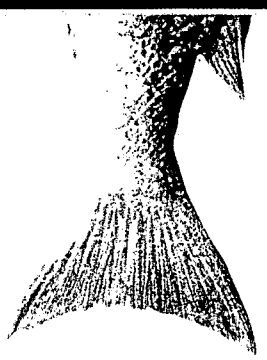
ARUN DISTRICT COUNCIL LU/32/09

THE FISH FACTORY™

Telephone 01903 207123
www.protorestaurantgroup.com

The freshest fish at honest prices



ARUN DISTRICT COUNCIL
No. LU 32 09
RECEIVED

REASERCH AND SUPPORTING INFORMATION

Opening Times:
7 days a week. 11.30am – 11.30pm
Kitchen open all day.

The Fish Factory
51-53 Brighton Road,
Worthing,
West Sussex BN11 3EE
www.protorestaurantgroup.com

worthing business awards celebrating success AWARD

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Who's Who of Britain's Business Elite ad honorem de excellentia 2009

FISHERMEN'S MISSION

The Fish Factory is a trading name for The Fish Factory UK Ltd registered in England. Company Registration No. 4642679 and VAT NO. 815 1183 54

ARUN DISTRICT COUNCIL LU/32/09

THREE CELL CARBHON FILTRATION AND DEODERISIN PLANT
BASIC INFROMATION

Introduction

Our Restaurants have been trading for nearly Twenty years. We find Carbon cell systems to be efficient and reliable. With over 15 years of experience with carbon filtration solutions on multiple sites we are confident that our new proposed system will provide minimal damage to air quality for our neighbors and surrounding areas.

Proposal

We are proposing to remove the exciting extraction. We have found this system to be unsafe, infective and a visual impairment on the building and on the area. We feel to reuse this extraction would not only be unsafe. It would be a poor statement of our company's dedication to our industry and the respect of our neighbors and communities quality of life. We wish to install a tested and proven system witch is currently in our Worthing site. This site is open seven days a week until 11pm. This system has been successful in a highly populated area with neighbors a few feet from our exit flew.

Proposed system

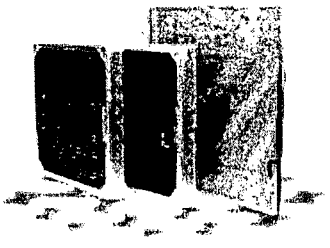
We would like to install internally a Three Cell Carbon Deodorizer and Grease Filtration Plant. Also a high level extraction point to be moved to a position so as not to be visible from the rear or the front of the building. The external flew to be painted or treated in such a coulor as to blend into the brick work. All ducting and housings to be fitted with sound reduction measures to be far within the required decibel output limits. The flew and extraction system to be included into the HACCAP management system and to be under a service and maintenance contract at all times.



GENRAL USE AND ABILITILTIES OF SYSTEAM

- Elimination of Cooking Odours
- Removal of Kerosene Exhaust Fumes
- General Odour Removal
- Smoke Removal
- Neutralization of Ammonia and its Derivatives
- Removal of Formaldehyde
- Removal of Airborne Pollutants and Contaminants
- Removal of Acid Gases (H2S, SO2, NOX, HCl)

THE CELLS AND APLICATION

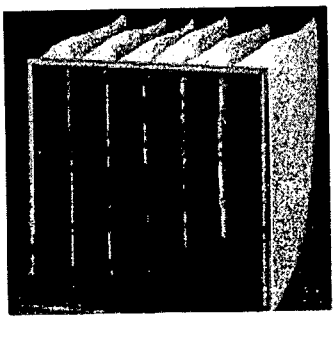


Stage 1

The **Kitchen Grease Filter** consists of a **Rigid Aluminium Frame**, with a knitted **Wire Mesh Filter Pad**, which is graded for maximum grease retention and **Weldmesh Facings** to both sides.

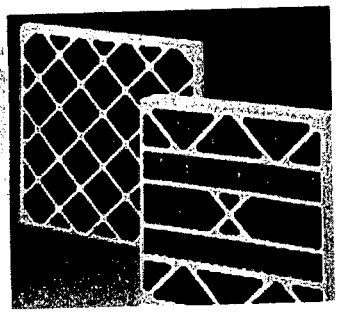
Stage 2

The **Odorsorb Filter** is a new innovation used to **improve indoor air quality** in buildings such as offices, public buildings, airports and industrial premises
The 2 in 1 design combines an **F8 pre Filter** with a **pleated media** which is heavily **impregnated with Carbon Granules** which readily **absorb** the **odours** and **smells** from the air as it passes through the filter
Because the **Odorsorb Filter** has its own built in **pre Filter** it can be used to replace **High Efficiency Bag Filters** in existing air handling units without the need for expensive modifications
The **Odorsorb Carbon Impregnated Bag Filter** is designed to **remove nuisance odours** and **smells** such as those emanating from nearby **restaurants**, **cafes** and **outside smoking areas**. It is also very effective at reducing and **removing unpleasant** and **hazardous pollution odours** caused by **traffic**, **aircraft**, **building sites**, **factories**, **landfill sites**, **sewerage works** etc



Stage 3

These **Cardboard Framed Filters** are designed for general ventilation requirements and represent economy in both initial and replacement costs. The

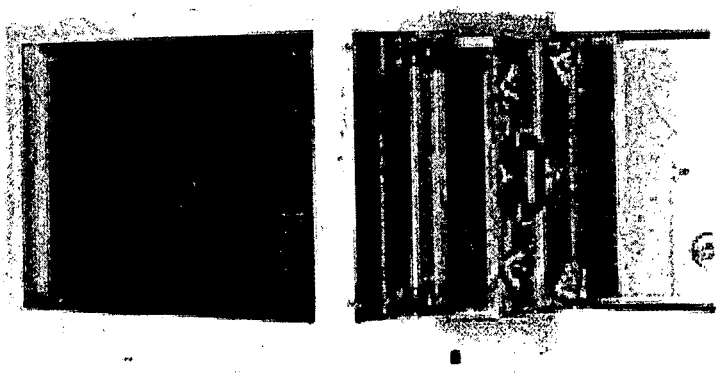


Frame and facia of each type of **Filter** is manufactured from water resistant AquaKote **Cardboard** and can be made with either a **Glass Fibre** (Type **AG**) or **Synthetic Media** (Type **AS**) core

