS-XXX-R-FRCV/FRV_cu	L2	116.24	101.85	101.85	116.24	116.24	116.24	116.24
	L1	130.64	116.24	116.24	130.64	130.64	130.64	130.64
	L11	57.59	43.19	43.19	57.59	57.59	57.59	57.59
 AVS-XXX-R-FRV/FRV_cu	L2	130.64	116.24	116.24	130.64	130.64	130.64	130.64
	L1	116.24	101.85	101.85	116.24	116.24	116.24	116.24
	L11	71.99	57.59	57.59	71.99	71.99	71.99	71.99

* Include Droplet Eliminator after Cooling Coil

L1- doesn't cover empty space in bottom deck



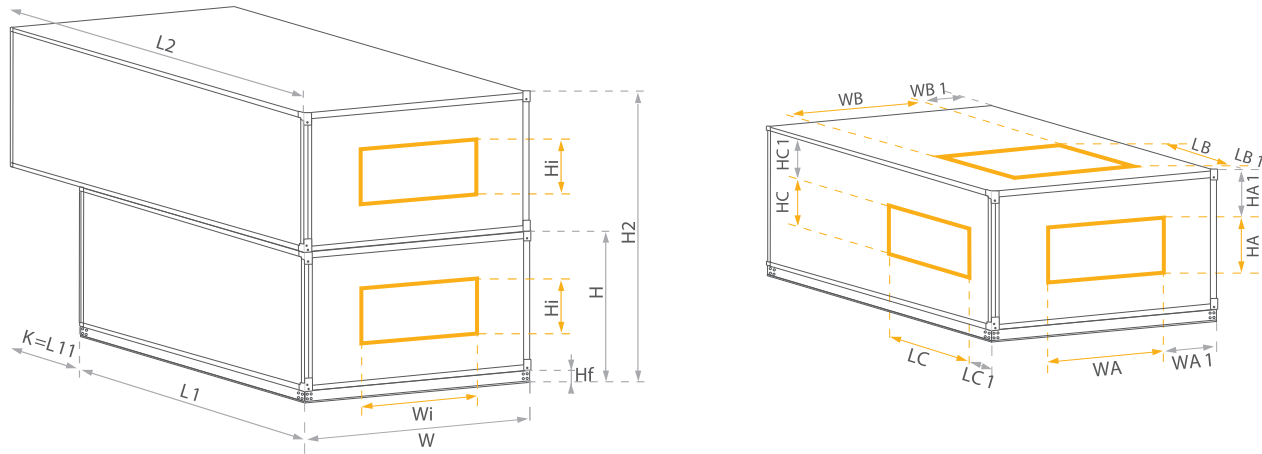
Main configuration		DE*	Basic configurations						
 AVS-XXX-R-FRMCV/FVMR_cd	-	L2	159.44	145.04	145.04	159.44	159.44	159.44	159.44
	✓	L1	173.83	159.44	159.44	173.83	173.83	173.83	173.83
		L2	159.44	145.04	145.04	159.44	159.44	159.44	159.44
 AVS-XXX-R-FRMCV/FVMR_cu	-	L2	173.83	159.44	159.44	173.83	173.83	173.83	173.83
	✓	L1	159.44	145.04	145.04	159.44	159.44	159.44	159.44
		L2	173.83	159.44	159.44	173.83	173.83	173.83	173.83
 AVS-XXX-R-FRCHV/FRV_cd	-	L2	145.04	130.64	130.64	145.04	145.04	145.04	145.04
	✓	L1	188.23	173.83	173.83	188.23	188.23	188.23	188.23
		L11	57.59	43.19	43.19	57.59	57.59	57.59	57.59
 AVS-XXX-R-FRCHV/FRV_cu	-	L2	188.23	173.83	173.83	188.23	188.23	188.23	188.23
	✓	L1	145.04	130.64	130.64	145.04	145.04	145.04	145.04
		L11	86.39	71.99	71.99	86.39	86.39	86.39	86.39
 AVS-XXX-R-FRHCV/FRV_cd	-	L2	116.24	101.85	101.85	116.24	116.24	116.24	116.24
	✓	L1	145.04	130.64	130.64	145.04	145.04	145.04	145.04
		L11	57.59	43.19	43.19	57.59	57.59	57.59	57.59
 AVS-XXX-R-FRHCV/FRV_cu	-	L2	145.04	130.64	130.64	145.04	145.04	145.04	145.04
	✓	L1	116.24	101.85	101.85	116.24	116.24	116.24	116.24
		L11	86.39	71.99	71.99	86.39	86.39	86.39	86.39
 AVS-XXX-R-FRMCVH/FVMR_cd	-	L2	159.44	145.04	145.04	159.44	159.44	159.44	159.44
	✓	L1	188.23	173.83	173.83	188.23	188.23	188.23	188.23
		L2	159.44	145.04	145.04	159.44	159.44	159.44	159.44
 AVS-XXX-R-FRMCVH/FVMR_cu	-	L2	188.23	173.83	173.83	188.23	188.23	188.23	188.23
	✓	L1	159.44	145.04	145.04	159.44	159.44	159.44	159.44
		L11	14.40	14.40	14.40	14.40	14.40	14.40	14.40
 AVS-XXX-R-FRMHCV/FVMR_cd	-	L2	188.23	173.83	173.83	188.23	188.23	188.23	188.23
	✓	L1	159.44	145.04	145.04	159.44	159.44	159.44	159.44
		L11	14.40	14.40	14.40	14.40	14.40	14.40	14.40
 AVS-XXX-R-FRMHCV/FVMR_cu	-	L2	159.44	145.04	145.04	159.44	159.44	159.44	159.44
	✓	L1	188.23	173.83	173.83	188.23	188.23	188.23	188.23
		L2	159.44	145.04	145.04	159.44	159.44	159.44	159.44
 AVS-XXX-R-FRMHCVH/FVMR_cd	-	L2	188.23	173.83	173.83	188.23	188.23	188.23	188.23
	✓	L1	159.44	145.04	145.04	159.44	159.44	159.44	159.44
		L11	14.40	14.40	14.40	14.40	14.40	14.40	14.40

* Include Droplet Eliminator after Cooling Coil



L1- doesn't cover empty space in bottom deck



DIMENSIONS -AVS 12 - 65 WITH ENERGY WHEEL



AIR INLET / DISCHARGE DIMENSIONS

END FULL (FF) 				
UNIT	WA	HA	WA1	HA1
AVS 012	32.32	12.13	3.15	3.15
AVS 016	37.91	14.17	3.15	3.15
AVS 020	40.47	17.32	3.15	3.15
AVS 030	47.20	22.64	3.15	3.15
AVS 040	52.76	27.36	3.15	3.15
AVS 055	59.84	31.30	3.15	3.15
AVS 065	68.94	32.76	3.15	3.15

END (FS) 				
UNIT	WA	HA	WA1	HA1
AVS 012	25.97	7.97	6.34	5.24
AVS 016	33.97	7.97	5.16	6.26
AVS 020	25.97	11.97	10.43	5.83
AVS 030	33.97	11.97	9.80	8.50
AVS 040	40.51	17.36	9.29	8.19
AVS 055	47.24	22.68	9.47	7.48
AVS 065	47.24	22.68	14.02	8.23

Side (BS) 				
UNIT	HC	LC	HC1	LC1
AVS 012	10.94	7.94	4.33	3.74
AVS 016	12.94	7.94	4.33	3.74
AVS 020	15.94	11.94	4.33	3.82
AVS 030	20.94	11.94	4.33	3.98
AVS 040	16.26	14.96	6.89	8.70
AVS 055	24.13	14.96	6.89	6.73
AVS 065	24.13	14.96	6.89	7.46

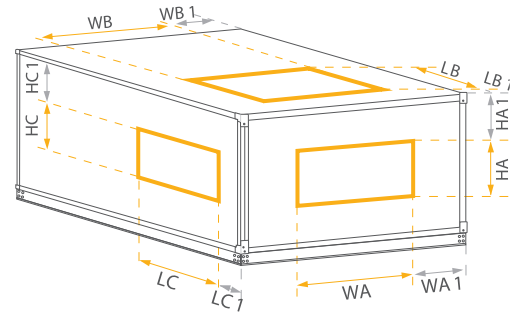
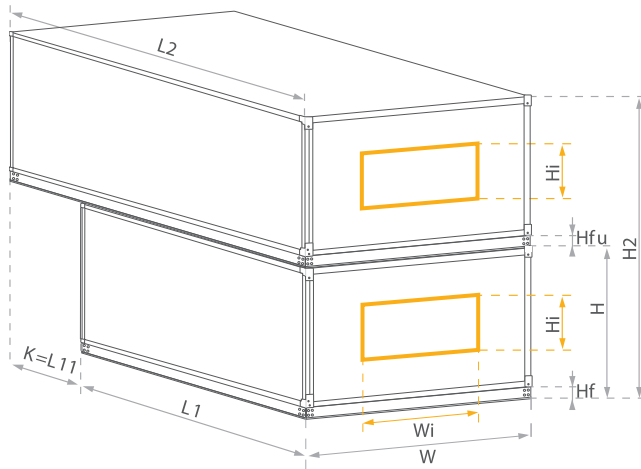
UNIT CODING

AVS - XX

AVS - type of AHU family
 XXX - size of unit (equal to the rated air flow in cfm*0.001)
 R/L - inspection side (R- right, L-left)
 PHC - symbols of main thermodynamic functions (basic functions)
 Length depends on AHU equipment



DIMENSIONS -AVS 85-380 WITH ENERGY WHEEL



AIR INLET / DISCHARGE DIMENSIONS

END FULL (FF)				
UNIT	WA	HA	WA1	HA1
AVS 085	76.57	36.73	3.15	3.15
AVS 100	76.57	44.76	3.15	3.15
AVS 130	92.64	44.76	3.15	3.15
AVS 170	96.26	56.54	3.15	3.15
AVS 230	115.94	65.71	3.15	3.15
AVS 300	135.63	65.71	3.15	3.15
AVS 380	140.04	84.49	3.15	3.15

END (FS)				
UNIT	WA	HA	WA1	HA1
AVS 085	59.88	31.34	11.52	5.87
AVS 100	59.88	31.34	11.52	9.88
AVS 130	76.61	36.77	11.18	7.17
AVS 170	76.61	36.77	12.99	13.07
AVS 230	104.37	36.77	8.96	17.64
AVS 300	124.06	36.77	8.96	17.64
AVS 380	127.99	36.77	9.19	27.05

Side (BS)				
UNIT	HC	LC	HC1	LC1
AVS 085	28.07	29.13	6.89	7.48
AVS 100	35.94	29.13	6.89	7.56
AVS 130	35.94	29.13	6.89	7.56
AVS 170	47.76	29.13	6.89	7.54
AVS 230	59.57	29.13	6.89	6.22
AVS 300	59.57	29.13	6.89	6.22
AVS 380	75.31	29.13	6.89	7.74

UNIT CODING

AVS - XX

AVS - type of AHU family
 XXX - size of unit (equal to the rated air flow in cfm*0.001)
 R/L - inspection side (R- right, L -left)
 PHC - symbols of main thermodynamic functions (basic functions)
 Length depends on AHU equipment



AVS LITE 8-40 - SUPPLY & EXHAUST

Rated parameters		Recommended range of airflow																							
Size		AVS 008				AVS 012				AVS 016				AVS 020				AVS 030				AVS 040			
15 000	[CFM]	[Bar chart showing airflow ranges for each model and direction]																							
10 000		[Bar chart showing airflow ranges for each model and direction]																							
5 000		[Bar chart showing airflow ranges for each model and direction]																							
0		[Bar chart showing airflow ranges for each model and direction]																							
Min.		332 427 427 427				480 618 618 618				636 819 819 819				806 1037 1037 1037				1185 1524 1524 1524				1567 1945 1945 1945			
Max.	2140 1883 1254 924				3091 2719 1817 1339				4096 3605 2486 1832				5186 4564 3331 2454				7622 6708 4835 3563				10078 8559 6697 4934				
H _f		3.54																							
H	[inch]	21.97				21.97				24.02				27.17				32.48				37.20			
W		27.95				38.62				44.21				46.77				53.50				59.06			
W _i		24.02				34.68				40.28				42.83				49.57				55.12			
H _i		14.49				14.49				16.54				19.69				25.00				29.72			

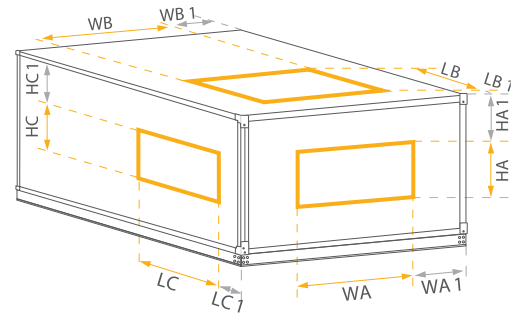
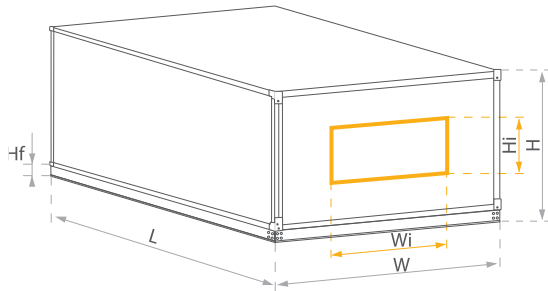
Main configuration		Basic configurations					
	L1	29,9	29,9	44,3	44,3	44,3	44,3
	L1	44,3	44,3	44,3	44,3	58,69	58,69
	L1	44,3	44,3	58,69	58,69	58,69	58,69
	L1	44,3	58,69	58,69	58,69	58,69	58,69
	L1	44,3	58,69	58,69	58,69	58,69	58,69
	L1	58,69	58,69	58,69	58,69	73,09	73,09
	L1	58,69	58,69	73,09	73,09	73,09	73,09
	L1	58,69	73,09	73,09	73,09	73,09	73,09
	L1	58,69	73,09	73,09	73,09	73,09	73,09

