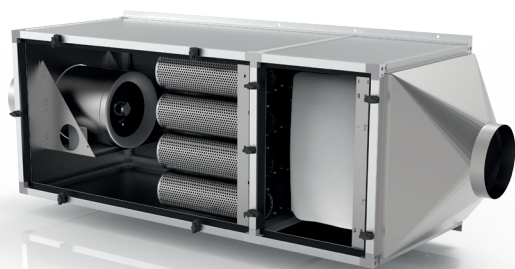




## HS-Vario CAT – Modular Filterhousing



The HS-Vario CAT programme is the solution for your tasks in air filtration. The modular design allows adaption 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 aluminium 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, auxillary equipment or installation position the required HS-Vario CAT should have. All integrated filter-mounting 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 oversizes 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.

Height	Width [mm]	0,5	1,0	1,5	2,0	3,0	4,0
0,5	365	X	O				
1,0	670	O	O		O		
1,5	975	X	X	X			
2,0	1280	X	O	X	O	X	X
2,5	1585		X	X	X		
3,0	1890		X		X	X	X

X = Standardgröße

O = Standardgröße, kurzfristig Lieferbar in Längen A bis D

standard module depth [mm]

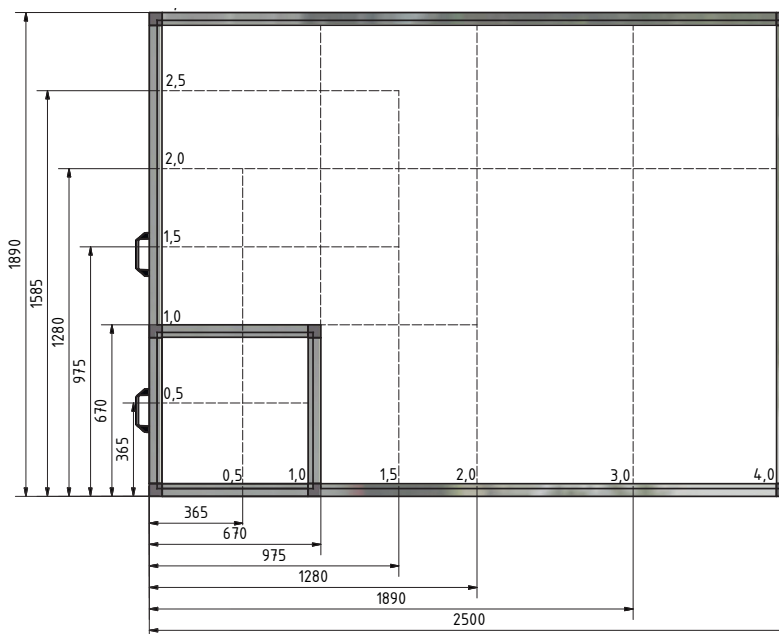
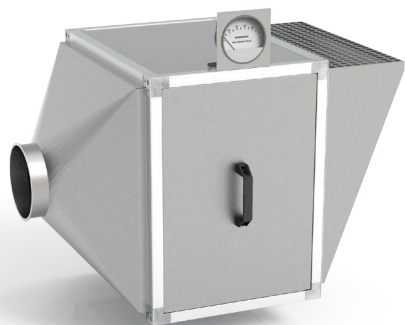
A = 500

B = 800

C = 1000

D = 1200

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 sizes when required.



documents might be subject to change / issue April 2015

Installable Filtertypes		Filterproperties
Panel filters:	HS-Z-50 & HS-Z 100 HS-Alpha Pak	G3 to M6 (EN 779) ISO coarse, ISO ePM 10, ISO ePM 2.5 (ISO 16890)
Bag Filters:	HS-Pak 25 [...] HS-Pak 95	G3 to F9 (EN 779) / ISO coarse bis ISO ePM1
Compact filters:	HS-ECO Pak HS-Mikro Pak HS-Beta Pak	M5 to F9 (EN779) ISO ePM10 to ISO ePM1 (ISO 16890)
Molecular Filters:	HS-AKP 26 HS-Carbo Pak HS-Carbo Block	adsorption of gaseous air impurities (VOC's, odours, harmful exhaust gases)