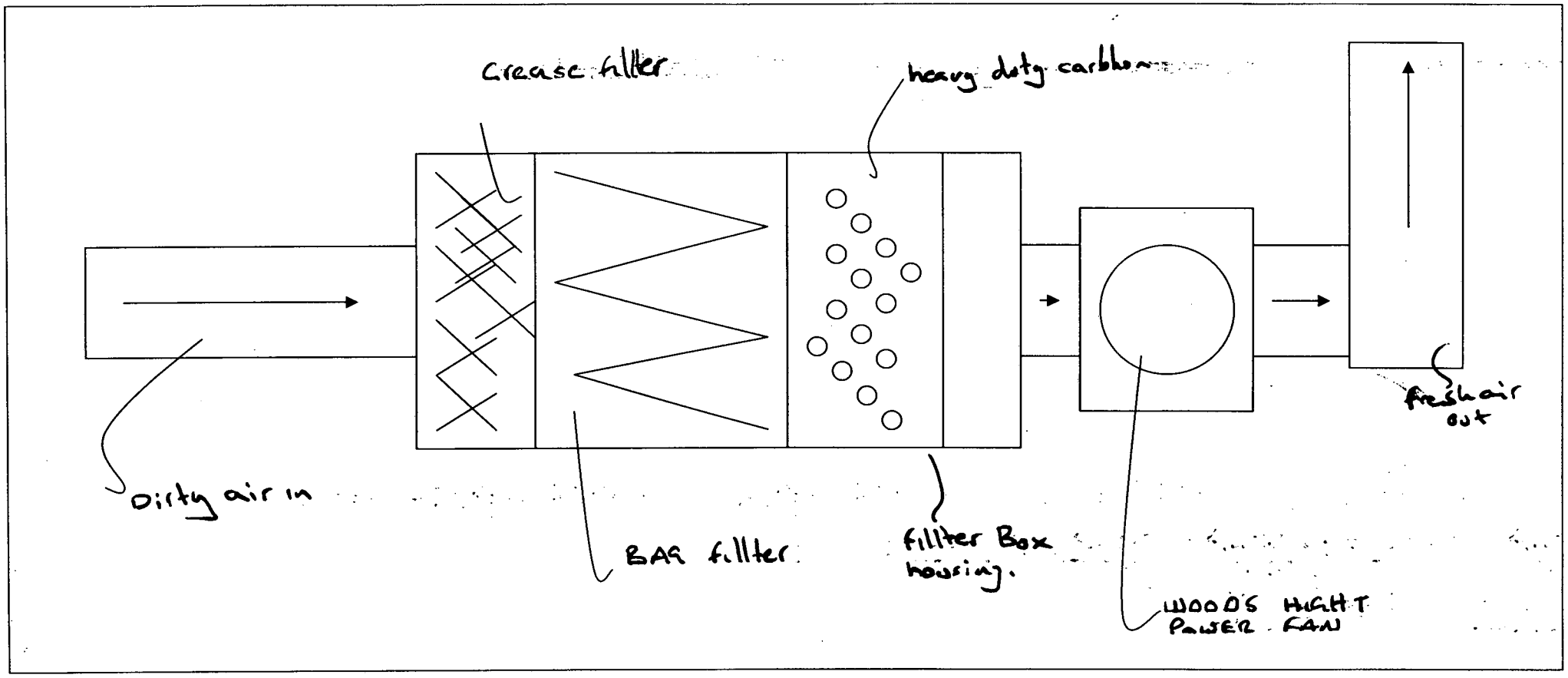
Each **Filter Frame** is programmed and cut by computer ensuring consistency of sizing and removing the need to use staples and tape during assembly.

Complete system should fit into a Wall mounted 600 x 600mm box and a run length of aprox1000mm .

Example diagram bellow



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General Layout

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RELATED DEFRA RESERCH.

Defra produced a document dealing with guidance towards extraction.

We have included a few pages which we feel supports our views and our successes of odor and flew management.

DISTRICT COUNCIL:LU/32/09/

Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems

This report was prepared by Netcen on behalf of Department for Environment, Food and Rural Affairs

January 2005

defra
Department for Environment
Food and Rural Affairs

ARUN DISTRICT COUNCIL LU/32/09

Department for Environment, Food and Rural Affairs
Nobel House
17 Smith Square
London SW1P 3JR
Telephone 020 7238 6000
Website: www.defra.gov.uk

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This document is also available on the Defra website.

Published electronically by the Department for Environment, Food and Rural Affairs, January 2005.

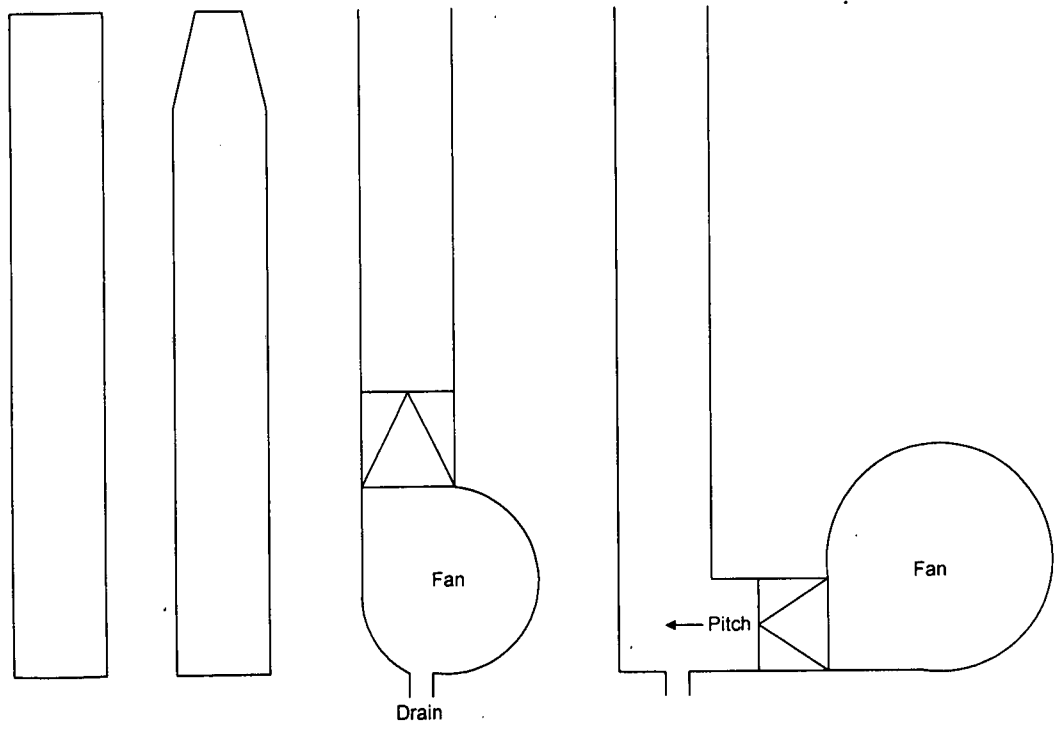
Product code PB 10527

- The height of external ground level should be taken into account when setting stack height. This is particularly important on rising ground where houses may be located above the discharge.
- A stack should be positioned to be as far as possible from the nearest residential accommodation.
- A stack discharging into a semi-enclosed area such as a courtyard or the area between back additions should be avoided.
- Use of Chinaman's hats or other cowls is not recommended.
- The prevailing wind direction should also be considered in the ducting positioning.
- The ducting should be rigid in construction and resiliently mounted.
- Large section ducts may need bracing or stiffeners to prevent drumming.

In certain instances restriction on stack height might arise, for example:

- Where an A3 premises is a listed building and a visible stack is prohibited;
- Where an A3 premises is located within a conservation area and a visible stack is prohibited; and
- Operators of the A3 premises do not have legal right to attach a stack to upper floors of building.

