Fan Services

Commercial Kitchen Extraction and Ventilation Experts

Email: info@fanservices.co.uk |
Website: www.fanservices.co.uk |
Office: 0203 539 1475| **After Hours:** 0759 500 3000 |

Oakmount House,

Winchester Road,

Chandlers Ford,

SO53 2LH

08/07/2024

KITCHEN EXTRACTION & ODOUR CONTROL SYSTEM PROPOSAL

Fan Services was asked to carry out a site survey and put together a proposal for the extraction system at the above address.

After concluding the odour risk assessment under the DEFRA guidance, the total score was 22 which leads to High level of odour filtration (please see attached Odour risk assessment).

The site will be serving breakfast type café:

Above the cooking equipment a stainless-steel extractor hood canopy, 2,500mm long x 1,500mm deep X 500mm High.

The canopy is manufactured in 304 grade with external dull polish grain and internal filter housing to removable/washable baffle type grease filters.

Baffle filters are the primary grease filters, of a re-usable stainless-steel baffle type design. There will be sufficient primary grease filters fitted to cover the complete length of the canopy face above the cooking ranges which are highly efficient at grease removal.

The ductwork from the top of extractor canopy hood will be connected to an odour filtration unit 3X12''X24''X24'' / 100KG heavy duty activated carbon filtration unit which is accommodated in a housing box with G4 Pleated Panel pre-Filters (carbon filtration has a dwell time of around 0.2 to 0.3 seconds, please see attached tech spec for carbon and pre filter).

The filter housing unit will be designed to ensure ease of access for maintenance and to provide a good seal around the filters to prevent gases bypassing the filters.

The third stage of filtration is ozone odour control units such as type UV-O 1000 which will inject ozone into the extract ductwork after the carbon filter box.

These will treat the odour emissions, via an oxidation reaction. This location closest to the source of the odours, will allow the maximum dwell time for the ozone to react with the emissions in the extract ventilation ductwork and ensure that adequate dilution takes place before the plume interacts with a receptor.

The ozone unit will be interlocked so that it only operates when the extract fan is operating. (please see attached tech spec for the UV-O 1000).

The ductwork then gets connected to Helios Giga box GBW 500 -4-4 insulated box extractor fan with transformer speed controller and overheat protection which will be located internally. (please see attached fan technical specification).

The fan will be mounted internally using anti vibration rubber mountings and connected to ducting using flexible connectors to eliminate vibration levels onto the ceiling.

The 350mm ductwork after the fan will exist the building and run up to the top of the building to terminate 1 meter over the roof with mesh discharge end. The ductwork system will have water drainage at the bottom to discharge all rain water.

A sound attenuator would be installed after the fan (atmosphere outlet side) type Acustica R02-05-900 to achieve the insertion loss as per the acoustic report. (Please see attached Sound attenuator details).

Ductwork access hatches to be installed every 1.5-meter centre for ongoing duct cleaning, there has to be sufficient access inside the building to allow the duct to be cleaned regularly.

The system will be designed and installed in accordance to DW172 and EMAQ Guidelines.

CLEANING AND MAINTAINCE SCHEDULE

1- Extractor hood canopy and baffle filters to be cleaned weekly.

2- TR19 extractor system, ductwork cleaning to be scheduled every 3 months.

3- Pleated G4 Panel Filters before the carbon unit to be replaced every 1 week.

4- Carbon units to be replaced every 3 months.

5- Ozone generator to be serviced every one year.

We hope this is of assistance and await your further instruction.

Kind regards

Jay Zen

Appendix 3: Risk Assessment for Odour

Odour control must be designed to prevent odour nuisance in a given situation. The following score methodology is suggested as a means of determining odour control requirements using a simple risk assessment approach. The odour control requirements considered here are consistent with the performance requirements listed in this report.

Impact Risk	Odour Control Requirement	Significance Score*
Low to Medium	Low level odour control	Less than 20
High	High level odour control	20 to 35
Very high	Very high level odour control	more than 35

* based on the sum of contributions from dispersion, proximity of receptors, size of kitchen and cooking type:

Criteria	Score	Score	Details
Dispersion	Very poor	20	Low level discharge, discharge into courtyard or restriction on stack.
	Poor	15	Not low level but below eaves, or discharge at below 10 m/s.
	Moderate	10	Discharging 1m above eaves at 10 -15 m/s.
	Good	5	Discharging 1m above ridge at 15 m/s.
Proximity of receptors	Close	10	Closest sensitive receptor less than 20m from kitchen discharge.
	Medium	5	Closest sensitive receptor between 20 and 100m from kitchen discharge.
	Far	1	Closest sensitive receptor more than 100m from kitchen discharge[1].
Size of kitchen	Large	5	More than 100 covers or large sized take away.
	Medium	3	Between 30 and 100 covers or medium sized take away.
	Small	1	Less than 30 covers or small take away[1].
Cooking type (odour and grease loading)	Very high	10	Pub (high level of fried food), fried chicken, burgers or fish & chips. *Turkish, Middle Eastern or any premises cooking with solid fuel*
	High	7	Vietnamese, Thai, Indian, *Japanese*, *Chinese, steakhouse*
	Medium	4	Cantonese, *Italian, French, Pizza (gas fired),*
	Low	1	Most pubs (*no fried food, mainly reheating and sandwiches etc*), *Tea rooms*[1]

Note 1: A planner may take a pragmatic view when assessing whether certain low risk kitchens require any odour abatement to be fitted. In reaching this decision the Planner may consider the nature of the food being cooked and/or the size of kitchen and/or its location.

AIRCLEAN

YOUR AIR FILTER MANUFACTURER

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Pleated Panel Filters

Applications

The Pleated Panel is a medium efficiency disposable filter, suitable for ventilation and air conditioning systems which require a higher efficiency and greater dust holding capacity than can be achieved with glass or synthetic panels.

The Pleated Panel can be used where glass panels are undesirable, such as in the food industry and hospitals.

Construction

Pleated filters consist of a dry non-woven fabric media, pleated to give an extended surface area, producing a low initial resistance for the same air volume.

The pleated assembly is contained within either a rigid all cardboard casing, or a cardboard frame with perforated cap-punch retaining grids.

Technical

Filter Classification:	Grade G4 to EN779.
Pleated Material Flamability :	Fire Resistant to :- Underwriters Laboratories Standard 900 class 2
Maximum operating temperature:	100°C (212°F)
Dust Holding Capacity:	840 g/m^2 (2") and 1260 g/m^2 (4") to EN779

Resistance to Airflow

Face Velocity										
m/s **fpm**	1.25 250		1.50 300		2.0 400		2.5 500		3.0 600	
Pressure Drop	Pa	"wg	Pa	"wg	Pa	"wg	Pa	"wg	Pa	"wg
2" Panel	22	0.09	27	0.11	50	0.20	70	0.28	-	-
1" Panel	25	0.10	30	0.12	55	0.22	75	0.30	87	0.35

Recommended discard resistance is 125 Pa (0.5"wg) in excess of clean resistances shown above for a 2" panel and 150 Pa (0.6"wg) for 4" panel.

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Capacity Chart (2" Pleated Panels)

Data based on Face Velocity of 2.5 m/s (500 fpm)

SIZE	SIZE	Flow Rate
OT Inches	Actual mm	m^3/s
10 x 10	242 x 242	0.14
12 x 12	289 x 289	0.20
15 x 15	369 x 369	0.33
18 x 18	445 x 445	0.48
20 x 10	495 x 242	0.29
20 x 16	495 x 394	0.48
20 x 20	495 x 495	0.60
25 x 16	620 x 394	0.60
25 x 20	620 x 495	0.76
24 x 12	594 x 289	0.43
24 x 20	594 x 495	0.73
24 x 24	594 x 594	0.88

Actual Face Size = Nominal Size less 6mm (0.25")

Capacity Chart (4" Pleated Panels)

Data based on Face Velocity of 3.0 m/s (600 fpm)

SIZE	SIZE	Flow Rate
OT Inches	Actual mm	m^3/s
10 x 10	242 x 242	0.18
12 x 12	289 x 289	0.25
15 x 15	369 x 369	0.41
18 x 18	445 x 445	0.60
20 x 10	495 x 242	0.36
20 x 16	495 x 394	0.58
20 x 20	495 x 495	0.73
25 x 16	620 x 394	0.72
25 x 20	620 x 495	0.91
24 x 12	594 x 289	0.51
24 x 20	594 x 495	0.87
24 x 24	594 x 594	1.05

Holding Frames and Casings

Holding frames and casings for Disposable Pleated Panels are available singularly or in multiples, and can be manufactured to suit non-standard sizes and special applications.
See leaflets (code AC8) for full technical information.

Code AC1/3b Ref 06/11

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Metal Cased Discarbs

The metal cased 'Discarb' cells have the highest carbon loading in our range, and have standard or heavy-duty carbon panels permanently sealed into a galvanised sheet steel casing. This construction gives a very strong unit capable of handling large air volumes or where conditions dictate, increased contact time. The advantage of this unit is that with panels sealed in, there is no possibility of air leakage. Also, these units can be manufactured to almost any reasonable size, the limiting factors being the overall weight for handling purposes and the size of individual panels. When the unit has finished its useful life it is discarded and replaced with a complete new cell.

