

ROOF UNITS - ROOFMASTER STOF VERTICAL

FEATURES

- 8 sizes
- Volume flows up to 4.7 m³/s
- Static Pressures up to 1050 Pa
- Both EC- and AC-versions available
- Insulated and non-insulated casing
- Low sound level
- High efficiency
- Speed controllable
- ErP 2015 compliant

ELECTRICAL SUPPLY

230V/50Hz/1 ϕ
400V/50Hz/3 ϕ

AMBIENT TEMPERATURE RANGE

-20°C to +60°C (dependant on size)

SIZES

190, 225, 310, 355, 400, 450, 500 and 630 mm

225, 310, 355, 400 mm available with insulated casing.

MATERIAL AND DESIGN

The fan casing is manufactured from black pre-painted galvanised sheet steel or aluminium and zinc coated sheet steel. The fan discharges air upwards.

MOTOR AND IMPELLER

The impeller has backward curved blades and is manufactured from polyamide (plastic) and is located inside the airstream. The motor is of the external rotor type.. 1 phase AC motors are equipped with thermal contact. See motor IP class in the motor table.

INSTALLATION

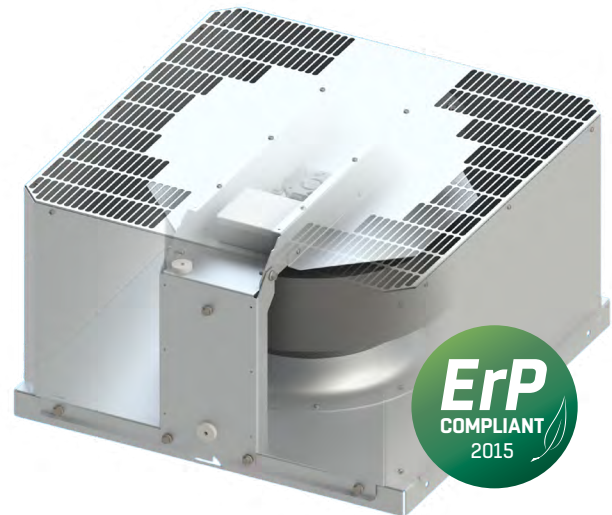
Fans are suitable for different roof curb mounting using an installation frame or can be fitted directly to roof base.

SPEED CONTROL

Both AC and EC versions are available with speed control.

EC motors are equipped with integral speed control for use with auxiliary 0-10v controller.

AC motors can be controlled using a separate transformer speed control.

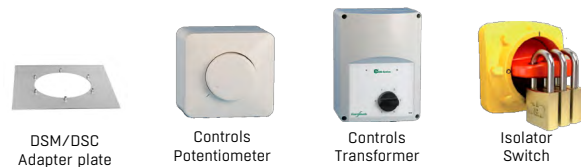


PRODUCT CODE - STOF-190-VAC-102-0

STOF-aaa-bbb-ccc-0

- aaa = impeller diameter, e.g. 225
- bbb V = vertical
S = shutter
- bbb AC = AC-motor
EC = EC-motor
- ccc 1 = 1-phase
3 = 3-phase
- ccc 0 = non insulated
1 = insulated
- ccc 1 = pre-painted galvanised sheet steel, black
2 = aluzinc
- 0 Generation

ACCESSORIES - CONTROLLERS (Pages 219-267)