Figure 4.5 Examples of best stack design



impeded, e.g. in courtyard situations. Plate 10 (Annex E) provides an example of an odour neutralising system.

4.7.8 Stack

Inadequate height of the discharge stack is one of the main reasons the emissions from a kitchen gives rise to odour nuisance. The stack design is paramount to achieving good dispersion. Good stack dispersion requires:

- The effective stack height (discharge height plus plume rise) must be high enough to ensure that adequate dilution takes place before the plume interacts with a receptor.
- Discharge velocity influences the plume rise and therefore the effective stack height. The effective stack height can be estimated from:

  $\Delta H = 3W.d/U$

  where,

  W (m/s) is the efflux speed at the chimney top
  U (m/s) is the wind speed at the height of the stack
  d (m) is the internal diameter of the stack

  Ideally W/U should be greater than 4. If W/V is less than 1.5, then down wash will occur resulting in a reduced effective stack height.

- The discharge to be outside the wake of nearby buildings. Discharging ventilation air below a roof ridge may result in excessive entrainment within building down wash. In certain situations, the use of high velocity discharge systems can force the discharging plume out of the building wake.
- The flow to be unimpeded. Cowls can increase the static pressure, noise, potential down draught and risk of re-entry of the exhaust back into the building. Alternative stack terminals are available and include:
- terminals without integral drains e.g. reducing cone, solid top cones; and
- terminals with integral drains e.g. open top cone and drain, induction types and sleeve type.
- Straight and vertical discharge.

Figure 4.5 shows examples of best stack design.

Guidance on stack requirements for commercial kitchens varies between Local Authorities. The range of guidance issued by Local Authorities is summarised below:

- Guidance on the minimum stack height ranges from:
- 1 m above the eaves of the premises and/or above any dormer window;
- 1 m above ridge height of any building within 15 m; and
- low level discharge should be avoided.

4.7.9 Summary of grease and odour mitigation measures

The advantages and disadvantages of various odour mitigation approaches are summarised in Table 4.8.

Table 4.8 Summary of odour mitigation measures that can be applied to treat kitchen ventilation air

	Advantages	Disadvantages
Grease filters	• Filters are easy to clean and maintain	• Performance rapidly decline if not regularly maintained and cleaned
Fine or pre-filters	• Low capital cost • Filter change easily carried out • Low-tech alternative to ESP	• Regular replacement required • No gaseous odour removal • High pressure drop
ESP	• Low pressure drops • Effective down to very small particle size	• High capital cost • No gaseous odour removal • Potential fire risk • High voltage safety hazard • High-tech equipment requiring specialist maintenance
Carbon adsorption	• High efficiency up to 95% under optimum conditions • Moderate operating costs • Relatively low capital cost • Simple design	• Filter blockage requires regular replacement • Efficiency decreases with use • Not effective against particulate components • Temperature of input must be below 40°C • Sensitive to high moisture above 75%RH • Constant and detailed maintenance required
In-line Ozone and UV systems	• Minimal pressure drop • Effective	• Requires pre-filtration • High capital cost • Dilution and dispersion of residual necessary high energy usage • Long residence time required
Odour counteraction and neutralisation	• Minimal pressure drop • Minimal maintenance	• Requires pre-filtration • High capital cost • Dilution and dispersion of residual necessary • Efficacy for aromatic cooking sources questionable
Wet scrubbing	• Very effective at controlling specific odours (70-80% removal)	• Very high capital cost • Very high operating cost • Relatively high pressure drop

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						On going problem improvements included: • Stack height raised to 1m above roof eaves; • Use of pre-filters; • Use of two carbon filters; and • Detailed maintenance schedule.
Metropolitan	General advice		1 m above ridge height of any building within 15 m, no cowl allowed.			Most problems occur where stack height is too short and discharge is restricted by mushroom cowl. Review cooking operation e.g. change fat more frequently. No restriction permitted, allowed to use American cowl. If problem remains then filtration required: • Fabric filter; • Fabric filter and charcoal filter; • Fabric filter, charcoal filter and ESP; or • Fabric filter, charcoal filter, ESP and odour neutralising agent (this can cause a problem in itself). Need to rate fan to meet demand of back pressure.
Urban – various	General advice					Local guidance note giving recommended construction and equipment etc. for A3s.
Urban	General information gathering					Local guidelines on information to be submitted as part of planning application for A3.
Metropolitan – various	General advice					Local guidance note giving recommended construction and equipment etc. for A3s.
Rural - various	General advice					Local guidance note giving recommended construction and equipment etc. for A3s.

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Jelf Group plc

To whom it may concern

Our ref: 776762

17 September 2007

We are insurance brokers for Jasun Filtration PLC and have pleasure in outlining details of their up to date insurance covers as follows:

Business description:	**Industrial Air Filter Manufacturers**
Employers' Liability	
Insurer:	**AIG Europe (UK) Ltd**
Policy no:	**088523518**
Indemnity Limit:	£10,000,000 any one occurrence
Period:	09/07/2007 to 08/07/2008
Public & Products Liability	
Insurer:	**AIG Europe (UK) Ltd**
Policy no:	**088523518**
Indemnity limit	£10,000,000 any one occurrence for Public Liability and any one period of insurance for Products Liability
Indemnity to principal	Yes/No
Excess:	£250 each and every claim for Third Party property damage. £500 each and every claim where the use of heat work is involved.
Period:	09/07/2007 to 08/07/2008

The policy is subject otherwise to the Insurer's standard terms, conditions and exceptions.

The information provided is based on the insurance arrangements at the time of writing. Alterations may be made during the period of cover. Any renewal date shown represents the normal renewal date of the policy. In some circumstances, such as non-payment of premium, cancellation could occur before the normal renewal date. We will be pleased to confirm the current position upon request.

On behalf of Jelf Insurance Brokers Ltd

17/09/2007

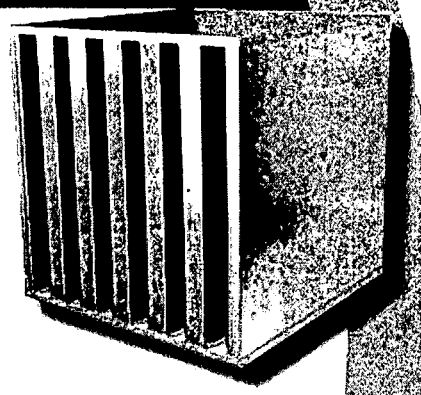
Jelf Insurance Brokers Ltd
34 Devon Square, Newton Abbot, TQ12 2HH Tel: 01626 336332, Fax: 01626 351772

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ARUN DISTRICT COUNCIL:LU/32/09/

JASUN FILTRATION PLC

Carbon Filter Solutions



Jasun Filtration are able to offer tailored solutions to gas and odour problems with its wide range of carbon filters, filter housings and testing services.

Typical Applications

- Elimination of Cooking Odours
- Removal of Kerosene Exhaust Fumes
- General Odour Removal
- Smoke Removal
- Neutralisation of Ammonia and its Derivatives
- Removal of Formaldehyde
- Removal of Airborne Pollutants and Contaminants
- Removal of Acid Gases (H_2S, SO_2, NOX, HCl)

Filter Types

MultiCarb Cells - these are fully disposable (discarb) multi panel modules which allow for simple integration into filter housings, either our own, or our customers own.

