

**Hygiene certification of IDEAL air purifier models
AP15, 30, 45 and AP30 Pro, 40 Pro, 60 Pro, 80 Pro**

All above mentioned air purifiers are tested according to German VDI (Association of German Engineers) directive 6022 for the use in medical areas and facilities. The directive is applicable for ventilation technology and indoor air quality.

The corresponding tests were performed by well-known institute Schwarzkopf in cooperation with Hygiene Institute Mainfranken (HIM). Test coordinator was Dr. Med. (MD) Schwarzkopf. He is medical specialist for microbiology and for infection epidemiology. Also, he is an officially appointed specialist and a sworn expert for hospital hygiene.

All models were successfully tested regarding various criteria (see below). Therefore, they are suitable for use in medical areas and facilities, which clearly is a unique selling point.

- ✓ Microbiologically tested (regarding viruses and bacteria)
- ✓ Mycologically tested (regarding fungi and fungal spores)
- ✓ Tested regarding particulate matter and other particulates
- ✓ Tested regarding cleanability and disinfectability of the housings
- ✓ Tested regarding noise emission



The test reports of the so-called hygiene report are exclusively available in German language. A translation of dozens or hundreds of pages for each model would be too complex for abovementioned institutes. Apart from that the hygiene report contains a lot of secret data regarding construction of the machines and their filter elements so that we unfortunately cannot provide them to our customers. However, please find below an excerpt of the hygiene reports in German language providing a short summary of the test results.

Eingesetztes Equipment zur Prüfung der Testgeräte, Messgrößen:

DustTRAK DRX Aerosol Monitor	(PM 1, PM 2,5, PM 10 und Respirationsgangige Partikel)
MetOne Laser Particle Counter	0,3 – 0,5 – 1,0 – 3,0 – 5,0 – 10,0 µm
Holbach Luftkeimsammler	Aktive Keimsammlung
Testo 417	Volumenstrommessung
PeakTech 805	Schallpegelmessung

Durchgeführte Prüfungen

Feinstaubmessung, Partikelmessung, Luftkeimmessung, Volumenstrommessung, Schallpegelmessung

Volumenstrommessungen:

Stufe 1, 2, 3, 4 je 3 x, Angabe gemittelt

Feinstaubmessungen:

Stufe 1, 2, 3, 4 je 10 Minuten

Partikelmessungen:

Stufe 1, 2, 3, 4 FED STD 209E

Luftkeimbestimmung:

Stufe 4 Bakteriell
100 Liter

Luftkeimbestimmung:

Stufe 4 Mykologisch (Pilznachweis)
100 Liter

Mikrobiologische Auswertung:

Es konnten bei keinem Gerät Keime in 100 Liter Luftvolumen (Stufe 4 Turbo) nachgewiesen werden.

Mykologische Auswertung:

Es konnten bei keinem Gerät Schimmelpilze in 100 Liter Luftvolumen (Stufe 4 Turbo) nachgewiesen werden.

Zusammenfassende Stellungnahme

Die Geräte erfüllen den für medizinische Einrichtungen notwendigen Hygienestandard.

Bauart bedingt kann der Filter leicht gewechselt werden. Das Gerätegehäuse selbst kann leicht gereinigt und desinfiziert werden. Somit ist es zum Einsatz in medizinischen Einrichtungen geeignet.