Units with external filters instead of internal are shorter by 14.4 inches

		Additional functions					
Empty section	L _{min}	29.86	29.86	29.86	29.86	29.86	29.86
	L _{max}	29.86	29.86	29.86	29.86	29.86	29.86
Mixing box	L	29.86	29.86	29.86	29.86	29.86	29.86



DIMENSIONS - AVS LITE 8-40 - SUPPLY & EXHAUST



AIR INLET / DISCHARGE DIMENSIONS

END FULL (FF)				
UNIT	WA	HA	WA1	HA1
AVS 008	21.65	12.13	3.15	3.15
AVS 012	32.32	12.13	3.15	3.15
AVS 016	37.91	14.17	3.15	3.15
AVS 020	40.47	17.32	3.15	3.15
AVS 030	47.20	22.64	3.15	3.15
AVS 040	52.76	27.36	3.15	3.15

END (FS)				
UNIT	WA	HA	WA1	HA1
AVS 008	17.99	7.99	5.03	5.23
AVS 012	25.98	7.99	6.33	5.23
AVS 016	34.02	7.99	5.13	6.23
AVS 020	25.98	12.01	10.43	5.83
AVS 030	34.02	12.01	9.83	8.53
AVS 040	40.47	17.32	9.29	8.19

Top (US)				
UNIT	WB	LB	WB1	LB1
AVS 008	17.99	7.99	5.03	4.33
AVS 012	25.98	7.99	6.33	4.33
AVS 016	34.02	7.99	5.13	4.33
AVS 020	25.98	12.01	10.43	4.33
AVS 030	34.02	12.01	9.83	4.33
AVS 040	40.47	17.32	9.29	8.27

Top (US)				
UNIT	WB	LB	WB1	LB1
AVS 008	17.94	7.94	5.00	11.46
AVS 012	25.94	7.94	6.34	11.46
AVS 016	33.94	7.94	5.16	11.46
AVS 020	25.94	11.94	10.43	9.46
AVS 030	33.94	11.94	9.80	9.46
AVS 040	47.20	22.64	5.93	8.66

UNIT CODING

AVS - XXX - R/L - EM / HC / EM

- AVS - type of AHU family
- XXX - size of unit (equal to the rated air flow in cfm)
- R/L - inspection side (R- right, L -left)
- EM - symbols of additional functions upstream main functions
- HC - symbols of main thermodynamic functions (basic functions)
- EM - symbols of additional functions downstream main functions
- Length depends on AHU equipment

Side (BS)				
UNIT	HC	LC	HC1	LC1
AVS 008	10.94	7.94	4.33	3.74
AVS 012	10.94	7.94	4.33	3.74
AVS 016	12.94	7.94	4.33	3.74
AVS 020	15.94	11.94	4.33	3.82
AVS 030	20.94	11.94	4.33	3.98
AVS 040	16.26	14.96	6.89	8.70



AVS LITE 8-40 - CROSS-FLOW PLATE

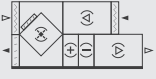
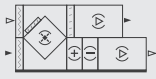

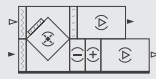

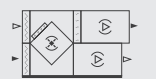

Rated parameters			Recommended range of airflow																	
Size	AVS 008			AVS 012			AVS 016			AVS 020			AVS 030			AVS 040				
10 000																				
7 500																				
5 000																				
2 500																				
0																				
Min.	446	427	427	697	618	618	846	819	819	1 067	1 037	1 037	1 526	1 524	1 524	2 089	1 945	1 945		
Max.	1 699	1 254	924	2 650	1 817	1 339	3 218	2 486	1 832	4 058	3 331	2 454	5 799	4 835	3 563	7 939	6 697	4 934		
H _f	3.54																			
H	21.97			21.97			24.02			27.17			32.48			37.20				
W	27.95			38.62			44.21			46.77			53.50			59.06				
W _i	24.02			34.68			40.28			42.83			49.57			55.12				
H _i	14.49			14.49			16.54			19.69			25.00			29.72				

Main configuration DE*		Basic configurations					
 AVS-XXX-R-FPV/FVPD_cd	L2	58,69	58,69	87,49	87,49	87,49	101,89
	L1	58,69	58,69	73,09	87,49	87,49	101,89
 AVS-XXX-R-FPV/FPDV_pd	L2	73,09	73,09	73,09	87,49	101,89	101,89
	L1	58,69	58,69	73,09	87,49	87,49	101,89
 AVS-XXX-R-FPHV/FVPD_cd	L2	58,69	58,69	87,49	87,49	87,49	101,89
	L1	73,09	73,09	87,49	87,49	87,49	101,89
 AVS-XXX-R-FPHV/FPDV_pd	L2	73,09	73,09	73,09	87,49	101,89	101,89
	L1	73,09	73,09	87,49	87,49	87,49	101,89
 AVS-XXX-R-FPCV/FVPD_cd	L2	58,69	58,69	87,49	87,49	87,49	101,89
	L1	73,09	73,09	87,49	87,49	101,89	116,28
 AVS-XXX-R-FPCV/FPDV_pd	L2	73,09	73,09	73,09	87,49	101,89	101,89
	L1	73,09	73,09	87,49	87,49	101,89	116,28

* Include Droplet Eliminator after Cooling Coil

L1- doesn't cover empty space in bottom deck









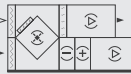
Main configuration DE*		Basic configurations					
 AVS-XXX-R-FPHCV/FVPD_cd	L2	58,69	58,69	87,49	87,49	87,49	101,89
	L1	73,09	73,09	87,49	101,89	101,89	116,28
 AVS-XXX-R-FPHCV/FPDV_pd	L2	73,09	73,09	73,09	87,49	101,89	101,89
	L1	73,09	73,09	87,49	101,89	101,89	116,28
 AVS-XXX-R-FPCHV/FVPD_cd	L2	58,69	58,69	87,49	87,49	87,49	101,89
	L1	73,09	73,09	87,49	101,89	101,89	116,28
 AVS-XXX-R-FPCHV/FPDV_pd	L2	73,09	73,09	73,09	87,49	101,89	101,89
	L1	73,09	73,09	87,49	101,89	101,89	116,28
 AVS-XXX-R-FPV/FVPD_cd	L2	58,69	58,69	87,49	87,49	87,49	101,89
	L1	73,09	73,09	73,09	87,49	101,89	101,89
 AVS-XXX-R-FPV/FPDV_pd	L2	73,09	73,09	73,09	87,49	101,89	101,89
	L1	73,09	73,09	73,09	87,49	101,89	101,89
 AVS-XXX-R-FPHV/FVPD_cd	L2	58,69	58,69	87,49	87,49	87,49	101,89
	L1	87,49	87,49	87,49	87,49	101,89	101,89

[inch]

* Include Droplet Eliminator after Cooling Coil

L1- doesn't cover empty space in bottom deck



Main configuration DE*		Basic configurations					
 AVS-XXX-R-FPHV/FPDV_pd	L2	73,09	73,09	73,09	87,49	101,89	101,89
	L1	87,49	87,49	87,49	87,49	101,89	101,89
 AVS-XXX-R-FPCV/FVPD_od	L2	58,69	58,69	87,49	87,49	87,49	101,89
	L1	87,49	87,49	87,49	87,49	116,28	116,28
 AVS-XXX-R-FPCV/FPDV_pd	L2	73,09	73,09	73,09	87,49	101,89	101,89
	L1	87,49	87,49	87,49	87,49	116,28	116,28
 AVS-XXX-R-FPHCV/FVPD_od	L2	58,69	58,69	87,49	87,49	87,49	101,89
	L1	87,49	87,49	87,49	101,89	116,28	116,28
 AVS-XXX-R-FPHCV/FPDV_pd	L2	73,09	73,09	73,09	87,49	101,89	101,89
	L1	87,49	87,49	87,49	101,89	116,28	116,28
 AVS-XXX-R-FPCHV/FVPD_od	L2	58,69	58,69	87,49	87,49	87,49	101,89
	L1	87,49	87,49	87,49	101,89	116,28	116,28
 AVS-XXX-R-FPCHV/FPDV_pd	L2	73,09	73,09	73,09	87,49	101,89	101,89
	L1	87,49	87,49	87,49	101,89	116,28	116,28

[inch]

* Include Droplet Eliminator after Cooling Coil

L1- doesn't cover empty space in bottom deck



AVS LITE 12 - 40 WITH ENERGY WHEEL

Rated parameters			Recommended range of airflow														
Size		AVS 012			AVS 016			AVS 020			AVS 030			AVS 040			
12 000	[CFM]																
Min.		618	618	618	819	819	819	1037	1037	1037	1524	1524	1524	1945	1945	1945	
Max.		2179	1817	1339	2664	2486	1832	4068	3331	2454	5869	4835	3563	7364	6697	4934	
H _f		3.54															
H	[inch]	21.97			24.02			27.17			32.48			37.20			
W		38.62			44.21			46.77			53.50			59.06			
W _i		34.68			40.28			42.83			49.57			55.12			
H _i		14.49			16.54			19.69			25.00			29.72			
H ₂		40.39			44.49			50.79			61.42			70.87			

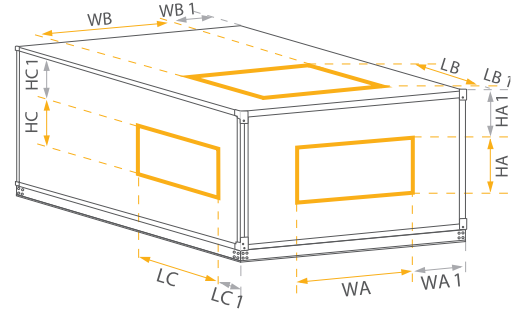
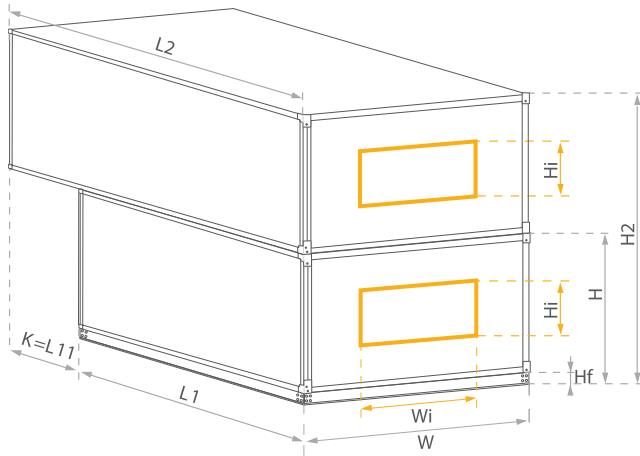
Main configuration DE*		Basic configurations				
	L2	58,69	73,09	73,09	73,09	73,09
	L1	58,69	58,69	73,09	73,09	73,09
	L2	58,69	73,09	73,09	73,09	73,09
	L1	58,69	58,69	73,09	73,09	73,09
	L2	58,69	73,09	73,09	73,09	73,09
	L1	73,09	73,09	73,09	73,09	73,09
	L2	58,69	58,69	73,09	73,09	73,09
	L1	73,09	73,09	73,09	73,09	73,09
	L2	58,69	73,09	73,09	73,09	73,09
	L1	73,09	73,09	73,09	87,49	87,49
	L2	58,69	58,69	73,09	73,09	73,09
	L1	73,09	73,09	73,09	87,49	87,49
	L2	58,69	73,09	73,09	73,09	73,09
	L1	73,09	73,09	87,49	87,49	87,49
	L2	58,69	58,69	73,09	73,09	73,09
	L1	73,09	73,09	87,49	87,49	87,49
	L2	58,69	73,09	73,09	73,09	73,09
	L1	73,09	73,09	87,49	87,49	87,49
	L2	58,69	58,69	73,09	73,09	73,09
	L1	73,09	73,09	87,49	87,49	87,49

* Include Droplet Eliminator after Cooling Coil


L1- doesn't cover empty space in bottom deck



DIMENSIONS AVS LITE 8-40 - CROSS-FLOW PLATE



AIR INLET / DISCHARGE DIMENSIONS

END FULL (FF) 					
UNIT	WA	HA	WA1	HA1	
AVS 008	21.65	12.13	3.15	3.15	
AVS 012	32.32	12.13	3.15	3.15	
AVS 016	37.91	14.17	3.15	3.15	
AVS 020	40.47	17.32	3.15	3.15	
AVS 030	47.20	22.64	3.15	3.15	
AVS 040	52.76	27.36	3.15	3.15	

END (FS) 						
UNIT	WA	HA	WA1	HA1		
AVS 008	17.97	7.97	5.00	5.24		
AVS 012	25.97	7.97	6.34	5.24		
AVS 016	33.97	7.97	5.16	6.26		
AVS 020	25.97	11.97	10.43	5.83		
AVS 030	33.97	11.97	9.80	8.50		
AVS 040	40.51	17.36	9.29	8.19		