DSM/DSC
Adapter plate

Controls
Potentiometer

Controls
Transformer

Isolator
Switch



PRODUCT & ELECTRICAL DETAILS - 50 HZ

EC STOF VERTICAL ROOF FAN



Part Number (EC)	Part Code	Motor nominal data at 50 Hz Supply voltage	Power kW	Max current A	Speed r/min	Speed fan r/min	Maximum Operating Temp°C	Isolator
STOF-190-VEC-102-0	SV193102	1x200...240VAC 50/60 Hz	0.083	0.75	3200	3070	60	EA002000
STOF-225-VEC-102-0	SV223102	1x200...240VAC 50/60 Hz	0.082	0.7	2200	2050	60	EA002000
STOF-310-VEC-102-0	SV313102	1x200...240VAC 50/60 Hz	0.15	1.2	1525	1550	60	EA002000
STOF-355-VEC-102-0	SV353102	1x200...240VAC 50/60 Hz	0.168	1.4	1250	1190	60	EA002000
STOF-400-VEC-102-0	SV403102	1x200...277VAC 50/60 Hz	0.33	1.46	1270	1270	60	EA002000
STOF-450-VEC-302-0	SV453302	3x380...480VAC 50/60 Hz	0.97	1.7	1550	1560	60	EA002000
STOF-500-VEC-302-0	SV503302	3x380...480VAC 50/60 Hz	1.96	3	1560	1570	40	EA002000
STOF-630-VEC-302-0	SV633302	3x380...480VAC 50/60 Hz	2.75	4.3	1300	1310	55	EA002000

Vertical EC	IP class	Insulation	Motor protection	Speed Controller 0-10 V
STOF-190-VEC-102-0	54	B	Internal TOP	EA002107
STOF-225-VEC-102-0	54	B	Internal TOP	EA002107
STOF-310-VEC-102-0	54	B	Internal TOP	EA002107
STOF-355-VEC-102-0	54	B	Internal TOP	EA002107
STOF-400-VEC-102-0	54	B	Internal TOP	EA002107
STOF-450-VEC-302-0	54	B	Internal TOP	EA002107
STOF-500-VEC-302-0	54	B	Internal TOP	EA002107
STOF-630-VEC-302-0	54	B	Internal TOP	EA002107

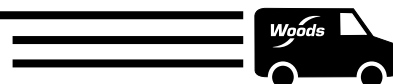
AC STOF VERTICAL ROOF FAN

Part Number (AC)	Part Code	Motor nominal data at 50 Hz Supply voltage	Power kW	Max current A	Speed r/min	Speed fan r/min	Maximum Operating Temp°C	Isolator
STOF-190-VAC-102-0	SV191102	1x230V 50/60 Hz	0.052	0.23	2350	2170	65	EA002000
STOF-225-VAC-102-0	SV221102	1x230V 50/60 Hz	0.155	0.68	2500	2450	60	EA002000
STOF-310-VAC-102-0	SV311102	1x230V 50/60 Hz	0.137	0.62	1325	1300	60	EA002000
STOF-355-VAC-102-0	SV351102	1x 230 V 50 Hz	0.27	1.18	1330	1300	60	EA002000
STOF-355-VAC-302-0	SV351302	3x230VD 50/60Hz/ 3x400VY 50/60 Hz	0.27	0.72	1390	1390	60	EA002000
STOF-400-VAC-102-0	SV401102	1x230V 50/60 Hz	0.47	2.05	1340	1350	60	EA002000
STOF-400-VAC-302-0	SV401302	3x400VYD 50 Hz/ 3x400 VYD 60 Hz	0.515	1.19	1400	1200	60	EA002000
STOF-450-VAC-302-0	SV451302	3x230VD/400VY 50 Hz	0.71	1.45	1350	1350	60	EA002000
STOF-500-VAC-302-0	SV501302	3x230VD/400VY 50 Hz	1.52	2.91	1370	1360	60	EA002000

Vertical AC	IP class	Insulation	Motor protection	Transformer	Current A	IP class	Voltage
STOF-190-VAC-102-0	44	B	Internal TOP	EA900000	1	54	230VAC 50/60 Hz
STOF-225-VAC-102-0	44	F	Internal TOP	EA900000	1	54	230VAC 50/60 Hz
STOF-310-VAC-102-0	44	B	Internal TOP	EA900000	1	54	230VAC 50/60 Hz
STOF-355-VAC-102-0	44	F	Internal TOP	EA900001	1.5	54	230VAC 50/60 Hz
STOF-355-VAC-302-0	44	F	TOP brought out	EA900025	2.5	54	400VAC 50/60 Hz
STOF-400-VAC-102-0	54	F	TOP brought out	EA900003	2.5	54	230VAC 50/60 Hz
STOF-400-VAC-302-0	54	F	TOP brought out	EA900025	2.5	54	400VAC 50/60 Hz
STOF-450-VAC-302-0	54	F	TOP brought out	EA900003	2.5	54	400VAC 50/60 Hz
STOF-500-VAC-302-0	54	F	TOP brought out	EA900026	4	54	400VAC 50/60 Hz