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 size of the system:

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

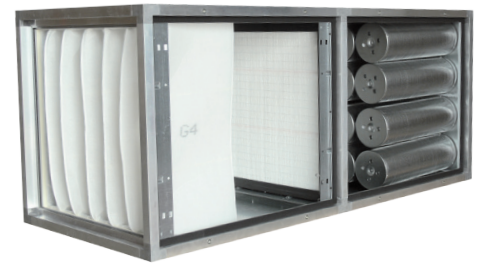
The "airflow of single filter" relates to the air flow of the chosen single filter type of full standard size ~592x592 mm. If several filterstages are required, the filtertype with the least stated air flow for a full size is used for dimensioning. The resulting value is rounded up. Recommended final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

- filters classified EN 779 G1 - G4: 250 Pa.
- filters classified EN 779 M5 - F9 : 450 Pa.

Dimensioning example	total air flow 6800 [m <sup>3</sup> /h] Two-stage housing with bagfilter ISO ePM10 and compact filter ISO ePM2.5 75%
	<ul style="list-style-type: none"> <li>Stage 1: HS-Pak 55, 592x592x500 mm 3400 [m<sup>3</sup>/h] @ 45 Pa</li> <li>Stage 2: HS-ECO Pak 85, 592x592x150 mm 3600 [m<sup>3</sup>/h] @ 140 Pa</li> </ul>
	results in:
	$\frac{6800 \text{ [m}^3/\text{h]}}{3400 \text{ [m}^3/\text{h]}} = 2 \text{ filter instets} \Rightarrow 2,0 \text{ housing units (W=1,0 H=2,0)}$
	Housing dimensions: W= 670 mm, H=1.280 mm, D= 1000 mm
	Initial ΔP: appx.130 Pa @ 6800 [m <sup>3</sup> /h]
	Rec. final ΔP : 450 Pa @ 6800 [m <sup>3</sup> /h]

Application examples	
	<ul style="list-style-type: none"> <li>kitchen exhaust air</li> <li>waste bunker exhaust</li> <li>process air filtration</li> <li>airport supply air (finedust, fuel-fumes)</li> <li>workplace exhaustion (i.e. soldering smoke, solvent fumes, roasting processes, printing industry, etc.)</li> <li>circulating air filtration (i.e. tobacco smoke removal)</li> <li>supply air purification (finedust, odours, allergenics, pollen, etc.)</li> </ul>

Options	
	<ul style="list-style-type: none"> <li>wire mesh guard (single / double sided)</li> <li>connecting pieces according to your demands and technical requirements</li> <li>thermic insulation</li> <li>measuring equipment (manometer, pressure guards etc.)</li> <li>fans (axial, radial etc.)</li> <li>antistatic (EX-protection)</li> <li>(weather) louvres</li> <li>mobile units</li> </ul>



## Beispiel Feinstaub & Geruchsfiltration

### HS-Vario Cat Typ 112

- Vorfilter: HS-Pak 35, EN 779:G4
- Partikelfilter: HS-ECO Pak 85, EN 779:F7
- Geruchsfilter: HS-AKP 26



## Example for gastronomy (grease filter existing on site)

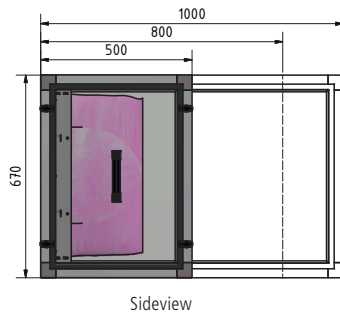
### HS-Vario Cat Typ 123:

- particle filter: HS-Pak 88, ISO ePM2.5 80%
- odour filter: HS-AKP 26
- fan: Fanboxmodule No.1



