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

Purpose

MiniDygestorium-350 was designed to purify air and absorb any waste gases produced in small amounts in chemical, biological or analytical laboratories, research or healthcare facilities, school labs and other places that produce where harmful gases or vapors are produced.

MiniDygestorium-350 makes it impossible for waste gases to spread across the room. The device must not be used in hazardous areas with explosive atmospheres.

Structure

The device is composed of the following elements:

- cabinet hood – glass-covered exhaustion chamber made of acid-proof steel with two openings for hands allowing for the performance of various tasks inside the device,
- enclosure made of steel sheets – 3 segments secured with clasps,
- Paint-Stop filter,
- High efficiency HEPA filter of H13 class,
- gas absorber in the form of a case with granular activated carbon,
- radial fan with enclosure,
- pressure control that signalizes excessive resistance on the high efficiency filter,
- control unit.

Operatinal Use

The device is an independent, mobile workstation. After switching it on, the operator places the source of emission on the desktop inside the cabinet hood and performs the required tasks inside the negative pressure zone, which eliminates the possibility of polluting the room with gases.

Dust contaminants are then filtered by the high efficiency HEPA filter, while the case with activated carbon absorbs most of the harmful chemical compounds, such as styrene monomer, toluene, alcohols, phenol and other. When the threshold value of HEPA filter clogging is reached, a light signal will be activated to inform the operator about the need to replace the filter.

Air gets inside the cabinet hood through the perforated upper wall of the extraction chamber and through the openings for hands located in the front wall. It is removed through the perforated outlet located beneath the device.

Operation of the device requires:

- periodic replacement of the HEPA filter – the need to replace the filter is signalized by a red lamp,
- periodic replacement of the case with activated carbon – the need to replace the case is determined on the basis of a visual inspection of the case,
- periodic replacement of the Paint-Stop filter.

NOTE:

Absorption efficiency of activated carbon differs depending on the type of vapor or gas. Referential values are given on the following page.

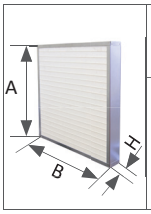
Technical data

Type	Part no.	Maximal volume flow [m³/h]	Maximal vaccum [Pa]	Motor rate [W]	Supply voltage [V/Hz]	Acoustic pressure level [dB(A)]*	Weight [kg]
MiniDygestorium-350	801O20	350	220	124	230/50	53	80

* Measurements were performed 1 m away from the device.

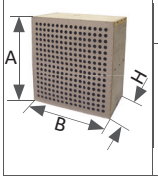
Spare parts

High efficiency HEPA filter



Type	Part no.	Weight [kg]	Dimensions AxB xH [mm]	Class	Filter material
FW-MD-350	838F98	3,2	535x535 x78	H13	Hydrophobic glass fiber filter paper 99.95%.

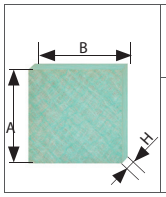
Case with activated carbon



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

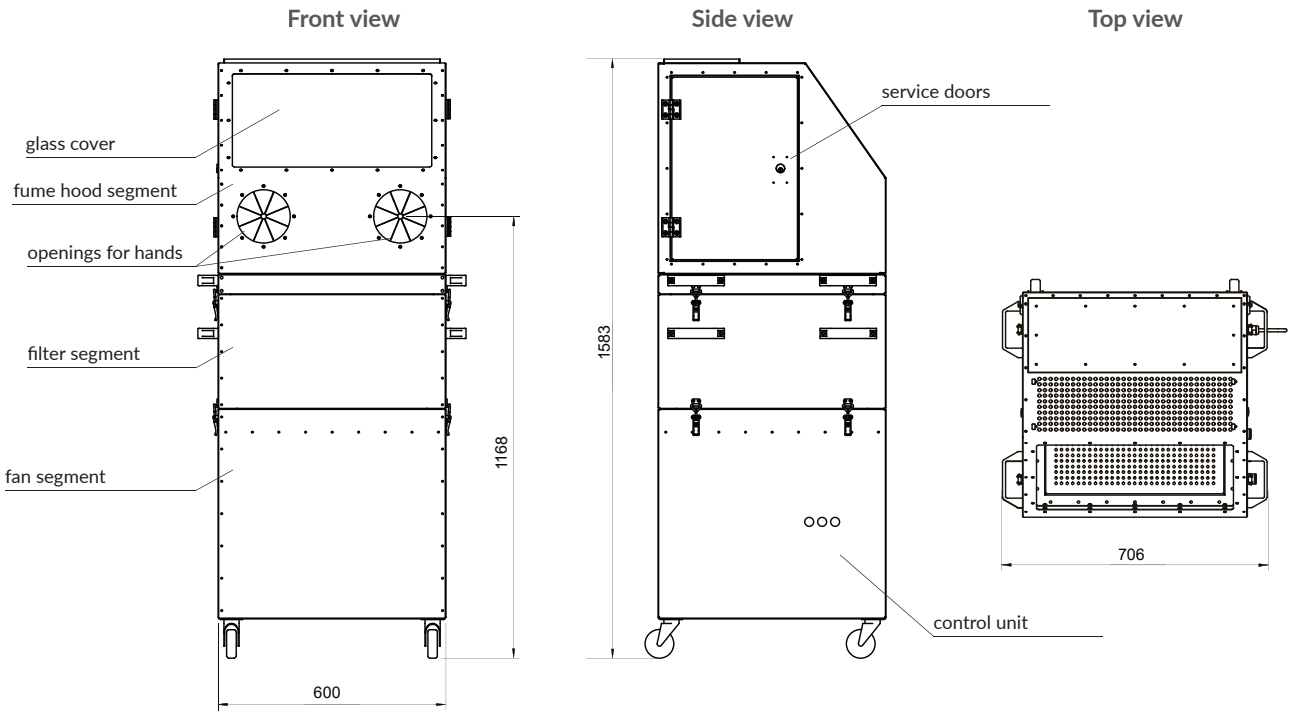
*Weight of activated carbon 20 kg.