Side (BS) 							
UNIT	HC	LC	HC1	LC1			
AVS 008	10.94	7.94	4.33	3.74			
AVS 012	10.94	7.94	4.33	3.74			
AVS 016	12.94	7.94	4.33	3.74			
AVS 020	15.94	11.94	4.33	3.82			
AVS 030	20.94	11.94	4.33	3.98			
AVS 040	16.26	14.96	6.89	8.70			

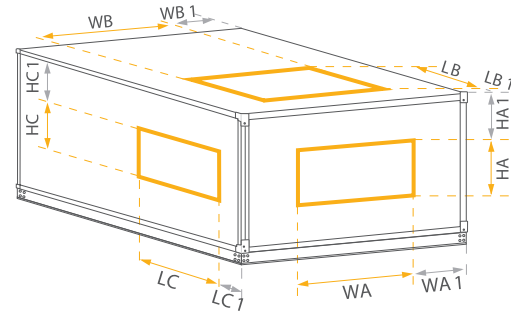
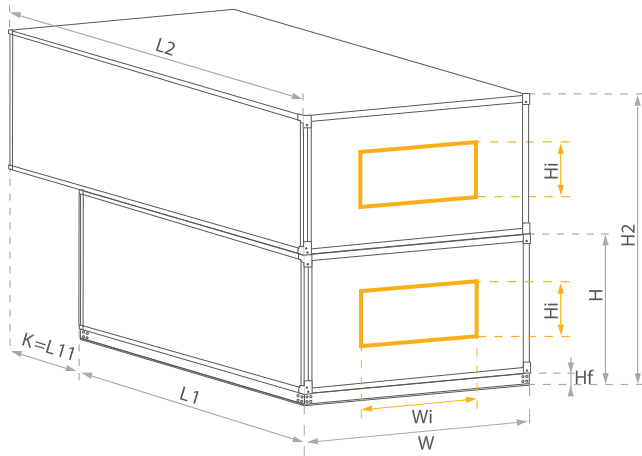
UNIT CODING

AVS - XX

AVS - type of AHU family
 XXX - size of unit (equal to the rated air flow in cfm*0.001)
 R/L - inspection side (R- right, L -left)
 PHC - symbols of main thermodynamic functions (basic functions)
 Length depends on AHU equipment



DIMENSIONS - AVS LITE 12 - 40 WITH ENERGY WHEEL



AIR INLET / DISCHARGE DIMENSIONS

END FULL (FF)				
UNIT	WA	HA	WA1	HA1
AVS 012	32.32	12.13	3.15	3.15
AVS 016	37.91	14.17	3.15	3.15
AVS 020	40.47	17.32	3.15	3.15
AVS 030	47.20	22.64	3.15	3.15
AVS 040	52.76	27.36	3.15	3.15

END (FS)				
UNIT	WA	HA	WA1	HA1
AVS 012	25.97	7.97	6.34	5.24
AVS 016	33.97	7.97	5.16	6.26
AVS 020	25.97	11.97	10.43	5.83
AVS 030	33.97	11.97	9.80	8.50
AVS 040	40.51	17.36	9.29	8.19

Side (BS)				
UNIT	HC	LC	HC1	LC1
AVS 012	10.94	7.94	4.33	3.74
AVS 016	12.94	7.94	4.33	3.74
AVS 020	15.94	11.94	4.33	3.82
AVS 030	20.94	11.94	4.33	3.98
AVS 040	16.26	14.96	6.89	8.70

UNIT CODING

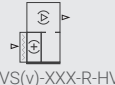
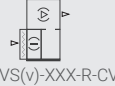
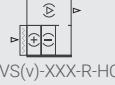
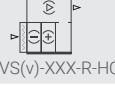
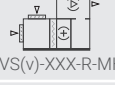
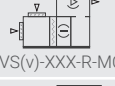
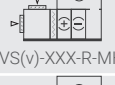
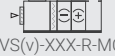
AVS - XX

AVS - type of AHU family
 XXX - size of unit (equal to the rated air flow in cfm*0.001)
 R/L - inspection side (R- right, L -left)
 PHC - symbols of main thermodynamic functions (basic functions)
 Length depends on AHU equipment



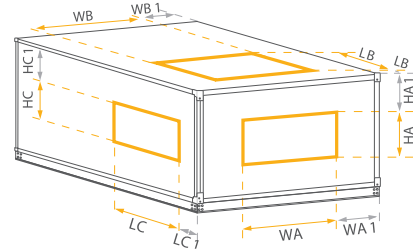
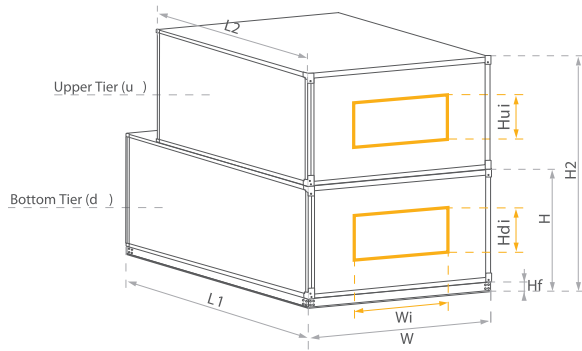
AVS - VERTICAL CONFIGURATIONS

Rated parameters		Recommended range of airflow																							
Size		AVS 008				AVS 012				AVS 016				AVS 020				AVS 030				AVS 040			
15 000	[CFM]	[Bar chart showing airflow ranges for each model and size]																							
10 000		[Bar chart showing airflow ranges for each model and size]																							
5 000		[Bar chart showing airflow ranges for each model and size]																							
0		[Bar chart showing airflow ranges for each model and size]																							
Min.		332	427	427	427	480	618	618	618	636	819	819	819	806	1037	1037	1037	1185	1524	1524	1524	1567	1945	1945	1945
Max.		2140	1883	1254	924	3091	2719	1817	1339	4096	3605	2486	1832	5186	4564	3331	2454	7622	6708	4835	3563	10078	8559	6697	4934
H _{fd}	[inch]	3.54																							
H _{fu}		0.00	0.00				0.00				0.00				0.00				0.00						
H		21.97	21.97				24.02				27.17				32.48				37.20						
W		27.95	38.62				44.21				46.77				53.50				59.06						
W _i		24.02	34.68				40.28				42.83				49.57				55.12						
H _{ui}		19.69	19.69				19.69				25.00				25.00				29.72						
H _{di}		14.49	14.49				16.54				19.69				25.00				29.72						
H ₂		45.59	45.59				47.64				56.10				61.42				70.87						

		Basic configurations					
 AVS(v)-XXX-R-HV	L2	29.86	29.86	29.86	29.86	29.86	29.86
	L1	29.86	29.86	29.86	29.86	29.86	29.86
 AVS(v)-XXX-R-CV	L2	29.86	29.86	29.86	29.86	29.86	29.86
	L1	29.86	29.86	29.86	29.86	29.86	29.86
 AVS(v)-XXX-R-HCV	L2	29.86	29.86	29.86	29.86	29.86	29.86
	L1	29.86	29.86	29.86	29.86	29.86	29.86
 AVS(v)-XXX-R-HCV	L2	29.86	29.86	29.86	29.86	29.86	29.86
	L1	29.86	29.86	29.86	29.86	29.86	29.86
 AVS(v)-XXX-R-MHV	L2	29.86	29.86	29.86	29.86	29.86	29.86
	L1	58.65	58.65	58.65	58.65	58.65	58.65
 AVS(v)-XXX-R-MCV	L2	29.86	29.86	29.86	29.86	29.86	29.86
	L1	58.65	58.65	58.65	58.65	58.65	58.65
 AVS(v)-XXX-R-MHCV	L2	29.86	29.86	29.86	29.86	29.86	29.86
	L1	58.65	58.65	58.65	58.65	58.65	58.65
 AVS(v)-XXX-R-MCHV	L2	29.86	29.86	29.86	29.86	29.86	29.86
	L1	58.65	58.65	58.65	58.65	58.65	58.65



DIMENSIONS - VERTICAL CONFIGURATIONS



AIR INLET / DISCHARGE DIMENSIONS

END FULL (FF)

Unit	WA	HA	WA1	HA1
AVS008	21.63	17.31	3.13	3.13
AVS012	32.31	17.31	3.13	3.13
AVS016	37.94	17.31	3.13	3.13
AVS020	40.50	22.63	3.13	3.13
AVS030	47.19	22.63	3.13	3.13
AVS 040	52.75	27.38	3.13	3.13

END FULL (FF)

Unit	WA	HA	WA1	HA1
AVS008	21.31	11.81	3.28	3.28
AVS012	32.00	11.81	3.28	3.28
AVS016	37.62	13.86	3.28	3.28
AVS020	40.19	17.01	3.28	3.28
AVS030	46.87	22.32	3.28	3.28
AVS 040	52.44	27.05	3.28	3.28

END (FS)

Unit	WA	HA	WA1	HA1
AVS008	18.00	8.00	4.60	11.12
AVS012	26.00	8.00	5.90	11.12
AVS016	34.00	8.00	4.70	10.62
AVS020	26.00	12.00	10.00	11.94
AVS030	34.00	12.00	9.40	11.94
AVS 040	48.00	12.00	5.10	16.66

END (FS)

Unit	WA	HA	WA1	HA1
AVS008	17.94	7.94	4.66	4.84
AVS012	25.94	7.94	5.91	4.84
AVS016	33.94	7.94	4.72	5.84
AVS020	25.94	11.94	10.03	5.41
AVS030	33.94	11.94	9.41	8.16
AVS 040	40.50	17.31	9.28	8.22

TOP (US)

Unit	WB	LB	WB1	LB1
AVS008	18.00	8.00	4.60	10.90
AVS012	26.00	8.00	5.90	10.90
AVS016	34.00	8.00	4.70	10.90
AVS020	26.00	12.00	10.00	8.90
AVS030	34.00	12.00	9.40	8.90
AVS 040	48.00	12.00	5.10	8.90

TOP (US)

Unit	WB	LB	WB1	LB1
AVS008	17.94	7.94	4.66	3.91
AVS012	25.94	7.94	5.91	3.91
AVS016	33.94	7.94	4.72	3.91
AVS020	25.94	11.94	10.03	3.91
AVS030	33.94	11.94	9.41	3.91
AVS 040	40.50	17.31	9.28	7.84

Side (BS)

Unit	HC	LC	HC1	LC1
AVS008	8.00	11.00	11.12	9.40
AVS012	8.00	11.00	11.12	9.40
AVS016	8.00	13.00	10.62	8.40
AVS020	12.00	16.00	11.94	6.90
AVS030	12.00	21.00	11.94	4.40
AVS 040	12.00	21.00	16.66	4.40

Side (BS)

Unit	HC	LC	HC1	LC1
AVS008	10.94	7.94	3.34	3.91
AVS012	10.94	7.94	3.34	3.91
AVS016	12.94	7.94	3.34	3.91
AVS020	15.94	11.94	3.41	3.91
AVS030	20.94	11.94	3.66	3.91
AVS 040	16.25	14.94	8.72	6.47

UNIT CODING

AVS - XXX - R/L - RHC

AVS - type of AHU family
 XXX - size of unit (equal to the rated air flow in cfm*0.001)
 R/L - inspection side (R- right, L -left)
 RHC - symbols of main thermodynamic functions (basic functions)
 Length depends on AHU equipment

VTS

24.2°

30.5°



ESC



05

Connection and
controls



CONNECTING POINT

The Connecting Point is the power supply and VFD Enclosure, the internal wiring system of the air-handling unit related to power supply and control of fan motors. It is mounted separately for the supply and exhaust fan sections.

It consists of a casing, a frequency converter (VFD), surge protection, emergency (service) switch, strip connector, factory-produced internal power circuits, and control wiring of the fan drive system (motor-inverter). In the case of vertical air-handling units, an external wired outlet is mounted on the casing and connected to the Connecting Point.

The Connecting Point is equipped with aggregate terminals for power supply circuits; inverter circuits are factory-connected to these terminals.





CONSTRUCTION AND WIRING



THE MAIN BENEFITS OF AIR-HANDLING UNITS EQUIPPED WITH THE CONNECTING POINT ARE AS FOLLOWS:

- » the certainty of correctness of internal connections supplying the motor and the VFD
- » reliability of factory-tested connections and air-handling unit operation
- » on-site time-savings on wiring
- » lower costs of the whole installation
- » factory installation of the service switch
- » clear liability of the producer for the connection and configuration of inverters and motors



CONTROLS

VTS uses control algorithms that have been developed with an emphasis on energy savings, while at the same time maintaining the required parameters of the air supplied and ensuring reliability of our units.

For management of our American VENTUS air handling units we recommend our control application based on PLC controller, supporting all advanced control functions and variable ways of external communication including integration with Building Management Systems.