# HS-Vario CAT – Modular Filterhousing

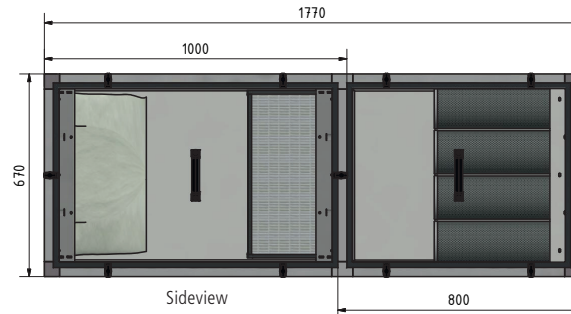
## Housing length's for single stage filtration



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 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 length's for double stage filtration

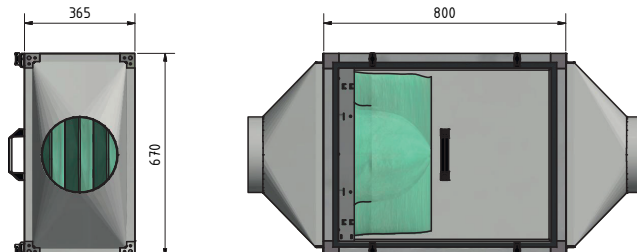


Seitenansicht

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 with connecting piece



Frontansicht

Seitenansicht

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.

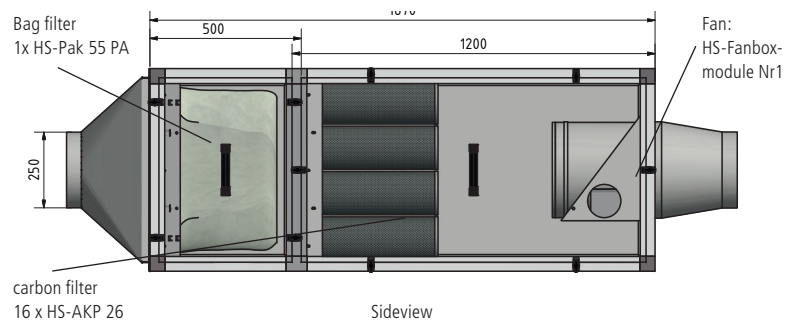
Also the fitting of weather louvres or isolations for outdoor installations is available - just ask our sales.

## 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.

## Kitchen exhaust : ISO ePM 10 50% pre-filter, activated carbon, fanboxmodule No.1



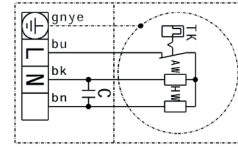
The displayed modular housing Type HS-Vario CAT 123 offers 2 stage filtration, suitable for gastronomy application to eliminate smells and odours at a snack bar's kitchen exhaust air but can be used for any similar task.

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. odours). The attached HS-Fanbox No.1 allows an airflow of up to 1500 m³/h with the shown design.



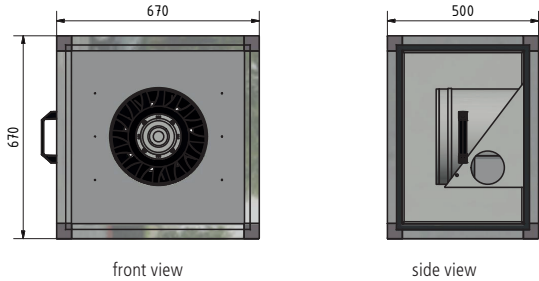
## HS-Fanboxmodule

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.

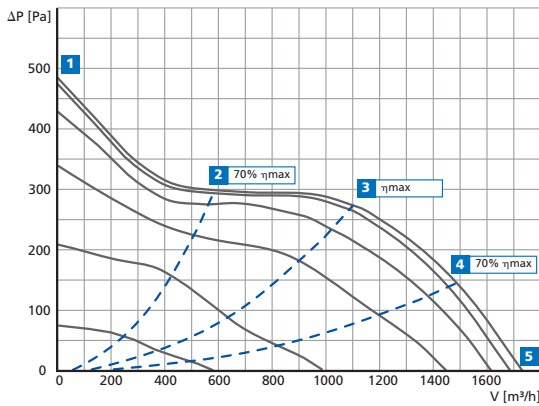


Circuit diagram for HS-Fanmodule No. 1 and 2.