Standard Duty Cells

Nominal Size	Actual Size mm	Number of	Carb.	Discarb	Airflow		Pressure
W x H x L	W x H x L	Panels	Weight	Weight	m^3/s	cfm	Pa
12"x 12" x 12"	292 x 292 x 292	6	5 kg	9 kg	0.10	212	75
12" x 12" x 18"	292 x 292 x 445	6	8 kg	14 kg	0.15	318	95
12" x 12" x 24"	292 x 292 x 597	6	10 kg	18 kg	0.22	466	140
18" x 18" x 12"	445 x 445 x 292	8	10 kg	17 kg	0.21	445	55
18" x 18" x 18"	445 x 445 x 445	8	15 kg	25 kg	0.31	657	70
18" x 18" x 24"	445 x 445 x 597	8	21 kg	33 kg	0.41	868	105
24" x 24" x 12"	597 x 597 x 292	12	20 kg	31 kg	0.41	868	70
24" x 24" x 18"	597 x 597 x 445	12	31 kg	45 kg	0.61	1292	90
24" x 24" x 24"	597 x 597 x 597	12	42 kg	59 kg	0.81	1716	130
12" x 24" x 24"	298 x 597 x 597	6	21 kg	35 kg	0.40	847	130

Extra Duty Cells

Nominal Size	Actual Size	No. of	Carb.	Discarb	Airflow		Pressure
W x H x L	W x H x L	Panels	weight	weight	m^3/s	cfm	Pa
12"x 12" x 12"	292 x 292 x 292	6	6 kg	10 kg	0.13	275	125
12" x 12" x 18"	292 x 292 x 445	6	9 kg	15 kg	0.20	424	175
12" x 12" x 24"	292 x 292 x 597	6	12 kg	20 kg	0.27	572	250
18" x 18" x 12"	445 x 445 x 292	8	12 kg	19 kg	0.30	635	95
18" x 18" x 18"	445 x 445 x 445	8	19 kg	28 kg	0.41	868	125
18" x 18" x 24"	445 x 445 x 597	8	25 kg	37 kg	0.54	1144	185
24" x 24" x 12"	597 x 597 x 292	12	25 kg	35 kg	0.54	1144	125
24" x 24" x 18"	597 x 597 x 445	12	38 kg	52 kg	0.80	1694	150
24" x 24" x 24"	597 x 597 x 597	12	51 kg	68 kg	1.06	2245	225
12" x 24" x 24"	298 x 597 x 597	6	26 kg	46 kg	0.53	1122	225

The company reserves the right to change the specifications without notice. E & OE.

Code AC6/2a Ref 02/09

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Technical

The capacities shown are based on a dwell time of 0.1 seconds .

For contact times of 0.3 seconds, reduce rated airflow to 1/3rd, pressure drop will also reduce to 1/3rd.

Max Temperature 40 Deg C

Max Humidity 80% RH

Non-standard sizes

Other sizes are available to suit individual requirements. Our Technical Department will be pleased to

The company reserves the right to change the specifications without notice. E & OE.

UV-O Range

Unlike other UV-C systems, our UV-O units are located outside of the kitchen extract duct and are connected via a spigot and spiral ducting.

Our UV-O range includes:-

- **UV-O 500 which handles up to 1 m³/sec of air flow**
- **UV-O 1000 which handles up to 2 m³/sec of air flow**

The UV-O 500 has been designed for smaller capacity commercial kitchens.

The UV-O range uses UV-C technology to produce ozone and hydroxyl free radicals to oxidise cooking odours through a process of ozonolysis.

Unlike other UV-C systems, our UV-O units are located outside of the kitchen extract duct and are connected via a spigot and small diameter ducting.

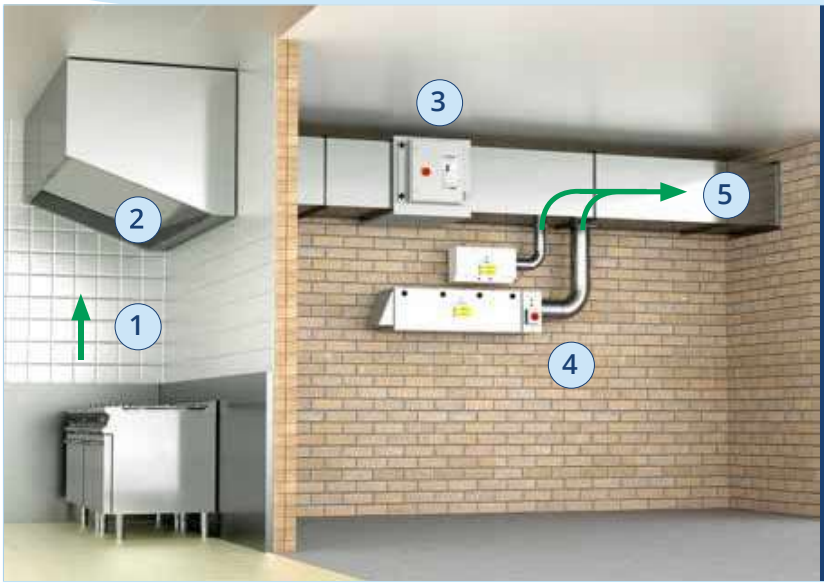
Although it is widely accepted that the best way to apply UV-C light is directly in-line with the air stream itself, performance will be impacted as the lamps become dirty.