NEW FEATURES

MEASUREMENT AND CONTROL OF THE CONSTANT AIR VOLUME

- » adjustment of the preset constant air volume under changing flow resistance - compensation of changing internal resistance of the AHU (e.g. with varying degrees of air filter dirt, different setpoint of the mixing box, etc.)
- » adjustment of the fan power to the current needs of the installation
- » readiness of the AHU to work with the required performance immediately after installation

CONSTANT PRESSURE CONTROL WITH VARIABLE AIR VOLUME

- » control of constant, preset air pressure at variable volume (efficiency change is carried out through the air distribution system – e.g. VAV controllers)

CO₂

- » automatic modulation of the amount of outside air (keeping the CO₂ concentration below the set value)
- » optimization of consumption of heat and electricity

ELECTRIC HEATER CONTROL

- » smooth control system that adjusts power to the current demand

HUMIDITY CONTROL

- » control over air humidifying - both evaporative and steam
- » supports control of the drying process

MIXING BOX CONTROL

- » smooth control of the mixing box, external signal or as in the CO₂ control function, etc.
- » optimization of the ventilation air to save energy



MAIN ELEMENTS

HMI SERVICE



Function and Application

- » setting and reading of advanced operating parameters of ventilation or supply units
- » management and cancellation of units operational errors is done by full text description
- » management of the controller main calendar

Operation parameters

- » power supply: directly from the UPC3 controller
- » communication port: serial port, RS485 standard
- » communication cable length: max. 3,600ft
- » connection method: 1:1
- » protection class: NEMA 2
- » ambient temperature: -4 +140°F / $\varphi < 85\%$, without condensation

VARIABLE FREQUENCY DRIVES



Function and Application

- » smooth regulation of the AHU air flow by proportional change of the motor-fan unit rotational speed
- » maintaining fixed AHU operating parameters at varying air flow resistance of the ductworks
- » protection of maximal value of motor current
- » controlling of fan start-up with simultaneous protection of maximal value of start-up current
- » integration with external analog and binary signals
- » displaying and modification of fan-set working parameters

Operation parameters

- » supply Frequency: 50/60 Hz (48 Hz to 62 Hz)
- » control
 - method: Type of control: V/f (Scalar); VVW: Voltage vector control; PWM SVM (Space Vector Modulation)
 - output Frequency: 0 to 500 Hz, resolution of 0.015 Hz

- » analog Inputs:
 - 1 insulated input. Levels: (0 to 10) V or (0 a 20) mA or (4 to 20) mA
 - programmable functions
- » digital Inputs:
 - 4 insulated inputs
 - programmable functions:
 - Active high (PNP)
 - Active low (NPN)
- » analog Output
 - 1 insulated output. Level (0 to 10) V or (0 to 20) mA or (4 to 20) mA
 - programmable functions
- » relay Output
 - 1 relay with NA/NF contact.
 - maximum voltage: 240 VAC
 - maximum current 0.5 A
 - programmable functions
- » communication Interface RS 485
 - insulated RS485
 - modbus-RTU protocol with maximum communication of 38.4kbps
- » enclosure
 - NEMA1/IP20



DUCT TEMPERATURE SENSOR



Function and Application

- » measurement of the temperature of supply, exhaust and outside air
- » securing max. and min. temperature of supply air
- » protection against frost on the energy recovery unit via the temperature measurement of air exhausted upstream the energy recovery unit

Operation parameters

- » measurement range: -40°F -158 °F
- » air humidity: 5 - 100 %
- » measuring element: NTC 10k
- » output signal: resistance
- » cables length: max. 300 ft
- » protection class: IP 54

DIFFERENTIAL PRESSURE SWITCH



Function and Application

- » monitoring the filter contamination in the Air Handling Unit by measuring the difference of static pressure before and after the filter
- » control of the operation of a direct driven fan unit in case of cooperation with electric heater

Operation parameters

- » measurement: 0.12-1.20 in WG
– filters of class MERV 6 - 15
- » rated operating voltage: 250V AC (I_{max}=3A)
- » output signal: potential-free contact, NO or NC according to the application
- » switching capacity: 1mln of cycles (at temp. of 140 °F)
- » protection class: NEMA 3
- » ambient temperature: -4 °F +140 °F

LOW LIMIT THERMOSTAT SWITCH



Function and Application

- » when the air temperature drops below the minimum allowable temperature, signal from the thermostat stops AHU fans, closes external air dampers and adjusts control valve of the heater to the max. flow of heating medium
- » switching into permanent alarm condition if the AHU protection is triggered three times within an hour

Operation parameters

- » measurement range: -0.4 +59 °F
- » default switching threshold setting: 41 °F
- » hysteresis: 1.7 - 12K
- » Rated operating voltage: 30 V DC, 230 VAC
- » output signal: potential-free (switchover contact)
- » protection class: NEMA 3



THREE-WAY VALVE WITH ELECTRIC ACTUATOR



Function and Application

- » temperature adjustment of the medium flowing through the hydronic coil
- » quality hydronic heater capacity regulation (system based on additional recirculation pump)
- » quantity hydronic cooler capacity regulation

Operation parameters

- » actuator:
 - adjustment range: 0 -100%
 - supply voltage: 24 V AC/DC
 - input signal: 0-10 V DC
 - rotation angle: 90°
 - protection class: NEMA 2
 - ambient temperature: -22 +122 °F
- » valve:
 - operating characteristics: Equal percentage/proportional Cv: 3 / 4.7 / 7.4 / 19 / 29 / 46 / 68 / 91
 - differential Pressure: 50 psi for typical applications
 - medium temperature: 0°F - 250°F

0-10 V AIR DAMPER ACTUATOR



Function and Application

- » mixing ratio control for outdoor and room-exhausted air (economizer): 0-10 V actuator
- » control of bypass air damper opening level for the Plate Cross-Flow – anti-frost protection of the energy recovery system
- » 0-10 V actuator:
 - actuator with spring return
 - economizer fresh air side
- » actuator with no spring return:
 - economizer return air side
 - by-pass damper for cross-plate based energy recovery system

Operation parameters

- » regulation method: smooth 0-100%
- » supply voltage: 24 VAC
- » input signal: 0 -10 VDC
- » rated torque: 90 in-lbs
- » rotation angle 90°
- » full opening time: 0 10 V: 80 - 90s;
- » spring-forced return: 10s
- » max. air damper area: 43 ft²
- » protection class: NEMA 2
- » ambient temperature: -22 +122 °F

HUMIDITY SENSOR



Function and Application

- » multiple ranges as measurement windows available
- » innovative self-calibrating algorithm
- » long term stability and accuracy

Operation parameters

- » microcontroller based design
- » supply voltage: 24 V AC/DC
- » 1 analogue output (0-10 VDC / 0-20 mA)
- » modbus RTU (RS485) Communication



CONTROL APPLICATIONS LIST

AP - control system application for air supply-exhaust units with cross-flow heat exchanger

Application code	Functions available in particular applications					
	HW	DX	DX	PRC. BPS	MIX. CMBR	SUMMER
AP 32				✓		
AP 41	✓			✓		
AP 33		✓		✓		
AP 36	✓	✓		✓		
AP 37			✓	✓		
AP 40	✓		✓	✓		
AP 160				✓		✓
AP 161	✓			✓		✓
AP 164		✓		✓		✓
AP 165	✓	✓		✓		✓
AP 168			✓	✓		✓
AP 169	✓		✓	✓		✓

AR - control system application for air supply-exhaust units with thermal wheel

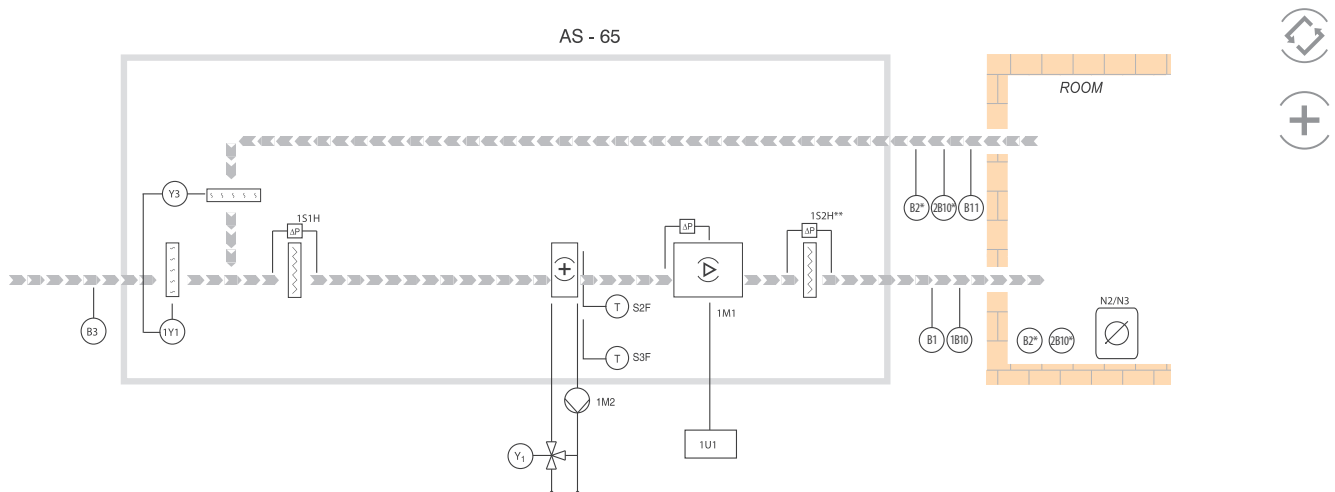
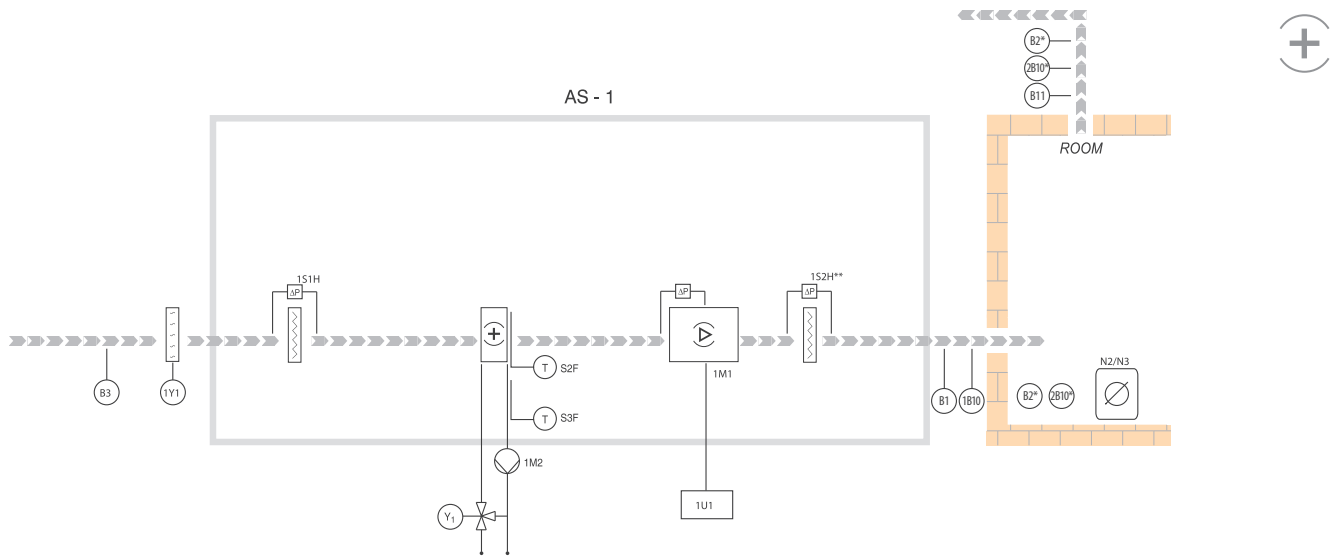
Application code	Functions available in particular applications					
	HW	DX	DX	PRC. BPS	MIX. CMBR	SUMMER
AP 0						
AP 1	✓					
AP 4		✓				
AP 5	✓	✓				
AP 8			✓			
AP 9	✓		✓			
AP 128						✓
AP 129	✓					✓
AP 132		✓				✓
AP 133	✓	✓				✓
AP 136			✓			✓
AP 137	✓		✓			✓

AS - control system application for air supply units

Application code	Functions available in particular applications					
	HW	DX	DX	PRC. BPS	MIX. CMBR	SUMMER
AP 1	✓					
AP 4		✓				
AP 5	✓	✓				
AP 8			✓			
AP 9	✓		✓			
AP 65	✓				✓	
AP 68		✓			✓	
AP 69	✓	✓			✓	
AP 72			✓		✓	
AP 73	✓		✓		✓	
AP 193	✓				✓	✓
AP 196		✓			✓	✓
AP 197	✓	✓			✓	✓
AP 200			✓		✓	✓
AP 201	✓		✓		✓	✓



