



Stainless Steel Fabrication

Commercial Kitchen Design and Installation

Ventilation strategy for the below address

Address

9 Tarbock Rd
Huyton,
Liverpool
L36 5XN

Installation of extraction system proposed at the above address to *EMAQ Guidance Control of Odour and Noise from Commercial Kitchen Exhaust Systems*

All canopy and ductwork to *BESA DW172 DW144*

Canopy dimensions to Dw172

Canopy Dimensions

3.7Mtr x 1200mm x 500mm x 430mm

Filtration

Longar type 3 baffle filters

All plant ESP/UV system to be installed internally
Acoustic fan and silencers to be installed externally
If acoustic report required this will be by others

Odour control

High Option 2. Fine filtration or ESP followed by UV ozone system to achieve the same level of control

1 x Rydair ry500 electrostatic precipitation unit this unit removes smoke
1 x FusionAir ozone Uv Injection



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Commercial Kitchen Design and Installation

UNIT 5 FIREFLY SQUARE PLANTATION ROAD BURSCOUGH L408JT

Tel: 01704-893945 Fax: 0844-4122296

Email: fusionhot1@gmail.com Web: www.facebook.com/fusionhot

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Extract fan

Fan Model	Maximum absorbed power (W)	Maximum absorbed current (A)		Maximum air volume (m3/s)	Sound pressure level* (dB(A))	Speed (r.p.m.)	Weight (Kg)
		230v	400v				
TCBB/4-560/L	1289	6	0	5.23	68	1405	33

*Sound pressure level measured in free field conditions at a distance equivalent to three times the diameter of the impeller with a minimum of 1,5 meters.
For more information see Acoustic characteristics.

Attenuation Octave – Band Mid Frequencies (Hz)

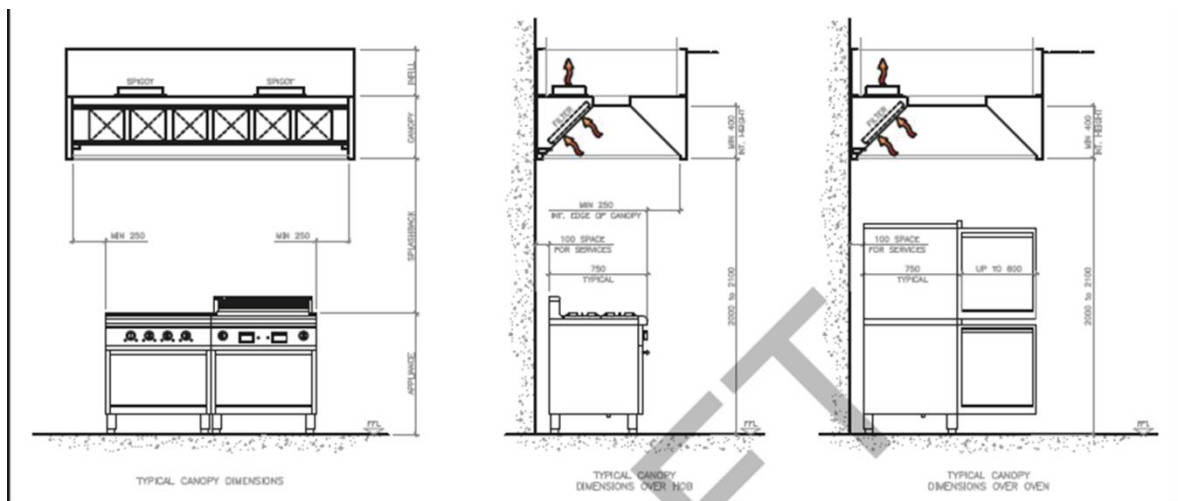
Diameter	Length	63	125	250	500	1000	2000	4000	8000
RSA(F) 450/450	450	0	1	4	12	12	9	6	6
RSA(F) 450/900	900	0	1	7	21	21	15	10	8

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Cleaning and maintenance

Cleaning and maintenance schedule to be supplied to client to TR19 guidelines
This must be carried out by a competent registered BESA Ductwork cleaner no longer than 12 month intervals or earlier

Typical extraction canopy's below



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Risk Assessment for Odour EMAQ

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.

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. <i>Turkish, Middle Eastern or any premises cooking with solid fuel</i>
	High	7	Vietnamese, Thai, Indian, Japanese, Chinese, <i>steakhouse</i>
	Medium	4	Cantonese, Italian, French, Pizza (gas fired),
	Low	1	Most pubs (no fried food, mainly reheating and sandwiches etc), Tea rooms ¹



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Premises type	Dispersion	Proximity of receptors	Size of Kitchen	Cooking Type	Total Score
Restaurant	10	10	3	10	33

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:		



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Odour Arrestment Plant Performance	
Low to medium level control may include:	1. Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.1 second residence time). 2. Fine filtration followed by counteractant/neutralising system to achieve the same level of control as 1.
High level odour control may include	1. Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.2 - 0.4 second residence time). 2. Fine filtration or ESP followed by UV ozone system to achieve the same level of control as 1.
Very high level of odour control may include:	1. Fine filtration or ESP followed by carbon filtration (carbon filters rated with a 0.4 - 0.8 second residence time). 2. Fine filtration or ESP followed by carbon filtration and by counteractant/neutralising system to achieve the same level of control as 1. 3. Fine filtration or ESP followed by UV ozone system to achieve the same level of control as 1.

Circular duct

SR



Description

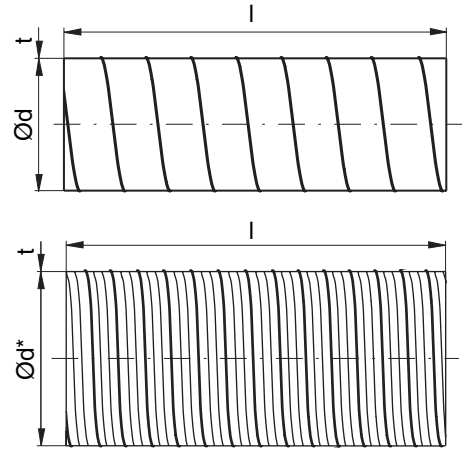
Circular duct.

Ducts are always produced locally and can therefore have different thicknesses and other specifications per country.

The ducts can be produced both with and without click function (notches).

Please specify when ordering.

Dimensions



Ød std nom	O πd m	A $\pi d^2/4$ m ²	t std [mm]	l std [mm]	ml std kg/m
63	0,198	0,003	0,5	3000	0,89
80	0,251	0,005	0,45	3000	0,91
100	0,314	0,008	0,45	3000	1,14
112	0,352	0,010	0,5	3000	1,42
125	0,393	0,012	0,45	3000	1,41
140	0,440	0,015	0,5	3000	1,76
150	0,471	0,018	0,5	3000	1,89
160	0,503	0,020	0,5	3000	2,02
180	0,565	0,025	0,5	3000	2,26
200	0,628	0,031	0,5	3000	2,56
224	0,704	0,039	0,6	3000	3,42
250 *	0,785	0,049	0,5	3000	3,18
280	0,880	0,062	0,55	3000	3,92
300 *	0,942	0,071	0,55	3000	4,20
315 *	0,990	0,078	0,55	3000	4,41
355 *	1,115	0,099	0,55	3000	4,96
400 *	1,257	0,126	0,55	3000	6,01
450 *	1,414	0,159	0,7	3000	8,60
500 *	1,571	0,196	0,7	3000	9,54
560 *	1,759	0,246	0,8	3000	12,2
600 *	1,885	0,283	0,7	3000	13,1
630 *	1,979	0,312	0,7	3000	12,0
710 *	2,231	0,396	0,8	3000	15,5
800 *	2,513	0,503	0,8	3000	17,4
900 *	2,827	0,636	0,9	3000	21,7
1000 *	3,142	0,785	0,9	3000	24,1
1120 *	3,519	0,985	0,9	3000	27,0
1250 *	3,927	1,227	0,9	3000	30,2
1400 *	4,398	1,539	1,25	2400	48,0
1500 *	4,712	1,767	1,25	2400	51,4
1600 *	5,027	2,011	1,25	2400	54,8

* With outturned stiffening corrugation.

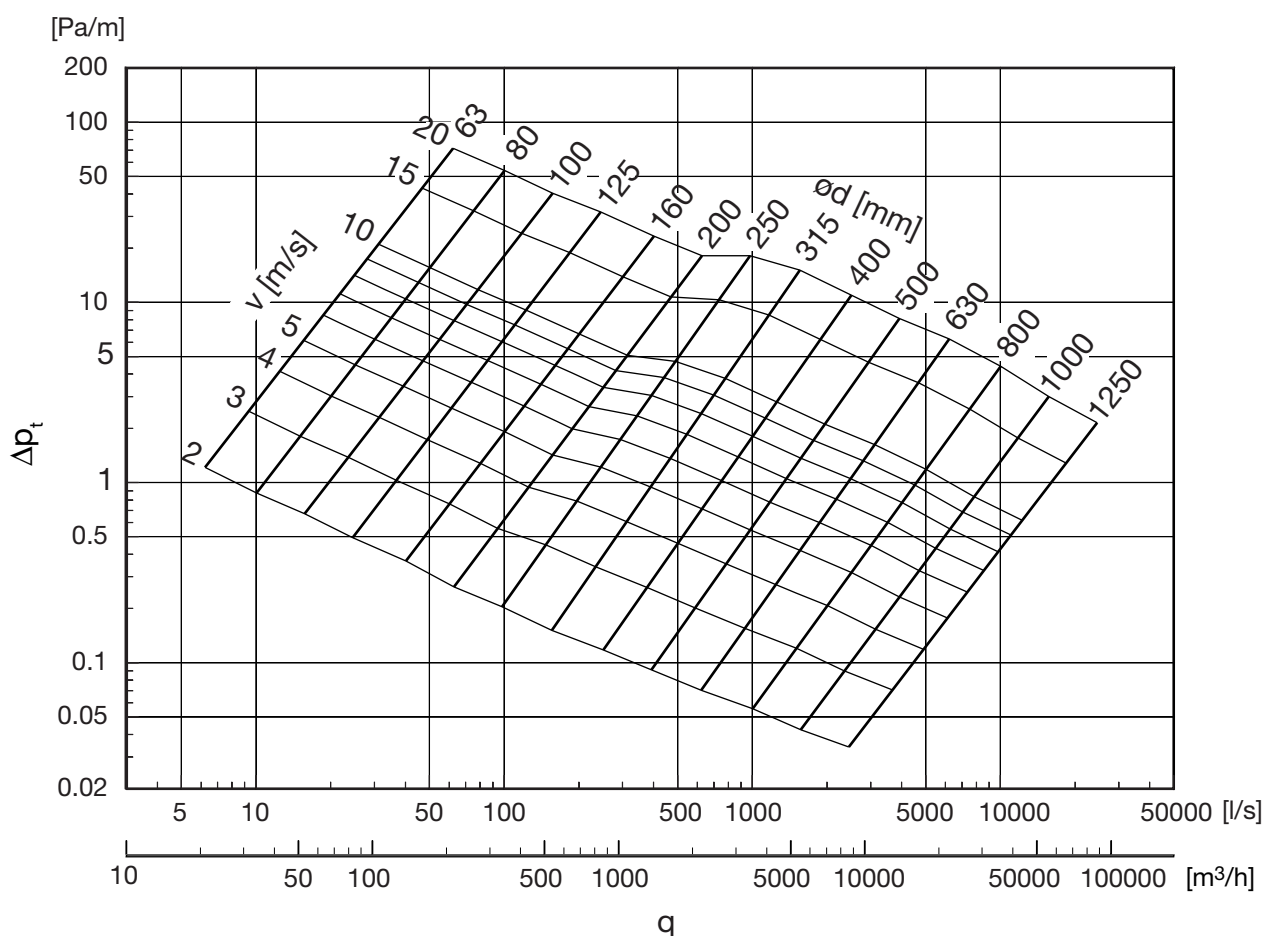
Ordering example

	SR	200	3000	CLIC
Product				
Dimension Ød				
Length l				
Type				

Circular duct

SR

Technical data



Special versions

We can supply ducts with the following special designs:

- In intermediate dimensions, see page 15.
- Extra tight, with nitrile rubber seal in the lock seam
- In other sheet metal thicknesses

Extra tight, with seam seal

When extremely good sealing is required in the spiral seam, the ducts can also be supplied with a special rubber seal in the seam.

This seal is very effective at stopping leakage of vegetable oils and greases, and most petroleum products including white spirit.

Other sheet metal thicknesses

If extra stability is needed in ducts, because of high negative pressure etc., they can be supplied with thicker sheet metal than standard. Remember that the thickness increase always reduces the inner diameter. Fittings for such special ducts must be specified separately and sometimes have to be made specially.

Reinforcement corrugations

Ducts of $\phi 250$ mm and above are normally given stiffening corrugations to increase radial stiffness.