With our UV-O units the air flow does not come from the exhaust duct but from the ambient air around the unit, which is filtered on entry. This means that it is able to provide a uniform supply of ozone and hydroxyl free radicals into the extract system with an extremely low pressure loss.

For optimum performance we would recommend between 2 & 6 seconds of dwell time to allow the ozone to work effectively upon the malodorous gasses within the duct.

Key Features

- **Easy to install**
- **Can be retro-fitted into existing duct**
- **Virtually no pressure loss**
- **No monthly maintenance needed**



1. Cooking particulates and odours
2. Canopy Grease Filter
3. ESP - Particulate Control Unit
4. UV-O 500 (above)
   UV-O 1000 (below)
   Odour Control Units
5. Ozone joins airflow

Technical Specification

	UV-O 500	UV-O 1000
Electrical Supply	220/240V 50Hz	220/240V 50Hz
Power Consumption	140 Watts	700 Watts
Max Air Volume	up to 1m³/sec	up to 2m³/sec
Dimensions	W 605mm H 300mm D 200mm	W 1568mm H 350mm D 363mm
Weight	10.5Kg	50Kg

This unit's tried and tested UV-C technology allows for the siting of commercial kitchens in locations such as residential areas and shopping centres, where previously planning permission may not have been granted. After extensive research and development Purified Air are able to devise the best combination of lamps to provide the most effective odour control.

Safety

Ultra-Violet band C light is the most powerful of the three bands, it is a very strong oxidant and as such exposure to UV-C light is dangerous. To ensure safety the UV-C lamps are secured behind locked panels and the system has been engineered to shut down automatically when these panels are unlocked. However, since the lamps typically have a minimum life of twelve months and with the system able to operate at optimum efficiency even if one lamp fails it is unlikely that, apart from routine servicing by experienced engineers, that the system will ever need to be opened.

UV-O 500 Unit

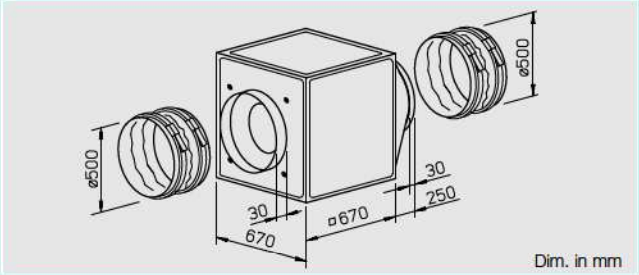
UV-O 1000 Unit

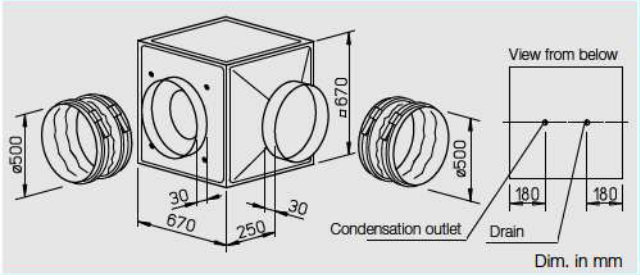
GB

Arbitrary installation position and flexible assembly by five possible discharge directions.

GB T120

Designed for moving dirty, humid and hot air up to max. 120° C.
Motor located outside the air flow.





■ Special features of types GB T120

- Designed for moving dirty, humid and hot air volumes up to max. 120° C.
- Motor located outside of air flow.
- Temperature insulated partition panel between motor and impeller, lined with 20 mm thick, flame-retardant mineral wool.
- Easily accessible motor and impeller unit, removable without disassembling the system components.
- Inspection cover with handle, simply remove for cleaning and maintenance.
- Condensate collector with condensate spigot included in delivery. Drill hole for rain drainage (accessories) for outdoor installation is prepared.

□ Assembly GB T120

Installation must be carried out with condensation discharge showing downward. Flexible assembly by three possible centrifugal discharge directions via the discharge adapter.
Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

■ Feature

□ Assembly of types GB

Arbitrary installation position and flexible assembly by five possible discharge directions via the discharge adapter.
For wall mounting the wall bracket (accessories) have to be used. Outdoor installation is possible using outdoor cover hood and external weather louvers (accessories).