SUPPLY AHUS



CONTROL

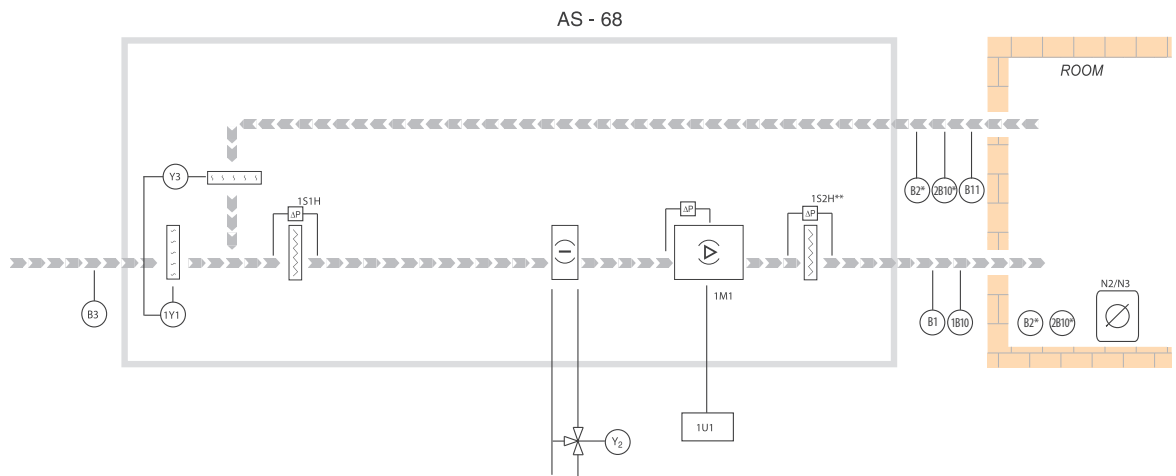
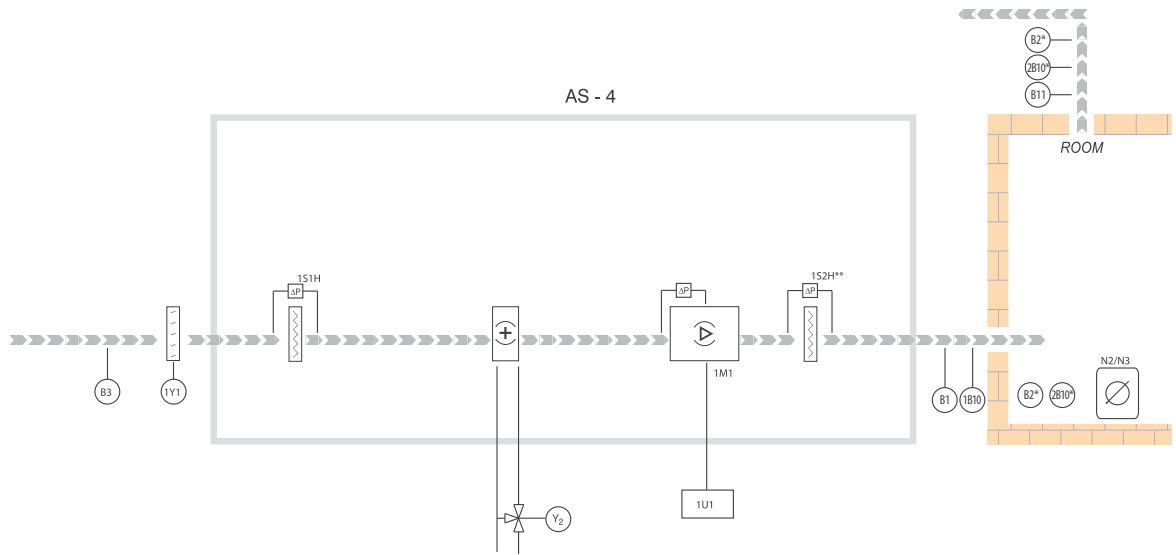
- » control of room temperature, or supply or exhaust air temperature
 - » control of the energy recovery level – first stage of heating/cooling
 - » air flow control
 - » operation according to calendar – temperature, efficiency, operation mode (OPERATION, STAND-BY, STOP)
 - » STAND-BY – maintaining the minimum, set indoor temperature.
- * Initial heating of external air

INFORMATION

- » information on outdoor, supply, exhaust and indoor air temperatures
- » filter contamination info
- » alarm status info
- » analog and digital input and output status info

PROTECTION

- » limiting the allowed supply air temperature
- » fan unit protection – the function is active:
 - if an electric heater is present
- » overload protection of a drive unit
- » anti-frost protection of a water heater
- » protection against overheating of an electric heater
- » optional protection against minimal and maximal temperature of medium returning from the water heater with use of Strap-on temperature sensor, standard NTC 10K
- » the control application layouts have been prepared on the basis of water exchangers
- » the quantity of applied pressure switches for filters depends on the filter configuration



CONTROL

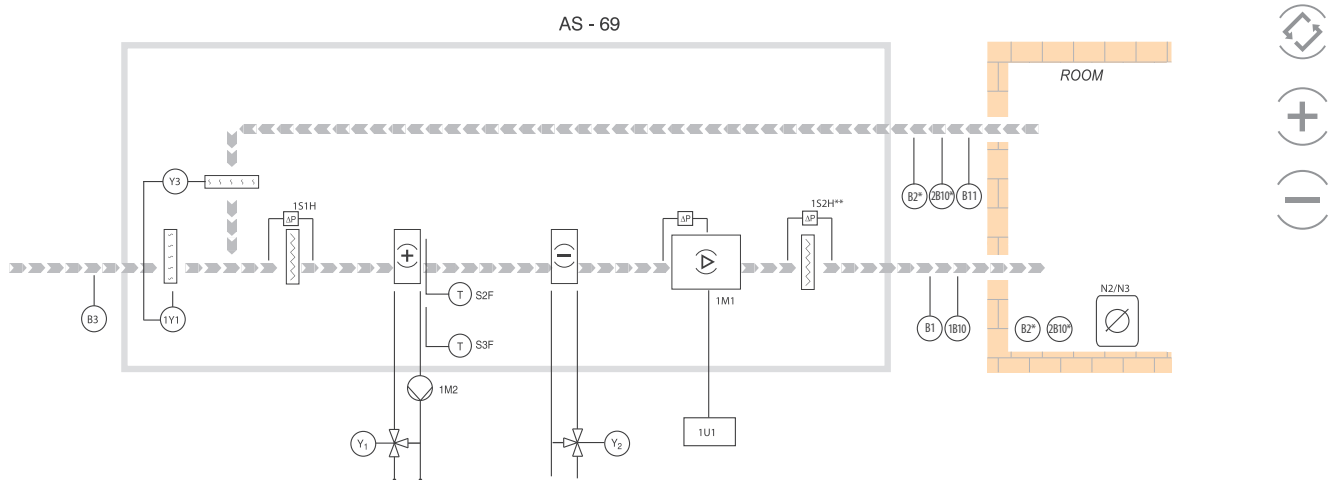
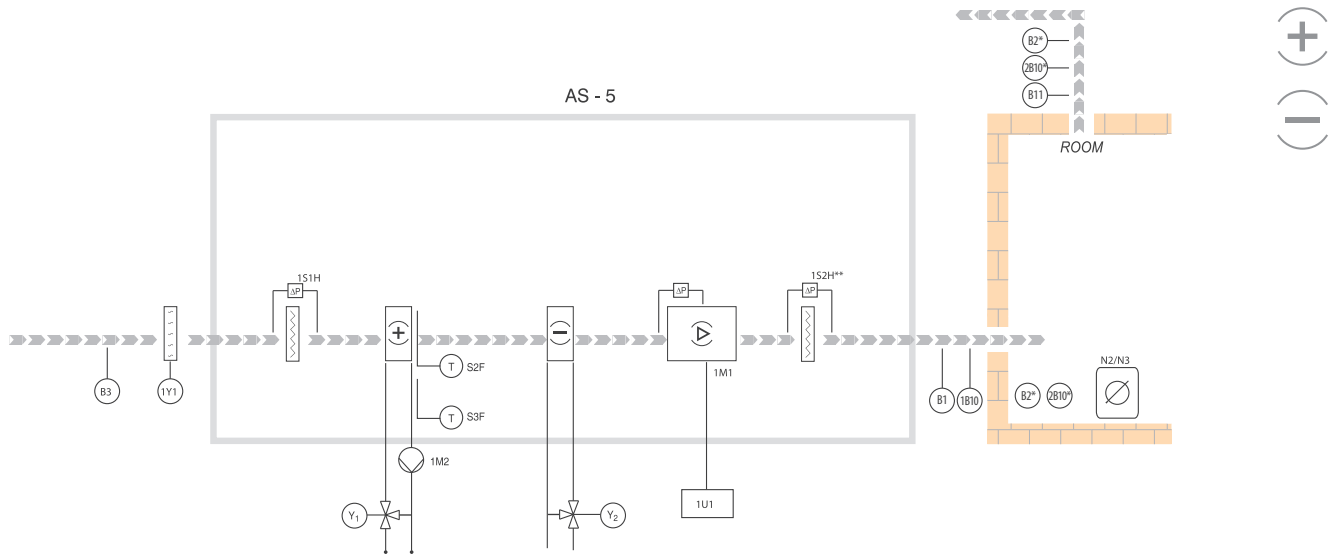
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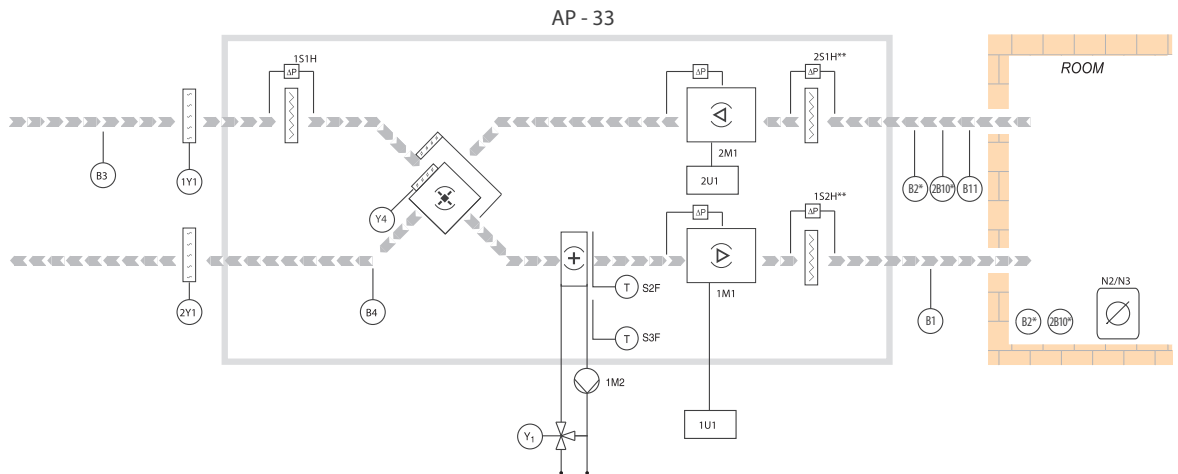
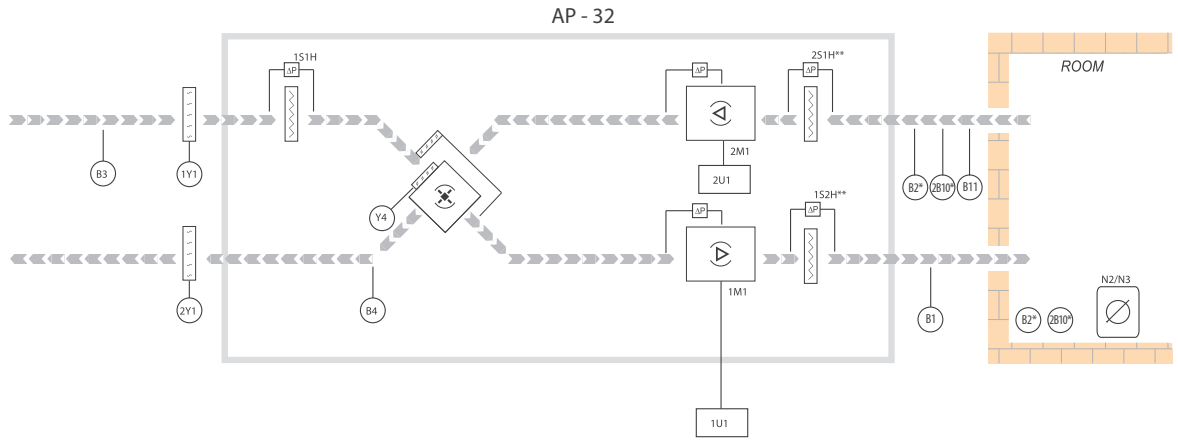
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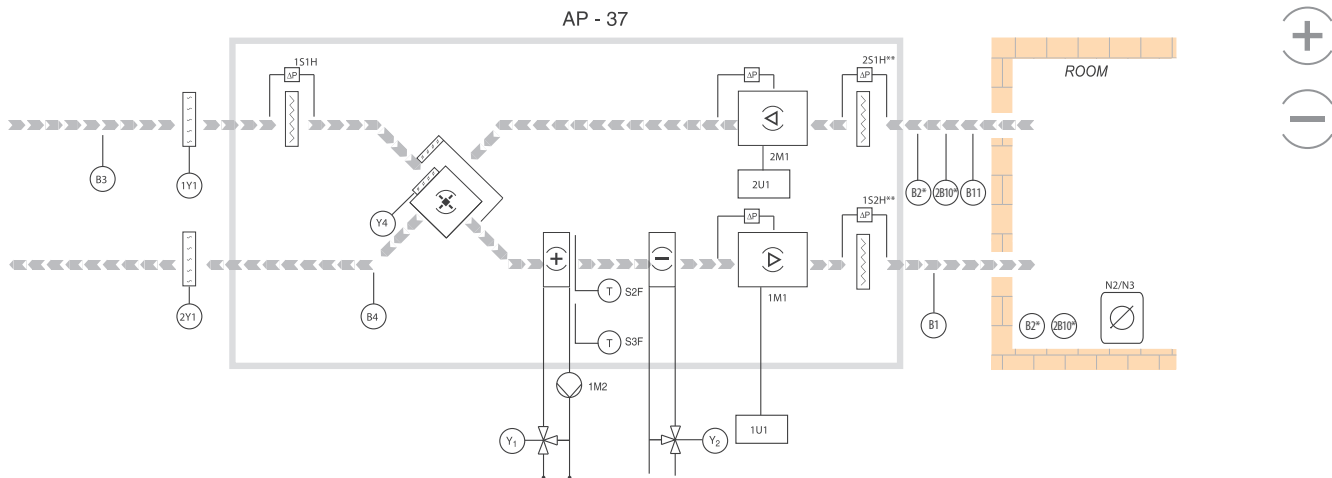
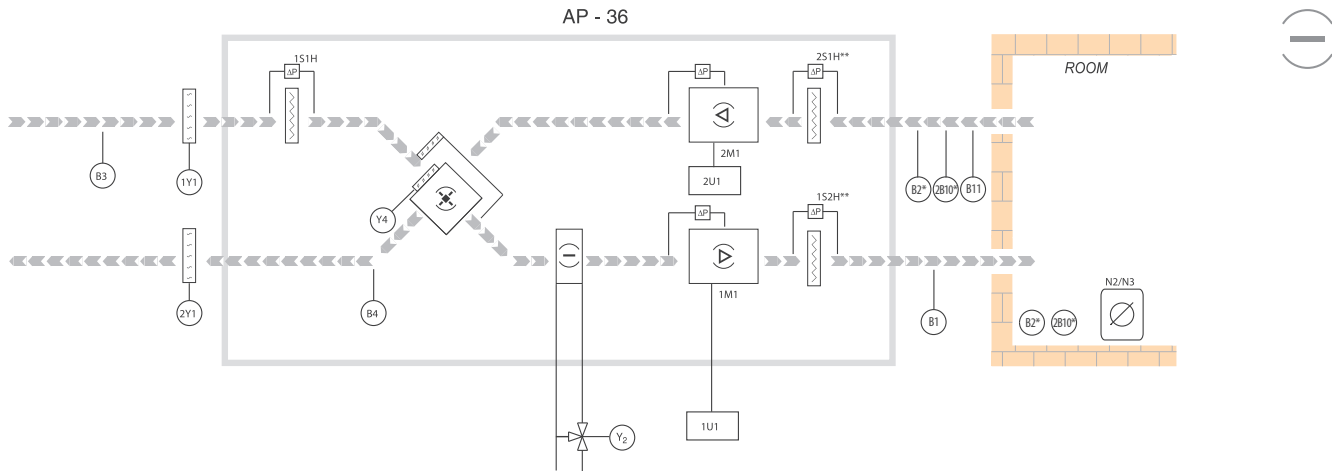
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- » optional Strap-on temperature sensor is not a part of VTS offer



