

25
E V D O R

K O N N A R

J u n e e s



RS. VENTS LTD



Kitchen Canopies - Extraction Ductwork - General Sheet Metalwork

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Kitchen Extraction Systems

Base line specification for all RS Vents invitations to Tender:

All Tenderers must ensure that their quotation includes for all of the following and that the goods and services must be installed as quoted.

All hoods and systems must comply with DW172 and BS 6173, HVCA and CIBSE guidelines.

Hood:

Manufactured from 0.9 to 1.2mm s/steel satin finish with removable full-length s/steel baffle filters and removable collection grease cups.

All joints to be covered with cover trim internally and vertical, external joints to be tight but joint and sealed. All hoods to include a extract plenum, which is sufficiently sized to create correct levels of pressurisation for efficient filtration and performance.

Hoods are to be sized to over hang all items by 300mm and by 600mm at front of elevated ovens and steamers, base of hood to be at 2000 to 2100mm from floor. Hoods to generally be 600mm high if they are less than 400mm then the extraction rates need to be increased.

The hood is to have integral hanging brackets fixed the hood; the practice of bolting directly through the hood with threaded rod with nut and washer is to be avoided!

Fresh air make up is essential and is to be via polished 1mm perforated s/steel sheet covering the majority of the hood face, the supply air plenum is to be insulated with foil faced non fibrous slab with class 1 spread of flame properties.

Hoods to include induction slots to direct fresh air stream at base of hood towards centre or rear at 15% of extraction rate balance of fresh air at 70% of extraction rate is to be via face of hood.

Grease Filters:

S/steel baffle type must comply with LPS1263, and the filter assembly should be the full length of the hood with no blank sections.

Lighting:

Lighting must achieve 500 lux at working surface it is the responsibility of the hood manufacturer to ensure this is achieved.

See DW172, Section14, to calculate number of fittings required. Lights must be heat, vapour proof and must comply with CIBSE code for lighting.

Ductwork:

Duct to be constructed from 0.8mm material (generally galvanised steel unless specified). Under normal circumstances, and providing the duct runs within the fire compartment of the kitchen itself, extract ductwork shall have no special requirements. The duct shall be low pressure Class A and in accordance with HVCA spec no DW/144.

Were duct is not confined to the kitchen fire zone fire rated ductwork must be used to comply with BS3476 part 24/BS 5588 part 9.

Drains to be installed at base of all risers.

Cleaning doors to be located at ever 3m on horizontal duct with a door at every change of level on vertical.

Duct termination types:

PVC roof cowls, open top cone and drain (jet type), induction or sleeve type cowls are approved, China mans hat type terminations must not be used.

Fire dampers: BS5588

They must not be used on extraction duct!

Generally duct should terminate at roof level, and it is always the client's responsibility to gain local authority planning consent, building approval and EHO acceptance of the system.

Odour Control:

Client is to determine if odour control is required, if a requirement it must be one of two methods:

UV filtration with Carbon filtration support, the performance of the system is the responsibility of the ventilation system manufacturer.

Carbon filtration Unit, the performance of the system is the responsibility of the ventilation system manufacturer.

Both must comply with DW/172 section 22.

Fan selection:

Fans are to be generally selected from the following types:

Centrifugal fan sets, Axial Fans (metal impellers), in line centrifugal fans and mixed flow impellers-(not forward curved) and roof extract or Jet discharge.

Fan to be located at easily accessible point for maintenance.

The fan selection is to handle the design resistance and with consideration for 10% pressure margin. Motors are to be IP55 rated.

Fan size and Performance:

The extract fan must be able to provide the required levels of performance.

BASED ON MEDIUM DUTY USE

(Any applications outside of med duty should refer back to DW/172

Wall Hood- Hood area x 0.46 = *** m3/sec + the design resistance

Double Island Hood- Hood area x 0.46 = *** m3/sec + the design resistance

Double Island Hood- Hood area x 0.62 = *** m3/sec + the design resistance

Spigots:

Spigots should be appropriately sized and one for every 3m of hood length.

Each spigot MUST have it own VCD fitted to allow for the correct balancing of system.

Fresh air Make up:

Fresh air make up is essential and must be included.

The fresh air should be at + 10 and +16 deg C and be at 85% of the volume extracted.

This can only be achieved via an air-handling unit or alternative temperature controlled heater coils or batteries.

If clients requirements are such that the project will not have conditioned fresh air make up alternative ducted or louvered arrangements must be included with suitable filtration.

Fire dampers will be required between individual fire compartments / zones.

The client / operator will be requested to sign a declaration to absolve RS Vents or out contractor from claims or warranties relating to draughts or uncontrollable kitchen temperatures due to the fresh air make up not being conditioned, if they do not wish to have a controlled system.

