

Fresh Air Input and Fire Extinguishant Extract Units

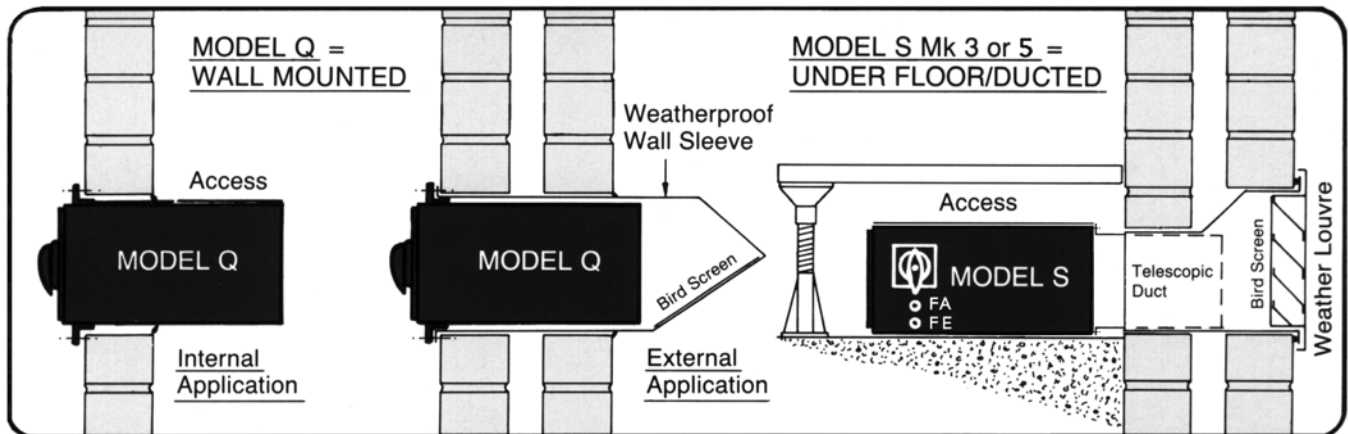
The PUMA range of **FRESH AIR INPUT** and **FE EXTRACT** UNITS are designed to meet the specific requirements of Electronic Data Processing Areas (EDP) QUIETLY and EFFICIENTLY!

FRESH AIR INPUT ... If an EDP Area is Air Conditioned, it will need a quantity of Fresh Air for pressurisation and ventilation. The PUMA units will provide the correct amount of air, filtered and heated to match individual room requirements.

FIRE EXTINGUISHANT EXTRACT ... If an EDP Area is fitted with a 'Fire Protection System' utilising FM200, INERGEN or HALON alternative, it will need a positive extraction unit in the event of discharge.

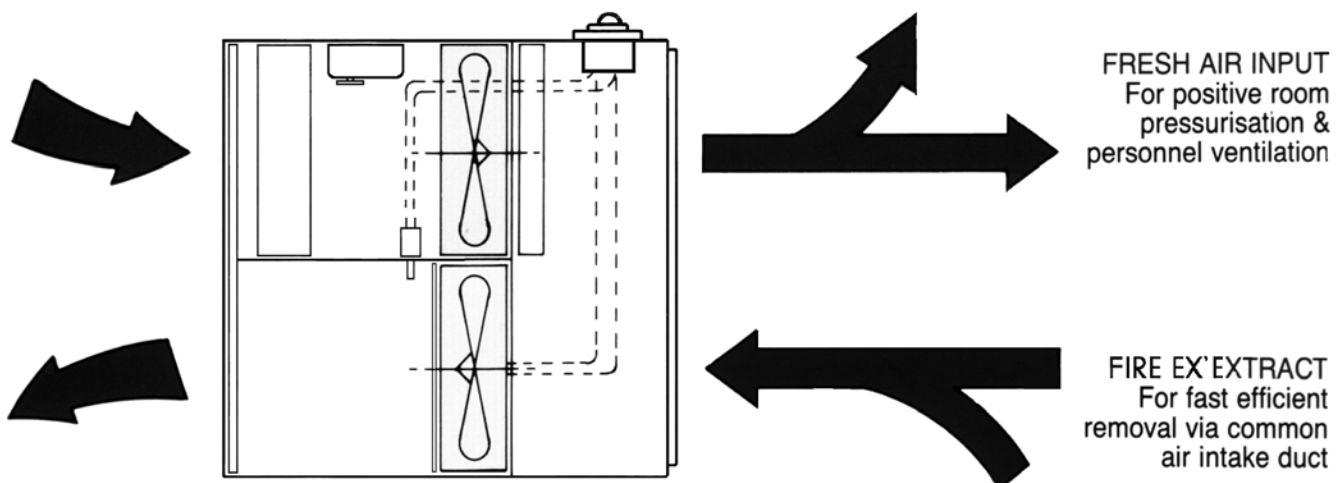
The PUMA units will provide these two important functions uniquely combined in such a compact way that they fit comfortably under raised modular floors or discreetly in external walls, ideal when trying to save valuable floor space.