CONTROL

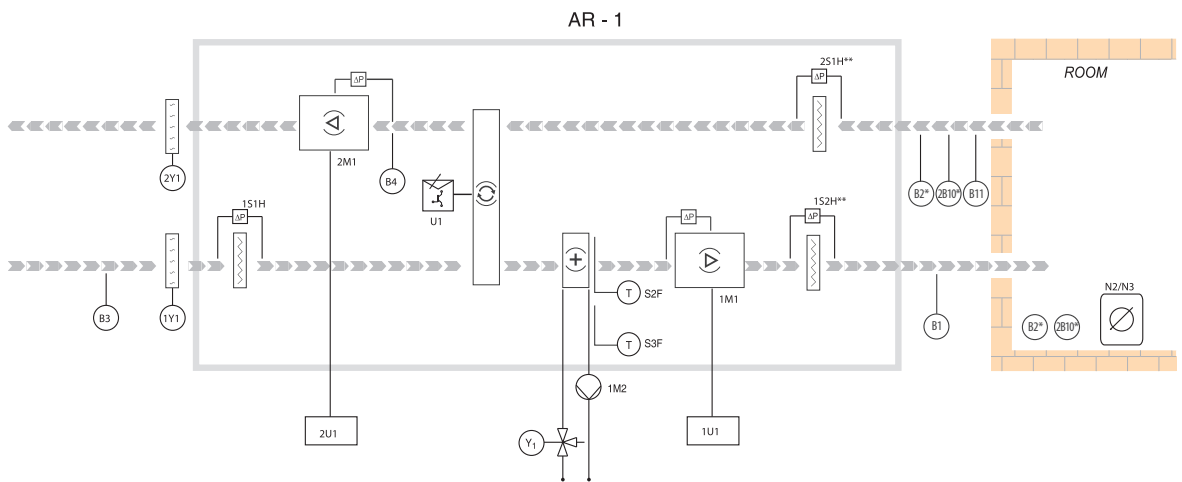
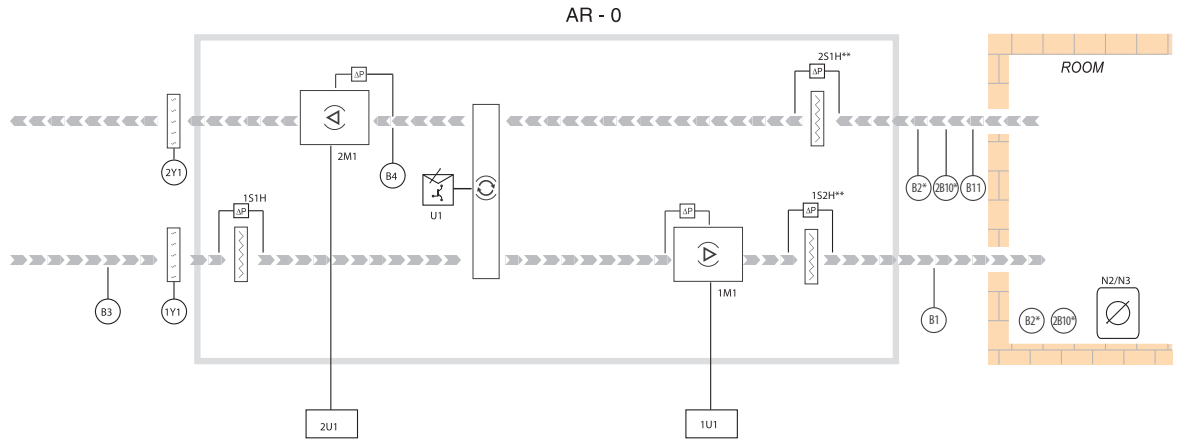
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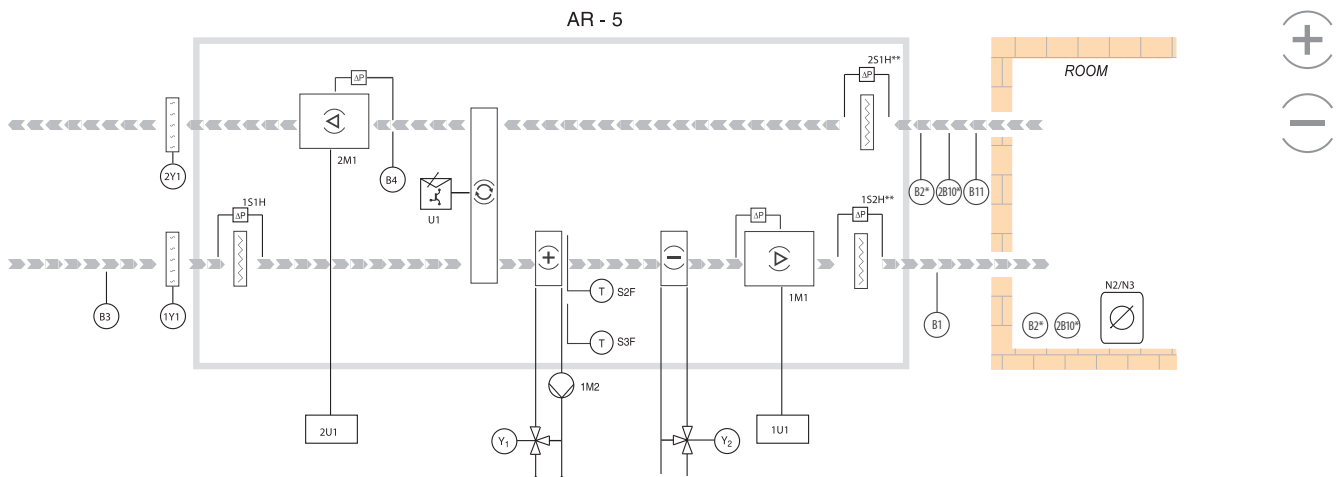
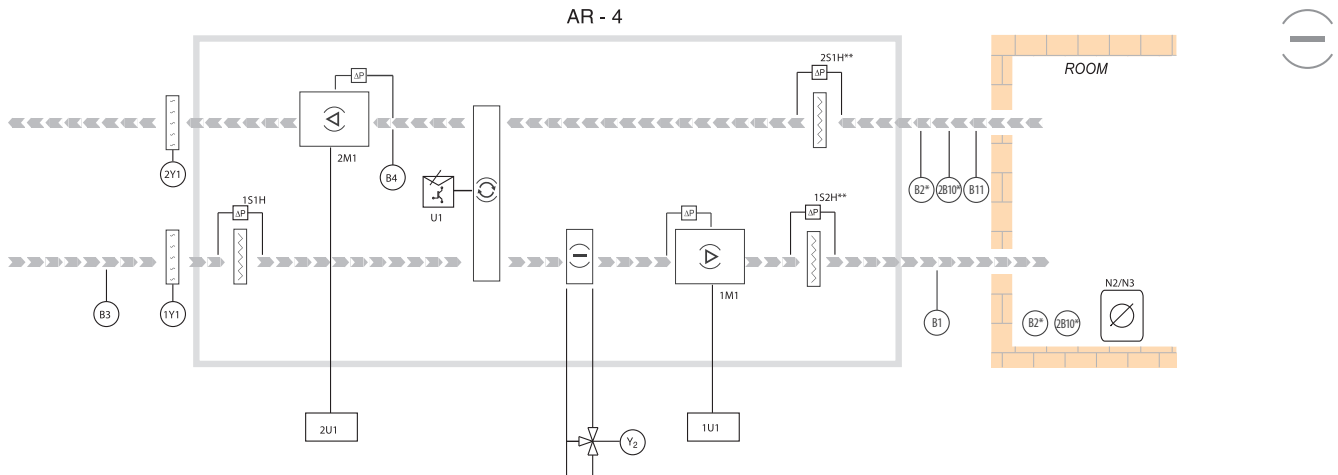
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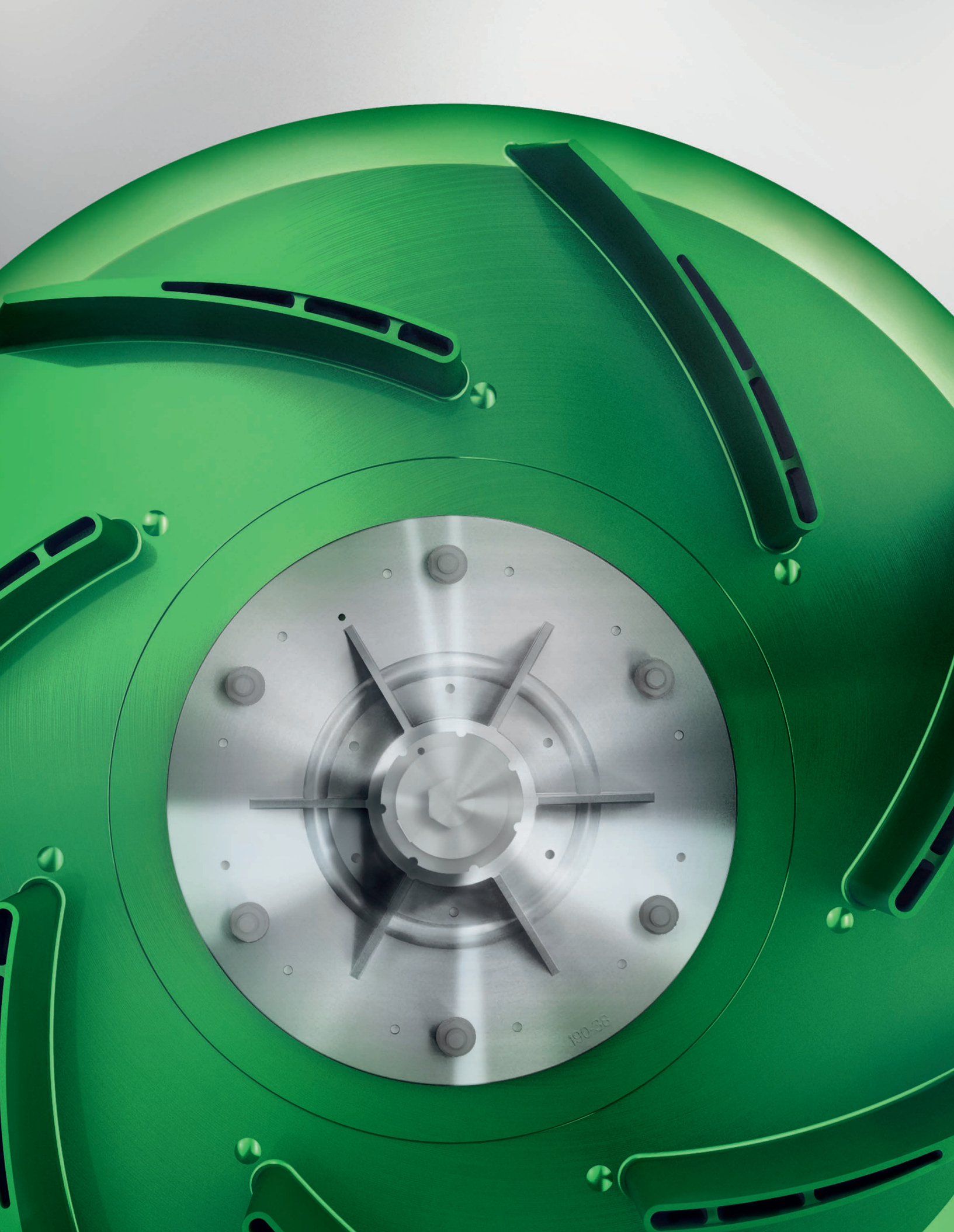
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190-36



06

Functions



I Direct drive plenum fan

Energy efficient fans are based on single inlet, air foil backward curved radial impellers with 7 blades made of a composite material to minimize the impeller weight and provide the best operating performance and provide the best dynamically balanced operating performance.