■ Specification of both types

□ Casing

Self-supporting frame construction from aluminium hollow profiles. Double-walled side panels from galvanised sheet steel, lined with 20 mm thick temperature insulating and flame-retardant mineral wool. Intake cone for ideal inflow as well as spigot and flexible sleeve (for the respective max. permissible air flow temperature) for duct connection. With discharge adapter (from square to circular) on the pressure side for low-loss discharge and flexible sleeve to reduce vibration transmission. Simple positioning by standard crane hooks.

□ Impeller

Smooth running backward curved aluminium centrifugal impeller highly efficient and direct driven. Energy efficient with a low noise development. Dynamically balanced together with the motor to DIN ISO 1940 Pt.1 – class 6.3.

□ Motor

Maintenance-free external rotor motor or IEC-standard motor protected to IP 54. With ball bearings and interference-free as standard.

□ Electrical connection

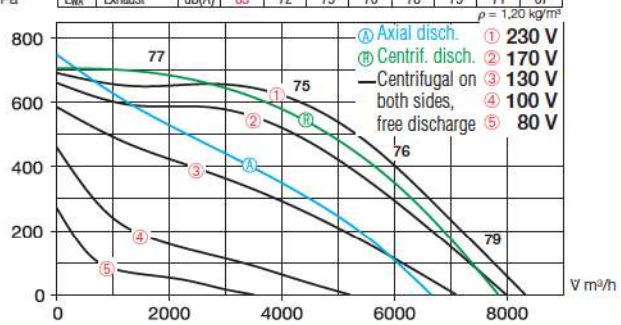
Standard terminal box (IP 54) fitted on the motor; with GB T120 fitted on the motor support plate.

Type	Ref. no.	Air flow volume (FID)	R.P.M.	Sound press. case breakout	Motor power (nominal)	Current full load	Current speed controlled	Wiring diagram	Maximum air flow temperature Full load	Maximum air flow temperature controlled	Weight (net) kg	5 step transformer controller with mot. protect. unit Type	Ref. no.	without mot. protect. unit Type	Ref. no.	Full motor protection unit using the thermal contacts Type	Ref. no.
		V m³/h	min⁻¹	dB(A) in 4 m	kW	A	A	No.	+°C	+°C	kg						
1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, protection to IP 54																	
GBW 500/4	5517	8321	1401	47	1.50	6.70	9.60	865	65	55	61	**MWS 10**	1946	**TSW 10**	1498	**MW** [1]	1579
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/△ wiring, protection to IP 54																	
GBD 500/4/4	5518	8000/9200	1075/1340	45	0.97/1.45	1.60/2.80	2.90	867	50	50	57	**RDS 7**	1578	**TSD 5,5**	1503	**MD**	5849
1 Phase motor, 230 V / 1 ph. / 50 Hz, capacitor motor, protection to IP 54																	
GBW 500/4 T120	5776	8345	1340	45	1.40	6.1	7.0	301	120	100	75	**MWS 10**	1946	—		—	
2 speed motor, 3 Phase motor, 400 V / 3 ph. / 50 Hz, Y/△ wiring, protection to IP 54																	
GBD 500/4/4 T120	5777	7320/8350	1120/1370	45	0.95/1.30	1.60/2.50	2.5	947	120	110	75	**RDS 4**	1316	**TSD 3,0**	1502	**MD**	5849

1) incl. operation switch

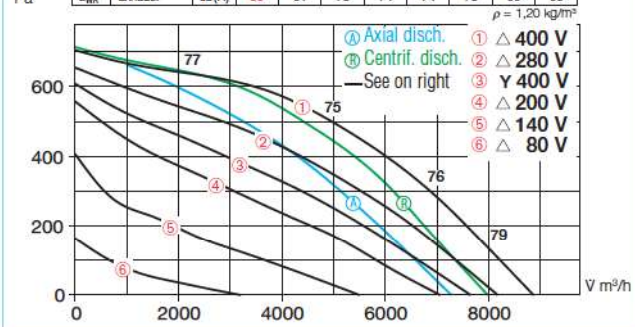
GBW 500/4

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Case breakout	dB(A)	67	64	63	53	52	50	46	40
L_{WA}	Intake	dB(A)	79	63	72	72	74	72	66	59
L_{WA}	Exhaust	dB(A)	83	72	75	76	78	75	71	67