Four Models Available - Model S Mk 3 or Mk5 and Model Q or QSM



Model Q Units are available with Room/Floor Void Extension Duct. This enables simultaneous room and void input or extract (consult Sales).

Schematic Layout of Model S Combined Unit



Method of Operation

Principally all Combined & Fresh Air Only Units will provide filtered, tempered air as required. Control of the heater is via an adjustable thermostat sensing the incoming air, it is factory set to switch the heater on when the ambient temperature falls below 10°C (50°F). Heater protection is provided in the form an Airflow Failure Switch connected to a heater power relay, this will de-energise if there is insufficient airflow across the Heater Battery.

The Fire Extinguishant Extract section of the unit utilises a second fan. An Aluminium flap located across the face of the fan prevents any 'short cycling' in Fresh Air mode. An electric solenoid holds the flap in position until it is energised simultaneously with the extract fan, releasing the flap, allowing the Gas to be expelled to atmosphere. The Internal Pressure drop of the Fresh Air section will prevent 'short cycling' in Extract mode. In ducted systems i.e. MK 5 Units, consult Sales if Extract ESP exceeds 100 Pa.

Installation Data

Model S Units must be located where access to the top panel is not hindered, Bottom Access versions can be made by inverting the Unit, Controls & Isolator access now on lefthand side. (When ordering denote BA).

Model Q Units when located in external walls or windows, require a Weatherproof Wall Sleeve, this enables the unit to be withdrawn for filter replacement and servicing. Standard depth = 300mm, 450 & 600 available.

Two 3 core cables are provided with FA or FE Only Units and Three cables for Combined Units. The upper cable supplies the Fresh Air Fan and Heater, connected through the fitted mains Isolator. This supply will normally be interlocked with the air-conditioning system in relation to power shutdown in the event of fire detection. The lower cable is connected direct to the Fire Extinguishant Extract Fan and Solenoid, this supply will normally be connected to a 'Fireman's Key Switch' located in the fire detection panel. The last cable is connected to the Airflow Failure Switch for Indication by Volt Free Contacts.

SSCF - Single Supply Changeover Facility is an electrical option available for Combined Units only. A single electrical supply is taken to the Unit together with control wiring from a "Shutdown" switch and a Changeover switch located in the fire detection panel, the appropriate relays are contained in the Unit.

Refer to Operating and Maintenance Instructions and Wiring Diagram for further details.

Room Pressure Testing & Leakage Requirements

After gas discharge the pressure inside the room may exceed the internal pressure drop of the unit in this event a Positive Shutoff Damper (PSD) may be fitted across the full width of the Unit. The Damper is of the sealed parallel blade type, actuated by a power on, spring return actuator. A Fire/Smoke Damper (FSD) (2 hr rating to BS 476 Part 8 & 20) must be fitted to maintain the integrity of Fire break walls or ducts. The FSD must be fitted adjacent to the particular opening. All FSD's may be fitted with HEVAC frames for installation within the wall, this type of Damper may also be fitted with Fusible Link & Access Door.

