Sabre Plate Mounted Sickle Fans (VSP)

- Swept impeller with Aerofoil blades, winglets and serrated trailing edge for optimum performance
- One shot die cast impeller, dynamically balanced for smoother operation
- Operating temperature up to 70°C
- External Rotor Motors on all models for compact efficient design
- All models speed controllable
- Guards fitted as standard on all models
- Thermal Overload Protection for motor protection
- Maintenance free sealed for life bearings
- 2 Year Guarantee



The latest generation of the Vent-Axia Sabre® Plate Mounted Sickle fans incorporate the very latest FE2 Owlett impeller offering improved performance over the previous ranges with up to 7dB(A) reduction in sound and up to 15% improvement in efficiency ensuring the best available fan performance in its class. The advanced blade design, matched to a purpose designed external rotor motor ensures unrivalled reliability and controllability.

Design and Development

Using a combination of NASA research into wing performance and winglets, coupled with a study of bird flight, has enabled the development of the best available Sickle blade profile. By matching this to a purpose designed close fitting mounting plate ensures best use of this blade technology thereby reducing noise and improving the performance in plate axial fans.

Construction

Vent-Axia Sabre® Plate Mounted Sickle fans are based on an integrated impeller and external rotor motor design, which produces a very compact unit. Together with a specially designed bell mouth inlet and mounting plate, the complete fan is lightweight and ensures an excellent performance to sound level ratio.

The mounting plate is formed from a single sheet, protected with a tough epoxy paint finish. Inlet finger guards and motor supports are manufactured from steel rod and electro welded for extra strength. Finger guards give protection to BS 848 Part 5. Manufacture is controlled to BS EN ISO 9001 Standards.

Impellers

The impellers incorporate the latest in sickle blade aerofoil technology to ensure minimum sound and maximum performance. Impellers up to 400mm diameter are moulded from a composite polymer, impellers above this size are Aluminium. The motors and impellers are factory matched, statically and dynamically balanced to ISO 1940 part 1, Quality Class G.6.3.

Motors

The external rotor motors are specifically designed and styled for this range of fan. Ball bearings are greased for life. Sizes 315 – 710 motors are protected to IP54 against dust and moisture, complying with BS EN 60529.

They have ribbed aluminium body castings for efficient cooling with Motor insulation to Class 'F' (from -40°C to + 70°C). Speed controlled sizes 450 to 710, 6 & 8 pole motors are only suitable for operating temperatures of up to 40°C.

Electrical

The Sabre® Plate Mounted Sickle fan range is available for either single phase 220-240V 50 Hz capacitor start and run or three phase 380-415V 50Hz. Motors are fitted with Thermal Overload Protection which should be wired into all controller circuits and into starter contactors to prevent motor damage due to overloading / overheating.

Speed Control

Units are suitable for speed control by either electronic, voltage reduction or frequency inverters where permissible. For optimum efficiency and controllability Vent-Axia recommend the use of the eDemand Inverter controller to give close control via sensors or manual control.

Form of Running

Plate mounted fans (ex-stock) are supplied for extract use (Form 'A' running).

Performance

The fan performance is in accordance with tests to ISO 5801.

Sound Levels

Fan sound levels are measured in a reverberant chamber in accordance with ISO 3744 Part 1. Published dB(A) figures are free field sound pressure levels at 3m with spherical propagation at a reference level of 2 x 10^{-5}Pa (20 micro-Pascal). The sound power level spectra figures are dB with a reference level of 10^{-12} Watts (1 pico-watt).

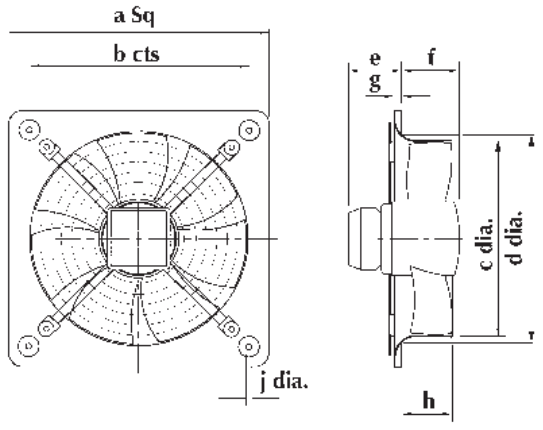
To ensure minimum noise levels during speed control, either an auto transformer or eDemand inverter speed control is recommended.