Air velocities:

The following duct velocities are to be achieved in sizing duct / fan:

Extraction;

Main @ 6 –9m/s

Branch @ 5-7m/s

Spigot @ 5-7m/s

Fresh air;

Main @ 6 –8m/s

Branch @ 4-6m/s

Spigot @ 3-5m/s

Attenuation:

The system manufacturer and installer must ensure that Attenuation is included in all systems to ensure that the system operated in a conditioned space of NR40-NR50.

The external noise levels must not exceed +2 dB (A) above the existing background noise levels of each application.

Slower running fans, low duct discharge velocities can be considered without effecting system performance or in line attenuators shall be installed but their resistance must be considered in the fan selections.

The attenuators should be located almost immediately on each side of the fans, and greased protection is required!

Fire Suppression:

The client will be asked if they require Fire suppression as part of their insurance of building controls if required a system is to be included to comply with section 20 of DW/172.

Assistance will be required from a specialist contractor.

Drawings:

It is a mandatory requirement that the canopy manufacturer provides and issues a drawing of the hood and ductwork if appointed for approval before any manufacturing is commenced, any alterations carried out must be documented and an as fitted drawing issued on completion of works.

Installation:

When preparing the quotation the manufacturer must include all necessary costs to install their system and hoods in accordance with current safety procedures and legislation, Risk assessments, method statements and FULL CDM compliance is necessary with allocation for suitable management supervision of operative on site.

All operative must be CSCS card holders appropriate to the trade of works undertaken.

Contractor is responsible for ensuring their works are installed to the developments programme and that access is correct and appropriate. No arrangements are to be made direct with the site all must be Via RS Vents. Hoods to be set at 2000 to 2100mm from floor, inlets between ceiling and top of hood to be included where required.

The removal of the protective film is to be by the hood manufacturer.

The installer is to gain a signature from the site manager prior to leaving the development to state the hood and duct are completed and not damaged!

All fixings are to be suitable for the application and the material they are to be fixed to and as unobtrusive as possible.

The use of other trades hanging systems is not allowed and is it the installer's responsibility to ensure the fixing points are suitable and available.

Any Uni-strut or open cut ends are to be capped and suitably filed to a safe edge.

Fan controls/GLS/BS 6173

Electrically heated kitchens do not require a Gas interlock device, they do however require a definitive level of extraction and to include a speed regulator in an electric kitchen is still not considered prudent and should be avoided, unless the operator so demands one is included.

Gas Heated Kitchens MUST have a Gas Interlock device and MUST only have a fixed single speed fan!

The GIS system on all RS Vents new developments will only include an RS Vents/Clover GIS panel which is to control the solenoid valve, both fans and provide a fireman's extraction position which will engage the extract fan only whilst not opening the solenoid valve. The solenoid valve will be from Mechline and the filed wiring from the panel to the fan and solenoid will be by RS Vents.

On existing gas installations where a new hood is not being installed, then a Mechline or Ventam system can be used.

Testing & commissioning:

Regardless of who is installing the fan controls, if the extraction system works is including the installation of the fans and duct, the responsibility of the installer is to take and record and issue the following in order to comply with DW/172.

Velocity through grease filters and grilles
Velocity in the ductwork and at the bell mouths
Supply and extract flow rates
Ambient and air temperatures in the ductwork
Total pressure drop for the system
Starting and running currents used by the fans
Illumination levels
Sound levels in the kitchen and point of discharge

The manufacturers data should be consulted to establish the technical information as follows.

Flow rate for each filter used.
Recommended velocity passing through the filter.
Pressure drop across the filter.
Grease extraction rate of filter.



Quotation Number : Project Code :
 Project Name : J & N CATERING Customer :
 Item Reference : Date :

Fan Code 45-1 MaXfan2/16/4/5/37/30
 Fan Diameter / Size 450 Size / mm
 Blades 5
 Fan Speed 1380 rpm
 Velocity 12.2 m/s
 Blade Angle 37-30
 Installation Type / Form of Running D / AB (Vertical)
 Fan Casing Long

Requested Duty 1.92m³/s @ 207 Pa (static)
 Outlet Dynamic Pressure 89 Pa

Duty Shaft Power 0.768 kW (Both Stages)
 Max Shaft Power 0.942 kW (Both Stages)
 Total Efficiency 76.5 %

Motor Frame CT5 [Class F]
 Motor Rating 0.520 kW (Per Stage)
 Full Load Current 7.8 A (Per Stage)
 Starting Current 15.6 A (Per Stage)
 Motor Mounting Pad
 Electrical Supply 220-240 Volts 50 Hz 1 Phase
 Start Type DOL
 Motor Winding Standard
 Enclosure Standard All

