Compact Filter – HS-Mikro Pak 4V Econergy

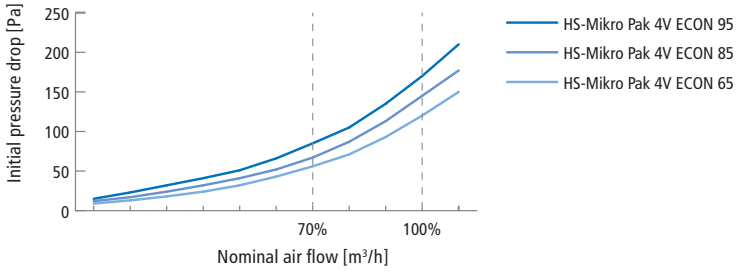
HS-Mikro Pak 4V ECONERGY are the more sustainable alternative for all HVAC and power systems. The large filter areas made of energy-saving filter media offer low initial pressures and an outstanding dust holding capacity for compact filters. This allows the potential energy savings in the processes concerned to be exploited to improve the CO2 balance. The plastic components of HS-Mikro Pak 4V ECONERGY consist of up to 60% renewable raw materials to also improve the CO2 balance of this consumer product. Unlike other resource-saving compact filter solutions, HS-Mikro Pak ECONERGY does not pose any risks in terms of efficiency or tightness. The robust plastic frame is corrosion-free and allows easy disposal, as the filter is fully incinerable and will emit 90% less fossil CO2 when incinerated after usage.

The filter complies with the requirements of VDI 6022 . Optionally, HS-Mikro Pak 4V ECONERGY can be equipped with advanced synthetic filter media.

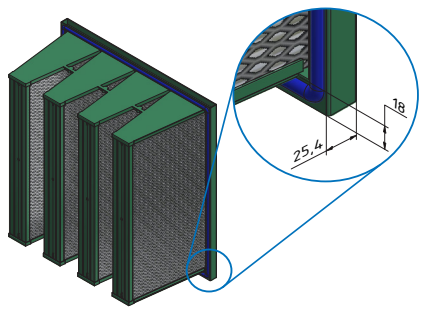
Typ:	HS-Mikro Pak 4V 65	85	95	Energy class compareable to Eurovent 4/21
Class EN 779	M6	F7	F9	Low energy consumption
Class ISO 16890	ePM10 85%	ePM1 65%	ePM1 90%	A+ A A+ B C D E High energy consumption
Initial-ΔP [Pa] (A / B)	65 / 120	75 / 140	85 / 165	
Recc. final ΔP	600	600	600	
Max. temp. [°C]	65°	65°	65°	

Dimensions [mm] Width	Height	Depth	Nominal air flow [m³/h] A: standard	B: high flow rate	Weight [kg]
592	592	292	3400	5000	7
490	592	292	2800	4100	5
287	592	292	1700	2500	3

Please ask for other desired designs.



Frame	corrosion resistant plastic from renewable raw materials
Operational conditions	▪ max. rel. h. 100 [%] ▪ max. temp. 65 [°C], short term peak up to max. 80 [°C]
Spacers	thermoplastic (minipleat)
Filtermedia	▪ high quality glass fibre paper (water resistant), pressure drop may temporarily increase at high humidity levels ▪ Optional: fully synthetic filtermedia for maximum rigidity, higher mechanical stress tolerance
Combustible	YES
Options	1.) burst protector / protection screen 2.) foamed gasket on the clean air side of the flange 3.) +14% more filtersurface
Example applications	▪ main filter for gas turbines ▪ pre- and mainfiltration for particle and finedust removal ▪ main flter for comfort air filtration



Detail: flange dimension (without gasket)
Displays also options 1 & 2.

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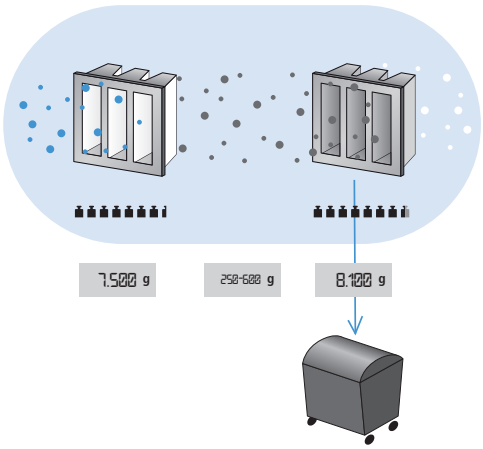
We at HS-Luftfilterbau GmbH have been following the approach of sustainable production since the end of the 1990's with the certification of our environmental management system. In the past we have focused on the optimization of our processes with regard to environmental compatibility. Now the time is more than ripe enough to also take risks in product development. We will offer the market and consumers products that not only increase the energy efficiency of your ventilation system, but also give you the choice to reduce the consumption of irreplaceable raw material supplies and the associated CO2 release in the production of air filters.