Accessories

A full range of accessories is available with the Sabre® Plate Mounted Sickle fans:

- Electronic speed controllers
- Auto transformer speed controllers
- eDemand inverter speed control
- D.O.L. starters
- Louvre shutter
- Discharge guard

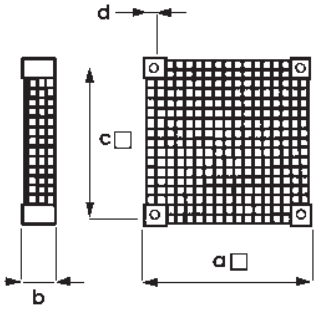
Fan Dimensions (mm)



Stock Ref	kg	A	B	C	D	E	F	G	H	J
VSP25012/14	3.3	370	320	260	264.5	78	73.4	6	50	7
VSP31514/34	6.7	430	380	349	349	78	83.9	11	63	9
VSP35514/34	7.5	485	435	390	390	78	82.9	12	68	9
VSP40014/34	7.8	549	490	412	419.8	90	91.5	12	88	9
VSP45014/34/16/36	16.2	575	535	463	480	110	143.5	14	96	11
VSP50014/34/16/36	20.1	655	615	517	528	84.5	141.5	16	104	11
VSP56014	31.8	725	675	568	589	98.3	167.5	16	119	11
VSP56034/16/36	24.2	725	675	568	589	82.5	162.5	16	119	11
VSP63034/36	41.6	805	750	643	664	111	159.5	20	130	11
VSP63016	33.7	805	750	643	664	70.5	174.5	20	130	11
VSP71016/36/38	38.6	850	810	720	763	44	201.5	20	150	14.5

Accessories Dimensions (mm)

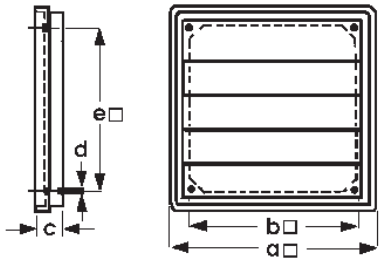
Discharge Guard 'K' factor loss 0.25



Stock Ref	a	b	c	Ød
10502325	397	64	351	8
10502375	449	64	403	8
10502450	501	64	455	8
10502525	553	64	507	8
10502630	808	150	735	8
10502800	1010	140	-	8

If a discharge guard is required with a louvre shutter the next size up discharge guard should be selected.