Pre-filter



Type	Part no.	Weight [kg]	Dimensions AxB xH [mm]	Class	Filter material
PS-MD-350	852F03	0,5	535x535 x50	G3	Non woven glass fabric of progressive 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 – $C_4H_6O_2$
acrylo$_n$itrile – 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
a$_n$ili$_n$e – $C_6H_5NH_2$
$_n$aphta (petroleum)
$_n$aphta (coal tar)
bromi$_n$e – 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
mo$_n$ochlorobe$_n$ze$_n$e – C_6H_5Cl
chlorobe$_n$ze$_n$e – C_6H_5Cl
ethyle$_n$e chlorhydri$_n$ – C_2H_5ClO
chloroform – $CHCl_3$
chloro$_n$itropropa$_n$e – $C_3H_6ClNO_2$
chloropicri$_n$ – CCl_3NO_2
chlorobutadie$_n$e – C_4H_5Cl
cyclohexa$_n$ol – $C_6H_{12}O$
cyclohexa$_n$o$_n$e – $C_6H_{10}O$
tetrachloroetha$_n$e – $C_2H_2Cl_4$
tetrachloroethyle$_n$e – C_2Cl_4
carbo$_n$ tetrachloride – CCl_4
deca$_n$e – $C_{10}H_{22}$
dioxa$_n$e – $C_4H_8O_2$
dibromometha$_n$e – CH_2Br_2
ethyle$_n$e dichloride – $C_2H_4Cl_2$
dichlorobe$_n$ze$_n$e – $C_6H_4Cl_2$
dichloroetha$_n$e – $C_2H_4Cl_2$
dichloroethyle$_n$e – $C_2H_2Cl_2$
dichloro$_n$itroetha$_n$e – $CH_3CCl_2NO_2$
dichloropropa$_n$e – $C_3H_6Cl_2$
dimethyla$_n$ili$_n$e – $C_8H_{11}N$
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 be$_n$ze$_n$e – C_8H_{10}
phe$_n$ol – C_6H_6O
hepta$_n$e – C_7H_{16}
heptyle$_n$e – C_7H_{14}
i$_n$dole – C_8H_7N
isophoro$_n$e – $C_9H_{14}O$
iodi$_n$e – I
iodoform – CHI_3
camphor – $C_{10}H_{16}O$
diethyl keto$_n$e – $C_5H_{10}O$
dipropyl keto$_n$e – $C_7H_{14}O$
methyl butyl keto$_n$e – $C_6H_{12}O$
methyl isobutyl keto$_n$e – $C_6H_{12}O$
methyl ethyl keto$_n$e – C_4H_8O
creosole – $C_8H_{10}O_2$
cresol – C_7H_8O
croto$_n$aldehyde – 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
propio$_n$ic acid – $C_3H_6O_2$
valeric acid – $C_5H_{10}O_2$
me$_n$thol – $C_{10}H_{20}O$
ethyl mercapta$_n$ – C_2H_6S
propyl mercapta$_n$ – C_3H_8S
– methyl cellosolve – $C_3H_8O_2$
– methyl cellosolve acetate – $C_5H_{10}O_3$
methylcyclohexa$_n$e – C_7H_{14}
methylcyclohexa$_n$ol – $C_7H_{14}O$
urea – CH_4N_2O
kerose$_n$e
$_n$icoty$_n$e – $C_{10}H_{14}N_2$
$_n$itrobe$_n$ze$_n$e – $C_6H_5NO_2$
$_n$itroetha$_n$e – $C_2H_5NO_2$
$_n$itrogliceri$_n$e – $C_3H_5N_3O_9$
$_n$itropropa$_n$e – $C_3H_7NO_2$
$_n$itrotolue$_n$e – $C_7H_7NO_2$
$_n$o$_n$a$_n$e – 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 – $C_5H_{10}O_2$
octale$_n$e – $C_{12}H_8Cl_6$
octa$_n$e – C_8H_{18}
putresci$_n$e – $C_4H_{12}N_2$
ozo$_n$e – O_3
paradichlorobe$_n$ze$_n$e – $C_6H_4Cl_2$
– pe$_n$ta$_n$o$_n$e – $C_5H_{10}O$
perchloroethyle$_n$e – C_2Cl_4
pyridi$_n$e – C_5H_5N
dimethylsulphate – $C_2H_6O_4S$
skatole – C_9H_9N
styre$_n$e mo$_n$omer – C_8H_8
turpe$_n$ti$_n$e – $C_{10}H_{16}$
mesityl oxide – $C_6H_{10}O$
tolue$_n$e – C_7H_8
toluidi$_n$e – C_7H_9N
trichloroethyle$_n$e – C_2HCl_3