The part numbers shown above are for the standard un-insulated, aluzinc finish. Wiring diagrams, please see pages 172-173.

Products in **bold** are available from our UK Distributors on next day delivery, if ordered by 4pm. Please call to confirm availability on 01206 222 555.



K_{OCT} FACTORS FOR SOUND DATA (STOF, VERTICAL, UNINSULATED)

		K Oct Correction factors (dB)									
		Octave band mid-frequency (Hz)									
Fan code	Sound path	MinRPM	MaxRPM	63	125	250	500	1000	2000	4000	8000
STOF-190-Vbb-10c-0	Surroundings	0	766	5	-1	-6	-2	-3	-11	-19	-20
STOF-190-Vbb-10c-0	Surroundings	767	1533	-6	-4	-6	-2	-6	-5	-15	-28
STOF-190-Vbb-10c-0	Surroundings	1534	3042	-14	-11	-3	-3	-7	-5	-12	-16
STOF-190-Vbb-10c-0	Surroundings	3043	3660	-16	-14	-5	-2	-7	-6	-11	-13
STOF-190-Vbb-10c-0	To the inlet duct	0	766	5	-2	-5	-7	0	-11	-21	-23
STOF-190-Vbb-10c-0	To the inlet duct	767	1533	-9	-2	-5	-5	-10	-5	-7	-30
STOF-190-Vbb-10c-0	To the inlet duct	1534	3042	-11	-8	-1	-5	-10	-8	-11	-16
STOF-190-Vbb-10c-0	To the inlet duct	3043	3660	-13	-9	-5	0	-10	-9	-13	-14
STOF-225-Vbb-10c-0	Surroundings	0	1533	-9	-5	-6	-4	-5	-5	-17	-24
STOF-225-Vbb-10c-0	Surroundings	1534	2450	-10	-9	-5	-4	-7	-4	-13	-15
STOF-225-Vbb-10c-0	To the inlet duct	0	1533	-6	-2	-4	-10	-5	-9	-18	-24
STOF-225-Vbb-10c-0	To the inlet duct	1534	2450	-7	-8	-2	-10	-9	-10	-15	-19
STOF-310-Vbb-10c-0	Surroundings	0	893	1	-3	0	0	-5	-13	-20	-26
STOF-310-Vbb-10c-0	Surroundings	894	1717	-8	-3	-2	-1	-4	-10	-18	-27
STOF-310-Vbb-10c-0	To the inlet duct	0	893	-1	0	-2	-6	-11	-9	-23	-29
STOF-310-Vbb-10c-0	To the inlet duct	894	1717	-13	-1	-3	-7	-10	-13	-17	-26
STOF-355-Vbb-10c-0	Surroundings	0	893	1	-3	0	0	-5	-13	-20	-26
STOF-355-Vbb-10c-0	Surroundings	894	1378	-8	-3	-2	-1	-4	-10	-18	-27