Circular duct

SR

Technical data

Strength

Positive pressure

In case of high positive pressure, the seal moulding lips will first start to whistle. At considerably higher pressure, the joints between the ducts will be forced apart. If you manage to fix the connections very well, the ducts will burst at their seams at even higher pressure. The high pressures needed for this to happen are not relevant to ventilation installations.

Negative pressure

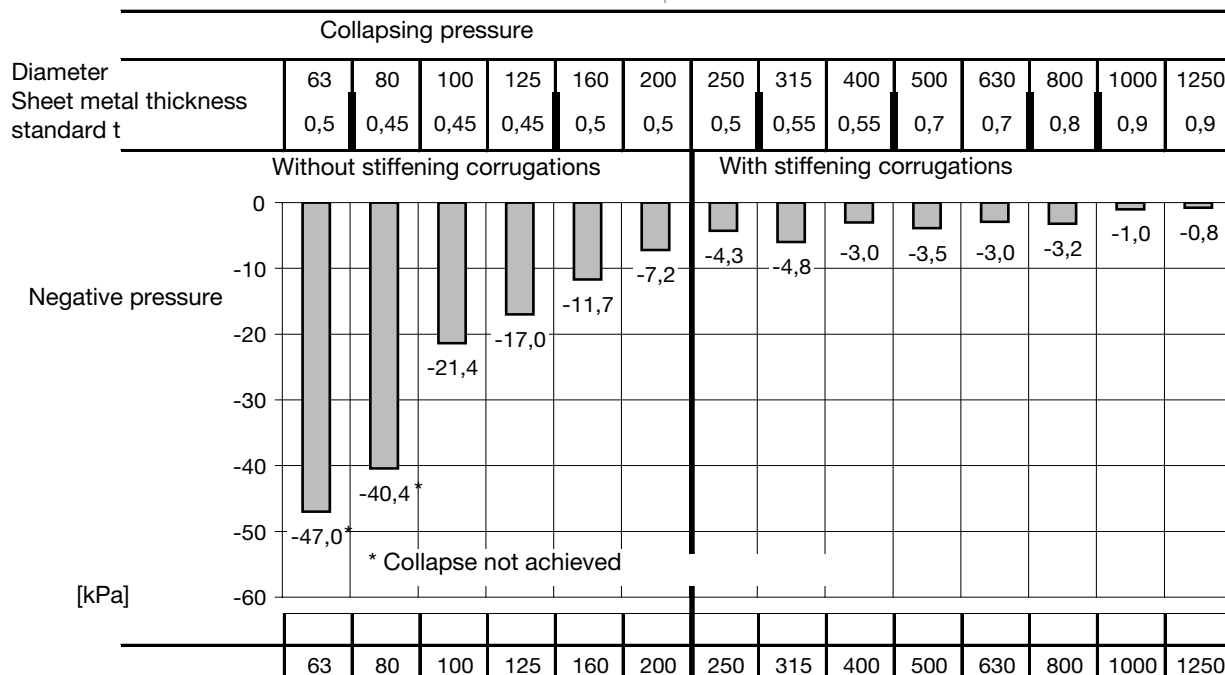
In installations with high negative pressure, there is a risk that the ducts could collapse.

This phenomenon is referred to as buckling, and can suddenly happen at the weakest point in the system. Buckling wanders along the duct, which can be completely flattened. The weakest point is frequently a "transport dent" on a duct. For this reason, only use undamaged ducts in systems which are close to the critical pressure!

Strength and leakage

The performance of the gasket ability for tightness is different from the pressure limits and is shown in the table below.

In exceptional cases, additional strong ducts and fittings are needed. Lindab has developed a system that can withstand down to 5000 Pascal's negative pressure. To minimize costs and to be sure of the performance of the specific system, contact Lindab for precise dimensioning.



	Min Dim [nom]	Max Dim [nom]	Max Negative pressure [Pa]	Min Positive pressure [Pa]
Safe Gasket stability	63	1600	-5000	3000
Duct system Eurovent certified	63	315	-5000	2000
Duct system Eurovent certified	400	1250	-750	2000
Duct system according to EN 12237	63	1250	-750	2000
Duct system - Strong solution on request	63	1600	-5000	3000

Roof hood

HF



Description

Ventilation hood for air exit above roof, suitable for both industrial and comfort ventilation. The air is ejected in an upwards-directed jet. This avoids contaminating the air in the vicinity of the hood, and soiling of the area around the hood. The ejection is so effective that you can install a fresh air inlet in the immediate vicinity of the hood, without any special precautions.

The hood is made of galvanised sheet steel, and can also be supplied in other materials such as stainless steel sheet 1.4301, stainless acid-resistant steel sheet 1.4404, aluzinc AZ185 and painted in various colours, to special order. It has a net over the opening and an internal rain funnel to collect rainwater and snow, which is drained out of the hood through a hose. The hose can withstand temperatures of between -45 and +65 °C.

The hood has a flange connection, which includes a mating flange.

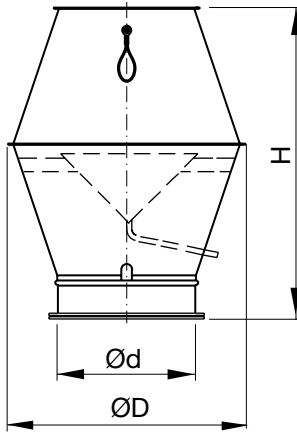
To avoid damage to the net in the opening the hood is supplied with transport protection. This must be removed before the hood is taken into service.

The hood is delivered with three turnable lifting and anchoring wire-loops. A single wire-loop shall not be exposed for forces exceeding 1500 N.

Ordering example

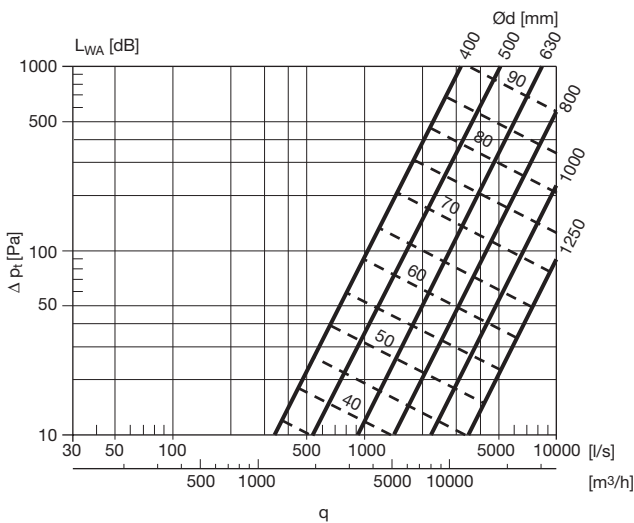
Product code **HF**
Dimension $\varnothing d$ **630**

Dimensions



				Roof through con- nection TGR	
Ød nom	ØD mm	H mm	m kg	50 mm	100 mm
				Size	
400	685	905	11,1	5	6
500	855	1055	20,0	6	7
630	1075	1295	38,0	8	9
800	1360	1640	63,0	9	10
1000	1600	2110	89,1	11	12
1250	2020	2615	118	14	15

Technical data





Commercial Kitchen Odour control systems



TECHNICAL & OPERATION MANUAL

This product creates OZONE (O₃). Inhalation of ozone causes dryness of the mouth, coughing, and irritates the nose, throat, and chest. It may cause difficulty in breathing, headaches and fatigue, and could aggravate existing bronchial conditions including asthma. The characteristic sharp, irritating odour is readily detectable at low concentrations (0.01 to 0.05 ppm).

**TAKE YOUR TIME TO CAREFULLY READ AND UNDERSTAND THE MANUAL BEFORE USING THE PRODUCT.
ALWAYS KEEP THE MANUAL WITH THE PRODUCT**



Commercial Kitchen Odour Control Systems

Unit5 Firefly Square Plantation Road Burscough Industrial Estate L40 8JT

VAT No. 245073616

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Commercial Kitchen Odour control systems

1 PREFACE

Using this manual This manual is intended to be used as a work of reference for professional, well trained and authorised users to be able to safely install, use, maintain and repair the product mentioned on the cover of this document. Please note that it is strongly recommended that training is given by FusionAir prior to operatives attempting to carry out maintenance or repair work on this product.

Service and technical support

For information about specific adjustments, maintenance or repair jobs which are not dealt with in this manual, please contact the supplier of the product.

2 SAFETY INSTRUCTIONS AND WARNINGS

General

The manufacturer does not accept any liability for the damage to the product or personal injury caused by non-observance of the safety instructions in this manual, or by negligence during installation, use, maintenance and repair of the product mentioned on the cover of this document or corresponding accessories.

Specific working conditions or used accessories may require additional safety instructions. Immediately contact your supplier if you detect a potential danger when using the product. The user of the product is always fully responsible for observing the local safety instructions and regulations. Observe all applicable safety instructions and regulations.

User manual

- Everyone working on or with the product must be familiar with the contents of this manual and must strictly observe the instructions therein. The management should instruct the personnel in accordance with the manual and observe all instructions and directions given.
- Never change the order of the steps to perform
- Always keep the manual with the product.



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Commercial Kitchen Odour control systems

Pictograms and instructions on the product

- The pictograms, warning and instructions attached to the product are part of the safety feature. They must not be covered or removed and must be present and legible during the entire life of the product.
- Immediately replace or repair damaged or illegible pictograms, warnings and instructions. Users

Users

- The use of this product is exclusively reserved to authorised, trained and qualified users. Temporary personnel and trainees can only use the product under supervision and responsibility of skilled engineers.

Intended use

The product has been designed exclusively for the treating odours which are released during the most common cooking processes in commercial kitchens. Using the product for other purposes is considered contrary to its intended use.

Dwell Time

For the effectiveness of this unit
The dwell time should be 0.2/0.4 m³/sec over a 12m duct run

The manufacturer accepts no liability for any damage or injury resulting from such use.

Safety features

- All safety features must be correctly mounted and can only be removed for maintenance and repair jobs by skilled and authorised service engineers
- The product must not be used if the safety features are not only partly present or defective. • The safety features should be regularly checked for their proper functioning, and if required, be immediately repaired.

Modifications

A modification of the product is not allowed.



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Commercial Kitchen Odour control systems

Use of the FUSION-OZ10

The product is suitable for the filtration of extracted fumes from commercial kitchens. The product should always be used in combination with pre-filters that are suitable for kitchen extract

4 GENERAL DESCRIPTION This FUSION-OZ10 can remove, at high efficiency, odorous compounds. The FUSION-OZ10 is designed to be installed in the extraction ducting of a commercial kitchen downstream of the extraction hood and upstream of the fan

INSTALLATION

It is recommended that the unit is commissioned by FusionAir to ensure that the unit is installed correctly and safely. The following are very important safety points that must be adhered.

- The unit must be installed on the suction side (negative pressure) of the fan

The unit will automatically activate the ozone once the negative pressure builds up in the ductwork

- The FUSION-OZ10 will produce ozone which is a poisonous gas with a distinctive smell. The kitchen extract system into which the FUSION-OZ10 system is installed must be sound with no holes that will allow ozone to escape. If ozone is smelt within the premises the UV-O must be switched off immediately.
- Care must be taken that the kitchen extract point is not close to air inlets, windows etc. where elevated ozone levels will cause a problem.
- Rigid galvanized ducting should be used to connect the FUSION-OZ10 unit.

The following points should also be considered.

The FUSION-OZ10 unit should be located in close proximity to the kitchen extract ducting.

The unit should be positioned with good access to allow for future servicing and maintenance.

150mm diameter galvanised metal ducting should be used to connect the FUSION-OZ10 unit to the kitchen extract duct. The ducting should connect securely to the spigot on the front of the unit and should spigot into the kitchen extract duct. It must be proved that when the kitchen extract fan is running air passes through the air inlet of the FUSION-OZ10 and into the kitchen extract duct. Under no circumstances should the unit be used if airflow is the opposite direction. The vent on the air inlet hood can be used



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Commercial Kitchen Odour control systems

to regulate the airflow through the system. The air flow needs to be at least sufficient to activate the air-flow sensor.



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RY 5000B

Electrostatic Air Cleaner (Without Blower)

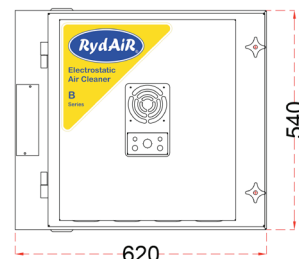


Industrial grade Electrostatic Air Cleaners for collection of dry and wet particulates like dust, oil mist, cooking fumes and various pollutants. Typical application include commercial kitchen exhausts, Air Handling Units (AHUs), factories, workshops, CNC machine shops and many other premises.