PD Dr. med. A. Schwarzkopf

Facharzt für Mikrobiologie und Infektionsepidemiologie

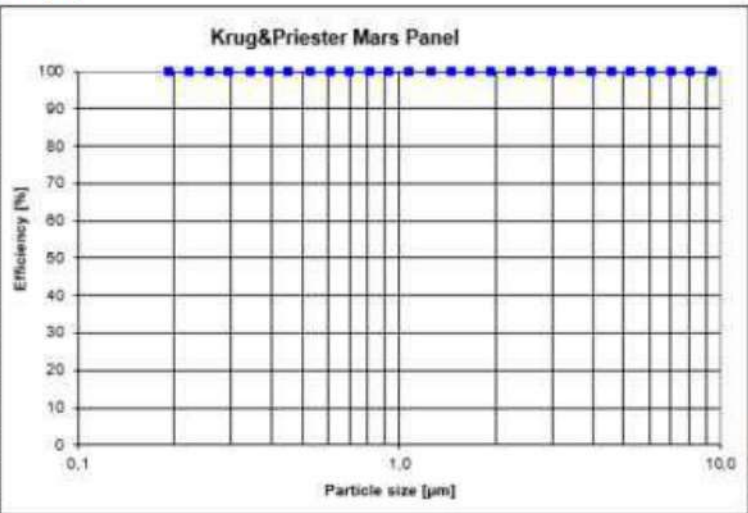
Öffentlich bestellter und beeidigter Sachverständiger für Krankenhaushygiene

Protocolli di test e sostanze filtrabili

a. Protocolli di test per il particolato per Pro modelli AP

Test del filtro AP30 / 40 Pro secondo DIN 71.460-1 (portata 100 mc / h)

Particle size μm	Efficiency %	$C_{up} \text{P}/\text{cm}^3$	$C_{down} \text{P}/\text{cm}^3$
1	0.19	100.00	0.16
2	0.22	100.00	3.97
3	0.26	99.99	17.91
4	0.30	99.98	52.10
5	0.34	99.98	95.14
6	0.39	99.97	129.31
7	0.45	99.97	27.90
8	0.53	99.96	100.88
9	0.61	99.99	87.90
10	0.70	99.97	67.10
11	0.81	99.98	48.92
12	0.93	99.98	39.24
13	1.08	99.98	32.39
14	1.24	99.98	27.62
15	1.44	100.00	23.83
16	1.66	100.00	19.94
17	1.92	100.00	16.00
18	2.21	100.00	12.38
19	2.56	100.00	9.56
20	2.95	100.00	6.76
21	3.41	100.00	5.06
22	3.93	100.00	2.90
23	4.54	100.00	2.10
24	5.25	100.00	1.31
25	6.06	100.00	0.83
26	7.00	100.00	0.42
27	8.08	100.00	0.22
28	9.33	100.00	0.28

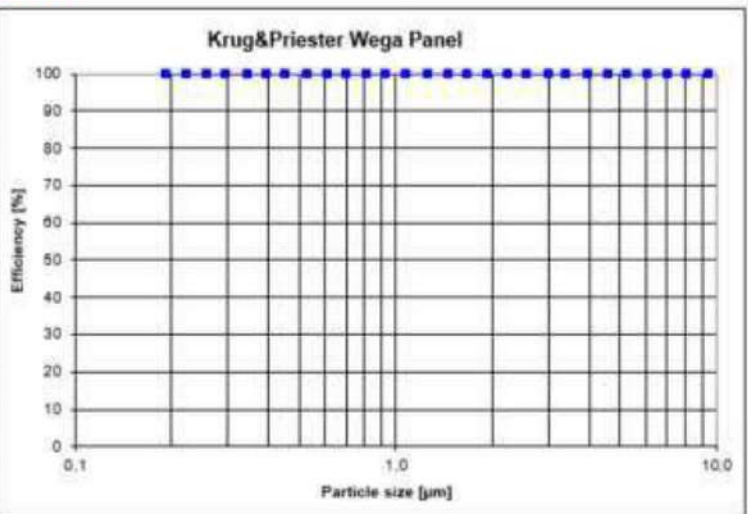


Comment

Particle size means mid of range
Efficiency correlates to efficiency distributive

Test del filtro AP60 / 80 Pro secondo DIN 71.460-1 (portata 124 mc / h)

