SMOG Filter/Ex – general filtering of dusts and gases

SMOG Filter-1200/Ex

SMOG Filter-2400/Ex

II 2 G c Ex e II T3

Purpose

SMOG Filter/Ex separators are efficient in cleaning the air of vapours, gases and dust particles in chemical laboratories, biological research units, analytical labs, during the grinding of various materials. Especially, they are applied in processes, accompanying by unpleasant smells, e.g. during gluing or using various types of aerosols. The appliance can be used within areas of explosion hazard, where explosive atmosphere can occur.

Structure

SMOG Filter/Ex absorber is constructed of subsequent elements:

- steel sheet housing,
- Ex fan – located in the lower part of the device, at the side of clean air
- Paint-Stop pre-filter,
- high-efficiency HEPA filter – class H13,
- cassettes with granulated activated carbon,
- terminal box,
- motor starter (to be installed within the room outside of the explosion risk area),
- inlet guard (on demand).

Operational Use

SMOG Filter/Ex provide complete recirculation of the extracted air. The device inlet can be connected with a local exhaust, system of general ventilation or can be equipped with a protective inlet suction head. In all these cases, the extracted air is being returned (recirculated) back into the process room, after the filtration. The recirculation proceeds through a perforated outlet surface underneath the device.

The cassettes with granulated activated carbon absorb efficiently the majority of noxious chemical compounds, such as styrene, toluene, alcohols, phenol and many others. Dust contaminants are captured by the high-efficiency HEPA filter.

Absorptivity efficiency of the activated carbon for various vapours and gases is mentioned on next page.

Maintenance consists in:

- periodical cleaning of the Paint-Stop pre-filter,
- periodical replacement of the HEPA filter,
- periodical replacement of the cassettes with activated carbon.

Replacement of the Paint-Stop and HEPA filters ought to be carried out at the moment of noticeable decrease of air volume flow.

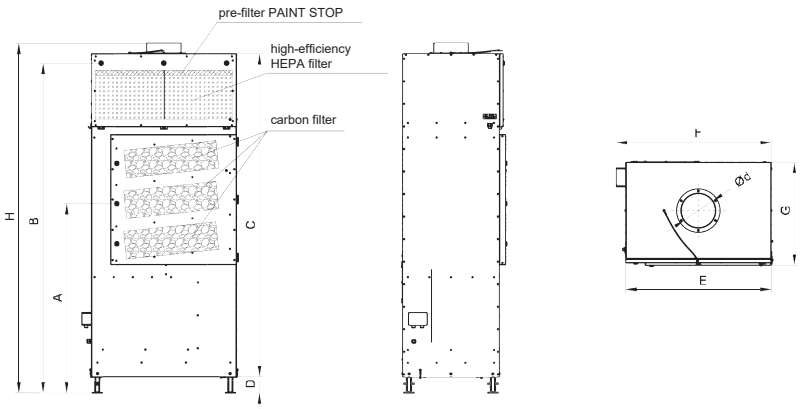
Execute the replacement of the cassettes with activated carbon when the worse air quality (at the device outlet) is perceptible.