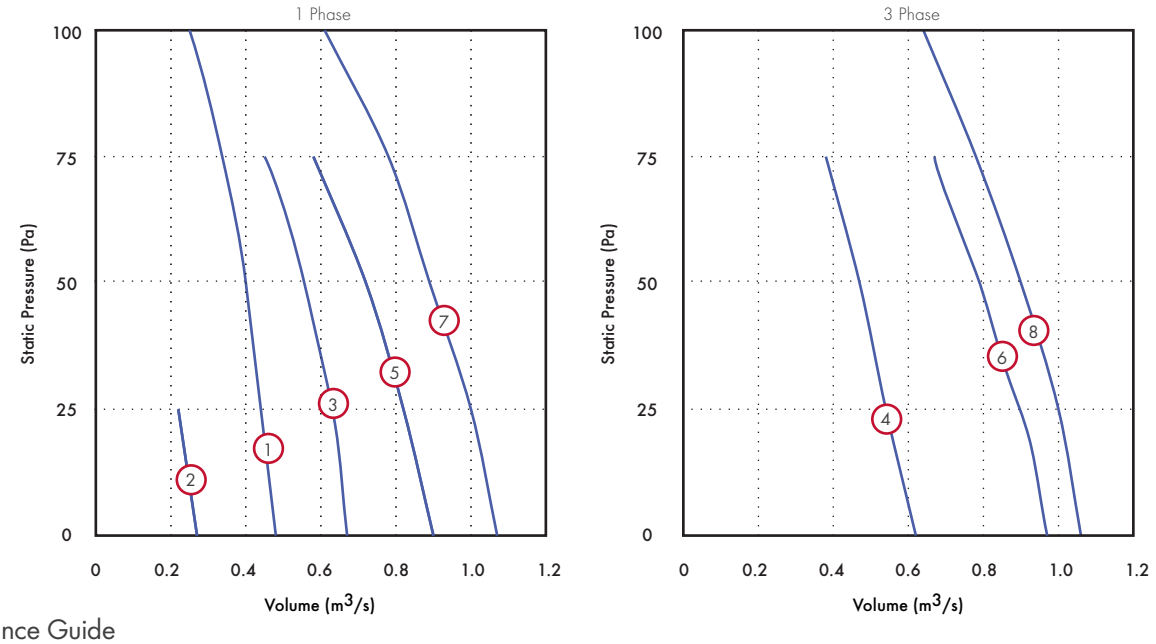
Louvre Shutter



Stock Ref	a	b	c	Ød	e□
LS250	294	265	25	6	230
LS315	344	276	26	6	295
LS355	398	312	26	6	329
LS400	458	365	26	6	382
LS450	499	395	31	6	432
LS500	544	444	31	6	477
LS560	605	533	31	6	533
LS630	694	627	31	6	626
LS710	790	722	43	6	722

Performance Curves

250 to 400 dia. - Pole 2 & 4



Performance Guide

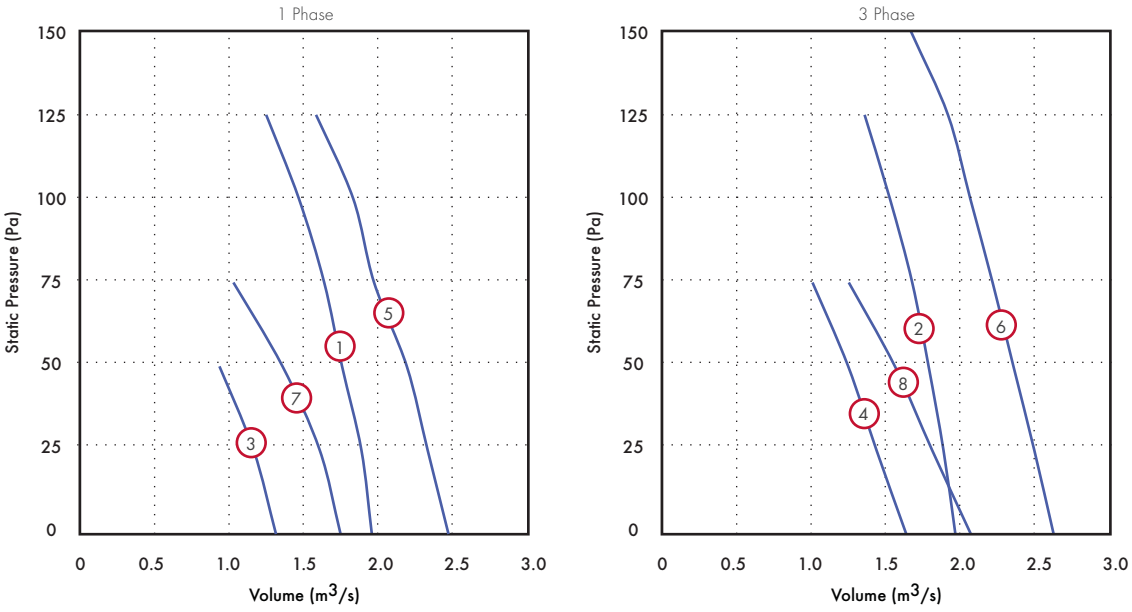
Stock Ref	Supply	IP Rating	Motor kW	F.L.C Amps	S.C. Amps	Poles	rpm	Curve		Volume m³/s @ Pa 0	25	50	75	100	dB(A) @ 3m
VSP25012	230/1/50	IP54	0.12	0.54	2.16	2	2160	1	Volume m³/s	0.48	0.44	0.40	0.36	0.25	50
									Power Watts	110	115	118	121	125	
VSP25014	230/1/50	IP54	0.05	0.24	0.96	4	1370	2	Volume m³/s	0.27	0.22				37
									Power Watts	46	48				
VSP31514	230/1/50	IP54	0.12	0.54	2.16	4	1360	3	Volume m³/s	0.67	0.63	0.51	0.45		45
									Power Watts	111	118	124	130		
VSP31534	400/3/50	IP54	0.12	0.39	1.7	4	1450	4	Volume m³/s	0.62	0.54	0.47	0.38		47
									Power Watts	105	115	117	120		
VSP35514	230/1/50	IP54	0.13	0.56	2.24	4	1260	5	Volume m³/s	0.90	0.82	0.72	0.58		46
									Power Watts	132	141	151	162		
VSP35534	400/3/50	IP54	0.19	0.4	1.6	4	1390	6	Volume m³/s	0.97	0.90	0.65	0.67		48
									Power Watts	152	168	176	178		
VSP40014	230/1/50	IP54	0.24	1.05	4.2	4	1340	7	Volume m³/s	1.07	1.00	0.89	0.78	0.61	46
									Power Watts	166	195	200	210	240	
VSP40034	400/3/50	IP54	0.23	0.46	1.6	4	1360	8	Volume m³/s	1.06	1.00	0.90	0.78	0.64	47
									Power Watts	160	170	190	205	220	