Single Panels - these are available from 12mm to 150mm thick in any carbon grade, also as combination grades suitable for fume cabinets and mixed gas applications

Adcell Modules - these are plastic re-usable cells which offer the versatility of any carbon grade and the cost effectiveness of re-use. These cells are lighter than the multicarb cells and should be seriously considered when the application calls for difficult access for filter changes.

Netapleat RPC - Plastic Cased Rigid Bag Filters

CB Bag Filters - Carbon Impregnated pocket filters

Enviropleat Panel Filters - Carbon Impregnated pleated Panel Filters

ENVIRONMENT QUALITY

EMS 81914
BS EN ISO 14001:2004

FM 29257
BS EN ISO 9001:2000

Jasun Filtration Plc
Riverside House, Parrett Way
Bridgwater, Somerset.
TA6 5LB
United Kingdom

Tel..: +44 (0) 1278 452277
Fax: +44 (0) 1278 450873
Info@jfilter[illegible]
Http://www[illegible]com

ARUN DISTRICT COUNCIL:LU/32/09/

Toxic Gas Measuring

Jasun Filtration are able to accurately measure the levels of toxic gasses in any airflow using the latest Photo Ionization Detector (PID) sensors and electrochemical specific gas sensors .

This information is absolutely vital when deciding what remedial measures need to be taken in the work place to ensure compliance with COSH regulations. We are also able to re-test the air after any new gas extraction equipment has been installed to prove its effectiveness.

Using this service will allow you to have a tailored solution, and to provide proof positive where necessary as to the effectiveness post application of any remedy

Industrial and Domestic Applications:

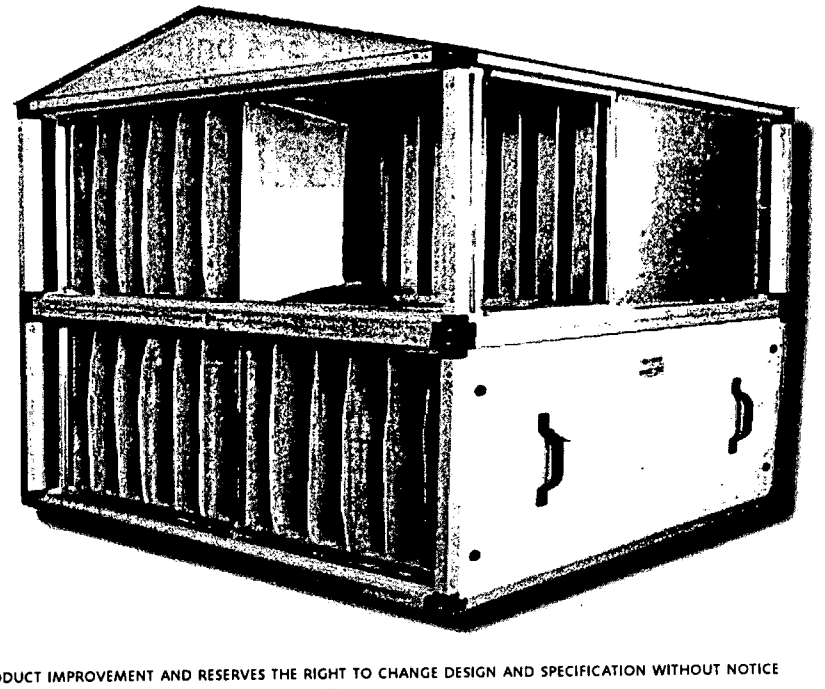
Cooker Hoods and Kitchen Extraction
Airport Air Conditioning/Heating Systems
Public and Office Buildings Air Conditioning/Heating Systems
Smoking Rooms
Industrial and Chemical Processing
Poultry Farms
Fertiliser Manufacture
Sewage Treatment
Plastics Industry
Hospitals
Funeral Parlours
Fume Hoods
Air Filtration Systems for Libraries, Art Galleries and Museums
Pulp and Paper Mills
Oil Refineries

Toxic Gas and Odour Control applications include:

Food processing
Brewing
Medical facilities/laboratories
Sewage treatment plants
Nuclear
Foam treatment
Petrochemical
Rubber moulding

Solvent Emission Control, industries covered by this would include;

Printing
Pharmaceutical
Chemical
Pesticide
Converting
Adhesive
Paint, varnish and ink
Magnetic media
Electronics



FILTER HOUSING COMPLETE WITH MULTICARB CELLS, PRE-FILTERS AND ALL WEATHER ROOF

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BULLETIN 220307/2/A

ARUN DISTRICT COUNCIL:LU/32/09/

EXTRACTION FAN

For any extraction system to be successful you require a high output fan. We have chosen Woods 630 JM. This fan is known as the best in the industry.

We have chosen a high output fan for two main reasons

1 . The elimination of odours is assisted buy the height of extraction and also the push or velocity the treated air leaves the exit point. This fan will allow us even at low speeds a drive of about 2 meters from exit cowl.

2. The woods fan must be strong enough to pull the air through the three cell system we are installing a lesser fan would fail to pull grease and particles with dour thou the flitters resulting in fire and internal contamination.

The dBA output from this fan reaches mid 60 dBa. We will allow an (SRI) of aprox 47dBA for a typical wall.
This should show no output noise over 30Dba (rw) will spill outside the building.
Ref: Gypsom white book & Besbock block work sound table. Enc.

We will also be using CBM or similar sound and vibration minimising fitting where ever possible on the extract housing and external wall fittings
Enc

ARUN DISTRICT COUNCIL:LU/32/09

JM High Temperature

- Designed for emergency ventilation of hot fire smoke applications
- 300°C or 400°C for two hours operation, CE marked to EN12101-3 2002
- Sizes from 315mm to 1000mm
- All casings are hot dipped galvanised
- Volume flows up to 21m³/s
- Static pressures up to 600 Pa
- Motor protection IP55
- Inverter controllable for ambient temperatures.



Sizes

31JM - (315mm) to 100JM - (1000mm).
Other sizes are available on request

Fan Performance

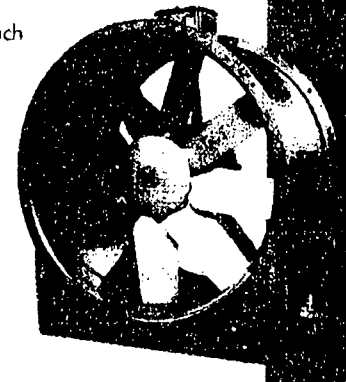
All fans are tested to the latest internationally recognised standard ISO5801 Part 1, installation category D for aerodynamic performance and BS848 Part 2 (1985) for acoustic performance.
Coupled with a wide range of diameters, the adjustable pitch Aerofoil impeller gives the exact performance required, with a non overloading fan characteristic.