Technical Data

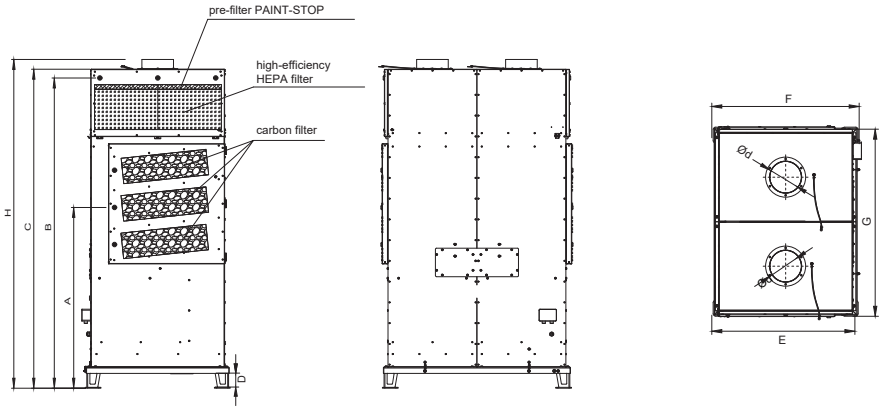
Type	Part No.	Maximum volume flow [m³/h]	Marking	Maximum vacuum [Pa]	Motor rate [kW]	Supply voltage [V/Hz]	Acoustic pressure level [dB(A)]*	Weight [kg]
SMOG Filter-1200/Ex	801O35	1200	II 2 G c Ex e II T3	1270	0,55	3x400/50	59	230
SMOG Filter-2400/Ex	801O36	2350	II 2 G c Ex e II T3	1750	1,1	3x400/50	61	375

* Acoustic pressure level has been measured at a distance of 1 m from the device.

SMOG Filter-1200/Ex



SMOG Filter-2400/Ex

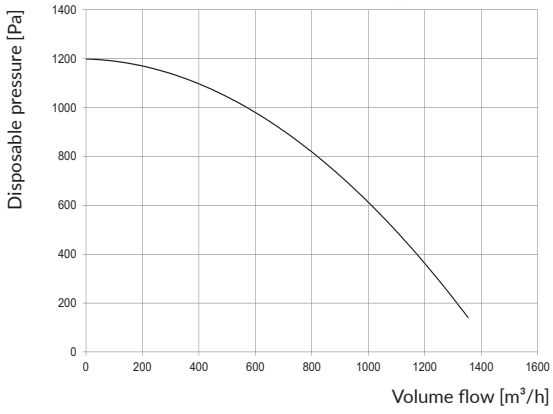


Dimensions

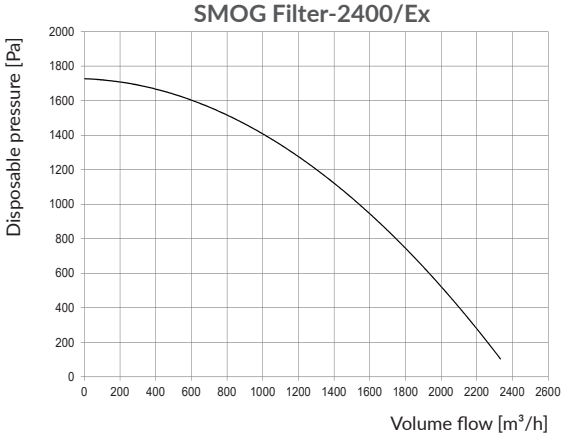
Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	Ød [mm]
SMOG Filter-1200/Ex	1105	1925	1885	95	845	900	600	2040	200
SMOG Filter-2400/Ex	1145	1965	2020	95	905	935	1185	2080	200

Flow charts

SMOG Filter-1200/Ex

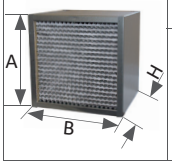


SMOG Filter-2400/Ex



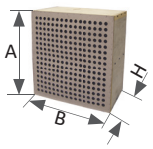
Replaceable parts

High-efficiency HEPA filter



Type	Part No.	Weight [kg]	Dimensions AxBxH [mm]	Class	Quantity of filters	Application	Filtration material
FW-SF-Ex	852F00	3,2	390x535x292	H13	2	SMOG Filter-1200/Ex	Hydrophobic glass paper 99,95%.
					4	SMOG Filter-2400/Ex	

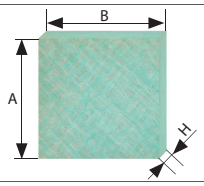
Cassette with activated carbon



Type	Part No.	Weight [kg]	Dimensions AxBxH [mm]	Quantity of filters	Application	Remarks
WA-ECO-20	838K98	24*	534x534x155	3	SMOG Filter-1200/Ex	Cassette housing is of cardboard and plywood.
				6	SMOG Filter-2400/Ex	

*Weight of the active carbon ~20 kg.