All applications regarding Fire Integrity must comply with local Authority Regulations

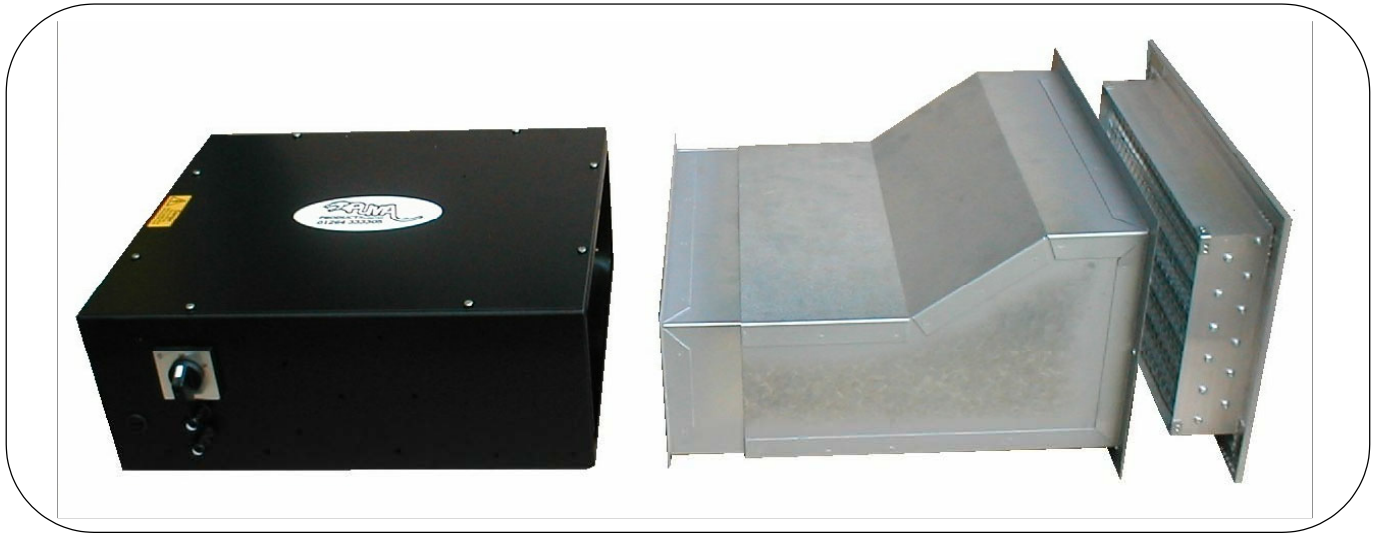
In Fresh Air Only & Extract Only Units the Fan & Damper commence opening immediately and opens fully in 75 seconds, on removal of power the Damper will close within 20 seconds. In Combined Units subsequent energisation of the Extract Fan will open the Damper via a relay latching circuit.

Certified Drawings and Wiring Diagrams available on request.

For details of options and descriptions of all Ancillaries and Electrical Control Options, please refer to PUMA 'Ancillary Products & Options' Leaflet.

Model S Mk3 or Mk5 Unit

Ducted Fan Unit for Under-floor or Ceiling Mounted Applications



with optional Telescopic Wall-Sleeve Duct and Weather Louvre

- **Mild Steel Casing with Zintec coating**
- **Satin Black Powder Paint Finish (RAL 9005)**
- **Thermal Insulation**
- **Aluminium Discharge Grille (Model Q and QSM only)**
- **Mains Isolator (Fresh Air Fan Units only)**
- **Integral Thermostat (with heater)**
- **Element Overheat Protection**
- **Electric Solenoid & Backdraught Flap (Extract Fan Units only)**
- **Panel Filter Grade EU3, 80 – 90% arrestance (95% @ 5 μ , TD No.2 BS 2831)**
- **Air Flow Failure Indication via Volt Free Contacts**
- **Optional High Efficiency Filtration EU6 (80% @ 5 μ , TD No.1 BS 2831)**
- **Optional Element Overheat Indication**
- **Optional Filter Pressure Switch via Volt Free Contacts**