ErP [FMEG] Rating N 49 (Not ErP Compliant)
 ErP [FMEG] Target N 58
 FMEG Blade Angle [Range] 37° [37° - 37°]
 Measurement Category D (Total)
 VSD N
 Fan + Motor Efficiency 42.6% [1.75 m³/s @ 363 Pa]
 Motor Input Power (ErP) 0.748 kW

SFP value 0.54 W/(l/s) @ Requested Duty
 Power from mains 1.04 kW
 Energy Consumption 3120 kWh (3000 h/year)
 Running Cost / Year £281

Air Density 1.2 kg/m³ / 20 °C / 0 m / 50% RH
 Smoke Venting Non Smoke Venting
 Product Number EQ461477

Performance data has been derived from tests carried out in a Flakt Woods laboratory, in accordance with ISO 5801 and is specifically applicable for Ducted installations. When an electronic controller is incorporated, enhanced motor noise can occur - particularly when the operating speed is well below maximum. FWL therefore recommend using an auto transformer speed controller for noise sensitive applications. Bifurcateds are Erp exempt when used continuously at >100C. They are not for use in the EEA at lower temperatures.

Acoustic data has been derived from tests carried out in a Flakt Woods laboratory, in accordance with BS 848 Pt 2, 1985 / BS EN ISO 5136 under Ducted conditions. The single figure provided is the overall Inlet sound pressure level at the specified distance, under spherical, free field conditions.

Acoustic figures for adjusted running speeds have been interpolated and are for reference only.

This Offer is made subject to the latest version of our A100-19 Terms and Conditions, a copy of which can be made available on request.

	Sound Spectrum (Hz)								Overall	
	63	125	250	500	1k	2k	4k	8k	Lw*	LpA @ 3 m**
Inlet*	84	90	93	86	80	75	68	62	95	67
Outlet*	85	90	94	87	81	77	70	65	96	68
Breakout*	78	75	75	67	59	52	51	44	81	49

* Lw dB re 10⁻¹² W
 ** dBA re 2x10⁻⁵ Pa
 Sound data at requested duty.

Description	Qty
Fan	
EQ461477 - 45-1 MaXfan2/16/4/5/37/30	1
Accessories	
Thermostat	1

unit 4 b adwalton business park, wakefield road drighlington, BD111DR
 , WEST YORKSHIRE, BD111DR

Tel: Fax:

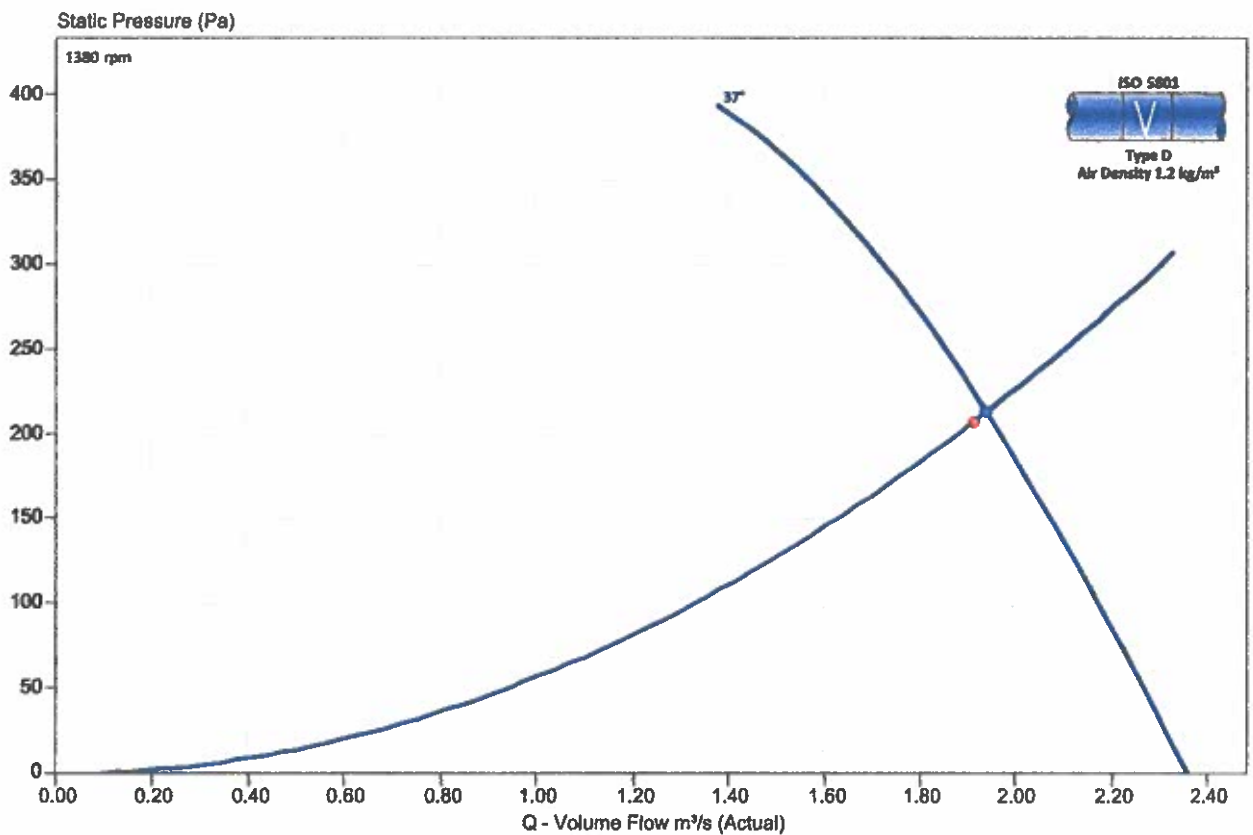
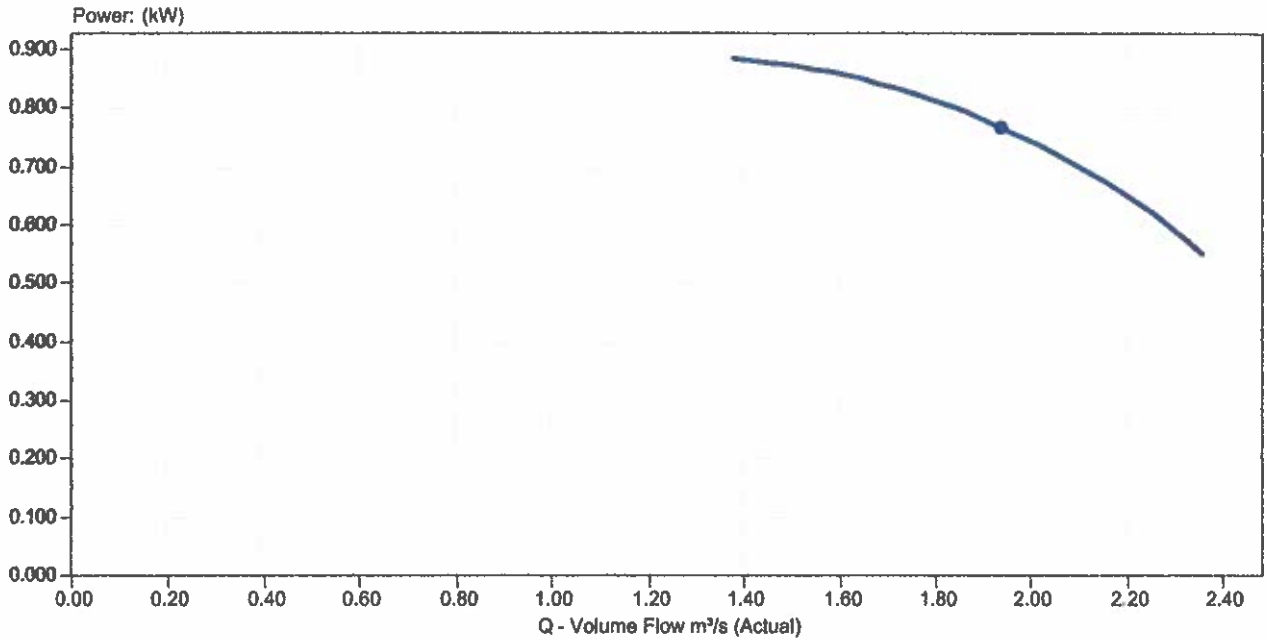
Website:

Email: chris@nfan.co.uk

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Quotation Number	:	Project Code	:
Project Name	:	Customer	:
Item Reference:	:	Date:	:
		Fan Code	: 45-1MaXfan2/16/4/5/37/30