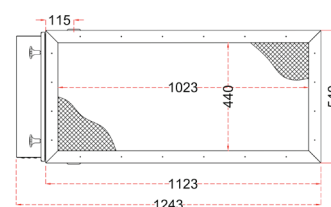


SPECIFICATIONS

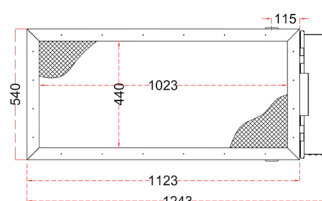
Dimensions/Weight	H:540 x W:1243 x L:620mm / 90Kg
Cabinet	Galvanized Steel, 1.4mm / 16 Gauge
Finishing	Powder Coated, Dark Blue
Air Volume (Rated-Max)#	CFM: 3000 – 4100; CMH: 5000-7000; L/s: 1400-1900
Static Pressure	50 pa / 0.2"
Voltage & Power	230 VAC +/-10%, 50/60Hz, 75Watts
Ionising Voltages	High Voltage: 12KVdc, Low Voltage: 6KVdc
Power Supply	High Frequency solid state and self regulating design
Air Flow Direction	Default : Right to Left; Reversible : Left to Right
Features	*Short circuit, arc protection and auto restore power supply *BMS (Building Management System) terminals provided *Auto power cut-off when door is opened *Indicator LEDs for normal or wash indicator *Set of Terminals for remote LED normal or wash indicator
Particle size	From 0.01 microns - 10 microns
Efficiency	DOP Test, up to 95% single pass, up to 99% double pass, calculated. ASHRAE 52.2-2012, up to 96% single pass, up to 99% double pass, calculated. NIOSH 5026 OIL MIST FIELD TEST : UP TO 96%
MERV Ratings	Meets MERV 15 at velocity of 2.5m/s to 3.8m/s
Pre-Filter	Aluminum wire mesh, Washable x 2
Electrostatic Cell	H: 472mm, W: 550mm, L: 340mm
No of Cells / Weight	2/16.5Kg
No Of Plates per Cell	59
Total Collecting Area	12.14 Sq meters
Post Filter (Optional)	Aluminum Wire Mesh, Washable x 2
Installation	Ceiling Suspended; Wall or Frame Mounted, Multiple Units Stack



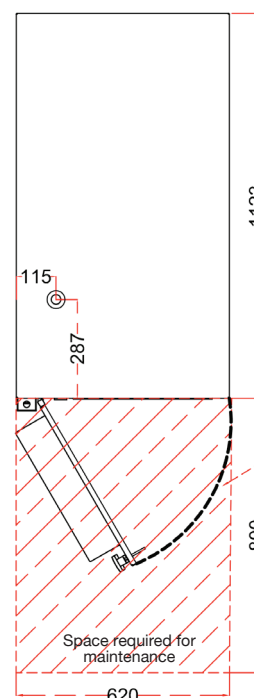
Front View



Air Intake View

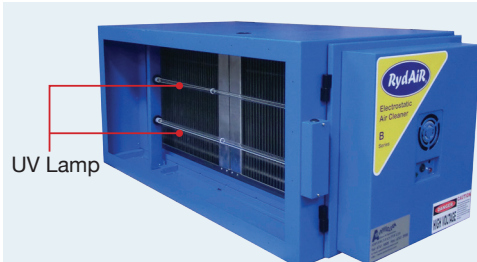


Air Discharge View



Top View

RY5000B with UV Ozone Lamp



RY5000B-UV03

ODOUR CONTROL OPTION:

- UV ozone Lamp fitted after electrostatic cell
- Lamp Wattage : 150 watts (75 W x 2 lamps)
- Ozone output : 14 Grams/Hour
- Lamp Life : 13,000 Hours
- Lamp Operation Blue LEDs on Unit's Panel
- All accessories are contained in RY Unit

LONGAR® Type 3

Low Pressure Baffle Filter



*Stainless steel 240 grit finish - standard handles



*Stainless steel bright annealed finish - optional fixed high temp handles

LONGAR® TYPE 3 FEATURES:

- Low pressure loss
- Polished finish or 240 grit dull grain finish
- Fully welded construction – all stainless steel construction
- Robust construction, our strongest filter yet
- Folding handles and drain holes standard (optional rigid handle available)
- Meets HVCA DW172 requirements
- Stock Sizes 2-3 days delivery, custom sizes available
- Cutsafe safety edges

APPLICATIONS

- Commercial kitchens
- Water mist separation
- Spark arrestors
- Sand filtration

LONGAR® TYPE 3 BAFFLE FILTER

For use in commercial kitchens and ventilation to extract grease laden air and offer a barrier to flame. The Type 3 has been developed for customers that require a lower pressure baffle filter, it still holds many of the features of the premium Type 2 yet offer a lower resistance to air. The Type 3 is available in standard depths of 20mm and 45mm. Custom sizes available on request. Meets DW172 and ISO9001.

CONSTRUCTION / MATERIAL SPECIFICATION

As standard all baffles are manufactured with Stainless Steel 430 polished finish and 240 Grit Dull Grain Finish. Maximum Operating temperature 400C or 750F.

FITTING INSTRUCTIONS

- Fit products, handles in direction of air in.
- Product vertical in air stream.

HANDLING

- Handle with care when unpacking.
- Store in dry and frost protected place.

MAINTENANCE

- All maintenance should be carried out in accordance with the planned maintenance set by installation contractor.
- When handling any components suitable PPE should be used - gloves & eye protection and access equipment.
- Filters should be cleaned by a trained operative either daily for heavy use or weekly for light use.
- For more exact guide to cleaning you should contact a cleaning specialist.

PACKAGING

All units are packaged in double wall boxes with separators for standard sizes, glued closed for protection whilst in transit against contamination.

FILTER CLASSIFICATION:

- Filter Class G2.
- UL Class 2.

MANUFACTURED TO:

- DW172.
- ISO9001.

For technical specifications, part numbers and ordering information, please see overleaf.

LONGAR® Type 3

Low Pressure Baffle Filter

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 blade is the height; please ensure correct orientation is given when ordering.

SIZE ORDERING GUIDE (TOLERANCES +/- 2mm)			
Part Number	Actual Size HxWxD	Nominal Size HxWxD	Weight
TYPE3ST10X20	243 x 496 x 45mm	254 x 508 x 50mm	1.47kgs
	9.57 x 19.53 x 1.77"	10 x 20 x 2"	3.23lbs
TYPE3ST12X20	295 x 496 x 45mm	304 x 508 x 50mm	1.79kgs
	11.61 x 19.53 x 1.77"	12 x 20 x 2"	3.94lbs
TYPE3ST16X16	395 x 395 x 45mm	406 x 406 x 50mm	1.90kgs
	15.55 x 15.55 x 1.77"	16 x 16 x 2"	4.18lbs
TYPE3ST16X20	395 x 496 x 45mm	406 x 508 x 50mm	2.39kgs
	15.55 x 19.53 x 1.77"	16 x 20 x 2"	5.26lbs
TYPE3ST18X18	444 x 444 x 45mm	457 x 457 x 50mm	2.42kgs
	17.48 x 17.48 x 1.77"	18 x 18 x 2"	5.32kgs
TYPE3ST20X16	496 x 395 x 45mm	508 x 406 x 50mm	2.39kgs
	19.53 x 15.55 x 1.77"	20 x 16 x 2"	5.26lbs
TYPE3ST20X20	496 x 496 x 45mm	508 x 508 x 50mm	2.87kgs
	19.53 x 19.53 x 1.77"	20 x 20 x 2"	6.31lbs
TYPE3ST24X24	597 x 597 x 45mm	609 x 609 x 50mm	4.35kgs
	23.50 x 23.50 x 1.77"	24 x 24 x 2"	9.57lbs
FINAL RECOMMENDED PRESSURE DROP: 400 PASCALS			