Impellers

A unique high efficiency aerofoil section blade with a purposely smoothed hub and clamp plate for adjustable pitch angle availability.
The Fläkt Woods impellers are all high pressure die cast to offer thin aerofoil sections for low generation of noise.
Every cast aluminium component is X-ray examined using Real Time Radiography inspection prior to assembly.
The maximum pitch angles shown allow for speed control by frequency inverter.

Motors

Fläkt Woods H.T. Series fans utilise a totally enclosed squirrel cage motor.
The grades of motor insulation have been selected to meet the specific requirements for each of the H.T. Categories.
These motors are suitable for inverter speed control down to 20% of full speed.



Electrical Supply

400V / 50Hz / 3ϕ

Temperature Range

Fans are tested in compliance with high temperature test standard directive 89/106/EEC to EN 12101-3, and are fully CE marked accordingly.
Fläkt Woods H.T. Series fan motors are sized to run the fans continuously at normal ambient temperatures (-40°C to 50°C), as well as operating at their emergency high temperature category.
(Starting temperature down to -20°C)
Standard 3ϕ fans can be offered for a one off emergency operation at 200°C for 2 hours.
Note: During emergency use, inverter should be overridden for full speed.

Casings

JM HT Aerofoil fans are available in long cased form, complete with an externally mounted pre-wired electrical terminal box.

Casings are spun from sheet steel with integral pre-drilled and radiused inlet flanges.
The galvanised finish gives a high resistance to corrosion and is ideal for external as well as internal use.

Accessories

Silencers, Mounting feet, Spring type vibration isolators, Matching flanges, Flexible connectors, Air operated non return dampers, Guards, Bell mouth inlets.

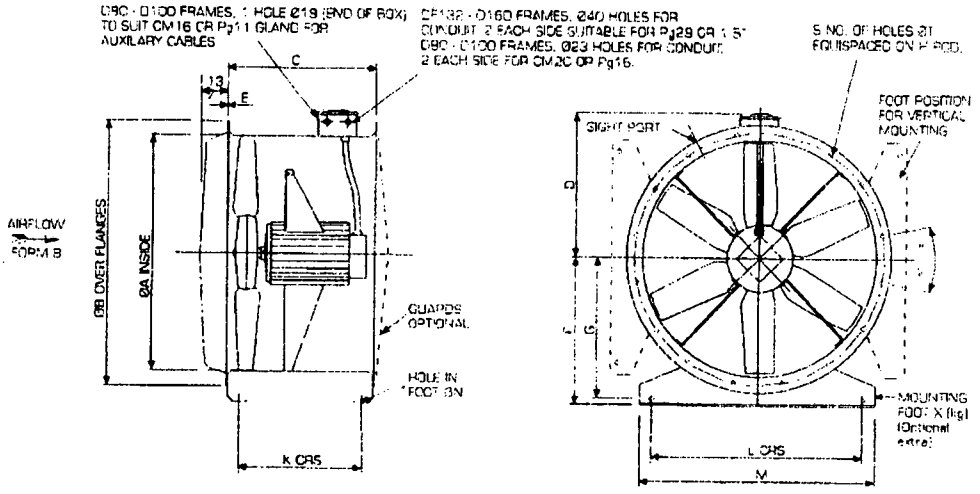
FläktWoods

ARUN DISTRICT COUNCIL:LU/32/09

JM HT 400/2

Dimensions

Long Cased



Product Code	Motor Range	A	B	C	D	E	G	H	K	L	M	N	P	S	T	X (kg)	Max. Fan Weight (kg)
Long Cased																	
31JM/16/2/5/...	D80	315	395	375	235	2.5	175	355	239	265	315	10	200	8	10	0.8	27
35JM/16/2/5/...	80	355	435	375	256	2.5	200	395	289	305	355	10	225	8	10	1.1	28
40JM/16/2/5/...	80	400	480	375	278	2.5	225	450	289	350	400	10	250	8	12	1.2	30
63JM/20/4/6/...	90L	630	724	520	403	3	375	690	434	580	630	10	400	12	12	2.5	75
71JM/25/4/9/...	100L	710	804	520	443	3	415	770	404	660	710	10	440	16	12	4.5	87
80JM/25/4/9/...	112M	800	894	520	525	5	485	860	400	750	800	12	510	16	12	5.8	112
80JM/25/4/8/...	132	800	894	520	525	5	485	860	400	750	800	12	510	16	12	5.9	192
90JM/25/4/5/...	132M	900	1006	520	575	5	491	970	440	850	900	12	518	18	15	5.9	200
100JM/31/4/6/...	132M	1000	1106	520	625	5	547	1070	444	950	1000	12	574	16	15	6.2	226
100JM/31/4/9/...	D160	1000	1105	525	525	5	547	1070	545	950	1000	12	574	16	15	6.2	288

All dimensions shown in mm.

For a full range of accessories including silencers, speed controllers and mountings, please refer to page 33.

ARUN DISTRICT COUNCIL:LU/32/09

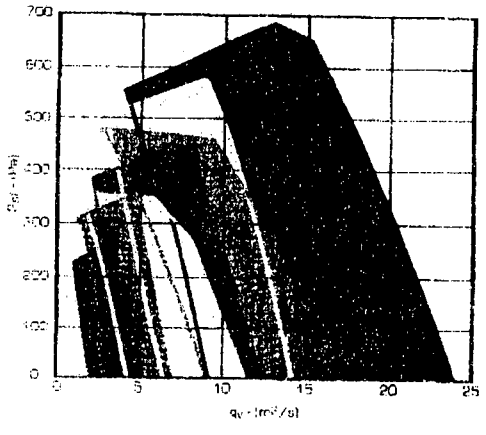
JM HT 400/2

Performance

4 Pole

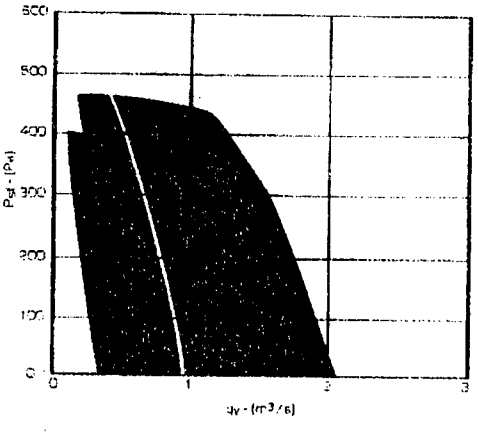
63JM/20/4/6/... 71JM/25/4/9/... 80JM/25/4/6/... 80JM/25/4/9/...

90JM/25/4/9/... 100JM/31/4/6/... 100JM/31/4/9/...



2 Pole

31JM/15/2/5 35JM/15/2/5/... 40JM/15/2/5/...



