

HS-Vario CAT System



HS-Vario CAT modular filter housings

The HS-Vario CAT programme is the solution for your tasks in air filtration. The modular design allows adaptation to meet the requirements of most different fields of application. Ranging from simple one-filter-stage supply or exhaust air filtration with bag filters to multi-stage filter solutions including regulateable fans.

HS-Vario CAT is manufactured by modular design and is made from extruded aluminum profiles where especially designed for HVAC applications and sturdy galvanized steel sheet walls. The extruded profiles offer a circulating 30 mm frame that allows direct connection to the ducting or the mounting of connecting pieces either with flanges or tube connectors.

You can choose individually the air-flow that should be handled, filter stages, auxiliary equipment or installation position the required HS-Vario CAT should have. All integrated filtermounting frames are fitting for filters from HS-Luftfilterbau as well as standard filters of various other manufacturers.

Of course the design meets actual hygienic regulations such as the VDI 6022.

The housings are available in four standard lengths: 500, 800, 1000, 1200 [mm]. The single housing unit can be upgraded by further modules, filterstages or fans (i.e. axial, radial etc.) as required.

HS-Vario CAT are shipped completely assembled. Only oversized units will be supplied partly assembled due to transport reasons. Such housings will be delivered as easy to join parts. The design of the connecting constructions guarantees, that the pre-assembled and precisely fitting parts can be mounted easily.

Options:

- protection grill (single or both sides)
- connecting pieces according to your demands and technical requirements
- thermic isolation
- measuring equipment (manometer, pressure guards etc.)
- fans (axial, radial etc.)
- antistatic (EX-protection)
- weather protection
- (weather) louvres
- mobile unit

appropriate for following filtertypes:

Types	filterproperties
panel filters:	
HS-Z-50 & HS-Z 100 HS-Alpha Pak	G3 to F9 (EN779)
bag filters:	
HS-Pak 25 to HS-Pak 95	G3 to F9 (EN779)
compact filters:	
HS-ECO Pak HS-Mikro Pak HS-Beta Pak	F5 to F9 (EN779)
activated carbon filters:	
HS-AKP 26 HS-Carbo Pak HS-Carbo Block	adsorption of gaseous air impurities (VOC's, smells, harmful exhaust gases)

examples for areas of use

- exhaust air at kitchens (smells), waste storages, industrial processes etc.
- air port supply air (finedust, fuel fumes)
- workplace exhaustion (i.e. welding fumes, VOC's, roasting processes, printing industry, etc.)
- circulating air treatment (tobacco smoke etc.)
- supply air treatment (finedust, smells, harmful gases, allergens, pollen, ...)

Example finedust & smell filtration

HS-Vario Cat Typ 112:

- prefilter: HS-Pak 35, EN779:G4
- particle filter: HS-ECO Pak 85, EN779:F7
- smell filter: HS-AKP 26



Example gastronomy: (grease filter exists on site)

HS-Vario Cat Typ 123:

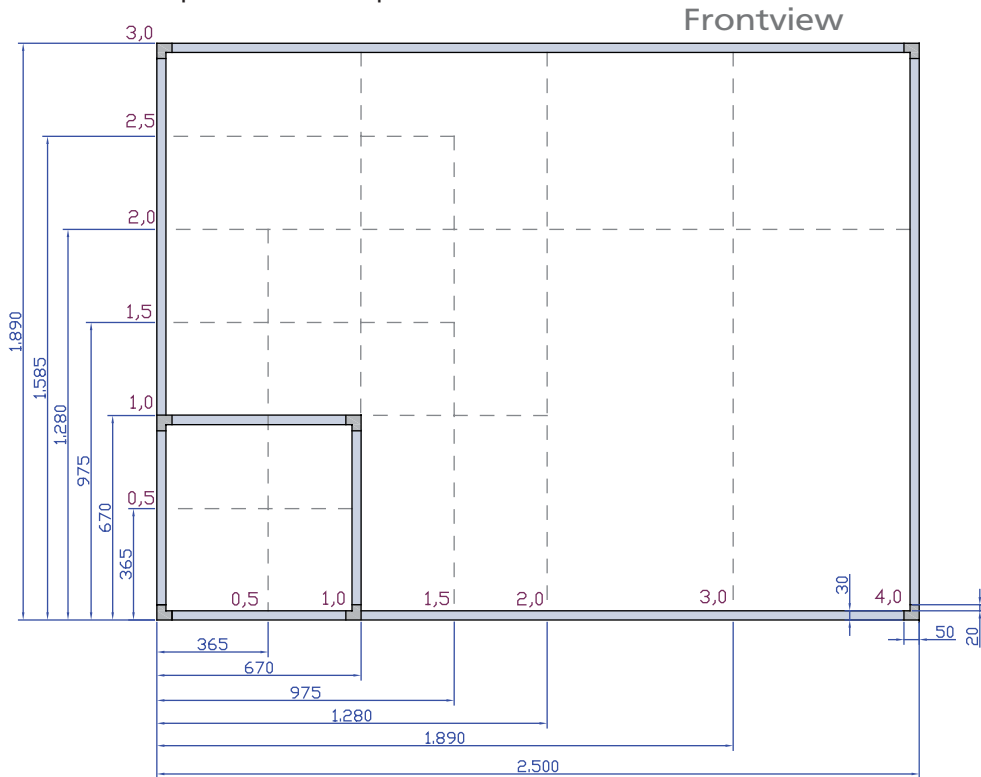
- particle filter: HS-Pak 88, EN779:F7
- smell filter: HS-AKP 26
- fan: HS-Fanboxmodule No.1





HS-Vario CAT System - Design

HS-Vario CAT can be constructed either as filterwall for wall-mounting or as duct-channel housing. Following module sized are available as standard. Please ask for special sized if required.



following should be noted for dimensioning:

- First evaluate the planned air flow, the allowed initial and final pressure drop as well as the amount of required filterstages
- this determines the sitze of the system:

$$\text{No. of filter's} = \frac{\text{total air flow [m}^3/\text{h]}}{\text{air flow of single filter [m}^3/\text{h]}}$$

The "airflow of single filter" relates to the air flow of the choosen single filter type of full standard size ~592x592 mm. If several filterstages are required, the filtertype with the least stated air flow for a full size is used for dimensioning. The resulting value is rounded up.

Reccomended final pressure drop:

- Filters classified EN779 G1 - G4: 250 Pa.
- Filters classified EN779 F5 - F9: 450 Pa.

modul width:	0,5	1,0	1,5	2,0	3,0	4,0
modul height: [mm]	365	670	975	1.280	1.890	2.500
0,5	365	X	O			
1,0	670	O	O		O	
1,5	975	X	X	X		
2,0	1.280	X	O	X	O	X
2,5	1.585		X	X	X	
3,0	1.890		X		X	X

X = standard size

O = standard size, with short delivery times in length A to D

■ **Dimensioning example:**

total air flow 6800 [m³/h]

2 stage housing with bagfilter EN779: F5 and compact filter EN779: F7

Stage 1: HS-Pak 55, 592x592x500 mm, 3400 [m³/h] @ 45 Pa (2 x 3400=6800 m³/h)

Stage 2: HS-ECO Pak 85, 592x592x150 mm, 3600 [m³/h] @ 140 Pa (2 x 3600=7200 m³/h)

results in:

$$\frac{6800 \text{ [m}^3/\text{h]}}{3400 \text{ [m}^3/\text{h]}} = 2 \text{ filter insersts} \Rightarrow 2,0 \text{ housing units (B=1,0 H=2,0)}$$

Housing dimensions: W= 670 mm, H=1.280 mm, D= 1000 mm

initial ΔP: ~130 Pa @ 6800 [m³/h]

final ΔP: 450 Pa @ 6800 [m³/h]

