



Majax-2 Bifurcated Aerofoil Axial Flow Fan



- Robust industrial construction
- Fitted with standard Majax-2 & Majax-1 impellers
- Casing coated with Donkin standard finish
- Manually adjustable pitch impeller
- Electric motor removed from the air stream
- Easy motor access with Donkin tunnel design
- Suitable for temperatures up to 200°C
- Motors are all supplied IP55 TEFC Class F
- All Fasteners used are electroplated

On Request

- Special voltages
- Special materials including stainless steel
- Special coatings including Hot Dip Galvanised
- Special fabricated fixed pitch impellers

Majax-2 Bifurcated axial flow fans are manufactured in diameter ranging from 400 to 1250mm and incorporate manually adjustable pitch aluminium bladed impellers.

Applications

The Bifurcated fan range is specially designed to handle air and fumes at temperatures up to 200°C.

Typically used on oven circulation, stack exhausts and the extraction of toxic / corrosive fumes.

Combinations of motor speeds, impellers blade pitch settings, provide flexibility in terms of selection. Fans offering good efficiencies can be selected over a range of volumes. Selections are done from the standard Majax-2 curves with special correction factors as indicated in this brochure.

Sizes

Sizes vary in accordance with the preferred increments covered in ISO 497-1973(E) R20. These sizes are:
400, 500, 560, 630, 710, 800, 900, 1000, 1250mm
Diameters.

Impellers

Impellers incorporate die-cast aluminium alloy blades of aerofoil section, which are clamped in split steel hubs. (Majax-2 1250-H impellers have split aluminium hubs)

Blade pitch adjustment is achieved by slackening the hub clamp bolts and setting the blades to the required pitch prior to re-tensioning the clamp bolts.

Majax-2 315 to 1250-F impeller hubs are electro coated, Majax-2 1250-H hubs are aluminium cast. Selections are only possible in full blade solidities.

Balancing

Impellers are dynamically balanced to ISO 1940 grade G6,3.

Casings

Standard casings incorporate transverse motor mounting tunnels which, being open to the surrounding atmosphere, isolate the fan driving motors from the contaminated or hot air handled by these fans.

The casing length contains the impeller and motor assembly.

Flange Dimensions and Drillings

Flange dimensions and drillings are in accordance with BS 6339, see dimension table for details.

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Casing Finish

Casings are generally supplied Hot Dip Galvanised to ISO 1461 for fans up to and including T125 rating. Fans rated T200 are coated with Donkin standard high temperature paint. Refer to Donkin for paint specification. All fasteners used are zinc plated. Fans below T125 can be supplied with special paint finishes if required.

Motors

Foot mounted motors are totally enclosed with minimum IP55 protection. Standard motors have Class F insulation. Standard voltages are 400V 3Ph 50Hz and 220V 1Ph 50Hz. Electrical performance complied with IEC 34.

Motors with non-standard classes of insulation, special grease for low / high temperature, flameproof construction, special voltages, multi-speed, etc are available on application.

Temperature Limitations

Majax-2 Bifurcated fans are suitable for operating within the following temperature ranges.

Temperature ranges are identified by designations T70, T125 & T200.

- T70 -20 ~ 70°C
- T125 -20 ~ 125°C
- T200 -20 ~ 200°C

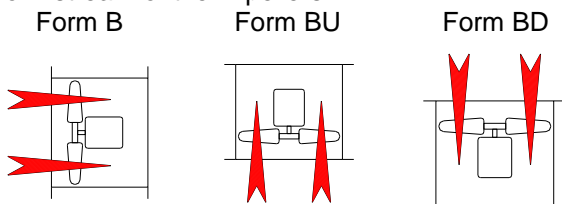
Operating temperatures outside these limits are available upon special request.

Bearing Life

Direct driven 2 pole units are designed to have a 20 000 hour statistical bearing life, and 4,6 and 8 pole units are designed to have a 20 000 hour statistical bearing life.

Direction of Air Flow

The Majax-2 Bifurcated fan range is available only in a form B, BU and BA, having motors mounted downstream of the impellers.



Moisture Treatment

Standard fans are suitable for continuous operation in relative humidities up to 95%. Special

treatment of fans is available to render them suitable for continuous operation in moisture laden atmospheres. This procedure involves additional mechanical and electrical sealing procedures.