Product Code	Speed rev/min	m3/s at Ps (Static) 0	50	100	150	200	250	300	400	500	600
31JM/15/2/5/...	2840	1.25	1.18	1.15	1.05	1.01	0.93	0.85			
35JM/15/2/5/...	2840	2	1.93	1.6	1.82	1.73	1.65	1.55	1.27		
40JM/15/2/5/...	2840	2.8	2.51	2.42	2.35	2.27	2.18	2.08	1.88	1.61	
63JM/20/4/6/...	1420	4.9	4.9	4.3	4.1	3.9	3.4				
71JM/25/4/9/...	1440	6.9	6.6	6.4	6.2	6	5.7	5.4	4.5		
80JM/25/4/6/...	1440	10.9	10.4	9.9	9.25	8.65	7.75				
80JM/25/4/9/...	1440	10.9	10.3	10	9.8	9.3	9	8.6	7.9		
90JM/25/4/6/...	1440	14.9	14.5	14	13.8	13.2	13	12.3	11.3	10.8	
100JM/31/4/6/...	1440	17	18.5	16	15.3	14.5	13.7	13	11.4	11	10
100JM/31/4/9/...	1470	20.4	19.6	19	18.7	18.4	18	17.5	16.4	15.5	14.4

Electrical Data

Product Code	Speed rev/min	Motor	380-420V/50Hz/3φ Product Number	Pitch Angle (°)	Motor Rating (kW)	Full Load Current (at 400V) (A)	Starting Current (at 400V) (A)	Speed Controller Inverter	Sound Level dBA
31JM/15/2/5/...	2840	90L	EF349242	40	0.9	1.91	9.2	FWD1	61
35JM/15/2/5/...	2840	80	EF389240	40	1.75	3.65	19.3	FWD2	66
40JM/15/2/5/...	2840	80	EF439241	32	1.73	3.65	19.3	FWD2	66
63JM/20/4/6/...	1420	90L	EF669442	28	1.8	3.9	24.9	FWD2	61
71JM/25/4/6/...	1440	100L	EF749443	28	3.6	7.70	48.4	FWD4	68
80JM/25/4/6/...	1440	112M	EF839445	28	4.8	9.2	58.9	FWD5	69
80JM/25/4/9/...	1440	132S	EF839444	28	6.5	12.6	94.4	FWD6	71
80JM/25/4/6/...	1440	132S	EF839442	34	6.5	12.6	94.4	FWD8	69
90JM/25/4/6/...	1400	132M	EF839446	36	8	17	114	FWD7	71
90JM/25/4/9/...	1440	132M	EF839440	28	11	21.0	140.7	FWD8	75
100JM/31/4/6/...	1440	132M	EF139449	24	11	21.0	140.7	FWD8	81
100JM/31/4/6/...	1470	160L	EF139447	28	15	35	175	FWD9	98
100JM/31/4/9/...	1470	180L	EF139453	36	27	48.8	283.9	VLT6042	86

Sound pressure levels quoted are average dBA at 3m distance over a sphere, under free field conditions and are presented for comparative purposes only. Performance shown at emergency operating temperatures. For short cased fans please enquire.



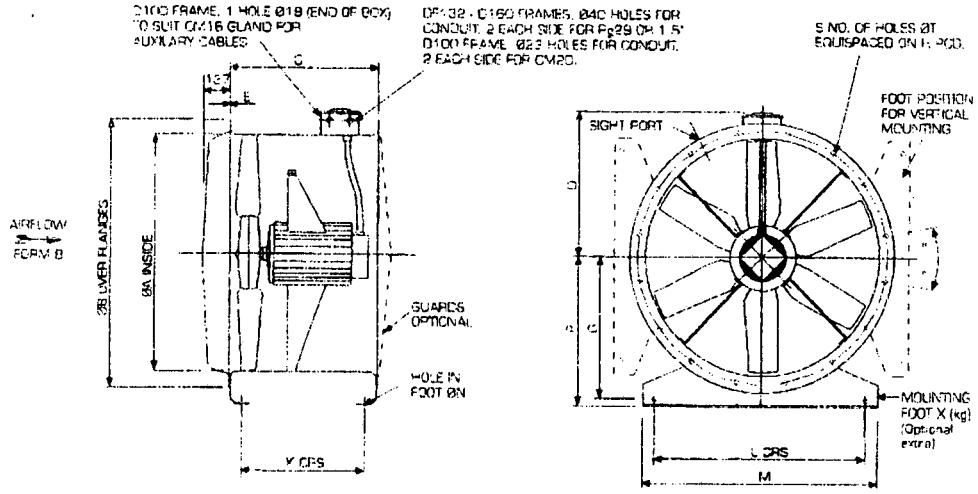
products available on 10 day despatch

ARUN DISTRICT COUNCIL:LU/32/09/

JM HT 300/2

Dimensions

Long Cased



Product Code	Motor Range	A	B	C	D	E	G	H	K	L	M	N	P	S	T	X (kg)	Max. Fan Weight (kg)
Long Cased																	
31JM/16/2/5/...	80	315	395	378	235	2.5	175	355	289	365	315	10	200	8	10	0.8	27
40JM/16/2/5/...	80	400	480	378	279	2.5	225	450	289	350	400	10	250	8	12	1.2	30
63JM/20/4/6/...	100L	630	724	520	402	3	375	690	434	580	630	10	400	12	12	2.5	75
71JM/20/4/6/...	100L	710	804	520	443	3	415	770	404	660	710	10	440	16	12	4.5	87
80JM/25/4/9/...	132M	800	894	520	525	5	485	860	430	750	800	12	510	16	12	5.8	152
90JM/25/4/9/...	132M	900	1003	520	575	5	491	970	440	850	900	12	518	16	15	5.3	206
100JM/25/4/9/...	160L	1000	1108	625	625	5	547	1070	545	950	1000	12	574	16	15	8.2	268

All dimensions shown in m.m.

For a full range of accessories including silencers, speed controllers and mountings, please refer to page 33

ARUN DISTRICT COUNCIL:LU/32/09/

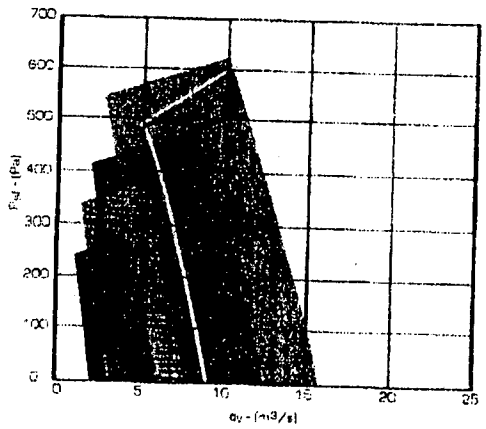
JM HT 300/2

Performance

4 Pole

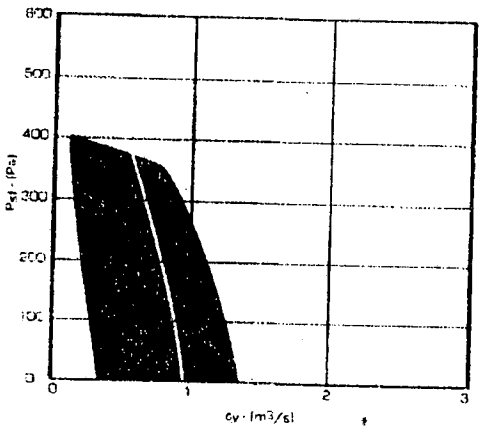
63JM/20/4/6/ 71JM/20/4/6/ 80JM/25/4/5

90JM/20/4/9/.. 100JM/25/4/9/...