standard module depth's

A = 500 mm

B = 800 mm

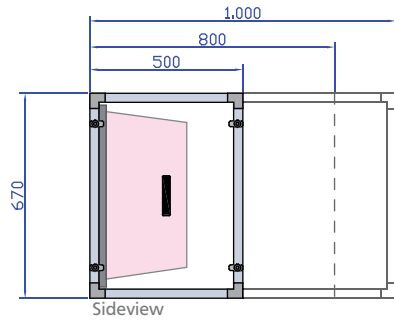
C = 1000 mm

D = 1200 mm



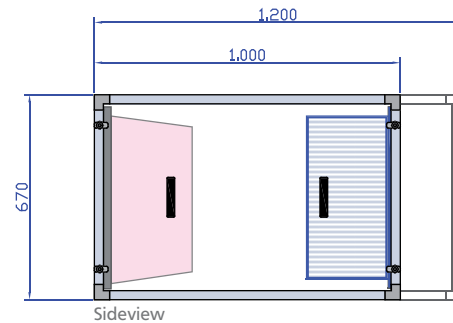
HS-Vario CAT System - Design Examples

Housing length's for single stage filtration



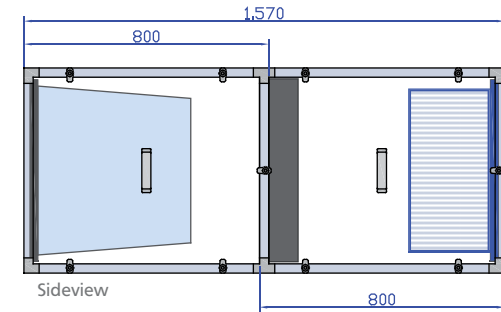
- fitting for dimensions width x height: 365 x365 mm (0,5 x 0,5 Units) up to 2.500 x 1.890 mm (4 x 3 Units), with the given standard length dimensions
- odd length's, revision doors, stabilizing elements etc. are optionally available

Housing length's for double stage filtration



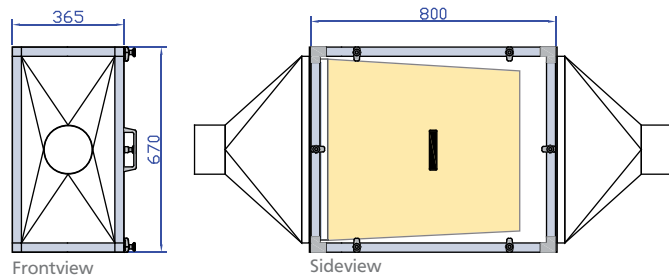
- fitting for dimensions width x height: 365 x365 mm (0,5 x 0,5 Units) up to 2.500 x 1.890 mm (4 x 3 Units), with the given standard length dimensions
- odd length's, revision doors, stabilizing elements etc. are optionally available

Housing length's for multi stage filtration



- fitting for dimensions width x height: 365 x670 mm (0,5 x 1,0 Units) up to 1.890 x 1.890 mm (3 x 3 Units), with the given standard length dimensions
- there can be any line-up of filterstages by principle but we recommend not to exceed a maximum of 5 combined stages.
- odd length's, revision doors, stabilizing elements etc. are optionally available

Housing with connecting piece

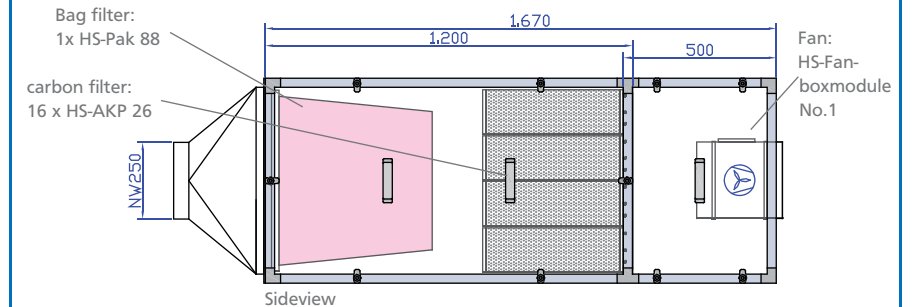


- all HS-Vario CAT module housings can be optionally fitted with connecting pieces (circular/ rectangular), flanges etc.. Please send us all given parameters on site in case of requirement
- also the fitting of weather louvres or isolations for outdoor installations is available - just ask our sales.

Info

- HS-Vario CAT can be manufactured according to your requirements.
- If required we can also apply filters in the normative range of EN 1822 (HEPA). Please consult our filtration experts for further informations.