Storage filters (in this sense "air filters" for short) are essential consumable components to ensure the functionality of air handling systems. They consist of a variety of more or less high-quality and elaborately manufactured materials. In addition to the filter media, which consist of synthetic nonwovens or meltblowns, glass fibers or synthetic membranes, other essential components include frames, seals, and special adhesives. Optimization of the sustainability of these products has largely failed to materialize due to consumer price sensitivity. Manufacturers' efforts are mainly focused on saving energy during operation and keeping manufacturing costs as low as possible. In both cases, it may be assumed that these aspects of sustainability are already very advanced.

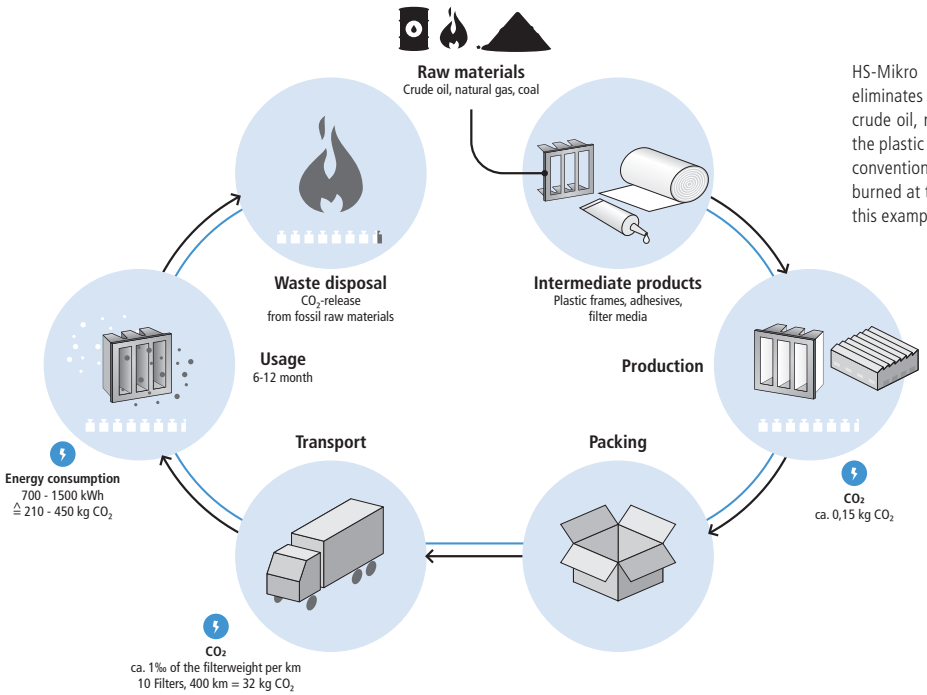
However, if you add up the resource requirements of a compact filter, which is used, for example, in HVAC systems, supply and exhaust air systems or gas turbines, an imbalance immediately becomes painfully apparent when you look at the figures. Filters of this type weigh 6 - 8 kg in standard dimensions. During the period of use, these filters store approximately 250 - 600 g of atmospheric dust, particles, and aerosols. In other words, a **7.5 kg filter** (592x592x292 mm) will be **disposed** of **after its weight increases to 7.9 kg** when the final pressure differential is reached. Or in other words: for a maximum of half a kilo of stored fine dust, 7.5 kg of mass must also be disposed of. Recycling of the components is not possible or would be extremely difficult simply because of the filtrates. Thus, the balance of utility effectiveness for these products is conceivably poor.

Depending on the configuration, the plastic components of HS-Mikro Pak 4V ECONERGY consist of more than 60% renewable raw materials. If we succeeded in replacing our total demand for plastics in this segment, we could save approx. **70 - 90 tons of of polystyrene** per year and thus greatly reduce the consumption of fossil raw materials in this supply chain. These figures illustrate just how much: the production of 1 kg of polystyrene requires approximately 10 kg of crude oil, 7.4 kg of natural gas and 0.14 kg of coal to extract it.

The diagram below illustrates the resource lifecycle of conventional compact filters:



Compact filters are consumable products with a comparatively short service life and little "mass useage effectiveness".



HS-Mikro Pak 4V ECONERGY essentially eliminates the need for the raw materials crude oil, natural gas and coal contained in the plastic components, which in the case of conventional compact filters are irretrievably burned at the end of the product's life, as in this example.

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