2 Pole

31JM/16/2/5/ . 40JM/16/2/5/...



Product Code	Speed rev/min	m³/s at Ps (Static)									
		0	50	100	150	200	250	300	400	500	600
31JM/16/2/5/.	2840	1.2	1.25	1.2	1.1	1.05	1	0.38			
40JM/16/2/5/.	2940	2.6	2.5	2.4	2.3	2.25	2.2	2.1	1.8	1.6	
63JM/20/4/5/.	1420	5.4	5.1	4.9	4.7	4.4	4.2				
71JM/20/4/6/.	1440	7.8	7.7	7	8.8	9.5	6.1	5.8			
80JM/25/4/6/.	1440	12.2	11.9	11.5	11	10.4	10.1	9.8	8.3		
90JM/25/4/9/...	1440	16	15.7	15.5	15.2	14.8	14.5	14	13	12	11
100JM/25/4/9/..	1470	20.4	19.6	19	18.7	18.4	18	17.5	16.4	15.5	14.4

Electrical Data

Product Code	Speed rev/min	Motor	380-420V/50Hz/3ø						Sound Level dBA
			Product Number	Pitch Angle Max (°)	Motor Rating (kW)	Full Load Current (at 400V) (A)	Starting Current (at 400V) (A)	Speed Controller Inverter	
31JM/16/2/5/.	2840	80	EF349232	40	0.9	1.9	9.2	FWD1	39
40JM/16/2/5/.	2940	80	EF439230	32	1.73	3.65	19.3	FWD2	48
63JM/20/4/6/.	1420	100L	EF659432	36	3.6	7.04	38.7	FWD4	83
71JM/20/4/6/.	1440	100L	EF749431	30	3.6	7.04	38.7	FWD4	65
80JM/25/4/6/.	1440	132M	EF839433	36	9	17	114	FWD7	71
90JM/20/4/9/.	1440	132M	EF939431	30	12.1	23.2	131	FWD8	70
100JM/25/4/6/.	1470	160L	EF1039435	28	18	34.9	170.7	FWD9	81

Sound pressure levels quoted are average dBA at 3m distance over a sphere, under free field conditions and are presented for comparative purposes only.

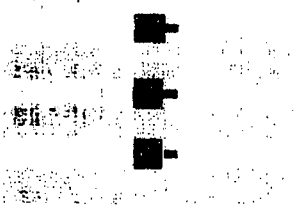
Performance shown at emergency operating temperatures.

For short cased fans please enquire



Products available on 10 day despatch

3.4 ACOUSTIC WALL FIXINGS



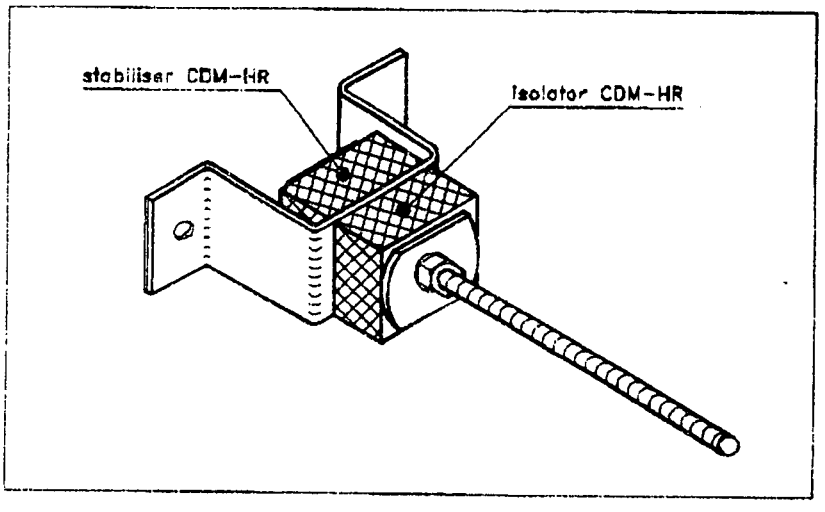
CDM-ISO-WH

1. APPLICATIONS

The **CDM-ISO-WH** suspension elements are acoustic fixings made to fix a structure to the wall avoiding stiff contacts. A **CDM-ISO-WH** suspension element is conceived in such a way that every stiff contact between the suspended wall and the existing wall is eliminated. In this way a mass-spring-mass system is created that considerably reduces noise transmission.

2. CDM PRODUCTS AND SYSTEMS

The **CDM-ISO-WH** element consists of two basic elements, made of CDM-HR material. The first part is the isolator element, the CDM bearing that ensures the isolation effect and the second part is the stabiliser element, the CDM bearing that decouples the precompression bolt from the equipment. A steel plate regulates the load-distribution of the precompression force over the bearing. No washer is required as the CDM-HR material is squeezed inside the element avoiding all direct contact between the precompression bolt and the separating steel plate. All the metal parts of the suspension element are made of stainless steel (specifications on demand). The hangers are available with straight threaded rod (for dry wall constructions) or with a hook (for wet wall constructions).



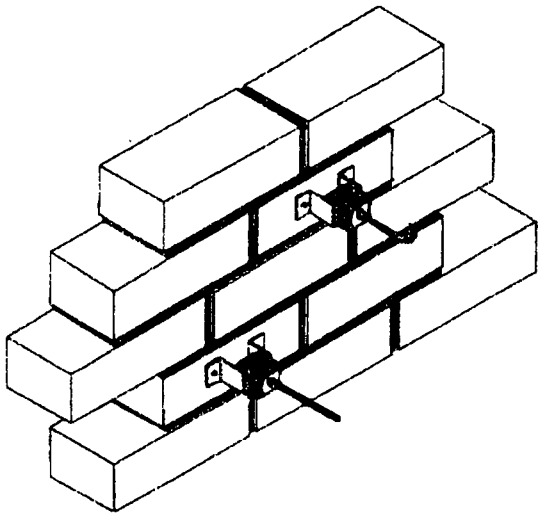
3. PERFORMANCE

The **ISO-WH** elements have a dynamic stiffness of 0.39 MN/m (measured as described in Applied Acoustics 58 p. 51-68 (1999)) which is far below the advised value of 1.7 MN/m