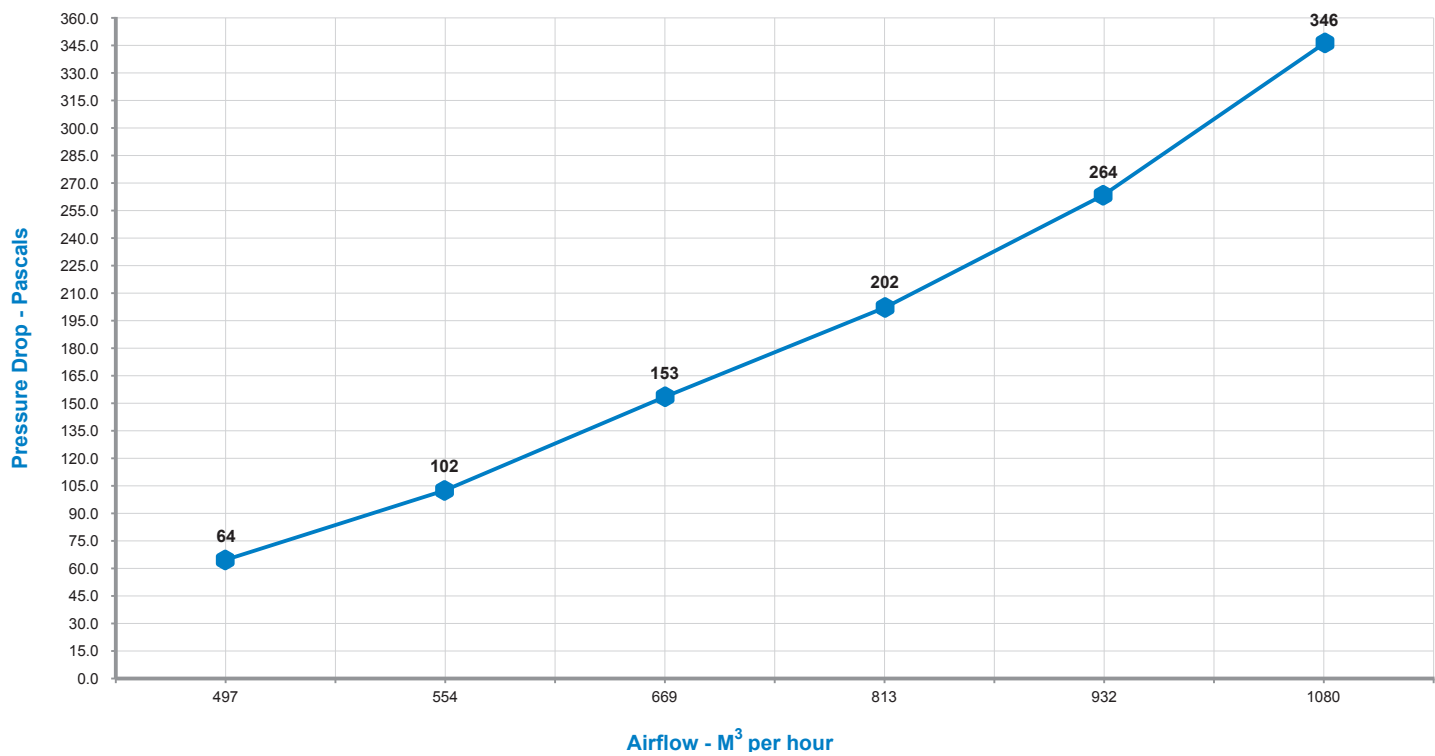
LONGAR INDUSTRIES

FILTERS AND FABRICATIONS FOR A CLEANER ENVIRONMENT

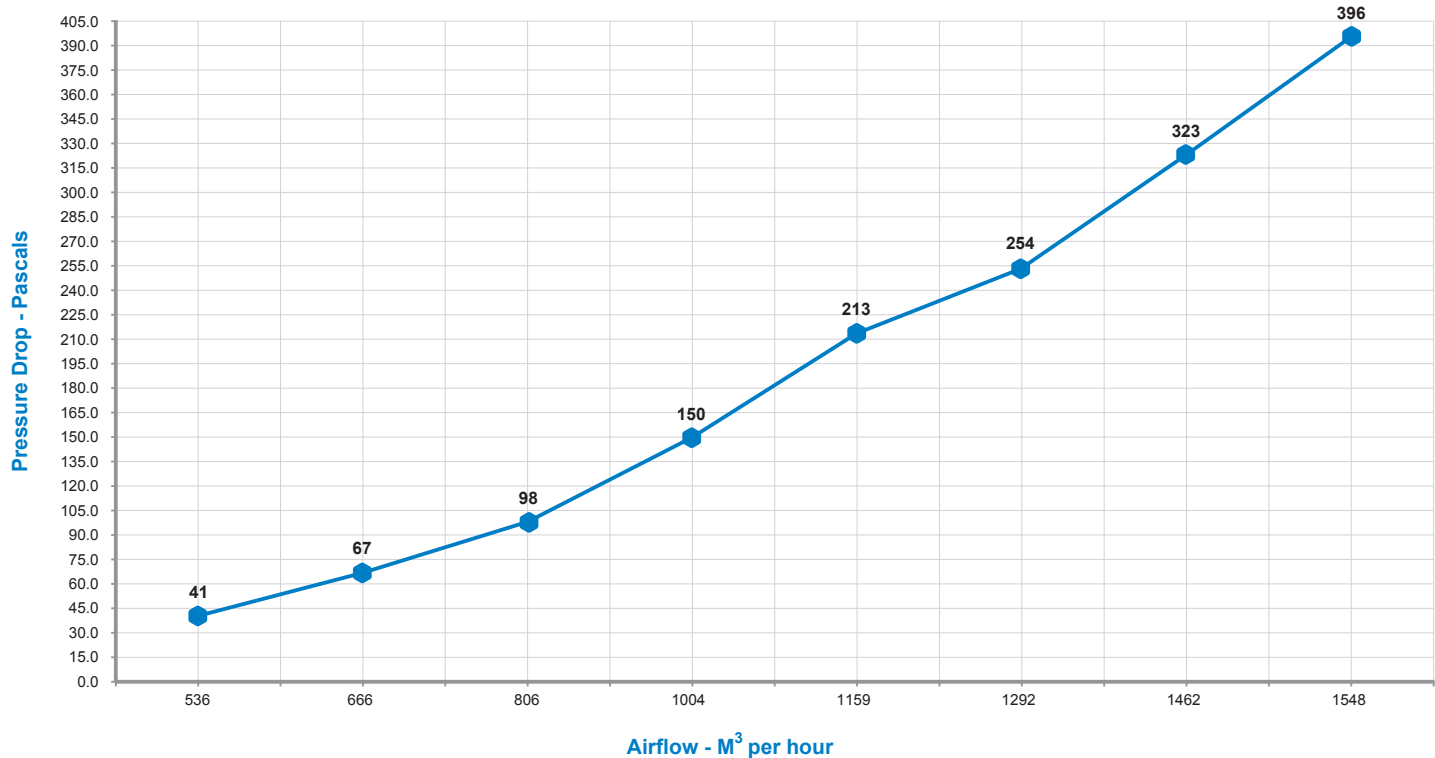
Longar Industries Limited, Unit 25, Glenmore Business Park, Colebrook Way Weyhill Road, Andover, Hampshire SP10 3GZ United Kingdom
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As part of our program for continuous improvement, Longar Ltd reserves the right to change specifications without notice. 15-01-2016.

LONGAR® Type 3 - Low PD - Baffle Filter - 243x495x45mm



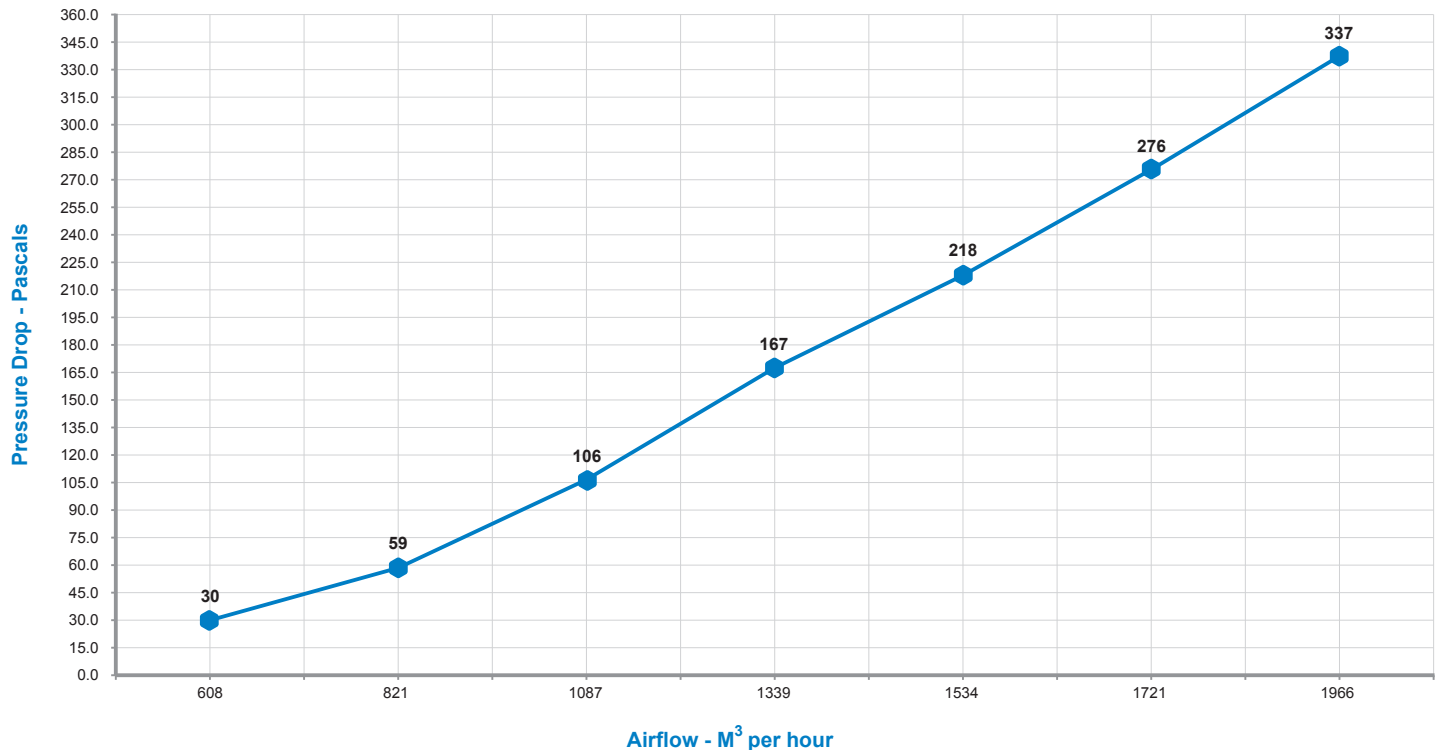
LONGAR® Type 3 - Low PD - Baffle Filter - 395x395x45mm



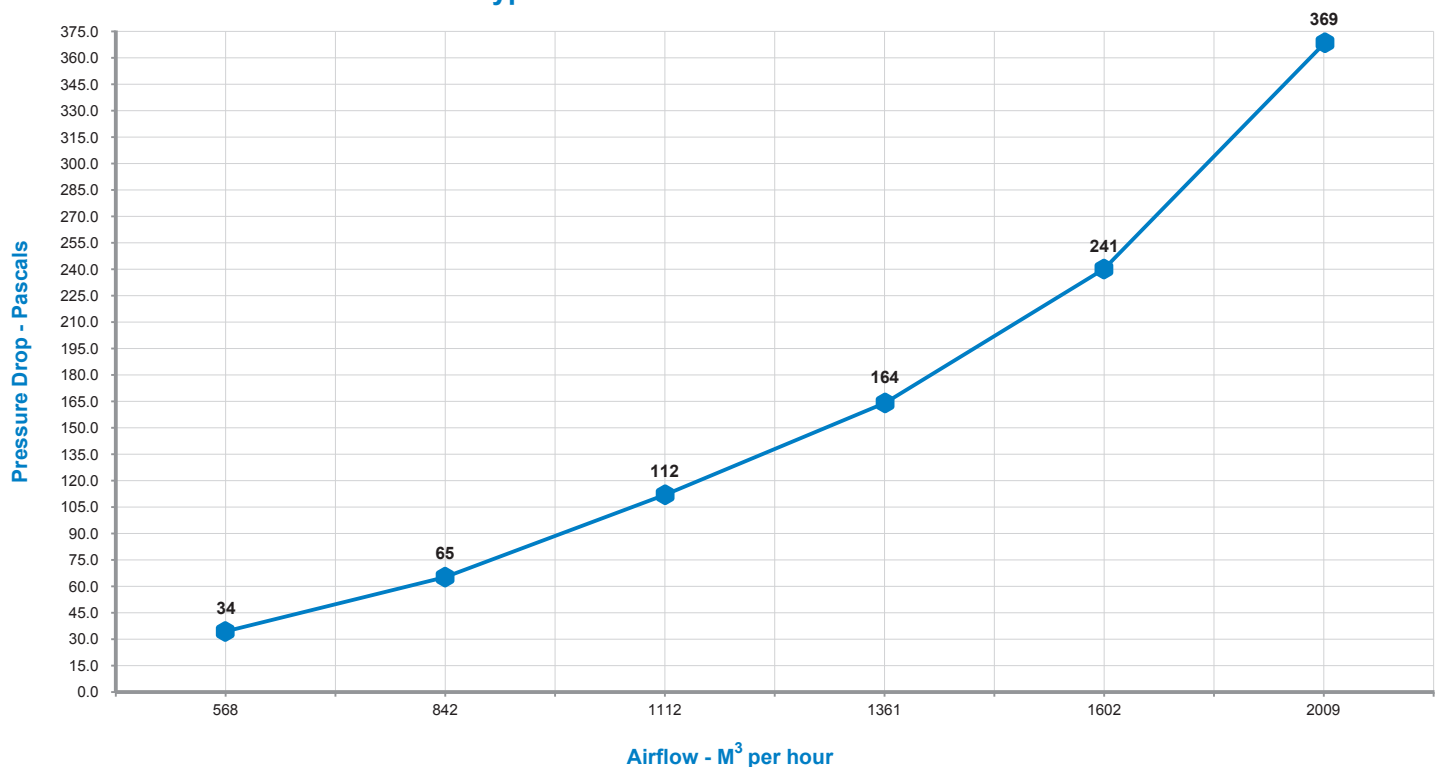
LONGAR INDUSTRIES

FILTERS AND FABRICATIONS FOR A CLEANER ENVIRONMENT

LONGAR® Type 3 - Low PD - Baffle Filter - 395x496x45mm



LONGAR® Type 3 - Low PD - Baffle Filters - 444x444x45mm



LONGAR INDUSTRIES

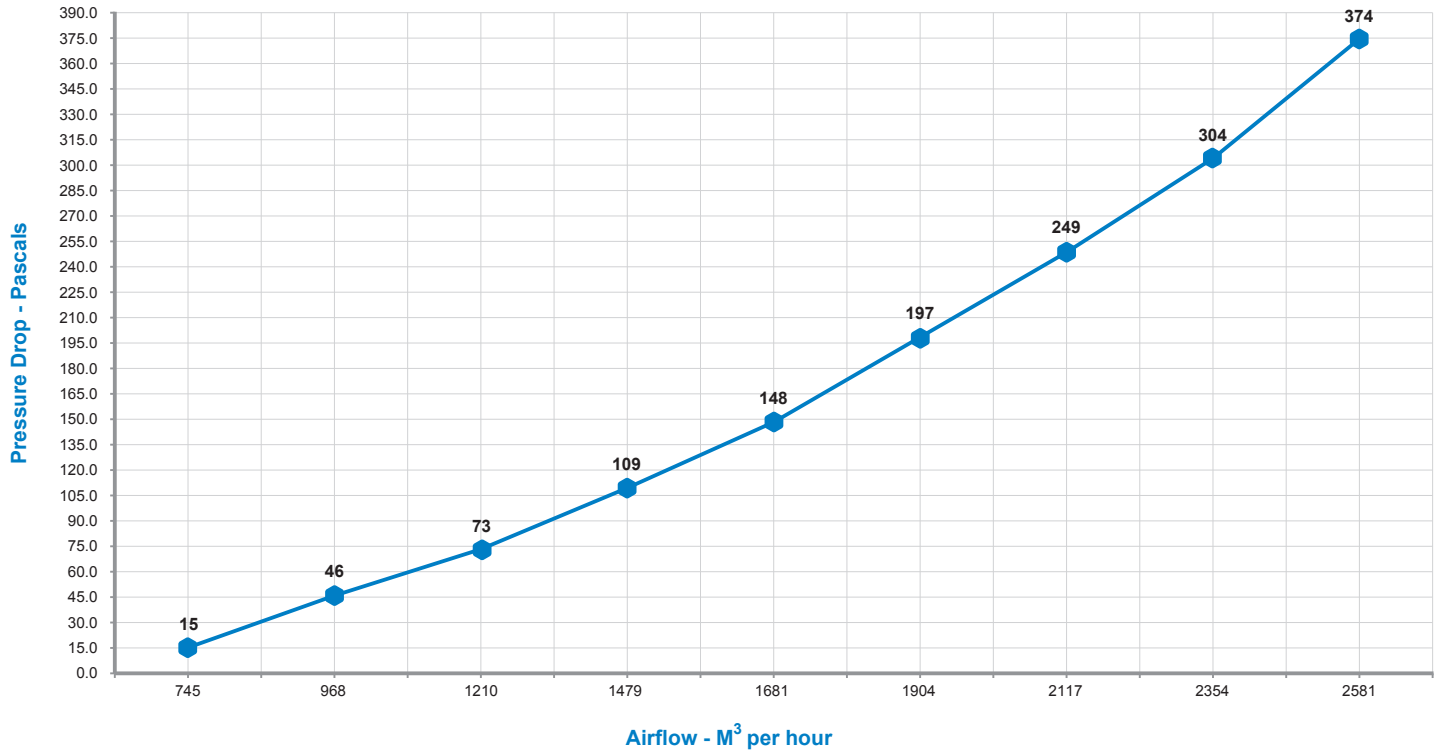
FILTERS AND FABRICATIONS FOR A CLEANER ENVIRONMENT