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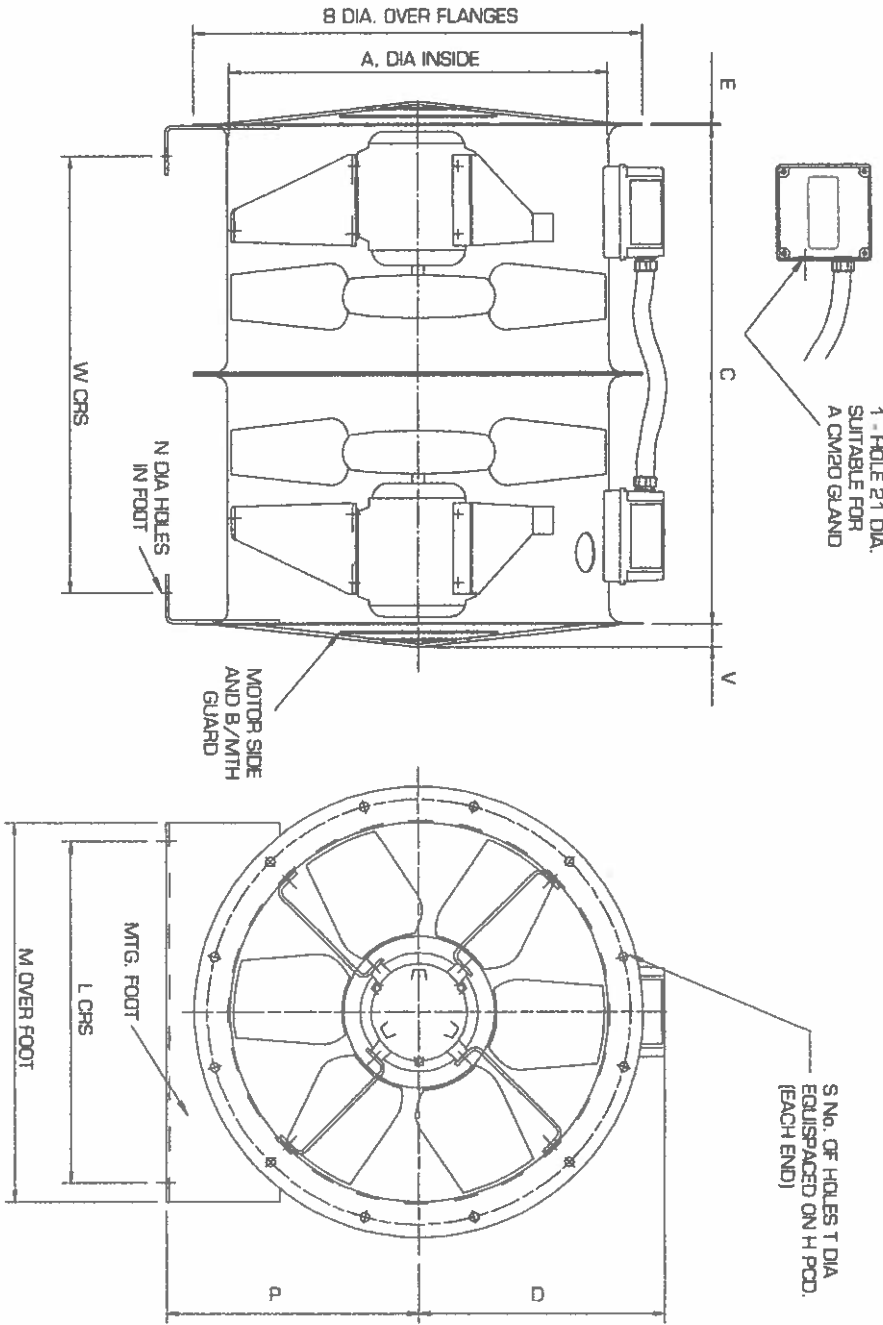
Website:
Email: chris@nfan.co.uk
Copyright Fläkt Group 2003 - 2020
Selection Engine: 3.1.3.45p



Northern Fan Supplies Ltd
Drawing and Dimensions
MaxFan2



Quotation Number : J & N CATERING
 Project Name :
 Item Reference :
 Fan Code : 45-1MaxFan2/16/4/5/37/30
 Customer :
 Date :



A	450
B	530
C	620
D	306
E	2.5
H	500
L	400
M	450
N	10
P	280
S	8
T	12
W	571
Weight	44

Notes : Dimensions shown in mm / Weight in kg
 This drawing shows dimensions that should be used as a guide only and are subject to change. Certified drawings are available on request.

Reference: Catalogue drawing



AIRGARD™ FEATURES

- Rolled stainless steel section with safety edge on frame and blades.
- Welded construction.
- Folding handles.
- Drain holes.
- Optional mesh to front and rear.

TYPE 2 COMMERCIAL KITCHEN FILTER

For use in commercial kitchens and ventilation to extract grease laden air and act as a fire barrier. Fire barriers prevent any cooking flames traveling past the extract canopy. The new Type 2 is a development of customers requesting certain attributes for the baffle filter, the main ones being rolled edges on frame and blades. The Type 2 is available in 20mm or 45mm depths only, this is required for the filter to operate at a constant efficiency and to protect the system as a flame barrier as tested to European Standard DIN 18869-5. The Type 2 Baffle design has a higher grease filtration efficiency than other baffle filters on the market due to the blade design and spacing. Pressure drops and test results please see the enclosed chart below.