Model Q and Model QSM Unit

Through-Wall Mounted Applications



with optional Weatherproof Wall Sleeve

Model QSM

Compact Fresh Air Input Unit

New compact version of the Model Q, the QSM Fresh Air Input Unit will provide the correct amount of air, filtered and heated to match individual room requirements

**Wall Mounted Internally or Externally
with easy installation**

**Filtered, temper Fresh Air to
improve indoor air quality**

Compact design



**Quiet Operation
with 3 Speed Fan
Select Switch**

**Providing a healthier
working environment**

Extract Fan Option Available

High Quality Construction

The efficient axial flow fan has been fitted with a purpose made speed controller to give three optimum airflows and noise levels. The casing is manufactured from zintec steel finished in RAL 9005 Satin Black powder coat finish.

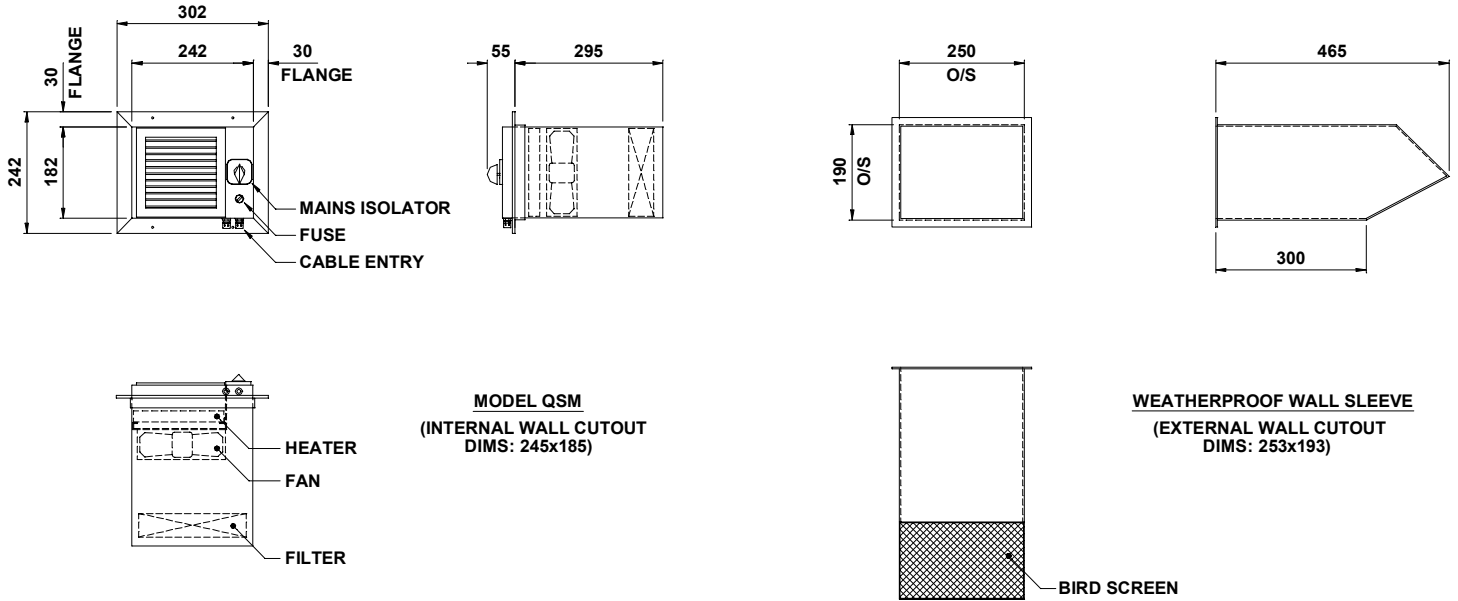
The QSM comes completely wired internally and is supplied with a decorative Aluminium Discharge Grille, 3 speed select switch, EU3 Panel Filter (Optional EU6 High Efficiency Filter available), Electric Heater Element, Overheat Protection Device, Integral Thermostat, Fan / Heater Fuses and Airflow Indication Switch (Volt Free Contacts) via three core cable.