Longar Industries Limited, Unit 25, Glenmore Business Park, Colebrook Way Weyhill Road, Andover, Hampshire SP10 3GZ United Kingdom

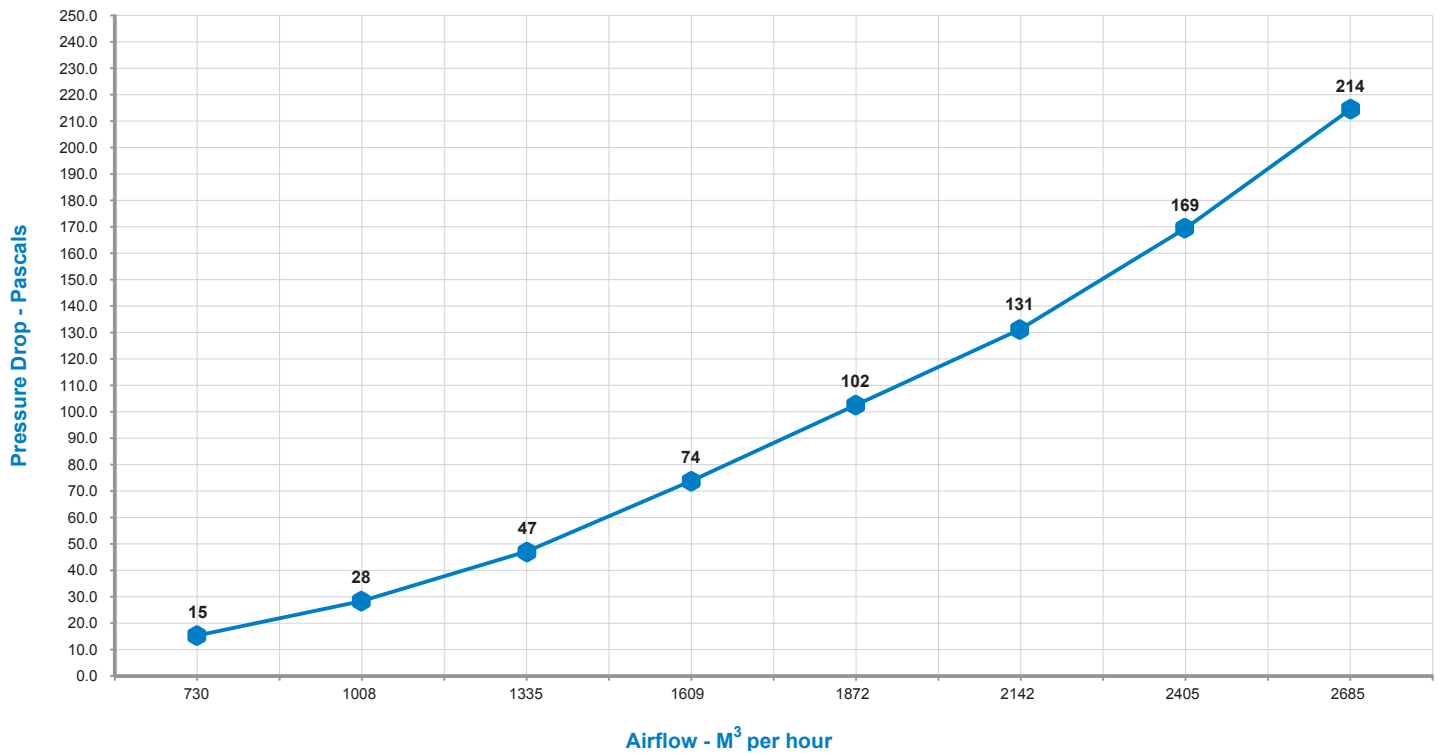
T +44 (0)1264 332 993 F +44 (0)1264 332 994 E info@longarind.com W www.longarind.com

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LONGAR® Type 3 - Low PD - Baffle Filters - 496x496x45mm



LONGAR® Type 3 - Low PD - Baffle Filters - 597x597x45mm



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FILTERS AND FABRICATIONS FOR A CLEANER ENVIRONMENT

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CYLINDRICAL CASED AXIAL FLOW FANS

COMPACT TCBB / TCBT series - ALUMINIUM IMPELLERS

Range of cylindrical cased axial flow fans fitted with aluminium impellers and manufactured from high grade rolled galvanised steel and protected against corrosion by cataforesis primer and black polyester paint finish.

All models are supplied with pre-wired wiring junction box located on the outside of the fan casing for easy wiring access. Available with 4 pole single or three phase motors.

Motors

Single phase motor (TCBB) or three phase motor (TCBT).

Models 250, 315, 355 and 400:

External rotor motor, IP44, Class F, thermal protection, working temperature from -40°C to $+70^{\circ}\text{C}$.

Models 450, 500, 560 and 630: IP65, Class F, thermal protection, working temperature from -40°C to $+70^{\circ}\text{C}$.

Models 4/710 and 800: IP55, Class F, working temperature from -40°C to $+70^{\circ}\text{C}$.

All motors are speed controllable by autotransformer except models /4-560H, /4-630, 710 and T/800.

Three phase motors are speed controllable by inverter.

Electrical supplies:

Single phase 230V-50Hz.

(Capacitor located inside the wiring terminal box).

Three phase 230/400V-50Hz or 400V-50Hz.



NEXT DAY
delivery*



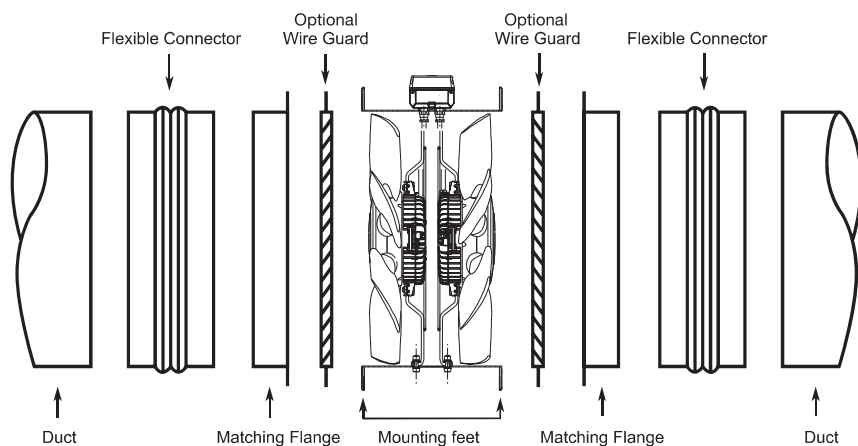
Configuration for models /4-710 and 800.



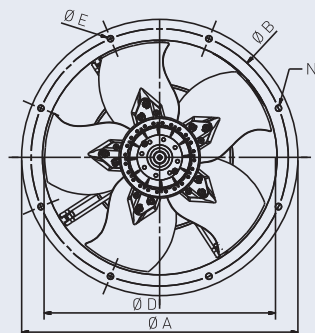
Configuration for models 250, 315, 355 and 400.

Standard airflow direction: Form B (impeller over motor)

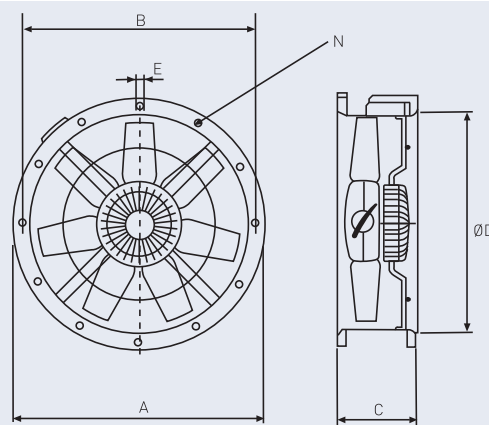
MOUNTING ACCESSORIES



DIMENSIONS (mm)

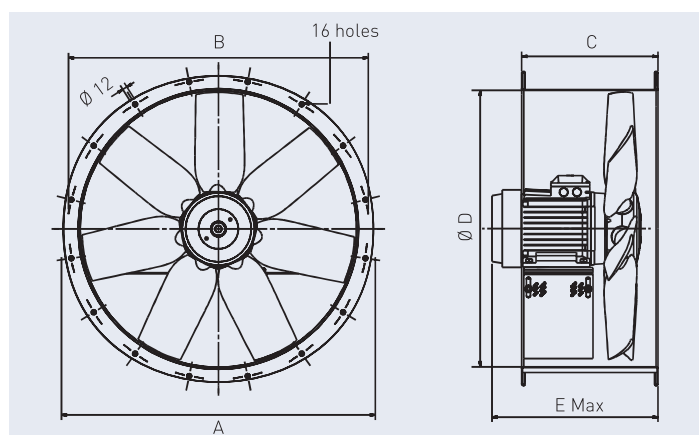


Models 250, 315, 355 and 400



Models 450, 500, 560 and 630

Model	Ø A	Ø B	C	Ø D	Ø E	Number of holes N
250	327	292	170	254	10	4
315	386	355	170	315	10	8
355	426	395	170	355	10	8
400	487	450	210	400	12	8
450	537	500	180	450	12	8
500	595	560	180	500	12	12
560	655	620	240	560	12	12
630	725	690	240	630	12	12



Model	Ø A	B	C	Ø D	E
					4 poles
710/L (4 poles)	806	770	380	710	415
710/H (4 poles)	806	770	380	710	444
800/L	896	860	380	800	437
800/K	896	860	380	800	448
800/G	896	860	380	800	447 (5,5kW) 515 (7,5kW)
800/H	896	860	380	800	515

TECHNICAL CHARACTERISTICS

Model	Speed (r.p.m.)	Maximum absorbed power (W)	Maximum current (A)		Sound pressure level @3m (dB(A))	Max. air volume (m³/h)	Weight (kg)	Speed controller		Variable frequency inverter	
			230 V	400 V				ELECTRONIC	AUTO- TRANSFORMER	S&P VFD*	
SINGLE PHASE 4 POLE											
TCBB/4-250/H	1430	44	0,2	-	42	900	8	REB-1	REV-3N		
TCBB/4-315/H	1435	105	0,6	-	52	1.990	11	REB-1	REV-3N		
TCBB/4-355/H	1420	120	0,6	-	52	2.462	13,2	REB-1	REV-3N		
TCBB/4-400/H	1420	360	1,6	-	60	5.190	15,5	REB-3	REV-5N		
TCBB/4-450/H	1410	594	2,6	-	63	6.810	21	REB-5	REV-5N		
TCBB/4-500/H	1410	636	2,8	-	66	7.500	25	REB-5	REV-5N		
TCBB/4-560/L	1405	1289	6	-	68	11.970	33	REB-6	REV-7N		
TCBB/4-560/H	1390	1461	6,6	-	69	12.960	34,7	-			
TCBB/4-630/L	1365	1707	7,5	-	70	15.730	40	-			

THREE PHASE 4 POLE

TCBT/4-250/H	1470	42	0,3	0,2	42	900	8	-	-	S&P VFD-M10A	S&P VFD-T 5A
TCBT/4-315/H	1445	99	0,5	0,3	51	1.950	11	-	-	S&P VFD-M10A	S&P VFD-T 5A
TCBT/4-355/H	1415	117	0,5	0,3	52	2.470	13,2	-	-	S&P VFD-M10A	S&P VFD-T 5A
TCBT/4-400/H	1410	268	1,0	0,6	60	4.950	15,5	-	-	S&P VFD-M10A	S&P VFD-T 5A
TCBT/4-450/H	1405	526	1,9	1,1	63	6.650	21	-	-	S&P VFD-M10A	S&P VFD-T 5A
TCBT/4-500/H	1420	641	2,6	1,5	66	7.590	25	-	-	S&P VFD-M10A	S&P VFD-T 5A
TCBT/4-560/L	1415	1184	3,8	2,2	68	12.090	33	-	-	S&P VFD-M10A	S&P VFD-T 5A
TCBT/4-560/H	1390	1348	4,2	2,4	69	13.370	34,7	-	-	S&P VFD-M10A	S&P VFD-T 5A
TCBT/4-630/L	1410	1770	5,9	3,4	70	16.060	39	-	-	S&P VFD-M10A	S&P VFD-T 5A
TCBT/4-630/H	1400	1940	6,2	3,6	70	17.030	40	-	-	S&P VFD-M10A	S&P VFD-T 5A
TCBT/4-710/L	1435	2175	6,4	3,7	73	20.290	46	-	-	S&P VFD-M10A	S&P VFD-T 5A
TCBT/4-710/H	1460	3441	10,6	6,1	73	26.420	54	-	-	S&P VFD-M16A	S&P VFD-T 9A
TCBT/4-800/L	1460	3750	11,3	6,5	76	29.950	65	-	-	S&P VFD-M16A	S&P VFD-T 9A
TCBT/4-800/K	1460	5177	-	8,8	76	34.950	68	-	-	-	S&P VFD-T 13A
TCBT/4-800/G	1470	6146	-	11,1	77	40.040	81	-	-	-	S&P VFD-T 13A
TCBT/4-800/H	1475	7688	-	13	78	42.490	89	-	-	-	S&P VFD-T 17A

* Inverter control: VFD-M - 1-Phase 230V Input, 3-Phase 400V Output.