STOF-355-Vbb-10c-0	To the inlet duct	0	893	-1	0	-2	-6	-11	-9	-23	-29
STOF-355-Vbb-10c-0	To the inlet duct	894	1378	-13	-1	-3	-7	-10	-13	-17	-26
STOF-355-Vbb-30c-0	Surroundings	0	893	1	-3	0	0	-5	-13	-20	-26
STOF-355-Vbb-30c-0	Surroundings	894	1390	-8	-3	-2	-1	-4	-10	-18	-27
STOF-355-Vbb-30c-0	To the inlet duct	0	893	-1	0	-2	-6	-11	-9	-23	-29
STOF-355-Vbb-30c-0	To the inlet duct	894	1390	-13	-1	-3	-7	-10	-13	-17	-26
STOF-400-Vbb-10c-0	Surroundings	0	893	3	0	1	-2	-4	-12	-20	-29
STOF-400-Vbb-10c-0	Surroundings	894	1350	-3	0	0	-3	-3	-11	-19	-27
STOF-400-Vbb-10c-0	To the inlet duct	0	893	-1	4	1	-5	-8	-6	-12	-29
STOF-400-Vbb-10c-0	To the inlet duct	894	1350	-10	2	3	-4	-6	-11	-13	-14
STOF-400-Vbb-30c-0	Surroundings	0	893	3	0	1	-2	-4	-12	-20	-29
STOF-400-Vbb-30c-0	Surroundings	894	1400	-3	0	0	-3	-3	-11	-19	-27
STOF-400-Vbb-30c-0	To the inlet duct	0	893	-1	4	1	-5	-8	-6	-12	-29
STOF-400-Vbb-30c-0	To the inlet duct	894	1400	-10	2	3	-4	-6	-11	-13	-14
STOF-450-Vbb-30c-0	Surroundings	0	893	3	0	1	-2	-4	-12	-20	-29
STOF-450-Vbb-30c-0	Surroundings	894	1566	-3	0	0	-3	-3	-11	-19	-27
STOF-450-Vbb-30c-0	To the inlet duct	0	893	-1	4	1	-5	-8	-6	-12	-29
STOF-450-Vbb-30c-0	To the inlet duct	894	1566	-10	2	3	-4	-6	-11	-13	-14
STOF-500-Vbb-30c-0	Surroundings	0	766	-3	-1	-1	-3	-4	-9	-14	-19
STOF-500-Vbb-30c-0	Surroundings	767	1575	-7	0	-2	-3	-4	-9	-12	-18
STOF-500-Vbb-30c-0	To the inlet duct	0	766	0	0	-4	-10	-9	-12	-17	-22
STOF-500-Vbb-30c-0	To the inlet duct	767	1575	-8	0	-4	-9	-10	-11	-15	-19
STOF-630-Vbb-30c-0	Surroundings	0	893	5	1	0	-2	-4	-10	-18	-22
STOF-630-Vbb-30c-0	Surroundings	894	1320	-9	0	-4	-3	-4	-7	-14	-21
STOF-630-Vbb-30c-0	To the inlet duct	0	893	16	0	-2	-7	-7	-12	-20	-20
STOF-630-Vbb-30c-0	To the inlet duct	894	1320	-7	5	-3	-9	-8	-10	-17	-21