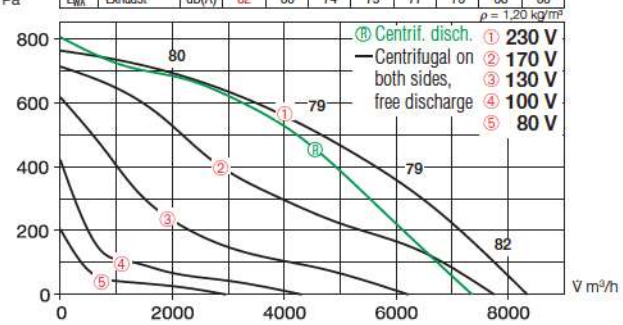
GBD 500/4/4

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Case breakout	dB(A)	65	59	62	57	56	47	41	33
L_{WA}	Intake	dB(A)	77	57	66	69	74	70	64	55
L_{WA}	Exhaust	dB(A)	80	61	73	74	74	73	69	60



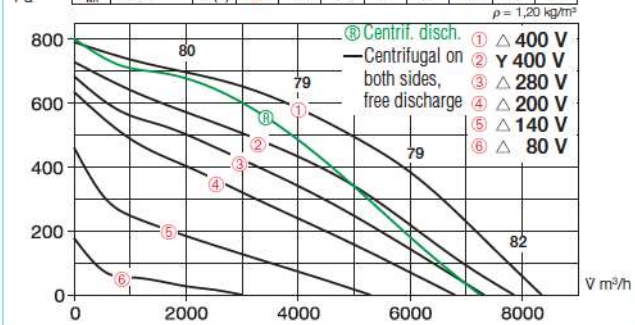
GBW 500/4 T120

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Case breakout	dB(A)	65	54	61	58	57	56	50	42
L_{WA}	Intake	dB(A)	79	65	71	73	72	73	68	58
L_{WA}	Exhaust	dB(A)	82	66	74	75	77	76	68	60



GBD 500/4/4 T120

Frequency		Hz	Total	125	250	500	1k	2k	4k	8k
L_{WA}	Case breakout	dB(A)	65	54	61	58	57	56	50	42
L_{WA}	Intake	dB(A)	79	65	71	73	72	73	68	58
L_{WA}	Exhaust	dB(A)	82	66	74	75	77	76	68	60



Motor protection

Motors have thermal contacts wired to the terminal block and must be connected to a motor protection unit.

Speed control

All types are speed controllable by voltage reduction using a transformer controller.
The 3-phase models can also be 2 speed controlled by star/delta switch (accessories DS 2 or full motor protection unit M 4). The duties at different speeds are given in the performance curve.

Sound levels

Total sound power levels and the spectrum figures in dB(A) are given for:

- Sound level case breakout
- Sound level intake
- Sound level exhaust

In the table below as well as underneath the performance curve you can find additionally the sound pressure levels at 4 m (free field conditions).

Accessories of both types

Anti vibration mounts for installation indoors. Set of 4.
SDD-U Ref. no. 5627

Wall bracket for wall mounting.
GB-WK 500 Ref. no. 5626

External weather louvers to cover exhaust opening.
GB-WSG 500 Ref. no. 5639

Outdoor cover hood for outdoor installation.
GB-WSD 500 Ref. no. 5748

On/Off and 2-speed switch for 3-phase Y/△ motors.
Type DS 2 [2] Ref. no. 1351

[2] full motor protection unit recommended: MD Ref. No. 5849

Specific accessories

for types GB
Condensate collector with condensate spigot for pipe connection.
GB-KW 500 Ref. no. 5644
(Condensate collector with condensate spigot included in delivery with GB T120).

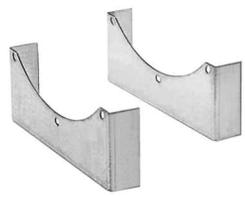
for types GB T120
Rain drainage for outdoor installation (drill holes for rain drainage is already prepared).
GB-RA Ref. no. 9418

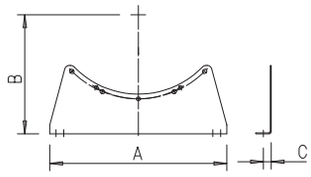
Information	Page
Information for planning	10 on
General techn. information, speed control	15 on

Accessory-Details	Page
Speed controller and full motor protection unit	525 on

MK

Dimensions in mm





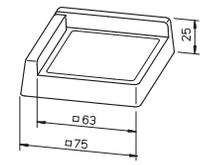
Mounting feet
To fix Axial/VAR cased fans on ceiling, wall or floor. Made from galvanised sheet steel or hot dipped galvanised steel. Fixing holes fit casing flanges.
Set includes a pair of feet, nuts and bolts.

Note:
If motors of high weight are installed, an extension duct (VR...) is recommended to move the centre of gravity within the mounting feet. Mount feet on the outer flange.