Particle size μm	Efficiency %	$C_{up} \text{P}/\text{cm}^3$	$C_{down} \text{P}/\text{cm}^3$
1	0.19	100.00	0.33
2	0.22	100.00	3.11
3	0.26	100.00	14.25
4	0.30	100.00	41.59
5	0.34	99.99	80.30
6	0.39	99.99	106.95
7	0.45	99.99	108.46
8	0.53	99.99	95.78
9	0.61	99.99	71.78
10	0.70	99.97	57.83
11	0.81	99.97	42.05
12	0.93	99.97	33.06
13	1.08	99.97	29.80
14	1.24	99.97	22.99
15	1.44	100.00	19.78
16	1.66	100.00	16.50
17	1.92	100.00	12.81
18	2.21	100.00	10.37
19	2.56	100.00	7.98
20	2.95	100.00	5.76
21	3.41	100.00	4.31
22	3.93	100.00	2.77
23	4.54	100.00	1.95
24	5.25	100.00	1.22
25	6.06	100.00	0.85
26	7.00	100.00	0.52
27	8.08	100.00	0.34
28	9.33	100.00	0.26

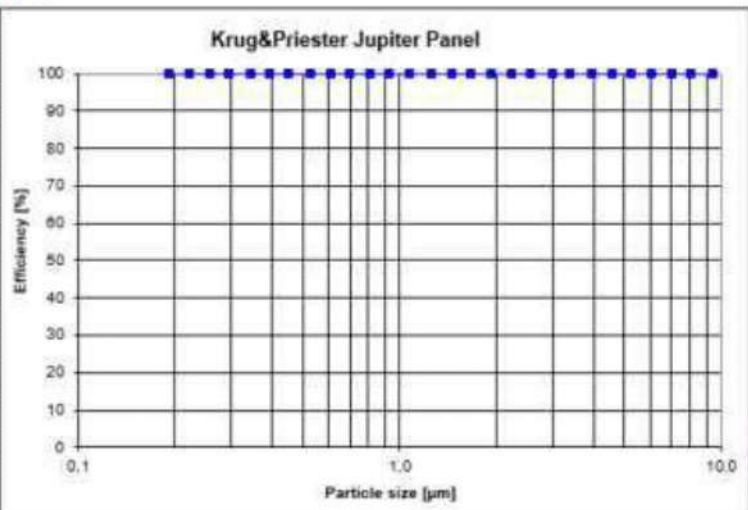


Comment

Particle size means mid of range
Efficiency correlates to efficiency distributive

Test del filtro AP140 Pro secondo DIN 71.460-1 (portata 300 mc / h)

Particle size μm	Efficiency %	$C_{up} \text{P}/\text{cm}^3$	$C_{down} \text{P}/\text{cm}^3$
1	0.19	100.00	0.10
2	0.22	100.00	2.06
3	0.26	100.00	10.90
4	0.30	100.00	29.76
5	0.34	100.00	56.02
6	0.39	100.00	76.95
7	0.45	100.00	79.37
8	0.53	100.00	67.38
9	0.61	100.00	50.44
10	0.70	100.00	40.02
11	0.81	100.00	29.46
12	0.93	100.00	22.61
13	1.08	100.00	18.01
14	1.24	100.00	16.88
15	1.44	100.00	14.43
16	1.66	100.00	12.05
17	1.92	100.00	9.20
18	2.21	100.00	7.63
19	2.56	100.00	6.11
20	2.95	100.00	4.01
21	3.41	100.00	2.92
22	3.93	100.00	1.80
23	4.54	100.00	1.09
24	5.25	100.00	0.93
25	6.06	100.00	0.40
26	7.00	100.00	0.16
27	8.08	100.00	0.17
28	9.33	100.00	0.12



Comment

Particle size means mid of range
Efficiency correlates to efficiency distributive

Esempi di sostanze chimiche e odori che possono essere filtrati dal carbone attivo