Performance

All performance data is based on tests carried out in accordance with BS 848: Part 1 – test method No 1. Ratings are based on standard air density of 1.2kg/m³ corresponding to an air temperature of 20°C, a barometric pressure of 101.325 kPa and a relative humidity of 62%.

Power values given reflect fan shaft power without provision for drive losses.

Selection Procedure

The range of fans are selected from the Majax-2 & Majax-1 standard selection curves or by using the Donkin fan selection program. On selection the following correction factors need to be applied to correct the additional losses induced by the motor tunnel.

- Select the fans from the standard curves.
 - Maximum selectable blade angle – 26°
 - On selection, add 2° to the angle selected. (Therefore a maximum blade angle of 28° after the correction factor has been applied)
- Use the absorbed power for the higher pitch setting to select a suitable motor size.

Note that only full solidity selection can be made.

Permitted Motor Frame Sizes per Fan Size

The fans are limited to specific motor sizes as a result of the size of the motor tunnel. Below find a table with permitted motor frame sizes per fan size.

Fan Size	Motor Frame Size's							
	90S	90L	100L	112M	132S	132M	160 / L	180M
400	X	X	X					
500	X	X	X	X				
560	X	X	X	X				
630	X	X	X	X				
710	X	X	X	X				
800			X	X	X	X		
900				X	X	X		
1000					X	X	X	
1250							X	X

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Motor kW vs Frame Size's

Motor Frame Size	Motor Speed - Poles		
	2 Pole	4 Pole	6 Pole
90S	1.5	1.1	0.75
90L	2.2	1.5	1.1
100L	3.0	2.2 / 3.0	1.5
112M	4.0	4.0	2.2
132S	5.5 / 7.5	5.5	3.0
132M	9.2	7.5 / 9.2	4.0 / 5.5
160M	11 / 15	11	7.5
160L	18.5	15	11
180M	22	18.5	-
180L	30	22	15

kW / Frame size's indicated above should be used as a guide only as this could vary from manufacturer to manufacturer.

Speed Limitations

Selections of the Bifurcated fans must be limited to the following maximum continuous operating speed as indicated below:

Fan Size	2 Pole	4 Pole	6 Pole
400	X	X	X
500	X	X	X
560	X	X	X
630		X	X
710		X	X
800		X	X
900		X	X
1000			X
1250			X

Sound Data

The sound data indicated on the performance graphs are "in-duct" values obtained from tests conducted in accordance with BS 848: Part 2 – In-duct method. The higher values on the sound level contours are overall sound power levels (suffixed dBW), and the lower levels are average sound pressure levels, under free field conditions, at a distance of 3 impeller diameters from the fan inlet or outlet.

Sound power levels are given in decibels re: 10^{-12} Watts. Sound pressure levels are given in decibels re: 2×10^{-5} Pa.

An octave band analysis can be obtained by subtracting the spectrum constants, tabulated on each performance curve, from the overall sound levels.

A-Scale levels are obtained by subtracting an A-scale correction constant, given on each performance graph, from the overall sound level.

"Free-field" sound levels incorporating inlet / outlet end reflection losses, are obtained by subtracting the constants (indicted on table below) from the "In-duct" octave band sound levels.

Alternatively refer to Donkin Fan selection software.

Fan Size	Octave Band Mean Frequency				
	63	125	250	500	1000+
400	13	8	3	1	0
500	11	6	2	0	0
560	10	5	2	0	0
630	9	5	1	0	0
710	8	4	1	0	0
800	7	3	1	0	0
900	6	2	1	0	0
1000	6	1	0	0	0
1250	5	1	0	0	0

Optional Features

Mounting feet, counter flanges, wire screens, conical inlet cones (bolt-on and integral), anti-vibration mounts, casing access panels and flexible connections.