Sound Power Level Spectra dB (ref 10^{-12} Watts)

Stock Ref	63Hz	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	8KHz	dB(A) @ 3m
VSP25012	65	70	68	66	64	66	62	55	50
VSP25014	56	63	56	54	53	53	49	41	37
VSP31514	71	70	65	60	58	59	55	47	45
VSP31534	75	71	62	60	61	62	59	51	47
VSP35514	67	70	67	64	58	60	53	45	46
VSP35534	74	66	61	63	64	63	59	53	48
VSP40014	72	73	66	62	60	59	54	48	46
VSP40034	67	67	61	60	60	59	54	48	47

Performance Curves

450 to 500 dia. - Pole 4 & 6



Performance Guide

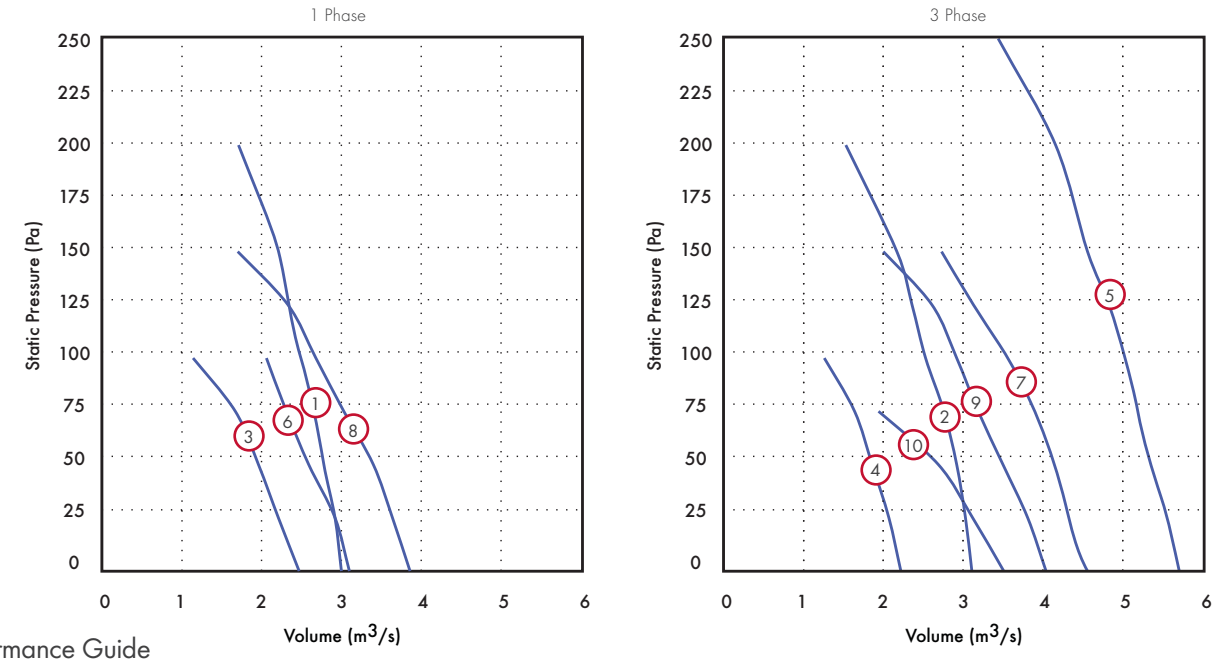
Stock Ref	Supply	IP Rating	Motor kW	F.L.C Amps	S.C. Amps	Poles	rpm	Curve		Volume m³/s @ Pa 0	25	50	75	100	125	150	dB(A) @ 3m
VSP45014	230/1/50	IP54	0.6	2.9	10	4	1320	1	Volume m³/s	1.96	1.89	1.76	1.64	1.47	1.25		49
									Power Watts	480	500	520	530	540	550		
VSP45034	400/3/50	IP54	0.54	1.1	4.4	4	1350	2	Volume m³/s	1.97	1.89	1.79	1.68	1.53	1.36		49
									Power Watts	440	460	480	505	520	530		
VSP45016	230/1/50	IP54	0.19	0.9	3.6	6	910	3	Volume m³/s	1.32	1.17	0.94					41
									Power Watts	165	175	180					
VSP45036	400/3/50	IP54	0.36	0.66	2.64	6	1020	4	Volume m³/s	1.64	1.44	1.25	1.01				44
									Power Watts	325	350	360	380				
VSP50014	230/1/50	IP54	0.7	3.2	12.8	4	1230	5	Volume m³/s	2.47	2.33	2.19	1.97	1.83	1.58		51
									Power Watts	630	660	670	690	720	740		
VSP50034	400/3/50	IP54	0.84	1.45	5.8	4	1340	6	Volume m³/s	2.63	2.50	2.36	2.22	2.07	1.92	1.67	52
									Power Watts	620	650	680	720	740	750	800	
VSP50016	230/1/50	IP54	0.27	1.25	5.0	6	910	7	Volume m³/s	1.75	1.61	1.36	1.03				44
									Power Watts	250	265	280	295				
VSP50036	400/3/50	IP54	0.54	0.96	3.84	6	940	8	Volume m³/s	2.07	1.81	1.56	1.25				47
									Power Watts	470	500	520	540				