The Mains Supply comes via another three core cable must be connected to suitable switched fused spur and isolated according to the 16th Edition of the I.E.E. Regulations.

Applications

Include: Computer Rooms, Clean Rooms, Medical Centres, Laboratories, Offices, Conference Halls, Sports Facilities, Restaurants, Public Houses, Portacabins etc

Dimensional Data



Operational Data

Model Number	Air Volumes in Litres per Second at given External Static Pressure (ESP)				Running Current Fan & 1 kW Heater	Running Current Fan Only	Weight	Approx. Noise Levels
	0 Pa	20 Pa	40 Pa	60 Pa				
FA 100 QSM	0 Pa	20 Pa	40 Pa	60 Pa	220/240 Vac 1 Ph 50 Hz	220/240 Vac 1 Ph 50 Hz	Kg	dB(A)
Low Speed	37	35	30	28	4.27 Amps	0.1 Amp	5	42
Medium Speed	51	49	45	43	4.32 Amps	0.15 Amp	5	46
High Speed	63	60	56	53	4.47 Amps	0.2 Amp	5	49
PE 150 QSM	EXTRACT FAN ONLY							
Low Speed	49	42	37	35	-	0.1 Amp	5	42
Medium Speed	63	54	51	49	-	0.15 Amp	5	46
High Speed	72	67	63	60	-	0.2 Amp	5	49