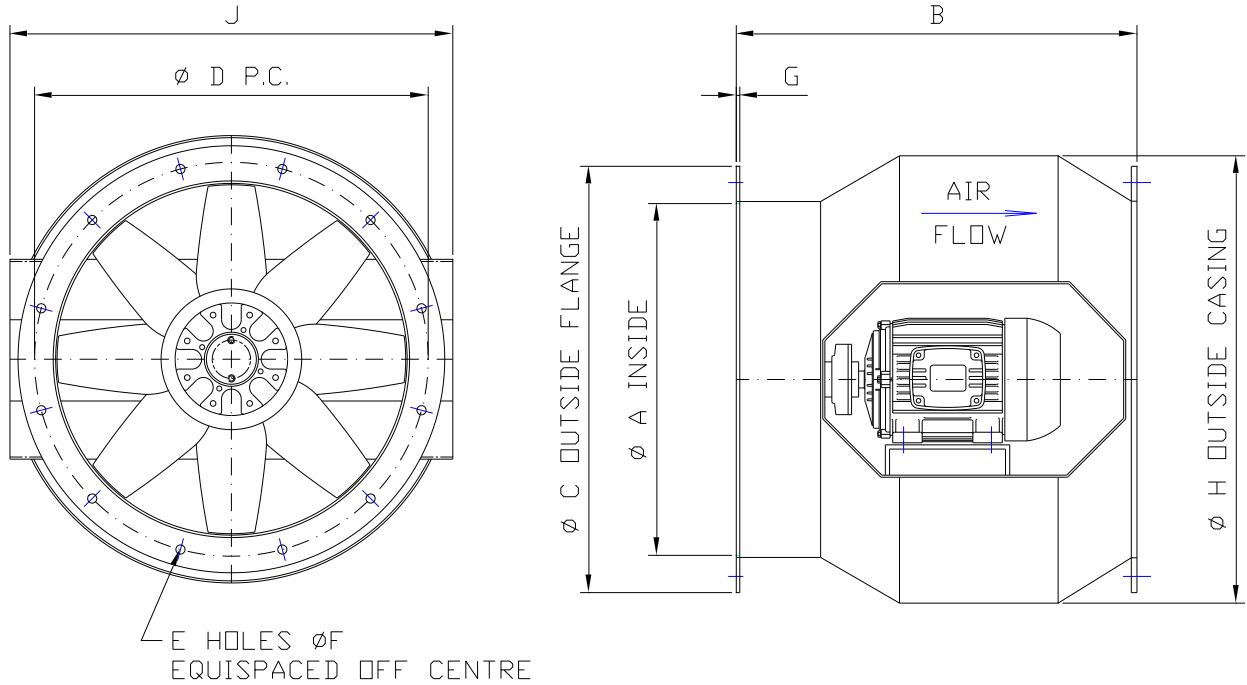
Manual, motorized or airstream operated dampers.

Matching size cylindrical sound attenuators.

Non-standard casing lengths.

Special protective coatings.

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Fan Size - A	B	C	D	E	F	G	H	J	Mass ₃ (kg)
400	560	485	450	8	13	2.8 / 5	526	520	40
500	570	604	560	12	13	2.8 / 5	636	630	53
560	580	667	620	12	13	4 / 5	690	680	62
630	580	737	690	12	13	4 / 5	766	760	68
710	660	817	770	16	13	4 / 5	861	855	84
800	750	907	860	16	13	5 / 5	958	950	142
900	800	1039	970	16	13	5 / 6	1078	1070	174
1000 ₁	800	1141	1070	16	15	5 / 6	1178	1170	196
1000 ₂	940	1141	1070	16	15	5 / 6	1178	1170	216
1250	1065	1392	1320	20	15	6 / 6	1520	1510	377

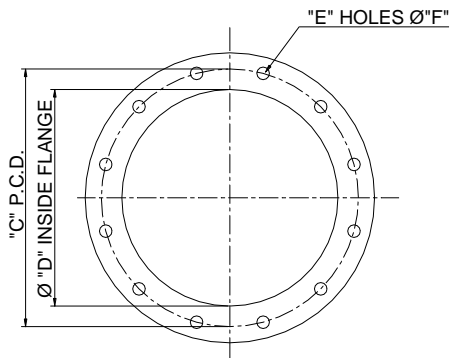
- 1) 1000mm Diameter fan fitted with 132 Frame Size motor
- 2) 1000mm Diameter fan fitted with 160 Frame size motor
- 3) Mass excludes the motor mass, ass mass below