Sound Power Level Spectra dB (ref 10^{-12} Watts)

Stock Ref	63Hz	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	8KHz	dB(A) @ 3m
VSP45014	67	69	71	63	63	63	59	53	49
VSP45034	72	70	65	65	64	64	59	53	49
VSP45016	57	62	59	56	56	56	50	41	41
VSP45036	71	66	60	60	60	58	51	43	44
VSP50014	71	75	67	63	67	68	60	52	51
VSP50034	74	72	66	66	68	68	62	56	52
VSP50016	66	72	70	55	59	58	51	43	44
VSP50036	77	77	72	66	64	61	54	47	47

Performance Curves

560 to 710 dia. - Pole 4 & 6 & 8



Performance Guide

Stock Ref	Supply	IP Rating	Motor kW	F.L.C Amps	S.C. Amps	Poles	rpm	Curve		Volume m³/s @ Pa 0	25	50	75	100	125	150	200	250	dB(A) @ 3m
VSP56014	230/1/50	IP54	1.15	5	20	4	1330	1	Volume m³/s	3.00	2.92	2.78	2.69	2.51	2.31	2.22	1.71		62
									Power Watts	810	830	870	890	900	980	1000	1100		
VSP56034	400/3/50	IP54	1.05	2.2	8.8	4	1280	2	Volume m³/s	3.11	3.03	2.92	2.76	2.53	2.36	2.17	1.53		57
									Power Watts	742	800	840	860	910	920	940	1044		
VSP56016	230/1/50	IP54	0.39	1.8	7.2	6	930	3	Volume m³/s	2.22	2.07	1.86	1.64	1.26					50
									Power Watts	369	394	415	438	458					
VSP56036	400/3/50	IP54	0.58	1.1	4.4	6	910	4	Volume m³/s	2.47	2.21	1.96	1.67	1.14					51
									Power Watts	489	518	542	556	576					
VSP63034	400/3/50	IP54	2.4	4.6	18.4	4	1320	5	Volume m³/s	5.71	5.56	5.35	5.19	5.03	4.83	4.56	4.16	3.44	62
									Power Watts	2305	2350	2400	2450	2500	2540	2587	2628	2639	
VSP63016	230/1/50	IP54	0.6	2.8	11.2	6	910	6	Volume m³/s	3.10	2.92	2.59	2.31	2.06					52
									Power Watts	568	603	650	679	710					
VSP63036	400/3/50	IP54	1.5	2.6	10.4	6	1040	7	Volume m³/s	4.56	4.32	4.07	3.81	3.56	3.13	2.73			57
									Power Watts	1538	1550	1593	1610	1645	1661	1666			
VSP71016	230/1/50	IP54	0.95	4.4	17.6	6	850	8	Volume m³/s	3.86	3.64	3.40	3.03	2.68	2.33	1.70			52
									Power Watts	607	666	700	760	808	850	950			
VSP71036	400/3/50	IP54	0.94	1.7	6.8	6	900	9	Volume m³/s	4.04	3.81	3.50	3.19	2.92	2.61	2.00			49
									Power Watts	560	620	700	768	813	861	920			
VSP71038	400/3/50	IP54	0.62	1.05	4.2	8	690	10	Volume m³/s	3.51	3.12	2.69	1.94						45
									Power Watts	451	510	540	616						

Sound Power Level Spectra dB (ref 10^{-12} Watts)

