MiniDygestorium-350/Ex – individual stand for work with dusts and gases

II 2 G c Ex e II T3

Application

MiniDygestorium-350/Ex has been developed for purifying the air of the gaseous contaminations, emitted in small amounts, in chemical laboratories, biological-, analytical-, scientific facilities, research labs, health service units, in chemical ateliers in schools and in numerous other places, where noxious gases and vapours arise, which endanger our health.

MiniDygestorium-350/Ex eliminates the expansion possibility of the pollutants within the room. The appliance can be used in areas of explosion hazard, where explosive atmosphere is likely to occur.

Structure

The device consists of following elements:

- cabinet fume hood – a glass extraction chamber made of acid-proof steel, with two holes for operator's hands, due to which various operations can be carried out on the desktop,
- housing of steel sheets – 3 segments assembled together with clasp locks,
- pre-filter,
- high-efficiency HEPA filter – class H13,
- gas absorber – a cassette with granular activated carbon,
- Ex fan placed in the lower part of the device, at the side of clean air,
- pressure control – indicating the excessive resistances of the high-efficiency filter,
- control unit (to be installed within the room, beyond the Ex hazard area).

Operational Use

The construction is an independent mobile workplace. After switching it on, the operator places the emission source on the desktop (inside the cabinet), whereby the tasks are executed in the vacuum area, that eliminates the pollution being emerged outside.

The dust pollutants are captured by the pre-filter and the high-efficiency HEPA filter. Whereas, the active carbon layer absorbs the majority of noxious chemical compounds, such as: styrene, toluene, alcohols, phenol and many others. At the point when the HEPA filter reaches the limit pollution degree, a light signal indicates the need of filter replacement.

Air is supplied into the extraction cabinet through the perorated upper wall and the holes for hands (in the front). The polluted air is expelled through the perforated outlet, located underneath the device.

Maintenance consists in:

- periodical replacement of the HEPA filter – as signalised by the lamp,
- periodical replacement of the cassette with active carbon – depending on organoleptic evaluation of operator,
- periodical replacement of the pre-filter.

CAUTION:

Absorption efficiency of the active carbon for various vapours and gases is listed on the next page.

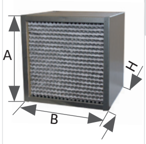
Technical Data

Type	Part No.	Maximum volume flow [m³/h]	Maximum vacuum [Pa]	Motor rate [W]	Supply voltage [V/Hz]	Acoustic pressure level [dB(A)]*	Weight [kg]
MiniDygestorium-350/Ex	888D01	350	220	120	3x400	48	98

* Noise level has been measured at a distance of 1 metre (from the device).

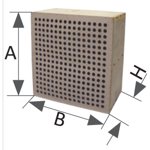
Replaceable Parts

High-efficiency HEPA filter



Type	Part No.	Weight [kg]	Dimensions AxB xH [mm]	Class	Filtration material
FW-MD-350/ Ex	838W03	15	535x535 x292	H13	Hydrophobic glass paper 99,95%

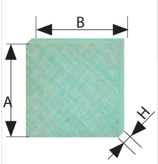
Cassette with activated carbon



Type	Part No.	Weight [kg]	Dimensions AxB xH [mm]	Remarks
WA-ECO-20	838K98	24*	534x534 x155	The cassette is made of cardboard and plywood

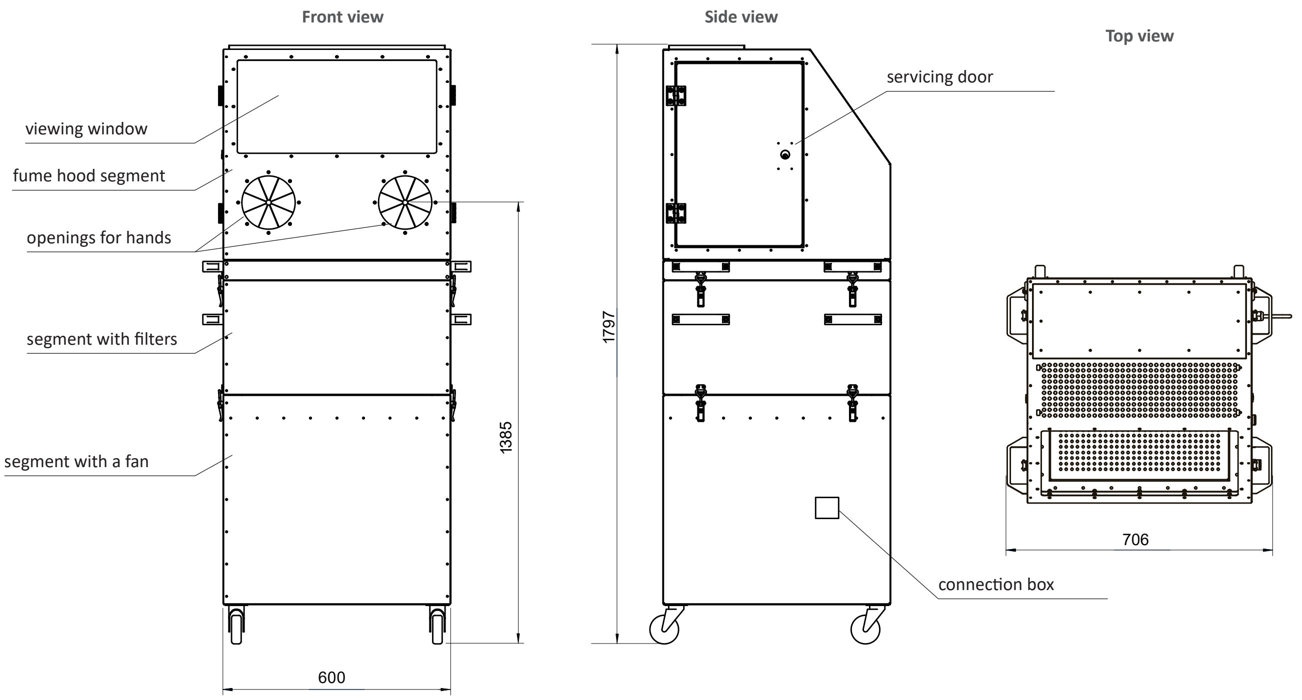
*Weight of the activated carbon ~20 kg

Pre-filter



Type	Part No.	Weight [kg]	Dimensions AxB xH [mm]	Class	Filtration material
PS-MD-350	852F03	0,5	535x535 x50	G3	Glass unwoven with progressively growing density

Dimensions



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