VFD-T - 3-Phase 400V Input, 3-Phase 400V Output.

TCBB/T AXIAL CASED FAN PERFORMANCE DATA

Airflow m³/s @ Static Pressure Pa

Model	0	25	50	75	100	125	150	175	200	250	300	350	400
SINGLE PHASE 4 POLE													
TCBB/4-250/H	0.249	0.176											
TCBB/4-315/H	0.553	0.501	0.425										
TCBB/4-355/H	0.684	0.623	0.554	0.324									
TCBB/4-400/H	1.402	1.312	1.218	0.980									
TCBB/4-450/H	1.928	1.864	1.782	1.618	1.512	1.425							
TCBB/4-500/H	2.084	2.015	1.942	1.860	1.762	1.633	1.465						
TCBB/4-560/L	3.325	3.241	3.154	3.060	2.954	2.829	2.671	2.474	2.249				
TCBB/4-560/H	3.384	3.298	3.211	3.121	3.027	2.920	2.777	2.558					
TCBB/4-630/L	4.439	4.322	4.203	4.080	3.951	3.808	3.646	3.460	3.247				

THREE PHASE 4 POLE

TCBT/4-250/H	0.248	0.136											
TCBT/4-315/H	0.540	0.507	0.459										
TCBT/4-355/H	0.686	0.622	0.538										
TCBT/4-400/H	1.376	1.276	1.181	0.976									
TCBT/4-450/H	1.848	1.763	1.674	1.575	1.462	1.330							
TCBT/4-500/H	2.108	2.037	1.964	1.884	1.795	1.686	1.539						
TCBT/4-560/L	3.359	3.272	3.180	3.083	2.971	2.837	2.663	2.451	2.192				
TCBT/4-560/H	3.714	3.616	3.515	3.403	3.265	3.080	2.838	2.603					
TCBT/4-630/L	4.547	4.431	4.312	4.187	4.053	3.904	3.739	3.557	3.363	2.819			
TCBT/4-630/H	4.731	4.627	4.519	4.406	4.281	4.136	3.959	3.733	3.492	3.052			
TCBT/4-710/L (1,5kW)	5.636	5.493	5.349	5.206	5.064	4.921	4.776	4.628	4.469	4.052	3.030		
TCBT/4-710/H (3kW)	7.338	7.193	7.047	6.898	6.743	6.580	6.406	6.220	6.018	5.587	5.170		
TCBT/4-800/L (3kW)	8.319	8.170	8.020	7.868	7.712	7.550	7.380	7.200	7.005	6.544	5.926	4.634	
TCBT/4-800/K (4kW)	9.708	9.549	9.390	9.228	9.064	8.895	8.719	8.536	8.343	7.912	7.364	6.363	
TCBT/4-800/G (5,5kW)	10.695	10.496	10.297	10.095	9.889	9.679	9.461	9.236	9.000	8.493	7.939	7.266	
TCBT/4-800/H (7,5kW)	11.804	11.587	11.371	11.154	10.937	10.719	10.501	10.283	10.066	9.630	9.162	8.540	

RSA 450/450/080 (F)

thickness 80mm, without Core

Item Number: [311355](#)

Silencer

silencer RSA(F) for use together with axial fans of AXC-Range. For effective noise suppress the silencer should be mounted directly before or after the fan. The silencers is supplied with a flange according Eurovent 1/2.



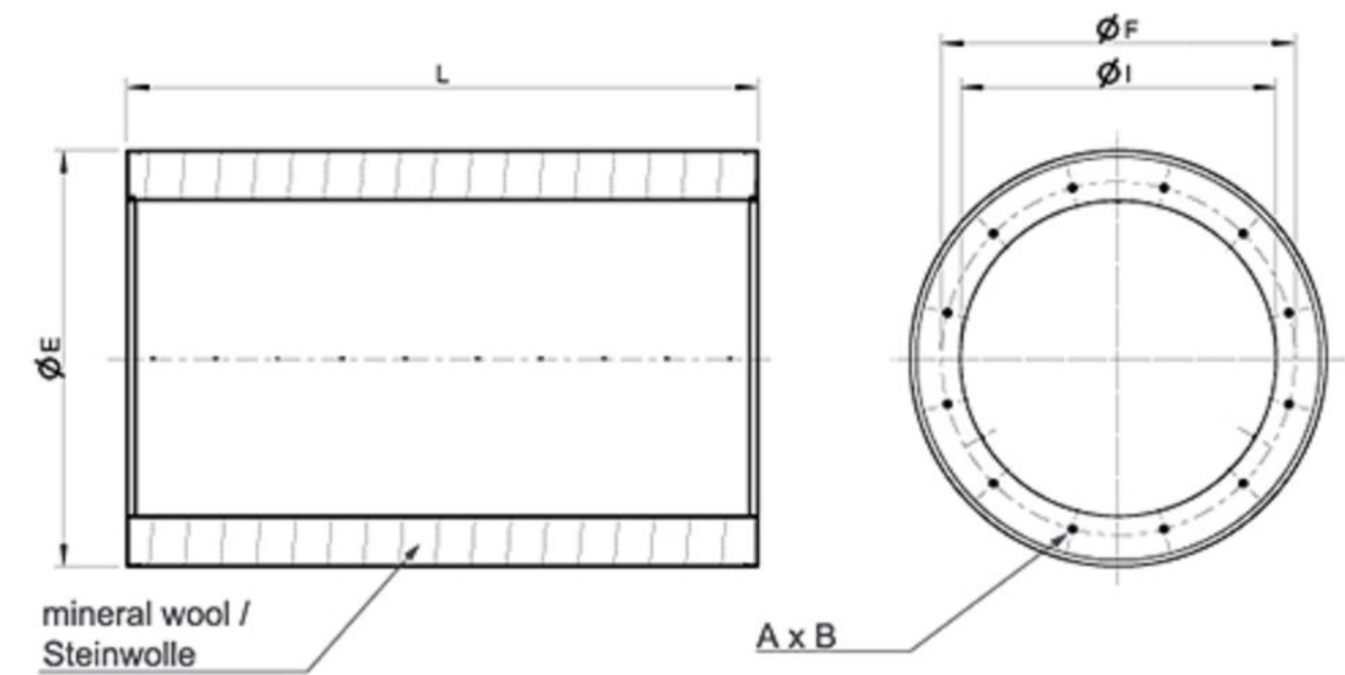
Technical parameters

Dimensions and weights

Weight

14.1 kg

Dimension



	$\varnothing I$	$\varnothing E$	$\varnothing F$	$A \times B$	L
RSA(F) 450/450	450	610	500	8 x M10	450

Acoustic

Noise suppression dB (mid-frequency Hz)

	125	250	500	1k	2k	4k	8k
RSA(F) 450/450	1	4	12	12	9	6	6
RSA(F) 450/675	1	6	17	17	13	9	8
RSA(F) 450/900	1	7	21	21	15	10	8

Acoustic data tested in accordance to ISO 7235
(test report number 9580180)

Documents

- [Overview_RSA.pdf](#)
- [2014-01_EC-DECLARATION OF CONFORMITY RSA DE-EN.PDF](#)

FSAF450B2DA Silencer 500/8

Item Number: 50119

Circular attenuator suitable for direct connection to cased axial fans
Construction comprises galvanised steel outer casing, end rings fitted with tapped inserts to suit the relevant fan drilling detail. Inner bore is manufactured from perforated galvanised steel spiral tube retaining a 45 kg /m³ density acoustic media with a surface particulate membrane.

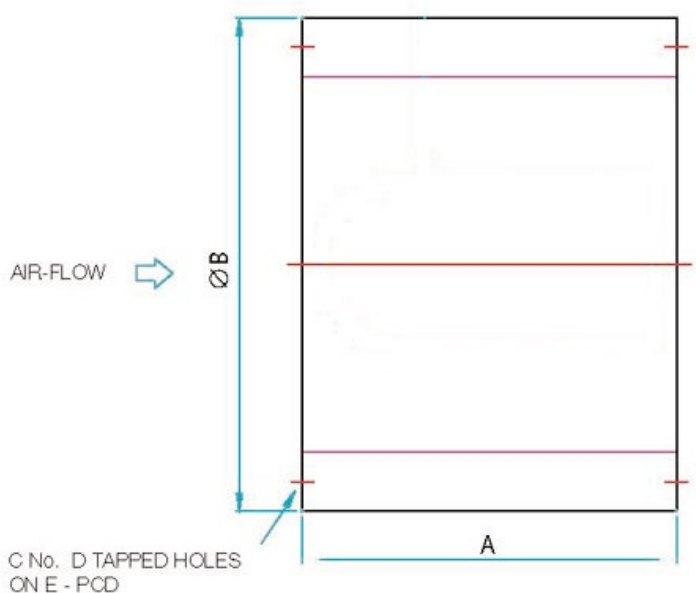


Technical parameters

Dimensions and weights

Weight	28 kg
--------	-------

Dimension



A	B	C	D	E	Weight kg
900	600	8	M10	500	28

Acoustic

Frequency Hz	63	125	250	500	1K	2K	4K	8K
Insertion Loss dBW	4	6	11	19	21	21	19	20

N.B. Above figures only apply when silencer is bolted direct to the fan flange.

Product Data Sheet



Product Code:

Issue No.

Issue Date:

Issue by:

TC103-60

A

03.10.09

D.B.P

Description

Light Duty Cantilever Arm Support - 600mm

Features

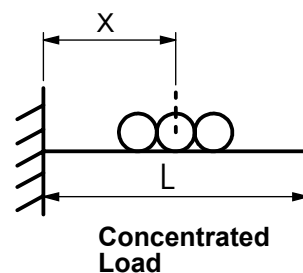
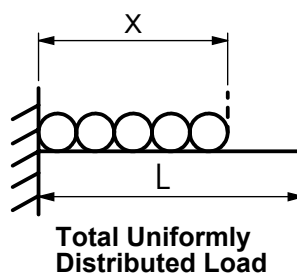
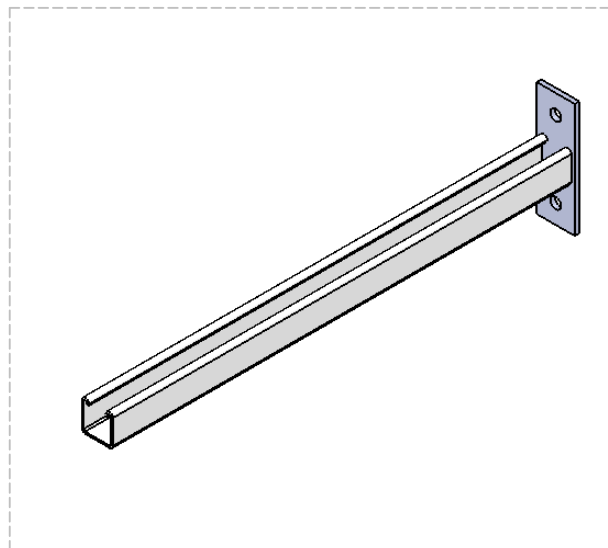
Brackets are designed to comply with BS6946

Manufactured from 6mm thick steel

Special Finish: All channel brackets are post hot dipped galvanised to BS729

General Characteristics

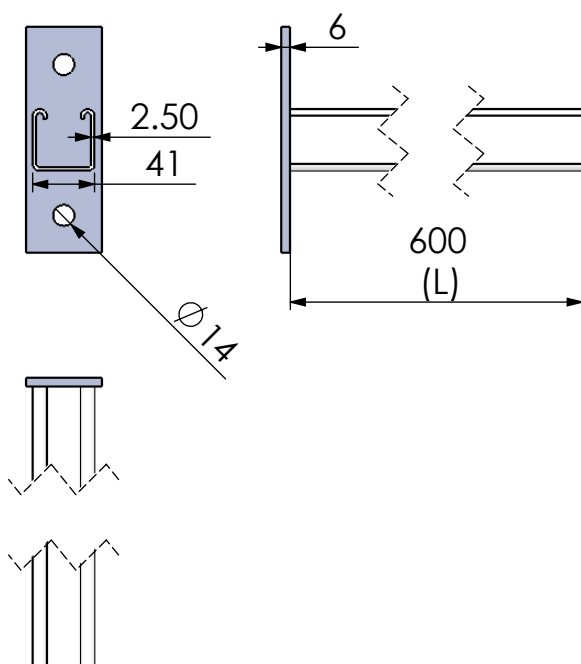
Material	Low carbon steel strip (BSEN10142:2000)
Finish	Hot Dipped Zinc
Cantilever Arm	41 x 41mm strut 2.5mm channel
Cantilever length	600mm
Suitable for Tray width	450mm

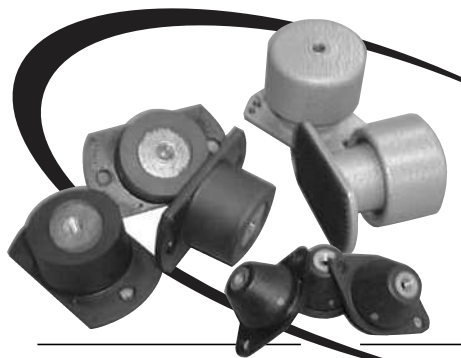


Recommended Safe Loads (kg)

x (m)	Total Uniformly Distributed Load (kg)	Concentrated Load (kg)
0.10	684	342
0.15	608	342
0.20	542	283
0.25	452	226
0.30	377	188
0.35	323	162
0.40	283	141
0.45	251	126
0.50	226	113
0.55	206	103
0.60	188	94
0.65	174	87
0.70	162	81
0.75	151	75

Dimensions





Anti Vibration Mounts (AV's)

Introduction

Anti-vibration mounting kits are available in both rubber and spring type, the correct selection and type employed will depend on the accurate calculation of the weight of the assembly to be supported.