Stock Ref	63Hz	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	8KHz	dB(A) @ 3m
VSP56014	79	78	74	74	77	77	73	66	62
VSP56034	84	78	76	74	75	74	70	63	57
VSP56016	75	73	66	65	67	66	60	54	50
VSP56036	77	77	67	66	67	66	60	54	51
VSP63034	85	80	77	75	78	77	71	66	62
VSP63016	74	71	73	68	68	66	60	54	52
VSP63036	84	75	71	71	74	71	65	59	57
VSP71016	81	81	72	69	70	67	61	57	52
VSP71036	69	69	68	67	68	65	59	52	49
VSP71038	66	63	63	65	62	59	50	44	45

Accessories






Stock Ref	Supply	Electronic Controller*	5 Step Auto Transformer	eDemand Voltage*	eDemand 3ph Inverter	eDemand 1ph in 3ph out Inverter	eDemand 1Ph Inverter	D.O.L Starter	Overload
VSP25012	230/1/50	W10303102M	10314102	444164	-	-	444169	444744	444698
VSP25014	230/1/50	W10303102M	10314102	444164	-	-	444169	444744	444697
VSP31514	230/1/50	W10303102M	10314102	444164	-	-	444169	444744	444699
VSP31534	400/3/50	-	10314301	444166	444172	444177	-	444747	444699
VSP35514	230/1/50	W10303102M	10314102	444164	-	-	444169	444744	444699
VSP35534	400/3/50	-	10314301	444166	444172	444177	-	444747	444698
VSP40014	230/1/50	W10303102M	10314102	444164	-	-	444169	444744	444700
VSP40034	400/3/50	-	10314301	444166	444172	444177	-	444747	444698
VSP45014	230/1/50	10303103	10314103	444164	-	-	444169	444744	444702
VSP45034#	400/3/50	-	10314302	444166	444172	444177	-	444747	444700
VSP45016	230/1/50	W10303102M	10314102	444164	-	-	444169	444744	444699
VSP45036#	400/3/50	-	10314301	444166	444172	444177	-	444747	444699
VSP50014	230/1/50	10303106	10314105	444164	-	-	444169	444744	444702
VSP50034#	400/3/50	-	10314302	444166	444172	444177	-	444747	444700
VSP50016	230/1/50	W10303102M	10314102	444164	-	-	444169	444744	444700
VSP50036#	400/3/50	-	10314302	444166	444172	444177	-	444747	444700
VSP56014	230/1/50	10303106	10314105	444164	-	-	444170	444744	444703
VSP56034#	400/3/50	-	10314304	444166	444172	444177	-	444747	444702
VSP56016	230/1/50	10314103	10314103	444164	-	-	444169	444744	444702
VSP56036#	400/3/50	-	10314302	444166	444172	444177	-	444747	444700
VSP63034#	400/3/50	-	10314307	444166	444173	444177	-	444747	444703
VSP63016	230/1/50	10303106	10314105	444164	-	-	444169	444744	444702
VSP63036#	400/3/50	-	10314304	444166	444173	444177	-	444747	444702
VSP71016	230/1/50	10303106	10314105	444164	-	-	444170	444744	444703
VSP71036#	400/3/50	-	10314302	444166	444172	444177	-	444747	444701
VSP71038#	400/3/50	-	10314302	444166	444172	444177	-	444747	444700

* Electronic Voltage controllers may cause motor noise and vibration at lower speeds, transformer or Inverter recommended for noise sensitive applications

All models are supplied with 2 speed delta/star connection motors as standard (Sizes 450 to 630 are 4/6 Pole, size 710 is 6/8 pole)

Guards: Some installations may occur where additional safety parts are needed, to ensure safety in operation. For example, the unit may be fitted at the inlet or outlet end of a ducted ventilation system, thereby exposing the impeller/motor to unguarded access. In this event, the installer must fit a safety guard complying to current regulations. These guards are available as an optional extra

Where inverters are utilised these must be include Sine filters, as included within our eDemand range of inverters

	Louvre shutter
Fan Dia.	Stock Ref
250	LS250
315	LS315
355	LS355
400	LS400
450	LS450
500	LS500
560	LS560
630	LS630
710	LS710

	Discharge guard
Fan Dia.	Stock Ref
250	10502325
315	10502325
355	10502375
400	10502450
450	10502525
500	10502525
560	10502630
630	10502630
710	10502800

NOTE: If a discharge guard is required with a louvre shutter the next size up discharge guard should be selected