Il carbone attivo in grado di assorbire i seguenti composti chimici singoli

acetaldeide	etilbenzene	propano
acetone	etil bromuro	propanolo
acroleina	etilico	propionaldeide
acido acrilico	etilmercaptano	propionico
acrilonitrile	etilene	propyne
acido formico	cloruro di etilene	propile
formato	ossido di etilene	propil etere
ammine	fluoridrico	propile meraptan
ammoniaca	formaldeide	propilene
amil alcol	frigens	piridina
amiletere	urea	vapori di mercurio
anilina	acido urico	l'acido nitrico
benzene	eptano	solfo di carbonio
cianuro	eptene	idrogeno solforato
boran	esano	diossido di zolfo
bromo	streghe	triossido di zolfo
bromuro	indolo	acido solforico
butadiene	isoprene	seleniuro di idrogeno
butano	isopropilico	Composti etil silicio
butanone	iodio	diossido di azoto
butil	jodoform	skatol
butilico	ioduro	stirene
butil	diossido di carbonio	tetracloruro di carbonio
butil etere	monossido di carbonio	tetracloroetano
butano	creatina	tetracloroetilene
butanal	kersol	toluene
butirrico	mercaptano	tricloroetano
canfora	mesityloxide	tricloroetilene
caprilico	metano	valeric
acido fenico	metanolo	valeral
cloro	metil acetato	cloruro di vinile
clorobenzene	metil acrilato	idrogeno
clorobutadiene	bromuro di metile	xilene
clorofornio	metil butil	
tensione cloronitrati	4methylchlorid	
cloridrico	metil etere	
crotonaldehide	metil etil chetone	
cicloesano	methylisobutyleton	
cicloesene	metil mercaptano	
cicloesanolo	metilcicloesano	
decano	metilcicloesanolo	
dietil	metilcicloesanone	
dibromoetano	cloruro di metilene	
diclorobenzene	acido lattico	
dichlorodifluoromethane	monoclorobenzolo	
dicloromonofluorometano	naftalina	
diclorotetrafluoroetano	nicotina	
dicloroetano	nitrobenzene	
dicloroetene	nitroetano	
dicloroetil	nitroglicerina	

Il carbone attivo è in grado di assorbire i seguenti composti chimici singoli

dichloronitroethan	nitrometano
dicloropropano	nitropropano
dietilammina	nitrotoluene
dietil	nonane
dimetilammina	ottano
dimetil	ottene
diossano	ozono
dipropil	palmitico
acido acetico	paradiclorobenzene
anidride acetica	pentano
propil acetato	pentanone
ethan	pentene
etanolo	Pentin
etere	percloroetilene
acetato di etile	fenolo
etil acrilato	fosgene

Il carbone attivo in grado di assorbire i seguenti odori

frammenti	odori dell'animale domestico	olio rancido
odori aggressivi	rifiuti industriali	latte acido
alcool odori	odore di formaggio	gli odori di muffa
		Odori derivanti da
carne bruciata	cherosene	lavorazioni di carne
		lubrificanti, oli u.
cibo bruciati	impianto di depurazione odori	grassi
composti inorganici	vapori adesivi	sudore odori
asfalto (catrame) odori	gli odori corporei	catrame
gas di scarico auto	odori ospedale	trementina
benzina	cipolle	odori dell'animale
odori bagno	aglio	domestico
soluzioni sbiancanti	odori di cucina	Odori WC
combustibili (liquido)	vernice fumi	grasso bruciato
deodourants	gli odori degli alimenti	odori combustione
detersivi	odori solventi	cibo cattivo andato
disinfettante	lisolo	odori di putrefazione
diesel	mentolo	odore di bucato
fertilizzante	odori medici	aceto di vino
aceto	meloni	fumo di sigaretta
eucalipto	odori Moder	agrumi
odori colore	la conservazione della frutta	
odori di pesce	prodotti chimici organici	
prodotti chimici di lavorazione	pesticidi	
pellicola	odore popcorn	
combustibili liquidi	odore di plastica	
odore di animali da cortile	Fumo	
gas tossici	prodotti per la pulizia	
gomma da cancellare	irritanti	
resine		