Motor Frame Size	Motor Mass
90 S	17 kg
90 L	19 kg
100 L	26 kg
112 M	28 kg

Motor Frame Size	Motor Mass
132 S	57 kg
132 M	65 kg
160 & 160 L	139 kg
180 M	175 kg

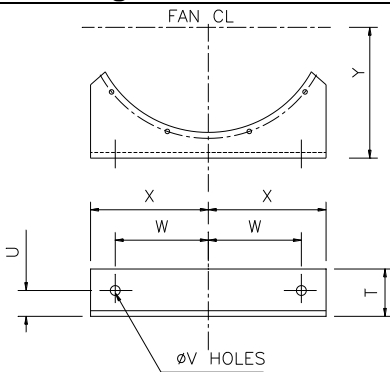
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Counter Flange



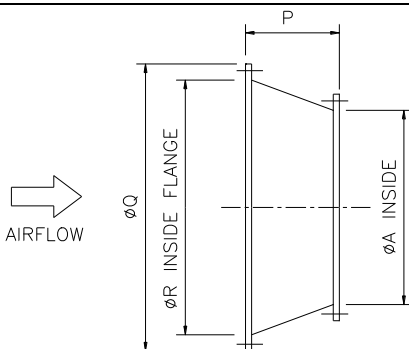
Fan Size	C	D	E	F	Mass (kg)
400	450	405	8	13	2.64
500	560	507	12	13	4.12
560	620	567	12	13	4.56
630	690	637	12	13	5.08
710	770	717	16	13	5.68
800	860	807	16	13	12.68
900	970	909	16	13	18.28
1000	1070	1011	16	15	20.70
1250	1320	1262	20	15	25.52

Mounting Feet



Fan Size	T	U	V	W	X	Y	Mass (kg)
400	40	22	13	162	180	285	0.59
500	40	22	13	232	250	355	1.28
560	39	22	13	232	250	385	1.91
630	39	22	13	262	280	420	2.20
710	39	22	13	282	300	465	2.21
800	39	22	13	332	350	518	3.81
900	54	30	15	355	380	595	4.86
1000	59	35	15	385	410	653	7.59
1250	60	35	15	525	555	812	13.05

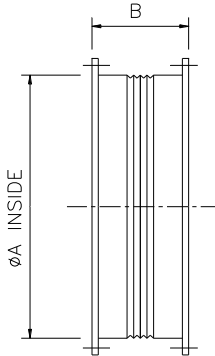
Inlet Cone



Fan Size	P	Q	R	Mass (kg)
400	71	524	474	6.09
500	90	648	598	9.11
560	100	720	670	10.39
630	112	804	754	12.04
710	125	905	855	15.38
800	140	1006	956	17.85
900	162	1170	1090	31.18
1000	181	1286	1206	35.67
1250	224	1603	1503	50.41

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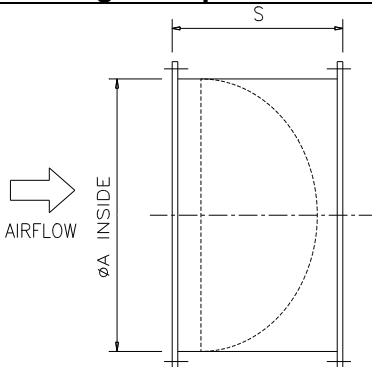
Flexible Connection



Fan Size	B	Mass (kg)
400	120	2.77
500	120	4.33
560	120	4.79
630	120	5.33
710	120	5.96
800	120	13.31
900	120	19.19
1000	120	21.74
1250	160	26.80

Flexible connection prices includes a flanged flexible sleeve c/w a set of backing flanges.

Discharge Damper



Fan Size	S	Mass (kg)
400	260	18
500	320	25
560	350	29
630	385	34
710	430	48
800	480	58
900	565	85
1000	620	102
1250	700	157

*Discharge Dampers are available in gravity close, hand operation and pneumatic / electric actuator control.
Air / Gravity operated dampers are suitable for horizontal or vertical up airflow only.*

Additional Accessories Available

- Inlet wire screen – bolt on to fan flange
- Discharge wire screen – bolt on to fan flange
- Inlet cone screen – bolt on to cone inlet flange
- Sound attenuators – see Silax brochure for details

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