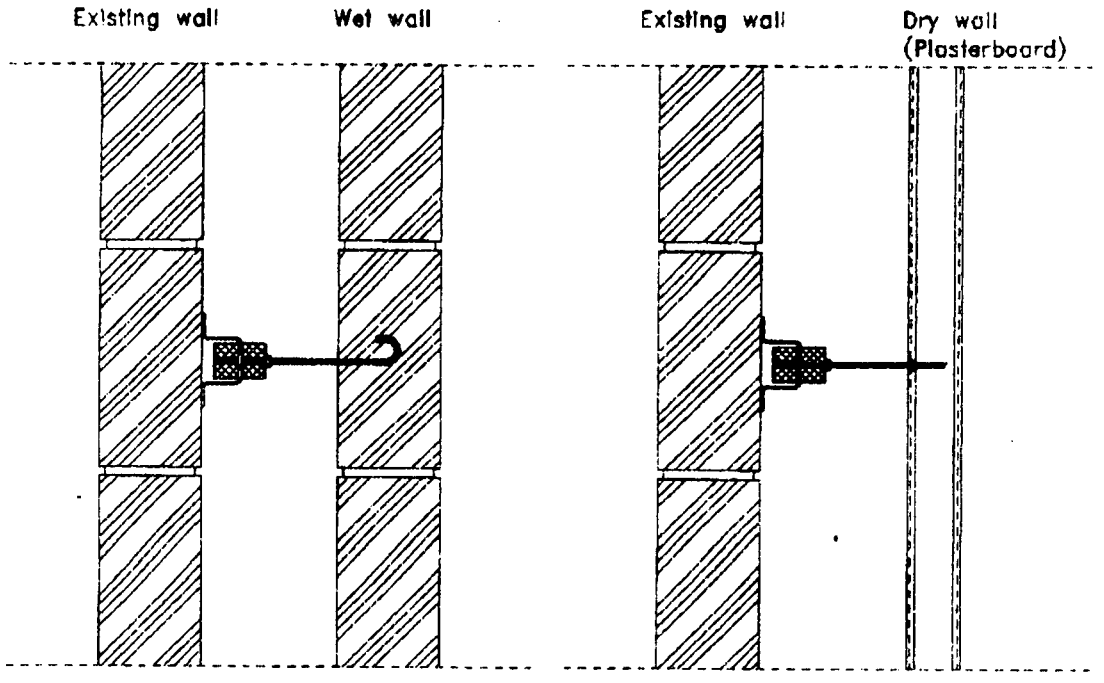
4. INSTALLATION

- Avoid all stiff contacts between the suspended wall and the existing structure. Special attention should therefore be paid to the perimeter of the wall and ducting facilities.
- No maintenance required after installation. The system can easily be removed without structural changes.

Some application examples are given in the figure below.



PLAN VIEW



ARUN DISTRICT COUNCIL:LU/32/09

Besblock

Pumice

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Air Leakage Testing

Sound Insulation

The application of solid Besblock Pumice blocks used in the construction of sound resisting (separating) walls.

Introduction

The need to effectively insulate adjoining rooms from each other has become increasingly more important with noise intrusion of one kind or another being a common cause of complaint.
It is therefore particularly important to ensure that partition walls are capable of providing a satisfactory level of sound insulation. The Solid Besblock Pumice range of blocks provides a cost effective means of achieving this aim.

Objective Assessment of Performance

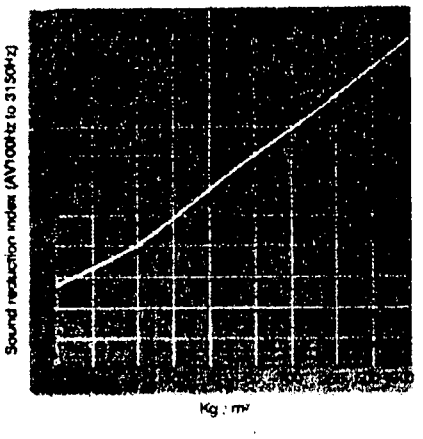
The sound insulation of a Besblock Pumice walling construction has been assessed under laboratory conditions in accordance with the requirements of British Standard BS 2750 : Part 3:1980. The method of test involved the construction of a sample of wall of Besblock Pumice blocks between two reverberent test chambers which are isolated from each other to prevent any flanking transmission of sound. A source of steady continuous spectrum sound was generated via loudspeakers in one chamber and the resulting sound levels measured simultaneously in both chambers at each of the 16 one-third octave bands having centre frequencies from 100 HZ to 3150 HZ.

The difference between the two sets of results, with appropriate allowances for the area of the test specimen and the acoustic characteristics of the receive chamber, provides an objective measure of the sound insulation of the specimen known as the Sound reduction Index.

It will be appreciated that the 16 different results for each frequency are not a convenient way of assessing the performance of the wall. Therefore all 16 results are rated to give a single figure of sound insulation performance, known as the Weighted Sound Reduction Index (Rw). The methodology for this is defined in BS 5821: Part 1 : 1984.

The Mass Law

The insulation of solid walls against airborne sound is related to the superficial mass of the wall, that is its mass per unit area usually given in Kg/m2. An empirical 'mass law' has been derived from a large number of sound insulation measurements carried out by the National Physics laboratory (NPL). These measurements were performed on a variety of single leaf constructions ranging from lightweight materials, through medium weight materials such as glass and plasterboard to heavy masonry.



The NPL study was conducted prior to the introduction of the Rw method and did not include pumice blockwork. By re-working NPL's original data, but restricting the analysis to masonry products a mass law more applicable for predicting the performance of Besblock Pumice blockwork generally in accordance with current rating methods has been derived as follows:

Rw = 0.4 + 19.2 log m (db) Equation (1)
where m is the superficial mass of the wall (kg/m²)

Estimated Sound Insulation of Solid Besblock Pumice Blockwork Walls

Interpolated values of Weighted Sound reduction Index (Rw) for various thicknesses of solid Besblock Pumice blockwork (1050 kg/m³) are presented in table 1 for both plastered and dry lined finishes. These assessments utilise the 'slope' of the mass law regression formula in Equation (1), modified to take account of the performance of the tested Pumice blockwork wall

Also presented in Table 1 is the mass of the laid wall for the various thicknesses of blockwork. The quoted mass includes the finish to each side assumed as 10kg/m²/side.

For comparison purposes Table 1 also shows the predicted performance of the walls based on the laid weight using the mass law formula

which proved superior to the modified mass law. The table indicates that the performance of Solid Besblock Pumice blockwork is 4 to 6 dB better than the mass law prediction.

in Equation (1)

Block Thickness (mm)	Mass of Wall with finish (kg/m²)	Predicted Rw from Eqn. (1) (db)	Interpolated Rw	
			Plastered Wall (db)	Dry Lined (db)
75	103	39	44	43
90	119	40	45	44
100	130	41	46	45
115	147	42	47	46
140	174	43	49	48
150	185	44	49	48
190	229	46	51	50
200	240	46	52	51
215	257	47	52	51

Table 1 Estimated Sound Reduction Index Values for Besblock Pumice Walls.

Weight Ratio from Besblock Pumice Blockwork

Table 2 illustrates that Solid Besblock Pumice blockwork walls can achieve values of Sound Insulation approaching those from walls constructed with much heavier Solid Blocks from our Bescrete Dense Concrete range (density 1900kg/m³).

This can be seen by the results obtained from measurements carried out on a 140mm thick solid pumice block wall (mass inciuding finish 214 kg/m³) and given in table 2: in particular, the 174kg/m³ construction is considered likely to match the equivalent Bescrete costruction.

Wall Construction	Mass inc.finish (kg/m2)	Weighted Sound Reduction Index Rw	
		Plastered Wall (db)	Dry Lined (db)
140mm thick Solid Bescrete (measured)	312	52	48
140mm thick Solid Pumice (measured)	214	51	48
140mm thick Solid Pumice (estimated)	174	49	48

Table 2 Comparison of Besblock Pumice and Bescrete Constructions.

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