K_{OCT} FACTORS FOR SOUND DATA (STOF, VERTICAL, INSULATED)

K Oct Correction factors (dB)											
Octave band mid-frequency (Hz)											
Fan code	Sound path	MinRPM	MaxRPM	63	125	250	500	1000	2000	4000	8000
STOF-225-Vbb-11c-0	Surroundings	0	1533	-2	5	1	-2	-6	-8	-19	-23
STOF-225-Vbb-11c-0	Surroundings	1534	2450	-5	1	3	-1	-8	-10	-14	-18
STOF-225-Vbb-11c-0	To the inlet duct	0	1533	-1	5	4	-3	-2	-4	-11	-18
STOF-225-Vbb-11c-0	To the inlet duct	1534	2450	-7	0	6	-3	-3	-5	-8	-14
STOF-310-Vbb-11c-0	Surroundings	0	893	5	4	3	0	-8	-19	-24	-26
STOF-310-Vbb-11c-0	Surroundings	894	1648	-2	6	2	-1	-7	-15	-20	-26
STOF-310-Vbb-11c-0	To the inlet duct	0	893	6	3	2	-3	-10	-12	-16	-22
STOF-310-Vbb-11c-0	To the inlet duct	894	1648	-2	6	2	-3	-10	-11	-15	-20
STOF-355-Vbb-11c-0	Surroundings	0	893	4	5	3	0	-8	-18	-22	-26
STOF-355-Vbb-11c-0	Surroundings	894	1433	0	4	4	-1	-7	-16	-19	-27
STOF-355-Vbb-11c-0	To the inlet duct	0	893	7	6	4	-5	-9	-10	-15	-23
STOF-355-Vbb-11c-0	To the inlet duct	894	1433	0	6	3	-5	-8	-12	-12	-22
STOF-355-Vbb-31c-0	Surroundings	0	893	4	5	3	0	-8	-18	-22	-26
STOF-355-Vbb-31c-0	Surroundings	894	1433	0	4	4	-1	-7	-16	-19	-27
STOF-355-Vbb-31c-0	To the inlet duct	0	893	7	6	4	-5	-9	-10	-15	-23
STOF-355-Vbb-31c-0	To the inlet duct	894	1433	0	6	3	-5	-8	-12	-12	-22
STOF-400-Vbb-11c-0	Surroundings	0	893	7	15	-1	-8	-15	-19	-20	-25
STOF-400-Vbb-11c-0	Surroundings	894	1404	6	9	3	-2	-8	-14	-18	-25
STOF-400-Vbb-11c-0	To the inlet duct	0	893	2	8	-5	-14	-18	-18	-17	-30
STOF-400-Vbb-11c-0	To the inlet duct	894	1404	1	7	2	-6	-10	-13	-15	-21
STOF-400-Vbb-31c-0	Surroundings	0	893	7	15	-1	-8	-15	-19	-20	-25
STOF-400-Vbb-31c-0	Surroundings	894	1404	6	9	3	-2	-8	-14	-18	-25
STOF-400-Vbb-31c-0	To the inlet duct	0	893	2	8	-5	-14	-18	-18	-17	-30
STOF-400-Vbb-31c-0	To the inlet duct	894	1404	1	7	2	-6	-10	-13	-15	-21

PERFORMANCE TABLES

EC STOF VERTICAL ROOF FAN

		Pressure (Pa)											
Vertical EC	0	50	100	150	200	250	300	350	400	450	500	600	700
STOF-190-VEC-10c-0	0.17	0.16	0.16	0.15	0.13	0.12	0.11	0.10	0.08	0.05			
STOF-225-VEC-10c-0	0.25	0.24	0.21	0.19	0.16	0.13	0.07						
STOF-310-VEC-10c-0	0.57	0.52	0.48	0.44	0.39	0.31	0.18						
STOF-355-VEC-10c-0	0.69	0.64	0.58	0.50	0.39	0.16							
STOF-400-VEC-10c-0	1.02	0.97	0.91	0.84	0.76	0.66	0.52	0.26					
STOF-450-VEC-30c-0	1.80	1.75	1.70	1.65	1.59	1.53	1.46	1.38	1.30	1.20	1.09	0.76	
STOF-500-VEC-30c-0	2.90	2.86	2.81	2.75	2.69	2.69	2.57	2.51	2.44	2.37	2.28	2.10	1.90
STOF-630-VEC-30c-0	4.76	4.66	4.54	4.42	4.30	4.17	4.03	3.90	3.75	3.60	3.45	3.07	2.67

 Airflow m³/s

		Pressure (Pa)									
Insulated EC	0	50	100	150	200	250	300	350	400	450	
STOF-225-VEC-10c-0	0.26	0.24	0.22	0.20	0.17	0.14	0.09				
STOF-310-VEC-10c-0	0.57	0.50	0.46	0.42	0.37	0.29	0.18				
STOF-355-VEC-10c-0	0.68	0.63	0.57	0.50	0.42	0.28					
STOF-400-VEC-10c-0	1.14	1.07	1.00	0.92	0.82	0.72	0.59	0.42			