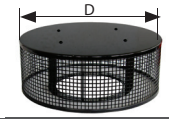
Pre-filter Paint-Stop



Type	Part No.	Weight [kg]	Dimensions AxBxH [mm]	Class	Quantity of filters	Application	Filtration material
PS-SF	852F02	0,5	800x535x50	G3	1	SMOG Filter-1200/Ex	Glass unwoven with progressively increasing density.
					2	SMOG Filter-2400/Ex	

Additional equipment

Suction head



Type	Part No.	Weight [kg]	Diameter D [mm]
K-SF	810H70	0,7	Ø450

Values of activated carbon absorption efficiency for various types of vapors and gases

High efficiency

ethyl acrylate – $C_5H_8O_2$
methyl acrylate – $C_4H_6O_2$
acrylonitrile – C_3H_3N
valericaldehyde – $C_5H_{10}O$
amyl alcohol – $C_5H_{12}O$
butyl alcohol – $C_4H_{10}O$
propyl alcohol – C_3H_7OH
aniline – $C_6H_5NH_2$
naphta (petroleum)
naphta (coal tar)
bromine – Br_2
butyl cellosolve – $C_6H_{14}O_2$
– cellosolve – $C_4H_{10}O_2$
– cellosolve acetate – $C_6H_{12}O_3$
butyl chloride – C_4H_9Cl
propyl chloride – C_3H_7Cl
monochlorobenzene – C_6H_5Cl
chlorobenzene – C_6H_5Cl
ethylene chlorhydrin – C_2H_5ClO
chloroform – $CHCl_3$
chloronitropropane – $C_3H_6ClNO_2$
chloropicrin – CCl_3NO_2
chlorobutadiene – C_4H_5Cl
cyclohexanol – $C_6H_{12}O$
cyclohexanone – $C_6H_{10}O$
tetrachloroethane – $C_2H_2Cl_4$
tetrachloroethylene – C_2Cl_4
carbon tetrachloride – CCl_4
decane – $C_{10}H_{22}$
dioxane – $C_4H_8O_2$
dibromomethane – CH_2Br_2
ethylene dichloride – $C_2H_4Cl_2$
dichlorobenzene – $C_6H_4Cl_2$
dichloroethane – $C_2H_4Cl_2$
dichloroethylene – $C_2H_2Cl_2$
dichloronitroethane – $CH_3CCl_2NO_2$
dichloropropane – $C_3H_6Cl_2$
dimethylaniline – $C_8H_{11}N$
amyl ether – $C_{10}H_{22}O$
butyl ether – $C_8H_{18}O$
dichloroethyl ether – $C_4H_8Cl_2O$
isopropyl ether – $C_6H_{14}O$
propyl ether – $C_6H_{14}O$
ethyl benzene – C_8H_{10}
phenol – C_6H_6O
heptane – C_7H_{16}
heptylene – C_7H_{14}
indole – C_8H_7N
isophorone – $C_9H_{14}O$
iodine – I
iodoform – CHI_3
camphor – $C_{10}H_{16}O$
diethyl ketone – $C_5H_{10}O$
dipropyl ketone – $C_7H_{14}O$
methyl butyl ketone – $C_6H_{12}O$
methyl isobutyl ketone – $C_6H_{12}O$
methyl ethyl ketone – C_4H_8O
creosole – $C_8H_{10}O_2$
cresol – C_7H_8O
crotonaldehyde – C_4H_6O
ethyl silicate – $C_8H_{20}O_4Si$
acrylic acid – $C_3H_4O_2$
caprylic acid – $C_8H_{16}O_2$
butyric acid – $C_4H_8O_2$
lactic acid – $C_3H_6O_3$
uric acid – $C_5H_4N_4O_3$
acetic acid – CH_3COOH
propionic acid – $C_3H_6O_2$
valeric acid – $C_5H_{10}O_2$
menthol – $C_{10}H_{20}O$
ethyl mercaptan – C_2H_6S
propyl mercaptan – C_3H_8S
– methyl cellosolve – $C_3H_8O_2$
– methyl cellosolve acetate – $C_5H_{10}O_3$
methylcyclohexane – C_7H_{14}
methylcyclohexanol – $C_7H_{14}O$
urea – CH_4N_2O
kerosene
nicotyne – $C_{10}H_{14}N_2$
nitrobenzene – $C_6H_5NO_2$
nitroethane – $C_2H_5NO_2$
nitroglicerine – $C_3H_5N_3O_9$
nitropropane – $C_3H_7NO_2$
nitrotoluene – $C_7H_7NO_2$
nonane – C_9H_{20}
amyl acetate – $C_7H_{14}O_2$
butyl acetate – $C_6H_{12}O_2$
ethyl acetate – $C_4H_8O_2$
isopropyl acetate – $C_5H_{10}O_2$
propyl acetate – $C_5H_{10}O_2$
octalene – $C_{12}H_8Cl_6$
octane – C_8H_{18}
putrescine – $C_4H_{12}N_2$
ozone – O_3
paradichlorobenzene – $C_6H_4Cl_2$
– pentanone – $C_5H_{10}O$
perchloroethylene – C_2Cl_4
pyridine – C_5H_5N
dimethylsulphate – $C_2H_6O_4S$
skatole – C_9H_9N
styrene monomer – C_8H_8
turpentine – $C_{10}H_{16}$
mesityl oxide – $C_6H_{10}O$
toluene – C_7H_8
toluidine – C_7H_9N
trichloroethylene – C_2HCl_3