Average efficiency

aceto$_n$e – C_3H_6O
acetyle$_n$e – C_2H_2
acrolei$_n$ – C_3H_4O
butyraldehyde – C_4H_8O
ethyl alcohol – C_2H_5OH
methyl alcohol – CH_3OH
be$_n$ze$_n$e – C_6H_6
ethyl bromide – C_2H_5Br
methyl bromide – CH_3Br
butadie$_n$e – C_4H_6
chlori$_n$e – Cl_2
ethyl chloride – C_2H_5Cl
vi$_n$yl chloride – C_2H_3Cl
cyclohexe$_n$e – C_6H_{10}
dichlorodifluorometha$_n$ – CCl_2F_2
diethyl ami$_n$e – $C_4H_{11}N$
carbo$_n$ disulphyde – CS_2
ether – $C_4H_{10}O$
ethyl ether – $C_4H_{10}O$
ethyl ami$_n$e – C_2H_7N
fluorotrichlorometha$_n$ – CCl_3F
phosge$_n$e – $COCl_2$
a$_n$aesthetics
hexa$_n$e – C_6H_{14}
hexyle$_n$e – C_6H_{12}
hexy$_n$e – C_6H_{10}
isopre$_n$e – C_5H_8
hydroge$_n$ iodide – HI
xyle$_n$e – C_8H_{10}
formic acid – HCOOH
methyl mercapta$_n$ – CH_3SH
ethyl formate – $C_3H_6O_2$
methyl formate – $C_2H_4O_2$
$_n$itrometha$_n$e – CH_3NO_2
methyl acetate – $C_3H_6O_2$
pe$_n$ta$_n$e – C_5H_{12}
pe$_n$tyle$_n$e – C_5H_8
pe$_n$ty$_n$e – C_5H_8
propio$_n$a$_n$dehyde – C_3H_6O
ethyle$_n$e oxide – C_2H_4O
carbo$_n$ mo$_n$oxide – CO

Low efficiency

acetaldehyde – C_2H_4O
ammo$_n$ia – NH_3
hydroge$_n$ bromide – HBr
buta$_n$e – C_4H_{10}
buta$_n$o$_n$e – C_4H_8O
butyle$_n$e – C_4H_8
buty$_n$e – C_4H_6
methyl chloride – CH_3Cl
hydroge$_n$ chloride – HCl
hydroge$_n$ cya$_n$ide – HCN
$_n$itroge$_n$ dioxide – NO_2
sulphur dioxide – SO_2
hydroge$_n$ fluoride – HF
formaldehyde – CH_2O
propa$_n$e – C_3H_8
propyle$_n$e – C_3H_6
propy$_n$e – C_3H_4
hydroge$_n$ sele$_n$ide – H_2Se
hydroge$_n$ sulphide – H_2S
sulphur trioxide – SO_3