 Airflow m³/s

AC STOF VERTICAL ROOF FAN

		Pressure (Pa)											
Vertical AC	0	50	100	150	200	250	300	350	400	450	500	600	700
STOF-190-VAC-10c-0	0.13	0.12	0.10	0.09	0.07	0.05							
STOF-225-VAC-10c-0	0.27	0.26	0.24	0.23	0.21	0.19	0.17	0.14	0.10	0.00			
STOF-310-VAC-10c-0	0.47	0.40	0.35	0.28	0.17								
STOF-355-VAC-10c-0	0.75	0.69	0.63	0.56	0.48	0.36	0.14						
STOF-355-VAC-30c-0	0.81	0.76	0.71	0.65	0.58	0.49	0.37	0.05					
STOF-400-VAC-10c-0	1.10	1.05	0.99	0.92	0.85	0.76	0.65	0.51	0.26				
STOF-400-VAC-30c-0	1.13	1.08	1.02	0.96	0.89	0.81	0.72	0.61	0.44	0.07			
STOF-450-VAC-30c-0	1.53	1.49	1.43	1.36	1.29	1.21	1.12	1.00	0.84	0.59			
STOF-500-VAC-30c-0	2.50	2.45	2.39	2.32	2.26	2.18	2.10	2.01	1.81	1.81	1.70	1.35	0.71
STOF-630-VAC-30c-0	4.73	4.65	4.54	4.43	4.32	4.20	4.07	3.95	3.80	3.65	3.50	3.15	2.70

 Airflow m³/s

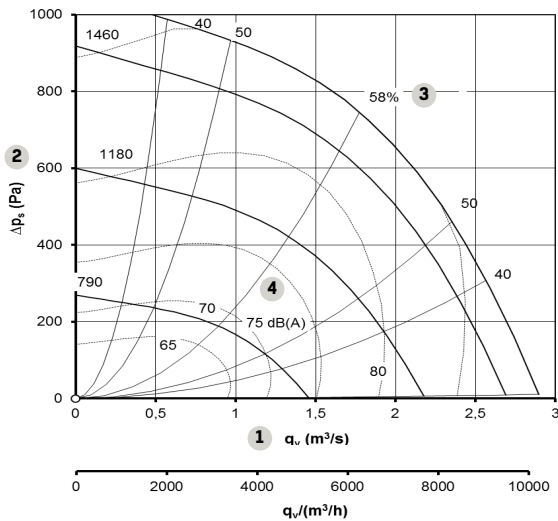
		Pressure (Pa)									
Insulated AC	0	50	100	150	200	250	300	350	400	450	
STOF-225-VAC-10c-0	0.29	0.28	0.26	0.24	0.23	0.21	0.18	0.15	0.10		
STOF-310-VAC-10c-0	0.45	0.42	0.34	0.30	0.20						
STOF-355-VAC-10c-0	0.73	0.68	0.63	0.56	0.49	0.38	0.21				
STOF-355-VAC-30c-0	0.76	0.71	0.65	0.65	0.58	0.38	0.37				
STOF-400-VAC-10c-0	1.11	1.06	1.00	0.94	0.87	0.78	0.68	0.52	0.16		
STOF-400-VAC-30c-0	1.17	1.12	1.06	0.99	0.92	0.84	0.74	0.63	0.48	0.06	

 Airflow m³/s

Performance table is valid for both aluzinc and black casing.