Type	Ref. No.	A	B	C	Weight in kg
MK 200-225	1446	310	208/220	20	1.5
MK 250-280	1447	340	227/245	20	1.7
MK 315-355	1448	380	281/300	25	2.2
MK 400-450	1449	360	311/335	25	2.6
MK 500-560	1450	570	383/415	25	5.3
MK 630	1333	600	465	30	8.5
MK 710	1372	670	515	35	10.5
MK 800	1373	680	565	35	15.5
MK 900	1374	760	625	35	18.0
MK 1000	1375	840	690	35	19.5

SDD-U

Dimensions in mm



Anti vibration pads
The rubber mounting pads SDD-U are suitable as a base for installation of fans on flat, horizontal surfaces. They reduce the direct noise and vibration transmission to the building structure.

One set consists of 4 elements, which are positioned individually under the corners of the fan unit.
Maximum compression:
40 kg/pad = total 160 kg.

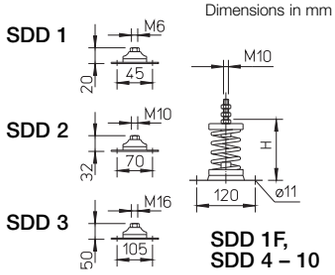
SDD-U Ref. No. 5627

SDD

Dimensions in mm

SDD 1 – 3

SDD 1F, 4 – 10



Anti vibration mounts for compression
To reduce noise and vibration transmission of fans installed on horizontal surfaces.
Simple installation in combination with feet MK (accessory). Select size according to fan weight see table).

Rubber elements are suitable for small to middle weights and ambients up to + 60 °C.
Spring elements are suitable for higher temperatures above + 60 °C (e.g. smoke extraction).

Type	Ref. No.	Maximum fan weight in kg	H Height in mm	Spring element	Contents 1 set = 4 pieces
SDD 1	1452	80	*		
SDD 1F	1942	70	112 – 82	●	
SDD 2	1453	180	*		
SDD 3	1367	750	*		
SDD 4	1944	130	112 – 86	●	
SDD 5	1924	210	112 – 86	●	
SDD 6	1926	400	112 – 80	●	
SDD 7	1928	580	112 – 82	●	
SDD 8	1930	900	112 – 82	●	
SDD 9	1934	1300	112 – 85	●	
SDD 10	1951	1800	112 – 88	●	

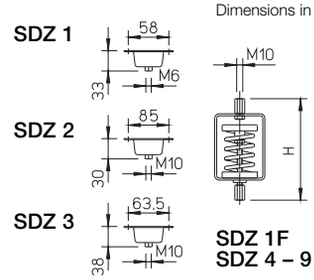
* shown in dimensional drawing

SDZ

Dimensions in mm

SDZ 1 – 3

SDZ 1F, 4 – 9



Anti vibration mounts for suspension
To reduce noise and vibration transmission of fans installed hanging from ceilings.
Specification as model SDD.

Important note for installation!
Make sure that fan system is well balanced (centre of gravity of heavy motor may cause uneven loading of mounts).

Type	Ref. No.	Maximum fan weight in kg	H Height in mm	Spring element	Contents 1 set = 4 pieces
SDZ 1	1454	60	*		
SDZ 1F	1943	70	190 – 220	●	
SDZ 2	1455	160	*		
SDZ 3	1366	300	*		
SDZ 4	1945	130	190 – 216	●	
SDZ 5	1925	210	190 – 216	●	
SDZ 6	1927	400	190 – 221	●	
SDZ 7	1929	580	190 – 220	●	
SDZ 8	1931	900	190 – 220	●	
SDZ 9	1935	1300	190 – 217	●	

* shown in dimensional drawing

R02
Rectangular Silencers

ACOUSTICA

R02 - 5 - Attenuator

Available in seven standard lengths R02 5 Rectangular Duct Mounted Silencers have excellent attenuation properties, achieved with sound absorbing infill splitters, retained in the attenuator casing by a perforated liner. The resistance to airflow is a function of the face velocity and length. It is not recommended to select the R02 5 Silencers with a face velocity above 3.5 metres per second without asking advice regarding re-generated self noise. We can advise on the selections and can perform system analysis to ensure the correct unit is specified.