Installation

AV mounts should not be fitted to a fan/silencer assembly unless there are flexible connectors fitted between the assembly and associated duct work.

AV mounts should be installed with the matched mounting feet and positioned such that they carry an equal proportion of the assembly weight. This is particularly important where fans and silencers are installed on suspension rods.

Figure 1. NAV 1 to NAV 5 (Resilient Rubber)

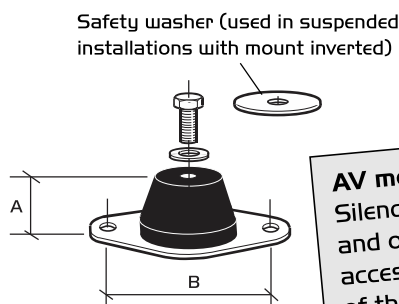


Figure 2. NAV 6 (Resilient Rubber)

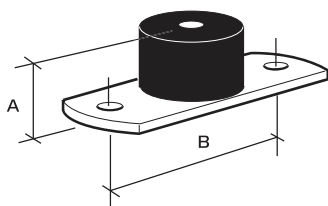
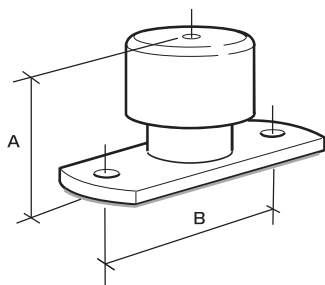


Figure 3. NAV 49 to NAV 58 (Spring)



AV mounts are maintenance free but a periodical inspection is recommended to check security of fixings and condition of rubbers and springs.

Resilient Mounting Details

Figure 4.

NAV 1 to NAV 5 shown in floor (Figure 4) and suspended configurations (Figure 5).

Fans using size NAV 6 upwards require supporting steelwork to be designed (by others) for suspended applications.

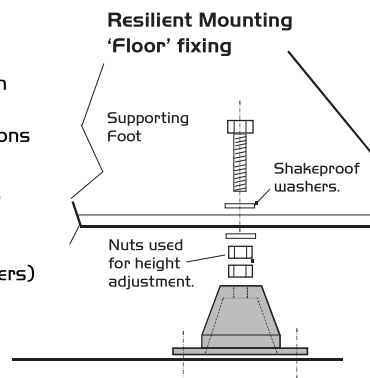
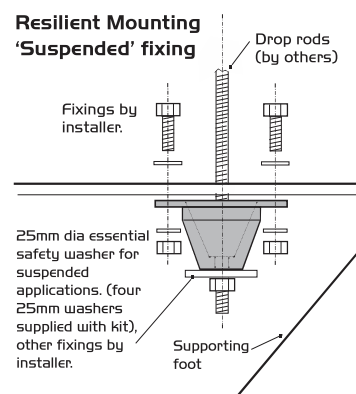


Figure 5.



AV mounts isolate the fan only. Silencers/backdraught dampers and other "significant mass" accessories should form part of the fixed ductwork after the flexible connection.

Dimensions (mm) and Weights

Rubber Type

Code	A	B	Max. kg per kit
NAV1	30	50	20
NAV2	40	75	80
NAV3	40	75	180
NAV4	40	75	260
NAV5	40	75	130
NAV6	50	100	320

Spring Type

NAV49	77	76	400
NAV50	77	76	480
NAV51	77	76	520
NAV52	87	127	600
NAV53	87	127	700
NAV54	87	127	800
NAV55	87	127	950
NAV56	87	127	1110
NAV57	87	127	1270
NAV58	87	127	1430



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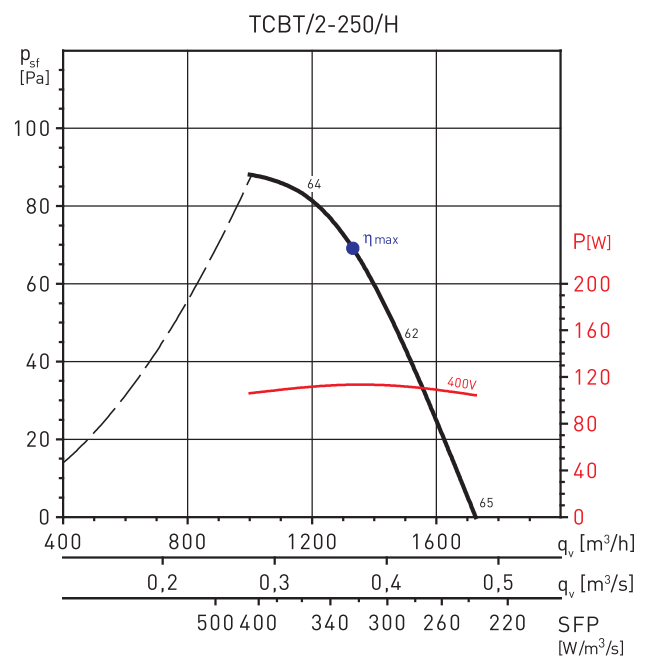
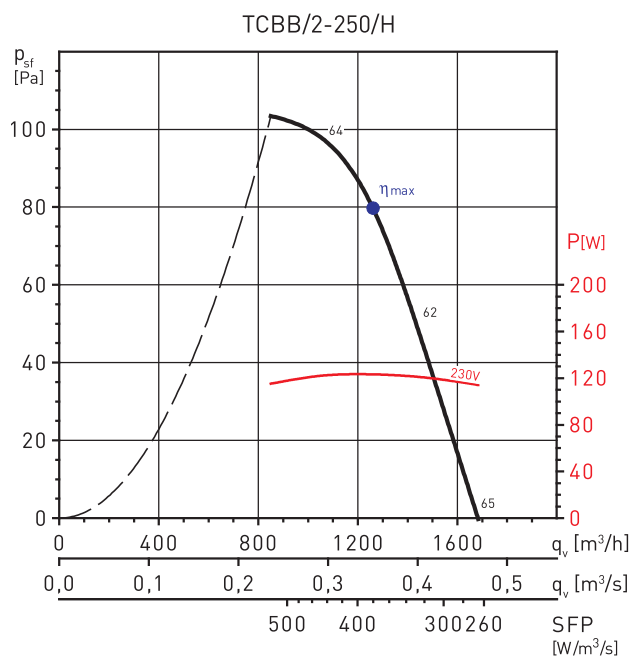
Leaflet Number 671224 October 2004

TCBB/TCBT PERFORMANCE CURVES

- q_v : Airflow in m^3/h and m^3/s .
- p_{sf} : Static pressure in Pa.
- SFP: Specific fan power in $W/m^3/s$.
- P: Input power in W.
- Measurement category: C or D depending on the models.
- Efficiency category: Static or Total depending on the models.
- Fan tested with inlet bellmouth.
- Fan efficiency without speed control.
- Airflow data in accordance with ISO 5801.
- Sound pressure level dB(A), measured in a free field distance equal to 3 times the diameter, with a minimum of 1,5 m.

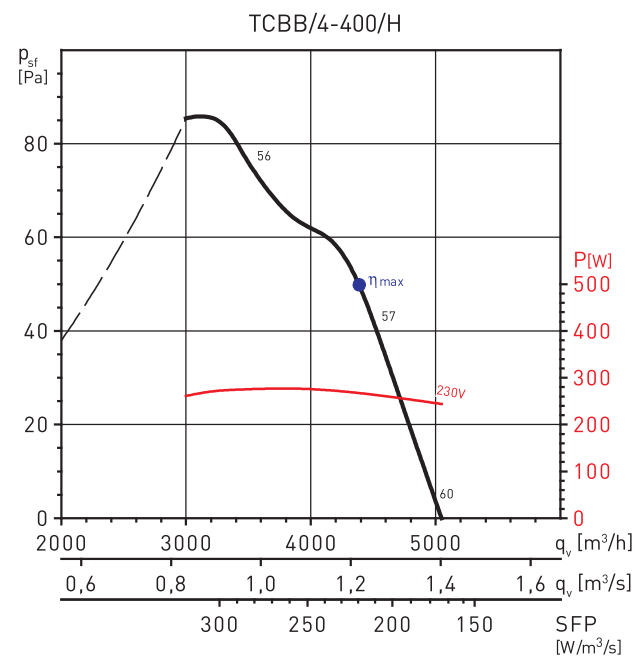
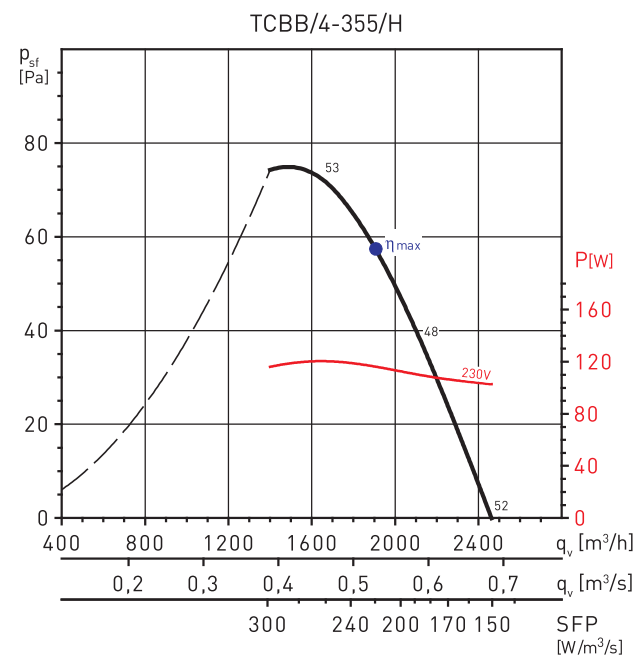
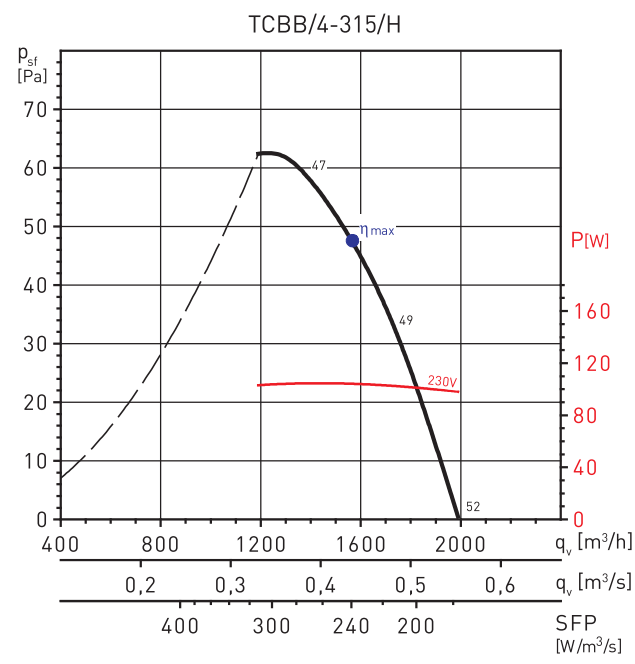
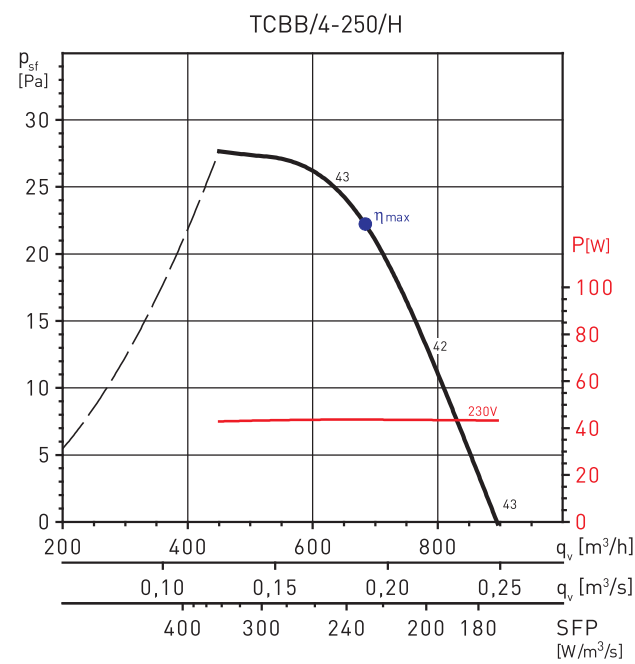
MC	Measurement category
EC	Efficiency category
VSD	Speed control: supplied with the fan
SR	Specific ratio
η[%]	Efficiency
N	Efficiency grade
[kW]	Absorbed power
[m³/h]	Airflow
[Pa]	Static pressure
[RPM]	Speed