Improve your Environment with



Technical Performance & Specification	FRESH AIR INPUT AIR VOLUMES					FIRE EXTINGUISHANT				FA FAN &		FE EXTRACT	FILTRATION	WEIGHT		DIMENSIONS			FAN NOISE LEVELS		
	at given					EXTRACT VOLUMES at given				ELECTRIC HEATER		FAN ONLY	EFFICIENCY	Kg	lbs	Length (mm)	Width (mm)	Height (mm)	dB(A)	Nr	
	External Static Pressures (ESP)					External Static Pressures (ESP)				kW	Running Current @ 230 V ac 1 PH 50Hz	Running Current @ 230 V ac 1 PH 50Hz	Eurovent 4/5 ASHRAE 52-76 BS 6540								
MODEL NUMBER	0 Pa m³/S	25 Pa m³/S	50 Pa m³/S	75 Pa m³/S	100 Pa m³/S	0 Pa m³/S	50 Pa m³/S	75 Pa m³/S	100 Pa m³/S							STD	OPTION				
FA 100 S MK 3	0.038	0.034	0.031	0.029	0.024	-	-	-	-	0.75	3.65 A	-	EU 3	EU 6	6	13	400	340	154	48	45
FA 150 S MK 3	0.048	0.038	0.034	0.032	0.030	-	-	-	-	1.0	4.55 A	-	EU 3	EU 6	6	13	400	340	154	58	55
FA 200 S MK 3	0.068	0.063	0.060	0.057	0.055	-	-	-	-	1.5	6.81 A	-	EU 3	EU 6	6	13	400	340	154	58	55
FA 250 S MK 3	0.125	0.116	0.094	0.091	0.086	-	-	-	-	2.0	9.16 A	-	EU 4	EU 6	7	15	400	340	154	59	55
*FA 300 S MK 3	0.152	0.146	0.138	0.129	0.122	-	-	-	-	2.5	12.2 A	-	EU 4	EU 6	7	15	400	340	154	62	60
FE 100 S MK 3	-	-	-	-	-	0.048	0.040	0.036	0.031	-	-	0.11 A	No	No	6	13	400	340	154	38	35
FE 150 S MK 3	-	-	-	-	-	0.075	0.068	0.063	0.060	-	-	0.20 A	No	No	6	13	400	340	154	48	45
FE 200 S MK 3	-	-	-	-	-	0.094	0.084	0.081	0.067	-	-	0.20 A	No	No	6	13	400	340	154	58	55
FE 250 S MK 3	-	-	-	-	-	0.118	0.094	0.084	0.081	-	-	0.35 A	No	No	6	13	400	340	154	60	58
FE 300 S MK 3	-	-	-	-	-	0.135	0.125	0.120	0.100	-	-	0.46 A	No	No	7	15	400	340	154	59	55
FE 350 S MK 3	-	-	-	-	-	0.163	0.152	0.138	0.12	-	-	0.77 A	No	No	7	15	400	340	154	62	60
FE 500 S MK 5	-	-	-	-	-	0.185	0.170	0.130	0.110	-	-	0.40 A	No	No	7	15	480	500	154	60	58
FA/FE 100 S MK 5	0.038	0.034	0.031	0.029	0.024	0.075	0.068	0.063	0.060	0.75	3.65 A	0.20 A	EU 3	EU 6	8	17.5	480	500	154	48	45
FA/FE 150 S MK 5	0.048	0.038	0.034	0.032	0.030	0.094	0.084	0.081	0.067	1.0	4.55 A	0.20 A	EU 3	EU 6	8	17.5	480	500	154	58	55
FA/FE 200 S MK 5	0.068	0.063	0.060	0.057	0.055	0.118	0.094	0.084	0.081	1.5	6.81 A	0.62 A	EU 3	EU 6	8	17.5	480	500	154	58	55
FA/FE 250 S MK 5	0.125	0.116	0.094	0.091	0.086	0.135	0.125	0.120	0.100	2.0	9.16 A	0.46 A	EU 4	Ask Sales	8	17.5	480	500	154	59	55
FA/FE 300 S MK 5	0.174	0.163	0.154	0.144	0.141	0.175	0.170	0.163	0.154	2.5	12.05 A	0.62 A	EU 4	Ask Sales	8	17.5	480	500	154	74	70
FA 80 Q	0.038	0.034	0.031	0.029	0.026	-	-	-	-	0.5	2.32 A	-	EU 3	EU 6	7	15	325	410	185	38	35
FA 150 Q	0.072	0.058	0.055	0.052	0.050	-	-	-	-	1.5	6.64 A	-	EU 3	EU 6	7	15	325	410	185	53	48
FA 300 Q	0.144	0.100	0.086	0.074	0.072	-	-	-	-	2.0	8.98 A	-	EU 3	EU 6	7	15	325	410	185	56	49
FE 100 Q	-	-	-	-	-	0.048	0.040	0.036	0.031	-	-	0.11 A	No	No	7	15	325	410	185	48	45
FE 200 Q	-	-	-	-	-	0.094	0.062	0.055	0.048	-	-	0.14 A	No	No	7	15	325	410	185	55	58
FE 350 Q	-	-	-	-	-	0.181	0.149	0.100	0.086	-	-	0.28 A	No	No	7	15	325	410	185	53	47
FA/FE 80 Q	0.038	0.034	0.031	0.029	0.026	0.094	0.062	0.055	0.048	0.5	2.32 A	0.14 A	EU 3	Ask Sales	8	17.5	325	410	185	38	35
FA/FE 100 Q	0.058	0.048	0.048	0.046	0.043	0.094	0.062	0.055	0.048	1.0	4.49 A	0.14 A	EU 3	Ask Sales	8	17.5	325	410	185	50	45

Abbreviations:

FA = Fresh Air FE = Fire Extinguishant Extract FA/FE = Combined Units

PE in lieu of FE will denote Permanent Extract i.e. the Extract Fan will run simultaneously with the Input Fan to provide general ventilation for small ducted systems

Units used for External Static Pressure (ESP):