- High performance rectangular duct silencer
- Seven standard lengths
- Many connection options
- Cross section dimensions in 1mm increments
- System pressure within ducted systems to 1500 Pa
- Special lengths on request

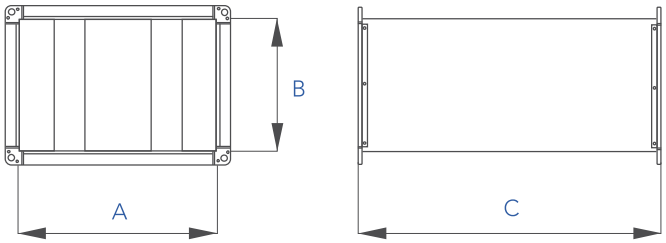
Insertion Loss (dB) - Centre Band Frequency

Product Code	Length (mm)	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
R02 - 5 - 600	600	4	6	11	19	24	23	18	12
R02 - 5 - 900	900	4	6	12	26	30	31	22	16
R02 - 5 - 1200	1200	5	9	18	32	40	39	28	19
R02 - 5 - 1500	1500	7	11	23	37	45	45	32	22
R02 - 5 - 1800	1800	8	13	25	44	50	50	37	24
R02 - 5 - 2100	2100	9	16	28	50	50	50	45	29
R02 - 5 - 2400	2400	11	19	33	50	50	50	50	32

Insertion loss data is derived from continual testing to BS4718 and other standards in independent UKAS certified laboratories, which includes where appropriate, re-generated or self noise testing in both forward and reverse flow conditions. If you request system analysis from our technicians all predictions will be assessed using the relevant certified insertion loss data together with relevant dynamic corrections.

Dimensional Data

Code	A Min	A Max	B Min	B Max	C Min	C Max
R02 - 5	100	1200	100	1200	400	2400



Resitance to Airflow (Pa)

Product Code	1.0m/s	1.5m/s	2.0m/s	2.5m/s	3.0m/s
R02 - 5 - 600	10	16	22	39	60
R02 - 5 - 900	10	16	23	40	62
R02 - 5 - 1200	11	16	24	40	64
R02 - 5 - 1500	11	17	25	40	66
R02 - 5 - 1800	11	18	26	42	67
R02 - 5 - 2100	12	19	26	43	69
R02 - 5 - 2400	13	19	28	48	71

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R02
Rectangular Silencers

ACOUSTICA

Material & Finish

All components are manufactured from mill finish hot dip galvanised mild steel conforming to EN10327 (BS2989). To prevent erosion of absorbing materials, the R Series Silencers are fitted with perforated splitters manufactured from galvanised mild steel conforming to EN10327 (BS2989) R Series Silencers utilise acoustic grade mineral fibre absorbing infill and are manufactured to the HVCA specification DW144 class B and M&E 100 for sheet steel thickness and stiffening.

Pressure Up to 1500 Pascals positive and negative.
Temperature -12° to +100°C.
Location Internally & externally mountable.

Melinex Lining (Optional)

Where moist conditions exist (e.g. process systems) or for critically clean applications (e.g. hospitals) the sound absorbing material may be required to be fully sealed by Melinex lining to prevent fibre migration. This will however, effect the acoustic performance of the silencer. Please contact us to discuss your requirements.

Alternative Specification

The above specification refers to our standard, stock range. We can also supply custom materials such as 304 and 316 grade stainless steels, cold reduced (CR4) mild steel and aluminium.

Dimensional Data

Units smaller than the minimum and larger than the maximum with the same aero-acoustic performances are available, but may have different manufacturing methods and are therefore coded accordingly.

Connection Options	
MEX Flanges	20, 30 & 40mm
Ductmate Flanges	25 & 35mm
Circular Spigot	"SPIRAL FIT" circular spigots, can be offset.
Rectangular Spigot	Rectangular spigots, can be offset
Raw	Plan end for slip jointing etc.

Installation

For recommendations for the support of the fan the principles of Part Six (pages 43-46) of the HVCA DW144 standard should be followed. Always use the correct size bolts as specified in the dimensional data table above. The arcuate holes are sized to allow the metric thread sizes to be utilised, for example, for an M10 fixing, the slot is made 19mm long by 13mm wide. Please contact us to confirm the suitability of any fan manufacturers product.

Equipment	Location
Centrifugal Fans	Position at least one duct width from inlet or outlet.
Axial Fans	Position at least one duct width from inlet or outlet.
Mixed Flow Fans	Position at least one duct width from inlet or outlet.
Ductwork Bends	Position at least three duct widths from inlet or outlet. One duct width will increase resistance by 90%, two by 20%. Ensure splitters are in parallel plane to bend.
Ductwork Reducers	Direct couple only with reducers of maximum 15° cheek slope.
Finned Coils & Filters	Leave 500mm plenum between silencer and coil or filter, and suitable reducer as specified in HVCA DW/144 1998.

Cleaning & Maintenance

Should the product require routine cleaning we recommend low-pressure air blasting, vacuuming or wiping the exposed surfaces with a damp cloth. It is not unusual for "White Zinc Oxide" to develop on galvanised silencers when the zinc in the galvanising reacts electrolytically with moisture. Silencers are of a passive nature and as such require no routine maintenance or lubrication.

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