Average efficiency

acetone – C_3H_6O
acetylene – C_2H_2
acrolein – C_3H_4O
butyraldehyde – C_4H_8O
ethyl alcohol – C_2H_5OH
methyl alcohol – CH_3OH
benzene – C_6H_6
ethyl bromide – C_2H_5Br
methyl bromide – CH_3Br
butadiene – C_4H_6
chlorine – Cl_2
ethyl chloride – C_2H_5Cl
vinyl chloride – C_2H_3Cl
cyclohexene – C_6H_{10}
dichlorodifluoromethan – CCl_2F_2
diethyl amine – $C_4H_{11}N$
carbon disulphyde – CS_2
ether – $C_4H_{10}O$
ethyl ether – $C_4H_{10}O$
ethyl amine – C_2H_7N
fluorotrichloromethan – CCl_3F
phosgene – $COCl_2$
anaesthetics
hexane – C_6H_{14}
hexylene – C_6H_{12}
hexyne – C_6H_{10}
isoprene – C_5H_8
hydrogen iodide – HI
xylene – C_8H_{10}
formic acid – HCOOH
methyl mercaptan – CH_3SH
ethyl formate – $C_3H_6O_2$
methyl formate – $C_2H_4O_2$
nitromethane – CH_3NO_2
methyl acetate – $C_3H_6O_2$
pentane – C_5H_{12}
pentylene – C_5H_8
pentyne – C_5H_8
propionandehyde – C_3H_6O
ethylene oxide – C_2H_4O
carbon monoxide – CO

Low efficiency

acetaldehyde – C_2H_4O
ammonia – NH_3
hydrogen bromide – HBr
butane – C_4H_{10}
butanone – C_4H_8O
butylene – C_4H_8
butyne – C_4H_6
methyl chloride – CH_3Cl
hydrogen chloride – HCl
hydrogen cyanide – HCN
nitrogen dioxide – NO_2
sulphur dioxide – SO_2
hydrogen fluoride – HF
formaldehyde – CH_2O
propane – C_3H_8
propylene – C_3H_6
propyne – C_3H_4
hydrogen selenide – H_2Se
hydrogen sulphide – H_2S
sulphur trioxide – SO_3