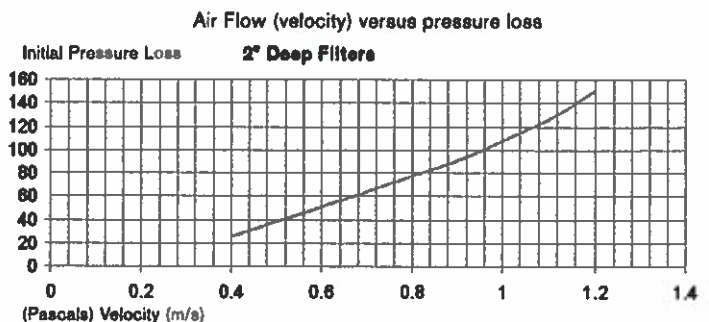
MATERIAL SPECIFICATIONS

As standard, all baffles are Stainless Steel 430 with a polished finish. (Other finishes and material are available)

TECHNICAL SPECIFICATIONS

Longar specifies the Baffle Filter as height x width x thickness. The handles are fixed to the height and drain holes punched on the width. The length of the baffle is the height, please ensure correct orientation is given when ordering.

H x W x D Actual Size (mm)	
243 x 395 x 45	496 x 395 x 45
243 x 496 x 45	496 x 496 x 45
395 x 395 x 45	597 x 597 x 45
395 x 496 x 45	624 x 395 x 45
444 x 444 x 45	Custom sizes are available



PACKAGING

All filters are packed in secure corrugated cardboard cartons, tape sealed for protection against dust and other contaminants.

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 Tel: 01264 332993 Fax: 01264 332994 www.longar.co.uk

Airgard is a registered trademark

SECTION 4

Canopy dimensions

4.1 The dimensions of a canopy are invariably determined by the size of the catering equipment that it is serving.

4.2 Unless restricted by walls, the plan dimensions of the canopy shall always exceed the plan dimensions of the catering equipment by a minimum of 250mm on each free side, and by 250mm at the front and rear. It shall be noted that the overhang dimensions are to the inside of the condensation or stiffening channel, or the supply plenum, the appropriate dimension shall be added when specifying the overall canopy size.

4.5 Canopies less than 400mm high will be less efficient than normal because of a reduced collection volume and therefore, where there is a restricted soffit height, consideration should be given to increasing the face velocity to compensate irrespective of design duty calculated. It is also recommended to increase the size of the canopy to aid capture when the ideal flow rate cannot be achieved.

4.6 With kitchens that have high ceilings, provided that the canopy is installed at the correct height to allow access to the filters and the requirements for minimum hood depth have been achieved, then consideration should be given to providing an infill section to fill the gap between the top of the canopy and the underside of the ceiling.