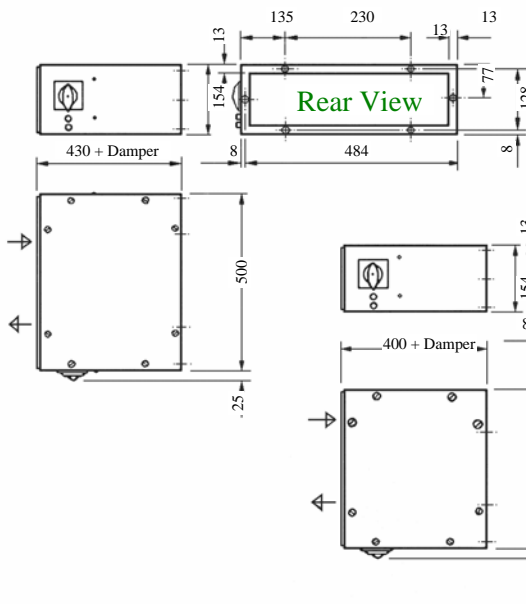
Pa = Pascal's ACH = Air Change per Hour m³/S = cubic metres per second HEF = High Efficiency Filtration

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Fan sound levels are available on Fan Motor Details data sheets (please consult sales)

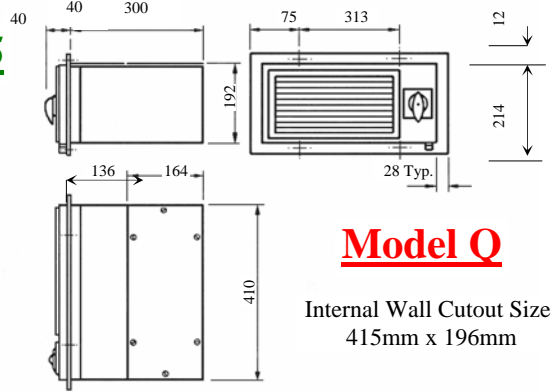
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Dimensional Data



Model S Mk 5

Model S Mk 3

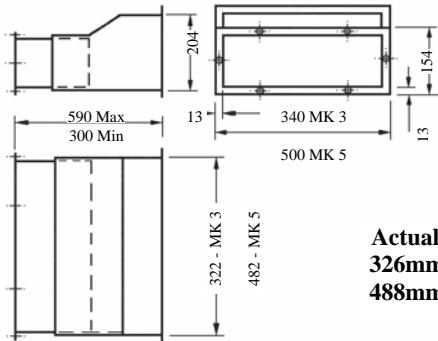


Model Q

Internal Wall Cutout Size:
415mm x 196mm

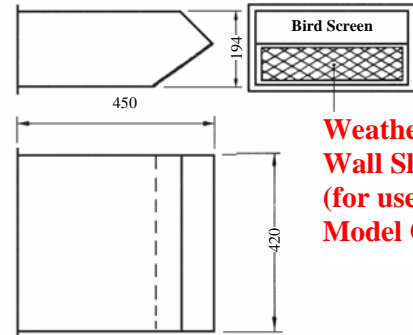
NB: Consult Sales for
Certified Drawings
for full details

Ancillary Products



**Telescopic Duct
MK 3 and MK 5**

Actual Wall Cutout Size:
326mm x 208mm = MK 3
488mm x 208mm = MK 5



**Weatherproof
Wall Sleeve
(for use with
Model Q Units)**

Actual Wall Cutout Size: 424mm x 197mm

QUICK SELECTION GUIDE for FRESH AIR UNITS

To enable the designer to choose the correct unit, the following information is an example guide:

For the Larger Computer Suite

One complete room air-change per hour

$$CFM = \frac{\text{Room Volume in Ft}^3 / \text{m}^3 / \text{Sec}}{60} = \frac{\text{Rm Vol m}^3}{3600}$$

3-5% of the recirculatory air volume of the air-conditioning equipment.

For the Smaller Computer Suite

One or two room air-changes per hour or 20 CFM 12 Litres/Sec per person whichever is the greater. *Individual application must be further assessed if any special requirements or specifications are in effect.*

Gas Extract Volumes

Manufacturers recommendations apply but an extraction time between 15 and 30 minutes would comply with most requirements i.e. 4 ACH = 15 min, 3 ACH = 20 min, 2 ACH = 30 min

Note : Noise levels stated are based on readings taken at a distance of 2 metres in a room having a volume of 30m³, RT of 0.6 sec at 250 Hz. For units mounted beneath raised modular floors a Deduction 10dBA can be applied to the figures shown. Please refer to Fan Motor Detail sheets.



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