PERFORMANCE CURVES - 2 POLE MOTORS



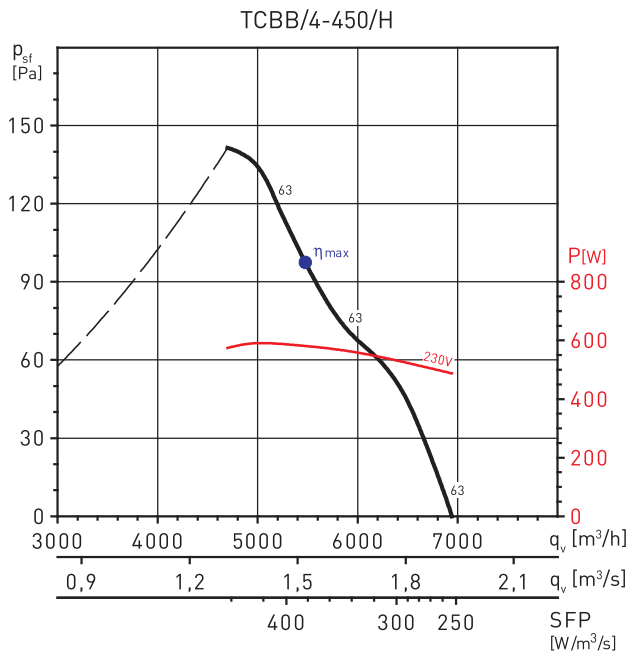


PERFORMANCE CURVES - 4 POLE MOTORS

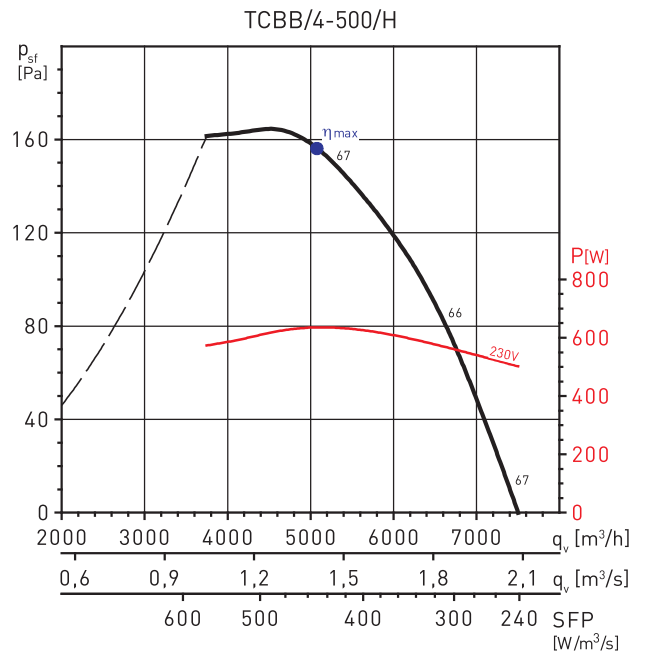


MC	EC	VSD	SR	η[%]	N	[kW]	[m³/h]	[Pa]	[RPM]
D	Total	No	1	48,5	58,4	0,267	4386	106	1397

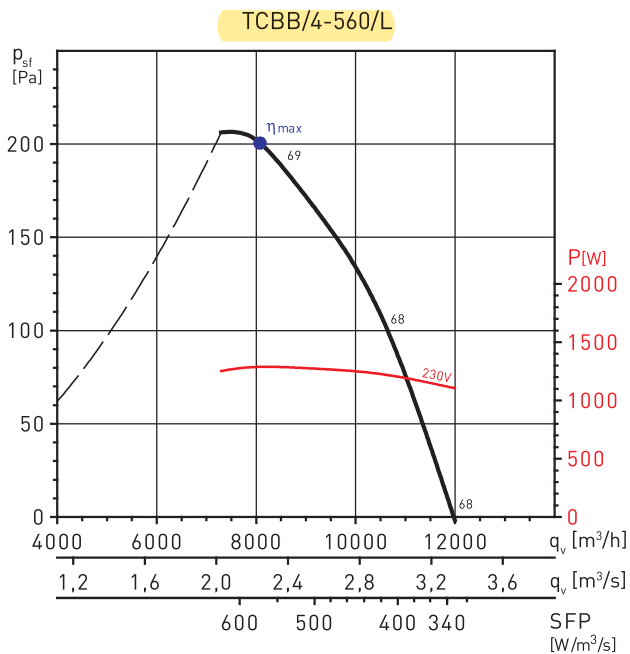
PERFORMANCE CURVES - 4 POLE MOTORS



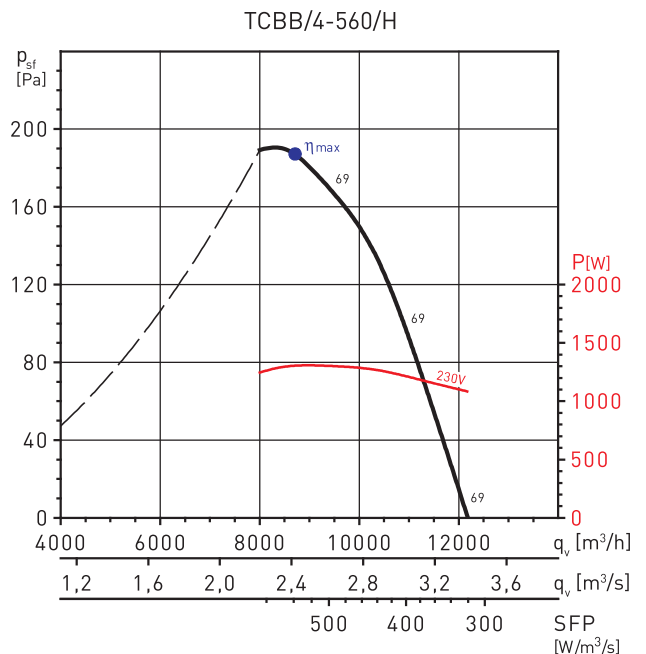
MC	EC	VSD	SR	η [%]	N	[kW]	[m^3/h]	[Pa]	[RPM]
C	Static	No	1	32,3	40,1	0,582	4783	142	1368



MC	EC	VSD	SR	η [%]	N	[kW]	[m^3/h]	[Pa]	[RPM]
C	Static	No	1	34,5	42,1	0,636	5075	156	1367



MC	EC	VSD	SR	η [%]	N	[kW]	[m^3/h]	[Pa]	[RPM]
C	Static	No	1	34,7	40,3	1,288	8071	200	1382



MC	EC	VSD	SR	η [%]	N	[kW]	[m^3/h]	[Pa]	[RPM]
C	Static	No	1	34,6	40,2	1,305	8700	187	1370



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System Maintenance

It is important that the system is well maintained in order to operate a system that is functional on providing a high level of performance.

Maintenance requirements will vary, subject to the intensity of use and type of cooking. Therefore, frequency of cleaning and filter replacement will be adjusted to suit. The Tenant will ensure the following minimum levels of maintenance are adhered to.

The most advanced filtration systems and ductwork designs will quickly become completely ineffective at mitigating grease, smoke and odour, when the detailed maintenance regime is not followed the table below provides requirements for the type and frequency of maintenance in accordance with EMAQ guidelines.

We would recommend the following in accordance with BESA TR19 guidance guidelines on cleaning and maintenance.

Cleaning of ductwork – 1 month Heavy use 3 months Medium use and every 6 months light use.

Canopy on each session before or after session

G4 filters every 3 weeks or if system seems to have reduced suction/ performance (Extract & Supply) **if installed**

Cleaning baffle filters – after each service

Carbon filters – 3 months heavy use 6 months medium use 8 month light use. **If Installed**

Extract— 1 Month heavy used 3 Months moderate use 6 Months light use.

Extract full services – 12 months. For your insurance this is required

ESP Filter changing/cleaning – 3 months heavy use 6 months medium use 8 months light use. **If Installed**



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Kitchen extract component	Recommended maintenance intensity
Grease Smoke and Solid Filtration	
Grease filter – mesh/baffle/cartridge/water wash	Daily cleaning
Canopy UV	Quarterly clean replace lamps after 8000 hours of operation
Cold water mist hood	Daily cleaning
Electrostatic Precipitation	Clean every 4 weeks
Low intensity odour control	
3 stage fine filters	Replacement every 2 weeks or replace when system is reduced performance
Odour control	
UV odour control	Clean every 4 weeks annual lamp replacement
Ozone Injection unit	self-sufficient no need to clean
Ozone generation unit	No need to clean out of airstream
Adsorption activated carbon filter	3 to 5 months filter replacement of when system has reduced performance

Usage	Frying time	Minimum clean frequency
Heavy Use	12-16 hours per day	3 Monthly
Moderate use	6-12 hours per day	6 Monthly
Low Use	2-6 hours per	12 Monthly

All duct work should be cleaned by a qualified tr19 person, who should issue a certificate after cleaning, this is important for your insurance.

Please note these are only guidelines as all systems are designed differently



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TERMS AND CONDITIONS

By ordering the goods you agree to be bound by our terms and conditions below and recognise the services/products we have not included in our quotation for you unless otherwise stated.

- Ventilation system to EMAQ Guidelines (subject to further quotation).
- Odour control.
- Noise management.
- Fire rated ductwork.
- Fire rated insulation.
- Fire rating of walls that ductwork passes through.
- Planning permission (client's responsibility – work will not start without sufficient authority approval).
- Hanging of canopies over 4500mm from FFL.
- Infill panels to make good between the top of the canopy and ceiling.
- Masking gaps that occur during canopy installation due to inaccuracies in the building structure.
- Any specialist fixings to suit building structure.
- Balancing and commissioning of canopies.
- All electrical works.
- Final electrical connections and controls commissioning.
- Gas works including gas valve (interlock).
- Pipe work and inclusion of valves.
- Builders works and weather proofing of openings (scaffolding or lifting equipment).
- Structural works to roof area.
- Protection to flooring internal.
- Lifting of plant to roof level / scaffolding.
- Edge protection.
- Thermal insulation.
- Boarding to ceiling void areas.
- Canopy protection on completion of installation.
- Fire suppression.
- Strip out / Removal of existing canopies / ductwork.
- Any items not specifically itemized within your quotation are excluded.
- Earth bonding.
- Out of hours working (Normal working hours being Mon-Fri 8.30-5.30pm excluding bank holidays, hours include travelling time) any extra hours due to any unforeseen circumstances will be charged at £50ph payable direct to fitters.
- Notifications to local authorities, building, planning, fire etc.
- Builders, joiners, scaffolding, electrical, plumbing, roofing works.
- Waterproofing of walls and roofs where ductwork terminates exits (roofer will be required to seal roofs).
- Ductwork insulation.
- Inspection hatches to TR19 to be installed by others.
- Extraction canopy fan/speed control wiring to mains/board.
- All new fans are covered under manufactures warranty if claiming for a fault a new fan must be purchased and the fan in question sent back to the manufacture for inspection at your cost, if fan is found at fault under warranty, they will reimburse the cost of the fan.
- Fan inspection and warranty call outs to inspect/replace fans are not covered, and labour costs paid by the client.
- Extraction fan / controller fail due to incorrect wiring, replacement parts to be paid by client and parts send back to manufacturer for inspection at clients cost.
- Heater battery for air input system.
- Provision of grease traps if required.
- Finding of asbestos all works must stop until made safe by others.
- Return visit to site due to services being incorrect or not live and enabled for commissioning, a chargeable site instruction. would be required for any visits beyond our control.
- We specifically exclude any works not mentioned.
- VAT.
- Once payment made any refund will be subject to a 25% restocking charge and fee incurred.
- The company (FUSIONHOT LTD) is suppliers. Fitting is carried out by a third-party company and is the customer's responsibility to check all relevant details of that company, any problems with the fitting is between the customer and the third-party company. All correspondence should be between these two and not FUSIONHOT LTD.