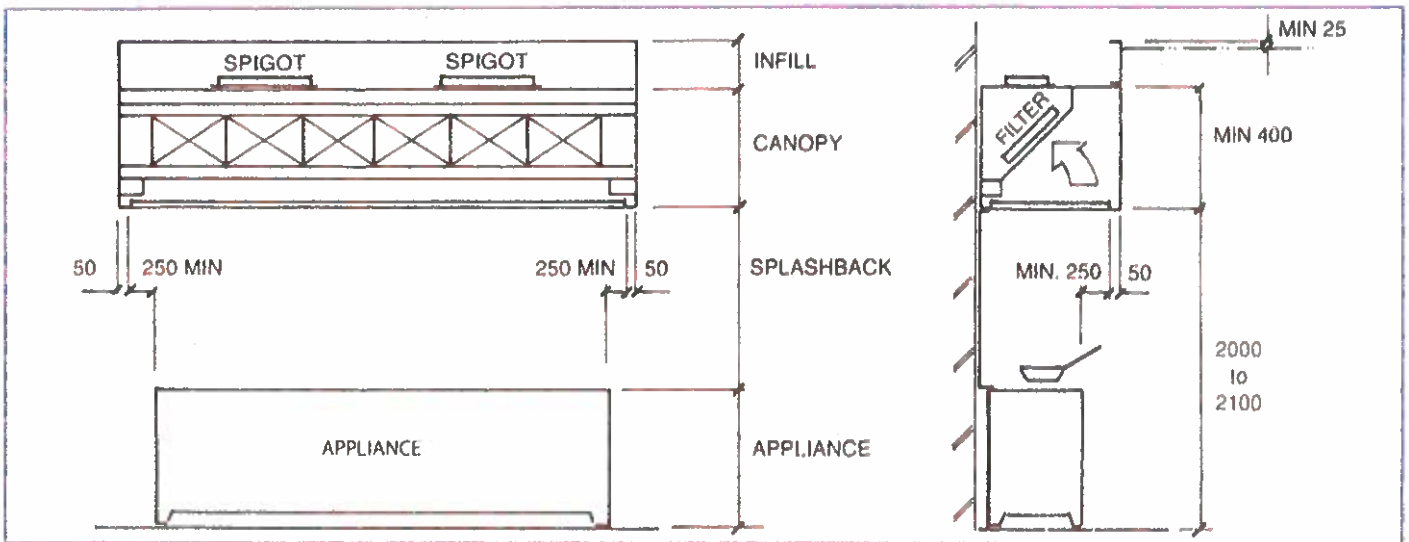


Fig 1 - Typical Canopy Dimensions

4.3 For combination steamers and certain types of baking ovens the overhang at the front should be increased to a minimum of 600mm to cope with the steam or fumes released when the doors of the appliance are opened.

4.4 The height of the canopy is often governed primarily by the ceiling height. The underside of the canopy should be located between 2000 and 2100mm above the finished floor level, the top should project into the ceiling by a minimum of 25mm to allow the false ceiling trim to be attached. (see illustration in fig. 1).

4.7 Where a canopy is installed at a level higher than 2100mm, then overhang dimensions shall be increased at a minimum rate of 1:1, i.e. 100mm vertical + 100mm horizontal.

4.8 The distance between the lowest edge of the grease filter and the top of the cooking surface should be 450mm minimum. This is to avoid the risk of excessive temperatures or fire in the filter which could cause the extracted grease to vaporise and pass through to the ductwork. This dimension will vary with the type of cooking appliance and may be reduced where a fire suppression system is fitted.

4.9



DEMAND CONTROL VENTILATION

Silencers



Elta are able to provide 2 types of cylindrical silencers as standard; Type DENP (without pod) and DEP (with pod).

Construction

Both types are rigidly constructed in galvanised sheet steel, with a highly absorbent sound attenuating lining between the outer casing and the inner perforated steel lining. The end faces of the silencer has a series of threaded holes for direct mounting to the fixing flange/ flexible collar. The DEP (podded versions) will provide an improved level of attenuation. The inner acoustic pod is constructed from perforated steel sheet with a sound absorbent infill.

Melinox lined silencers must be used to prevent grease impregnation into the acoustic media for kitchen extract applications as prescribed in DW/172 HVAC Specification For Kitchen Ventilation Systems.

3 options of each type can be provided with differing lengths:

- 1D = 1 times diameter
- 1.5D = 1.5 times diameter (manufactured to order)
- 2D = 2 times diameter

Silencer Attenuation

To determine the sound level of a fan fitted with a silencer, the dynamic insertion loss should be subtracted from the sound power level spectrum (dBW) of the QUBe fan. This should be done for the entire octave band mid-frequency spectrum tabulated on pages 15 and 17.

The fan dBW ratings and silencer attenuation apply equally to in duct applications, with a silencer connected between the fan and the duct system.

Dynamic Insertion Loss

The silencer attenuation is defined as the "dynamic insertion loss". The values quoted in the table opposite represent the difference between the sound power level of a fan and silencer combination (dBW) and that of the fan alone (dBW).



The dynamic insertion losses shown are the attenuations recorded under ideal working conditions. The achieved attenuation will vary according to the air velocity and flow pattern in the airways. Noise regeneration can occur at higher velocities, especially in DEP silencers.

Splitter Silencers

In highly noise sensitive areas, where the circular silencers cannot achieve the necessary attenuation levels, Elta can design and build optional splitter silencers for greater effect.



DEMAND CONTROL VENTILATION



Silencer Data

Dynamic Insertion Loss

Fan Sizes	Silencer Length	Silencer Type	Insertion Loss @ Octave Band Hz							
			63	125	250	500	1k	2k	4k	8k
315 500 560	1D	ENP	-2	-5	-6	-9	-13	-11	-6	-6
		EP	-4	-6	-8	-11	-18	-19	-17	-14
	1.5D	ENP	-3	-6	-9	-13	-18	-14	-9	-8
		EP	-5	-8	-10	-16	-22	-22	-20	-18
	2D	ENP	-4	-8	-12	-17	-23	-17	-12	-10
		EP	-7	-10	-12	-21	-26	-26	-24	-22
710	1D	ENP	-3	-4	-9	-15	-15	-8	-7	-6
		EP	-4	-6	-8	-17	-23	-20	-18	-10
	1.5D	ENP	-4	-6	-11	-18	-18	-10	-9	-7
		EP	-6	-8	-12	-22	-27	-25	-23	-14
	2D	ENP	-6	-8	-13	-22	-22	-13	-12	-9
		EP	-8	-11	-16	-27	-32	-31	-29	-19

(Contact Elta Fans for Insertion Losses for melinex lined silencers.)