Example Housing : EN779:F7 particle filtration, activated carbon, Fanboxmodule No.1



The displayed modular housing Type HS-Vario CAT 123 offers 2 stage filtration, suitable for gastronomy application to eliminate smells and odors at a snack bar's kitchen exhaust air but can be used for any similar task. The pre-filter can either be a grease filter like HS-PA55 or a particle filter Type HS-Pak 88 with high performance pre-filter layer. The system suits to filter fatty steams, dust and gaseous air impurities (i.e. odors). The attached HS-Fanbox No.1 allows an airflow of up to 1500 m³/h with the shown design.



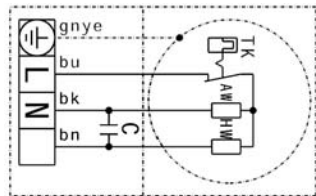
HS-Vario CAT - Fanboxmodule No. 1 & No. 2

HS-Fanboxmodule

HS-Fanboxmodules are the fan solutions for HS-Vario CAT Modular housings. The modules could be fitted with various other fan types if required.

HS-Fanboxmodules are supplied as a section of a complete HS-Vario CAT system. The cable feedthrough and all electrical installation works have to be done on site. All modules are fitted with a continuously variable power controller that can be optionally substituted by a 5-stage controller.

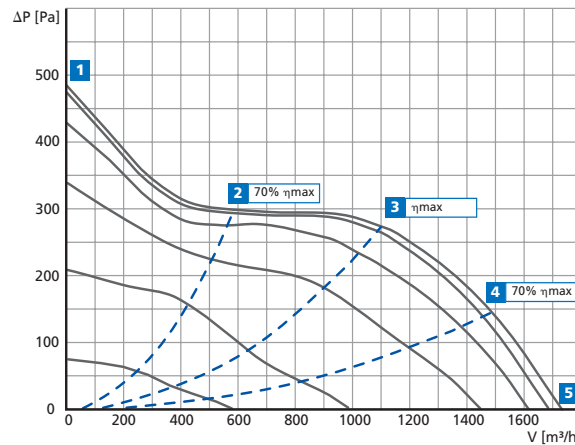
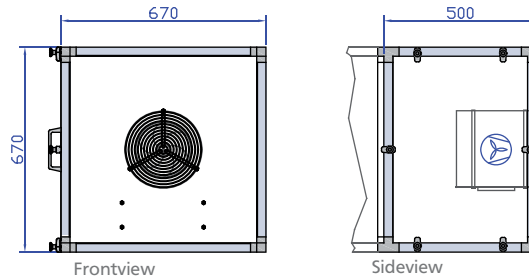
HS-Fanboxmodule	No.1	HS-Fanboxmodule	No. 1	No. 2
voltage U_N	230 V ~ 50 Hz	operating point 1: max. pressure increase		
current I_N	0,8 A	current I	0,75 [A]	0,68 [A]
current I_{Max}	1,0 A	power consumption P_1	170 [W]	150 [W]
max. temp.	50 °C	RPM n	2820 [1/min]	2780 [1/min]
speed control	V	operating point 2 @ 70% of most efficient duty point		
motor protection	TMI	current I	0,65 [A]	0,87 [A]
capacitor	6 μ F 450 V	power consumption P_1	145 [W]	200 [W]
isolation class	F	RPM n	2870 [1/min]	2640 [1/min]
poles	2	operating point 3 @ most efficient duty point		
		current I	0,77 [A]	1,26 [A]
		power consumption P_1	180 [W]	290 [W]
		RPM n	2810	2260
		operating point 4 @ 70% of most efficient duty point		
		current I	0,78 [A]	1,09 [A]
		power consumption P_1	180 [W]	250 [W]
		RPM n	2840	2460
		operating point 5 free blowing		
		current I	0,73 [A]	0,94 [A]
		power consumption P_1	170 [W]	220 [W]
		RPM n	2890 [1/min]	2590 [1/min]
		• circuit diagram for HS-Fanmodule No. 1 and 2.		



HS-Fanbox No. 1:

as modular option for HS-Vario CAT with unit size 1x1 or 670x670 mm.

fan type: diagonal impeller with stator



HS-Fanbox Nr. 2:

as modular option for HS-Vario CAT with unit size 1x2 or 670x1280 mm.

fan type: backward curved centrifugal fan