FAN CHART - EXPLANATION AND DEFINITIONS



SYMBOLS

1.	q_v	Air flow	$m^3/s, m^3/h$
2.	Δp_t	Static pressure	Pa
3.	η	Total fan efficiency	%
4.	L_{WA}	A-weighted total sound power level	dB(A)
	L_{pA}	A-weighted total sound pressure level	dB(A)
	ΔL	Remote attenuation	dB

SOUND PRESSURE LEVEL

The total A-weighted sound power level, L_{WA} , emitted from the power roof ventilator to the surroundings can be read in the chart. The sound pressure level at different distances from the power roof ventilator can be determined by using the following formula:

$$L_{pA} = L_{WA} - \Delta L$$

Distance L (m)	1	3	5	10	15	20	25	30	40
Attenuation ΔL (dB)	7	17	22	28	31	34	36	37	40

SOUND LEVEL AT DIFFERENT OCTAVE BANDS

Correction K _{oct} (dB)										
Octave band mid-frequency (Hz)										
Sound path	MinRPM	MaxRPM	63	125	250	500	1000	2000	4000	8000
Surroundings	0	766	5	-1	-6	-2	-3	-11	-19	-20
To the inlet duct	0	766	5	-2	-5	-7	0	-11	-21	-23

The total A-weighted sound power level, L_{WA} , emitted from the power roof ventilator to the surroundings can be read in the fan chart. The sound power level by octave band to the surroundings and to the inlet duct (without A-weighting) can be obtained by using the following formula:

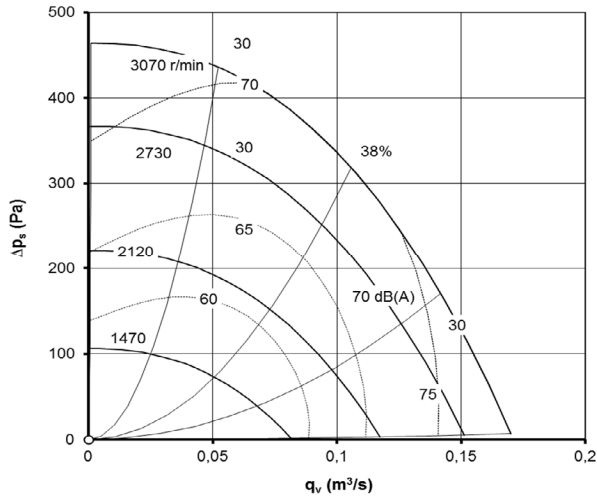
$$L_{w_{oct}} = L_{WA} + K_{oct}$$

The corrections are given in K_{oct} table for both sound paths and correct speed area.