End Reflection Values

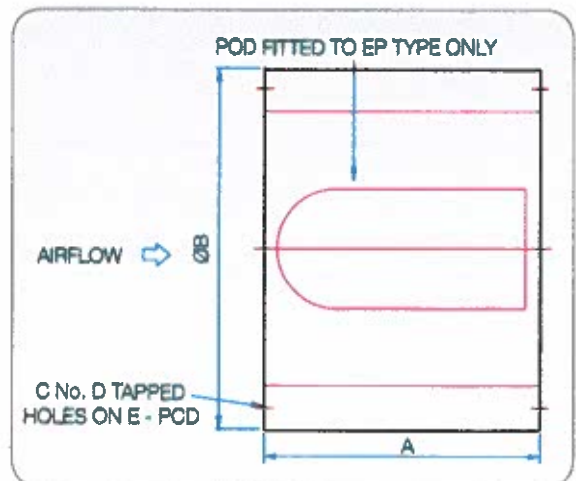
Fan Sizes	End Reflection @ Octave Band Hz			
	63	125	250	500
315	15	8	5	1
500	11	6	2	0
560	10	6	2	0
710	9	4	1	0

End Reflection Values

Where a silencer is connected directly to a free inlet or free outlet side of a fan some of the low-frequency sound energy will be reflected back into the duct. The values in the table above show the additional attenuation in each octave band in this case. It should be noted that this data is based on theoretical considerations only, and assumes spherical free-field conditions.

Silencer Data

Fan	dBA Attenuation		ΔP (Pa)	dBA Attenuation		ΔP (Pa)
	1DENP	1DEP	1DEP	2DENP	2DEP	2DEP
SQU1/4-3	-10	-13	7	-17	-20	11
SQU2/4-3	-10	-13	7	-17	-20	11
SQU3/4-3	-10	-13	8	-16	-20	13
SQU4/4-3	-11	-15	12	-16	-23	20
SQU4/6-3	-11	-15	10	-16	-23	16



Product Code	Fan Dia	A 1D	A 1.5D	A 2D	B	C	D	E	Weight kg					
									1DENP	1DEP	1.5DENP	1.5DEP	2DENP	2DEP
068-0315-D**P	315	315	472.5	630	416	8	M8	355	9	11	12	14	15	17
068-0500-D**P	500	500	750	1000	657	12	M10	560	18	22	25	30	32	37
068-0560-D**P	560	560	840	1120	714	12	M10	620	22	26	30	36	39	46
068-0710-D**P	710	710	1065	1420	864	16	M10	770	32	39	45	55	59	71

1, 1.5 or 2
See Dimension A
E - With Pod or
EN - Without Pod

* All dimensions are in mm

Elta Fans Limited has a policy of continuous product development and improvement and therefore reserves the right to supply products which may differ from those illustrated and described in this publication.

OC Innovations – RY7500 (SPECIFICATIONS)

Unit:	H: 534mm / W: 1662mm / L: 620mm
Cabinet	1.2mm Electro Galvanized Steel Powder Coated
Finishing	Dark Blue
Weight	120 Kg
Air Volume	Upto 7500m ³ /hr or 2.08m ³ /s
Air Flow	Left to Right, Right to Left
Static Pressure Reqd	100 Pascal
Operating Voltage	220 Vac+/-10%, 50 Hz (Single phase)
Features	Short circuit, arc protection and auto power restore for Power Pack
Efficiency	Up to 95%, meets NIOSH.5026 Oil-Mist-Test (National Institute for Occupational Safety and Health)
Particle Size	Collects particles as small as 0.01 microns
Controls	Auto cut-off switch when door is opened. Indicator lights for fault, normal or wash function
Cell	H: 480mm / W: 340mm / L: 550mm / Weight: 15Kg each Ionizing voltage: 12 KVdc Collector voltage: 6 KVdc Uses 2 cells, each cell comprising of 8 ionizing wires & 23 collection plates. Total face Area is 0.72 sqm. Effective collection area is 12.29 sqm
Power consumption	115 Watts (3 cell)
Pre-filter Installation	Aluminum mesh, washable Ceiling suspended, wall or frame mounted
Options	Dry contact for Building Management System (BMS)

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