### HS-Fanboxmodule No. 1

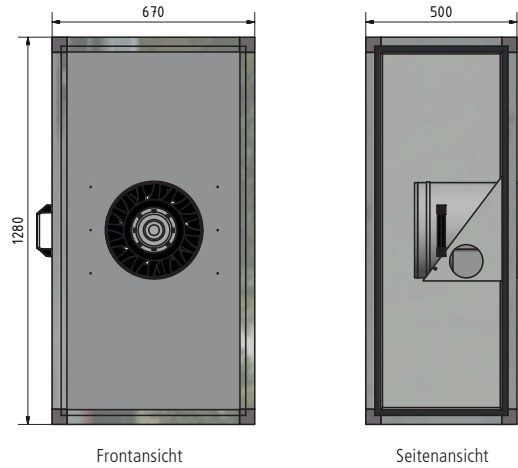


Designed as modular option for HS-Vario CAT with unit size 1x1 or 670x670 mm. Fan type: diagonal impeller with stator

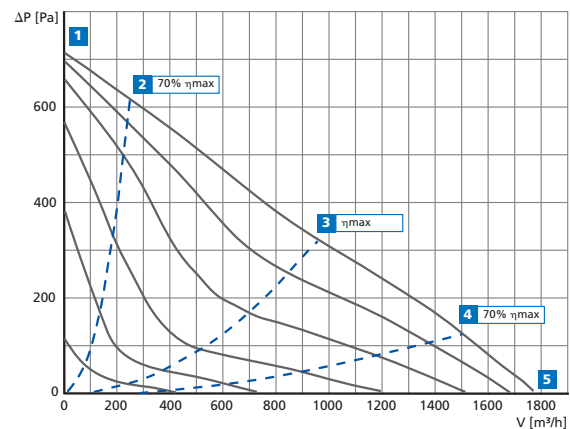


HS-Fanboxmodule	No. 1	No. 2
<b>operating point 1: max. pressure increase</b>		
current I	0,75 [A]	0,68 [A]
power consumption P <sub>1</sub>	170 [W]	150 [W]
RPM n	2820 [1/min]	2780 [1/min]
<b>operating point 2: 70% of most efficient duty point</b>		
current I	0,75 [A]	0,68 [A]
power consumption P <sub>1</sub>	170 [W]	150 [W]
RPM n	2820 [1/min]	2780 [1/min]
<b>operating point 3: most efficient duty point</b>		
current I	0,75 [A]	0,68 [A]
power consumption P <sub>1</sub>	170 [W]	150 [W]
RPM n	2820 [1/min]	2780 [1/min]
<b>operating point 4: 70% of most efficient duty point</b>		
current I	0,75 [A]	0,68 [A]
power consumption P <sub>1</sub>	170 [W]	150 [W]
RPM n	2820 [1/min]	2780 [1/min]
<b>operating point 5: free blowing</b>		
current I	0,75 [A]	0,68 [A]
power consumption P <sub>1</sub>	170 [W]	150 [W]
RPM n	2820 [1/min]	2780 [1/min]

### HS-Fanboxmodule No. 2



Designed as modular option for HS-Vario CAT with unit size 1x2 or 670x1280 mm. Fan type: backward curved centrifugal fan.



HS-Fanboxmodul	No. 1	No. 2
voltage U <sub>N</sub>	230 V ~ 50 Hz	230 V ~ 50 Hz
current I <sub>N</sub>	0,8 A	1,3 A
current I <sub>Max</sub>	1,0 A	1,3 A
max. temp.	50 °C	55 °C
speed control	V	V
motor protection	TMI	TAI
capacitor	6 μF, 450 V	8 μF, 400 V
insulation class	F	F
poles	2	2