VARIABLE FREQUENCY DRIVE [VFD]

The accurate selection of air flow design and external static pressure with a smooth regulation by proportional change of the motor-fan unit rotational speed. Protection of the maximum value of the motor current, the capability to be integrated with external analog and binary signals and the integration with the BMS system

PLENUM FAN MOTOR

Fans are driven by TEFC (Totally Enclosed Fan Cooled) foot mounted motors with double shielded bearings and range from 1 HP to 15 HP. Nominal frequency: 60 Hz. Insulation class: F. Efficiency class: Premium. Bearings live: $L_{10} = 20,000$ h, $L_{50} = 100,000$ h. Shaft grounding rings available (on request).

Fan sets used in submitted air handling units are available in a wide range of voltages: 115V/1PH/60Hz, 208V/ 1PH/60Hz, 230V/1PH/60Hz, 208V/3PH/60Hz, 230V/3PH/60Hz, 460V/3PH/60Hz, 575V/3PH.

AMCA



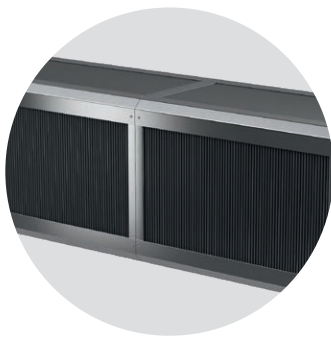
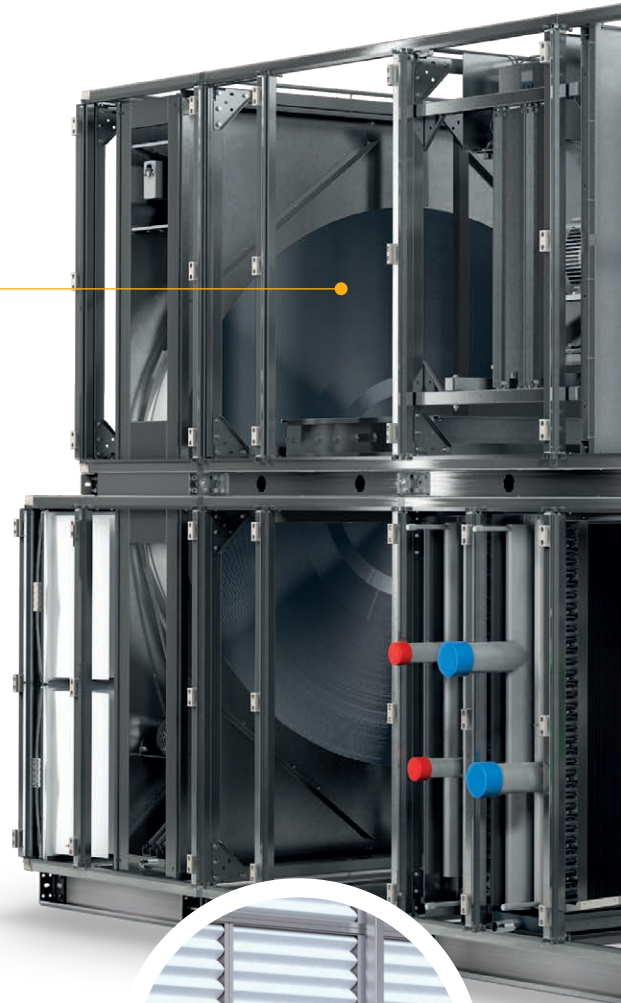
VTS Group certifies that the VS fan series shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program. The certified ratings for the VS Fans are shown in this catalogue.



| Air-to-air energy recovery systems

AIR-TO-AIR ENERGY WHEEL

The total energy wheel is constructed with 7.9 inch Aluminum coated with non-toxic, non-corrosive Silica gel in a way that allows it to exchange sensible and latent heat between two airstreams, generally outside air and exhaust air. In the cooling mode, the wheel pre-treats the outside air by transferring sensible and latent heat to the exhaust stream. During the heating mode, the wheel pre-treats the outside air with sensible and latent heat from the exhaust air. This energy recovery is done without total separation of the supply and exhaust air flows with air leakages of 2% to 5%.



CROSS-FLOW PLATE

Cross-Flow plate is an indirect energy recovery device, that transfers heat from the exhaust air stream to the entering air stream which will be supplied to the space. Heat recovery at very high separation of the stream of supply and exhaust air (99.9%). Application in block supply-exhaust AHUs.



FLAT PREFILTER

All units have a two or four inches flat prefilter or a combination thereof

- MERV8 two-inch filter.
- MERV13 four-inch filter.



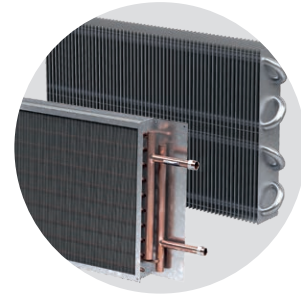
HEATERS



Heaters are available in the following versions:

- hot water heating coils,
- resistant electric heaters,
- DX heating coils,

The hydronic coil performance is designed in accordance to AHRI Standard 410. All coils are of a counter flow design.



COOLING COILS

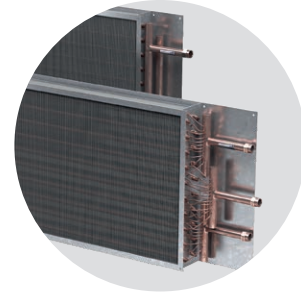


The cooling coils are available either as a hydronic or a DX cooling coils.

The variety of coil types allows a user to select a coil that is optimized for pressure drop and capacity requirements. The cooling coils are mounted over the drainpan to ensure water condensate flowing.

VTS combines comprehensive performance certification by AHRI with thorough laboratory testing and advanced manufacturing methods. Together, these elements help to assure that each VTS product operates predictably and reliably throughout the life of the unit.

Heating and Cooling hydronic coils are rigorously tested and certified in accordance with the forced circulation air cooling and air heating coils certification program based on AHRI Standard 410.

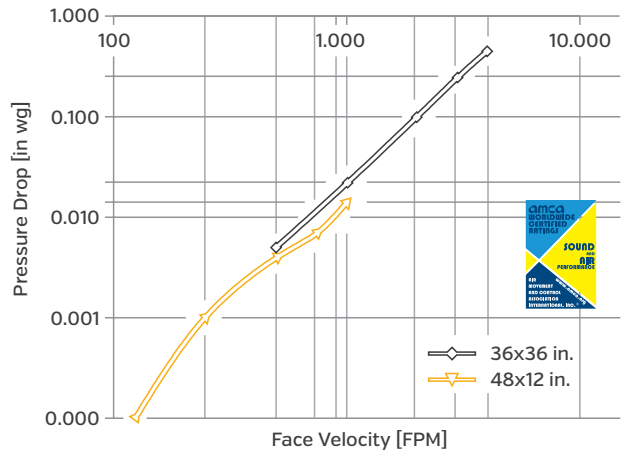
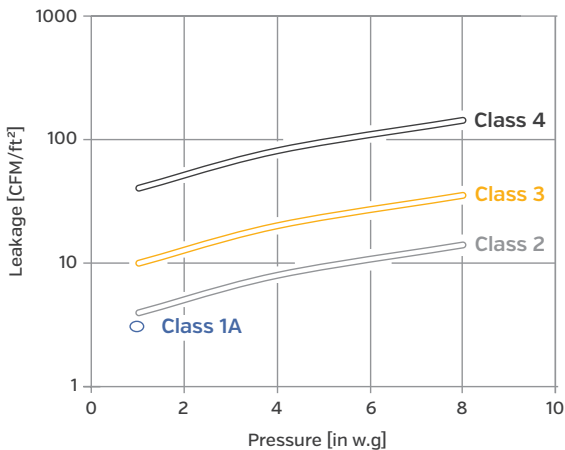


AIR DAMPERS

VTS Group certifies that the dampers shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA International Certified Ratings Seal applies to Air Performance and Air Leakage. The VTS air dampers are in 3-rd class for 1, 4 and 8 in. w.g.

Leakage testing conducted in accordance with AMCA Standard 500-D-07 figure 5.4 Alternate. Data are based on a torque of 10 in-lb/ft2 applied to close and seal the damper during the test. Air leakage is based on operation between 32 to 120 F. All data corrected to represent standard air density 0.075 lb/ft3.

Pressure drop testing conducted in accordance with AMCA Standard 500-D-07 figure 5.3. All data corrected to represent standard air density 0.075 lb/ft3.



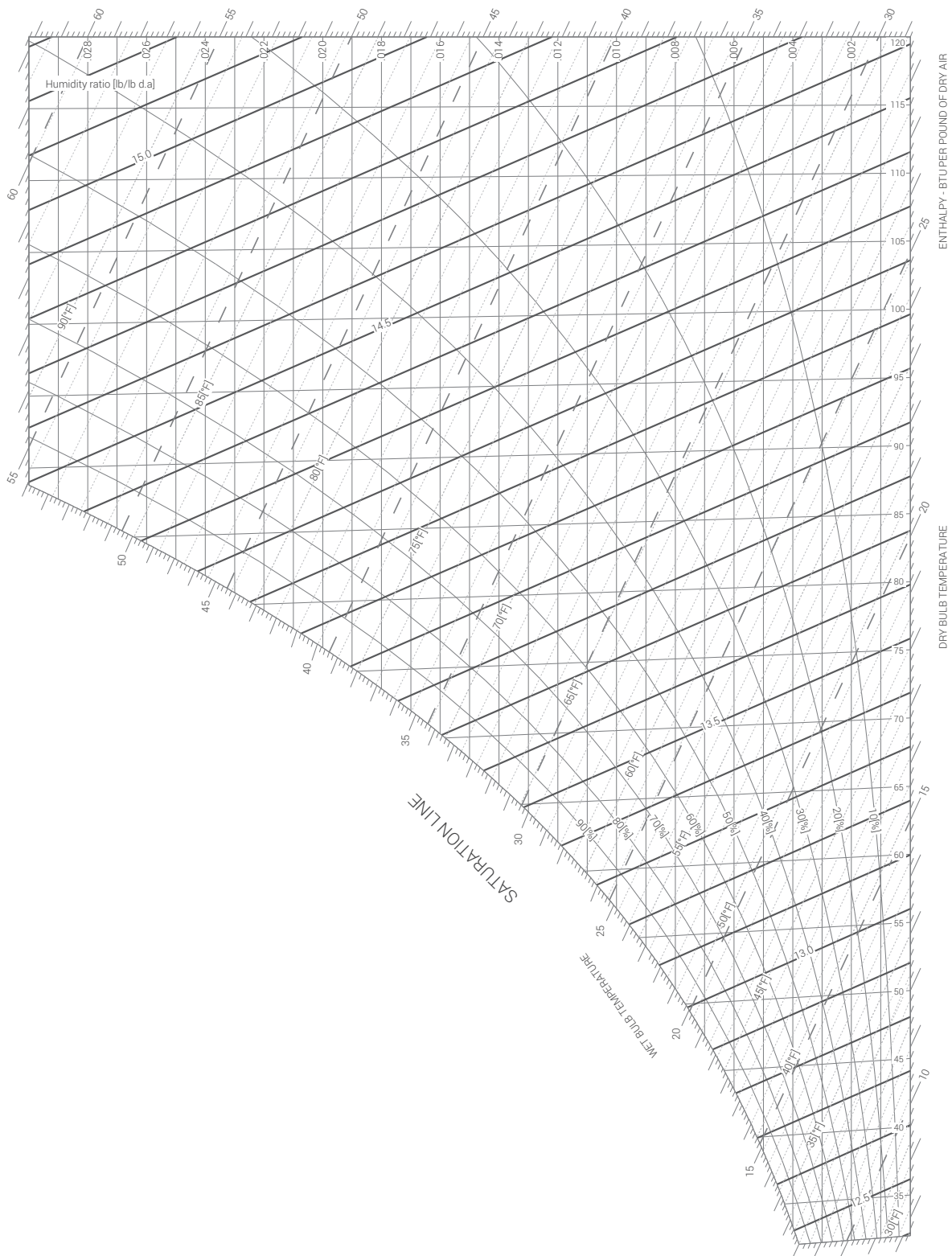


PSYCHROMETRIC CHART

Normal Temperature

Barometric Pressure: 29.921 Inches of Mercury

Sea Level





Certified fan performance data for fans of VS 225-VS 450 sizes

Unit Size	Q [cfm]	Ps [in. wg]	BHP [hp]
VS-225 3450 RPM	1,047	0.004	0.251
	944	0.661	0.277
	841	1.290	0.328
	737	0.195	0.363
	633	2.446	0.374
	522	2.868	0.381
	422	3.056	0.353
	314	3.162	0.300
	158	3.220	0.234
VS-250 3450 RPM	0	3.423	0.158
	1,447	0.015	0.421
	1,300	1.087	0.525
	1,162	2.000	0.645
	1,013	2.892	0.721
	868	3.536	0.747
	720	3.883	0.708
	594	4.065	0.646
	426	4.200	0.537
VS-315 3450 RPM	283	4.258	0.442
	0	4.619	0.250
	3,124	0.011	1.850
	2,824	1.280	2.027
	2,514	2.788	2.244
	2,196	4.281	2.490
	1,887	5.376	2.563
	1,558	6.086	2.485
	1,247	6.391	2.306
VS-355 1750 RPM	930	6.566	2.059
	529	6.714	1.714
	0	7.275	0.945
	2,344	0.001	0.395
	2,119	0.469	0.466
	1,882	0.978	0.516
	1,636	1.462	0.565
	1,396	1.834	0.585
	1,167	2.021	0.561
VS-400 1750 RPM	937	2.093	0.524
	689	2.141	0.454
	457	2.186	0.382
	0	2.300	0.226
	3,212	0.003	0.739
	2,898	0.601	0.838
	2,577	1.269	0.956
	2,245	1.815	1.034
	1,926	2.310	1.079
VS-450 1750 RPM	1,620	2.585	1.051
	1,281	2.709	0.959
	957	2.770	0.844
	512	2.794	0.690
	0	2.921	0.432
	4,673	0.002	1.206
	4,211	0.526	1.323
	3,740	1.377	1.544
	3,277	2.228	1.766
VS-450 1750 RPM	2,815	2.909	1.871
	2,334	3.284	1.804
	1,874	3.393	1.662
	1,394	3.460	1.414
	651	3.526	1.056
	0	3.707	0.654

NOTE 1: Performance certified is for installation Type A, Free Inlet, Free Outlet. Power rating (BHP) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories).

NOTE 2: Efficiency ratings are fan static and exclude bearing and/or Power Transmission Losses.



Certified sound pressure level for fans of VS 225 - VS 400 sizes

Unit Size	Ps (in. wg)	Q (cfm)	Lw Loudness	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	Lw(A) dB(A)	Loudness Sones
VS-225 3450 RPM	0.000	1044	dB	95.9	75.3	76.3	81.2	79.2	80.6	80.2	82.0	88.0	32.0
			Sones	9.1	3.2	4.5	7.3	7.7	9.9	11.6	15.8		
	1.783	778	dB	92.1	75.2	78.5	82.9	79.6	76.2	68.9	70.4	84.0	21.0
			Sones	7.0	3.1	5.2	8.0	7.8	7.7	6.0	7.8		
	3.077	507	dB	89.8	76.8	82.0	82.5	75.3	72.3	64.8	64.0	82.0	19.2
			Sones	5.9	3.6	6.4	7.8	6.1	6.1	4.7	5.3		
	3.377	287	dB	91.5	82.2	83.8	81.2	76.9	74.6	67.0	63.6	83.0	20.0
			Sones	6.7	5.3	7.1	7.3	6.8	7.0	5.3	5.2		
VS-250 3450 RPM	0.013	754	dB	66.0	68.0	68.0	68.0	67.0	67.0	69.0	61.0	74.0	12.4
			Sones	1.0	1.9	2.7	3.2	3.8	4.5	6.0	4.3		
	0.640	580	dB	64.0	69.0	67.0	67.0	66.0	63.0	64.0	59.0	71.0	10.4
			Sones	0.8	2.0	2.7	3.1	3.5	3.5	4.5	4.0		
	1.047	410	dB	68.0	69.0	65.0	65.0	65.0	61.0	58.0	58.0	69.0	9.0
			Sones	1.2	2.0	2.4	2.7	3.2	3.2	3.1	3.6		
	1.111	309	dB	76.0	73.0	66.0	65.0	65.0	61.0	56.0	54.0	69.0	8.9
			Sones	2.2	2.7	2.5	2.8	3.2	3.1	2.8	2.9		
VS-315 3450 RPM	0.007	1625	dB	68.0	69.0	73.0	73.0	74.0	76.0	76.0	66.0	82.0	18.3
			Sones	1.2	2.1	3.7	4.5	5.8	7.7	9.1	5.9		
	0.951	1220	dB	67.0	70.0	73.0	72.0	71.0	70.0	69.0	65.0	77.0	14.2
			Sones	1.0	2.2	3.7	4.2	4.8	5.4	6.1	5.5		
	1.553	880	dB	70.0	72.0	72.0	71.0	69.0	67.0	62.0	64.0	74.0	12.4
			Sones	1.4	2.5	3.5	3.9	4.1	4.5	3.9	5.2		
	1.767	782	dB	80.0	80.0	75.0	72.0	69.0	65.0	60.0	59.0	75.0	12.8
			Sones	2.9	4.7	4.1	4.3	4.3	4.0	3.5	4.1		
VS-355 1750 RPM	0.014	2400	dB	72.0	73.0	78.0	77.0	77.0	78.0	85.0	71.0	88.0	28.0
			Sones	1.6	2.8	5.1	5.6	6.8	8.5	16.3	8.2		
	1.177	1420	dB	69.0	73.0	76.0	75.0	76.0	71.0	74.0	60.0	80.0	16.6
			Sones	1.2	2.7	4.5	4.9	6.4	5.5	7.8	4.2		
	2.043	1200	dB	71.0	73.0	74.0	73.0	75.0	67.0	63.0	58.0	78.0	13.5
			Sones	1.5	2.7	3.8	4.5	6.0	4.6	4.3	3.6		
	2.164	600	dB	78.0	79.0	75.0	74.0	75.0	67.0	63.0	57.0	78.0	14.3
			Sones	2.5	4.2	4.3	4.6	6.0	4.4	4.1	3.6		
VS-400 1750 RPM	0.001	3296	dB	78.0	78.0	81.0	82.0	80.0	79.0	82.0	79.0	88.0	28.0
			Sones	2.5	3.8	6.0	7.5	8.0	8.9	13.4	13.4		
	1.303	2636	dB	76.0	79.0	81.0	81.0	79.0	74.0	76.0	67.0	84.0	21.0
			Sones	2.2	4.1	5.9	7.3	7.6	6.8	9.3	6.4		
	2.674	1648	dB	78.0	78.0	79.0	81.0	78.0	66.0	64.0	61.0	82.0	16.8
			Sones	2.4	4.0	5.5	7.2	7.0	4.2	4.5	4.3		
	2.843	988	dB	87.0	87.0	82.0	81.0	78.0	67.0	64.0	61.0	83.0	19.0
			Sones	4.8	7.2	6.3	7.3	7.3	4.6	4.3	4.3		

NOTE 1: The sound power level ratings shown are in decibels, referred to 10-12 watts, calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels and inlet hemispherical sone levels for installation type A: Free Inlet, Free outlet, calculated per AMCA Standard 301. The AMCA Certified Ratings Seal applies to air performance only.



Certified sound pressure level for fans of VS 450 - VS 630 sizes

Unit Size	Ps [in. wg]	Q [cfm]	Lw Loudness	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	Lw[A] dB[A]	Loudness Sones
VS-450 1750 RPM	0.001	4673	dB	82.0	82.0	88.0	86.0	95.0	86.0	81.0	88.0	96.0	45.0
			Sones	3.2	5.1	8.9	9.8	20.4	13.9	11.9	23.4		
	1.405	3710	dB	82.0	83.0	86.0	85.0	86.0	80.0	79.0	79.0	90.0	31.0
			Sones	3.3	5.7	8.0	8.8	11.7	6.4	10.6	13.3		
	2.986	2715	dB	82.0	81.0	85.0	84.0	98.0	78.0	73.0	69.0	98.0	40.0
			Sones	3.2	4.7	7.7	8.5	25.7	8.7	7.5	7.2		
	3.457	1200	dB	83.0	87.0	85.0	83.0	101.0	84.0	71.0	67.0	101.0	48.0
			Sones	3.6	7.2	7.6	8.2	32.0	12.1	6.8	6.6		
VS-500 1750 RPM	0.001	6392	dB	86.0	88.0	88.0	88.1	87.0	87.2	89.0	81.0	94.0	43.0
			Sones	4.6	7.7	9.2	10.9	12.4	15.2	20.7	14.8		
	1.144	5886	dB	85.1	88.5	87.5	87.5	86.5	85.5	86.5	80.0	93.0	39.0
			Sones	4.2	8.0	8.8	10.5	11.8	13.4	17.5	13.7		
	3.424	4120	dB	87.0	89.0	86.0	86.0	85.4	81.5	80.0	78.5	90.0	32.0
			Sones	4.9	8.1	8.0	9.5	11.0	10.7	11.5	12.6		
	4.163	2354	dB	97.0	93.4	86.3	85.0	85.0	81.0	75.9	73.5	89.0	31.0
			Sones	9.7	10.4	8.2	9.2	10.8	10.2	9.0	9.4		
VS-560 1750 RPM	0.001	9052	dB	89.0	91.0	91.0	91.3	90.4	92.0	92.0	84.0	97.0	54.0
			Sones	5.5	9.5	11.2	13.6	15.5	19.1	26.3	18.5		
	1.566	8240	dB	88.5	92.0	91.1	91.0	90.0	88.5	89.5	83.0	96.0	48.0
			Sones	5.5	9.5	10.9	13.0	14.5	16.5	21.9	17.3		
	4.268	5886	dB	90.4	92.0	89.0	89.0	89.0	85.3	83.5	81.9	93.0	39.0
			Sones	6.2	9.9	9.8	11.6	13.8	13.2	14.4	15.7		
	5.207	3531	dB	100.0	98.0	89.5	88.5	88.5	84.5	79.0	77.0	93.0	38.0
			Sones	12.4	12.8	10.0	11.2	13.5	12.5	11.0	11.6		
VS-630 1750 RPM	0.001	12796	dB	93.0	95.1	95.0	95.0	94.0	94.2	95.7	87.5	101.3	69.0
			Sones	7.6	11.5	14.1	17.1	19.6	24.4	34.0	23.6		
	1.782	11772	dB	92.0	95.2	94.5	94.5	93.5	92.2	93.5	87.0	100.0	62.0
			Sones	7.1	11.9	13.7	16.6	18.9	21.2	28.7	22.2		
	4.175	9823	dB	92.0	96.0	94.0	94.0	93.0	90.0	90.0	85.8	98.0	53.0
			Sones	7.0	12.3	12.9	15.6	17.9	17.9	22.2	20.5		
	6.387	5886	dB	100.0	98.4	92.8	92.2	92.0	88.0	83.9	82.7	96.0	47.0
			Sones	12.1	14.3	12.0	14.1	17.0	15.9	14.8	16.6		

NOTE 1: The sound power level ratings shown are in decibels, referred to 10-12 watts, calculated per AMCA Standard 301. Values shown are for inlet LwA sound power levels and inlet hemispherical sone levels for installation type A: Free Inlet, Free outlet, calculated per AMCA Standard 301. The AMCA Certified Ratings Seal applies to air performance only.



CUSTOMER TESTIMONIES

Texas Air Products

Texas Air Products has been incredibly impressed with the quick deliveries. There are so many projects these days that require a quick response time to meet the construction cycle.

VTS is the only factory that can deliver that quickly. When our customers see the quality of the air handler and realize they can have it delivered in one to two weeks, they are just amazed. We took a sample air handler around to various engineers and contractors and everyone was very surprised at the quality compared to similar units on the market. One engineer we work with recently said:

“ **THAT AIR HANDLER IS AWESOME. IT'S QUIET AND WELL BUILT. I PLAN ON SPECIFYING IT AS OFTEN AS I CAN.** ”

Travis McLeod, P.E.
Vice President

Oberlin College Inn Remodel

Oberlin College and Conservatory, noteworthy for being the first integrated and coeducational higher education facility in the United States, recently underwent a remodel of the Campus Inn. The specified air handling manufacturer, was unable to meet the lead time to complete the remodel on time, causing major construction delays and inevitably causing the project to be put on hold.

The VTS team working with the Ohio representative, the Northrich Company went to work. **The project involved 6 air handler units with energy recovery wheels and 2 makeup air handling units.** The equipment was proposed to the college and the design engineers.

After close collaboration with the project management team, engineers and other trades VTS was accepted as a suitable substitute for the original design.

“ **HAVING THE INDUSTRY'S FASTEST LEAD TIME, VTS WAS ABLE TO PROVIDE A QUICK AND AFFORDABLE SOLUTION TO GET OBERLIN COLLEGE'S CONSTRUCTION SCHEDULE BACK ON TIME AND BUDGET.** ”

Mike Goetz
Principal

With the submitted product not meeting the customers deadline for delivery we turned to VTS. As a result we were able to **meet expectations on delivery and even had a few weeks to spare.** Not only was the contractor pleased with the speedy delivery but the unit construction was impressive to say the least. The double wall construction and integral vfd's were a substantial upgrade to the specified unit and the engineer was impressed with the the considerable upgrade.

“ **WE WILL BE TURNING TO VTS FOR OUR AIR HANDLING NEEDS IN THE FUTURE.** ”

Robert Boozer
Principal



SYMBOLS AND LABELS

Basic symbols

PROCESS			FUNCTION
Symbol	Graphic	Name	Options of functions
F		AIR FILTRATION	FILTER
V		VENTILATION	FAN
C		AIR COOLING	HYDRONIC COOLING COIL DX COOLING COIL RUN-AROUND COIL
H		AIR HEATING	HYDRONIC HEATING COIL ELECTRIC HEATER DX HEATING STEAM HEATER RUN-AROUND COIL
M		MIXING BOX	MIXING BOX
P		ENERGY RECOVERY	CROSS FLOW PLATE
R		ENERGY RECOVERY	ENERGY WHEEL

Auxiliary symbols

Symbol	Graphic	Name
FC		FLEXIBLE CONNECTION
AD		DAMPER
FLG		FLANGES
E		EMPTY SECTION



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The features mentioned are subject to continuous upgrade and can change any time.
VTS assuring continuous improvement for product and data and reserves the right to change design and specifications without notice.

www.vtsgroup.com