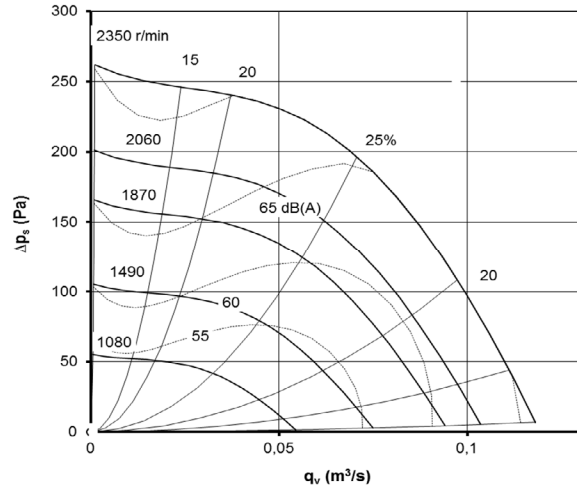
PERFORMANCE CHARTS

FAN CHART, VERTICAL – NON INSULATED – STOF-190

STOF - 190 - VEC -1- SV193102

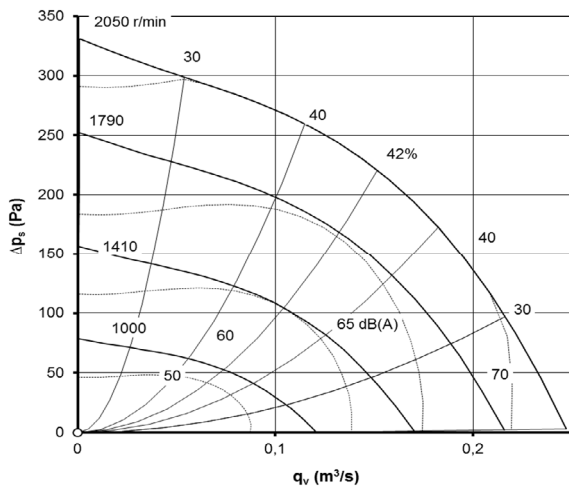


STOF - 190 - VAC -1 - SV191102

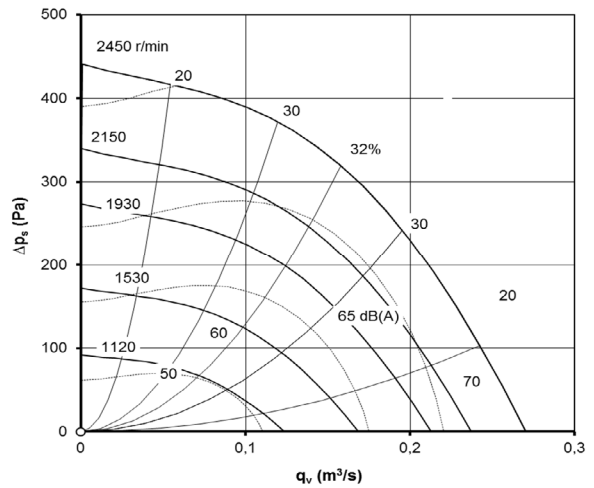


FAN CHART, VERTICAL – NON INSULATED – STOF-225

STOF - 225 - VEC -1- SV223102



STOF - 225 - VAC -1- SV221102

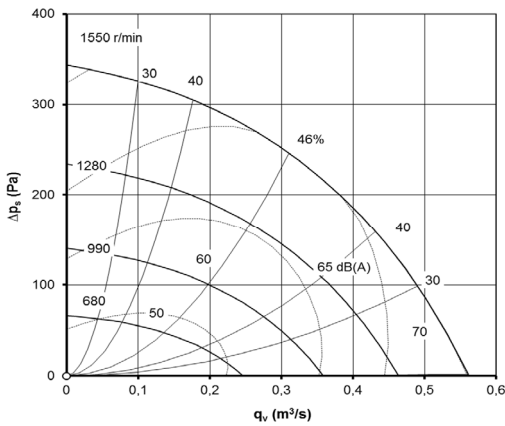




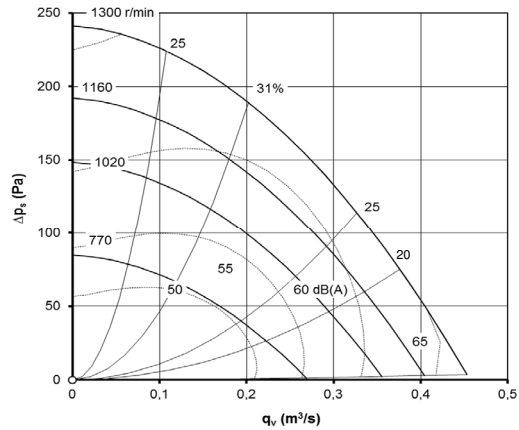
PERFORMANCE CHARTS

FAN CHART, VERTICAL - NON INSULATED - STOF-310

STOF - 310 - VEC -1 - SV313102

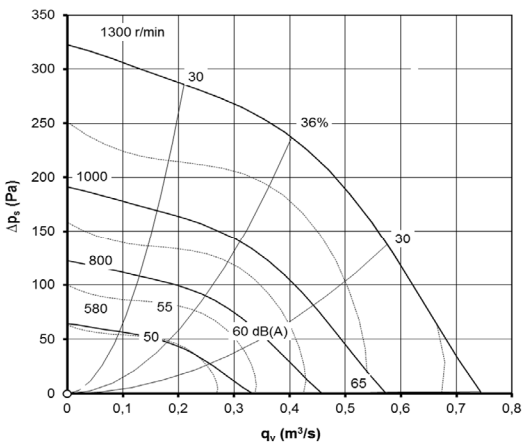


STOF - 310 - VAC -1 - SV311102

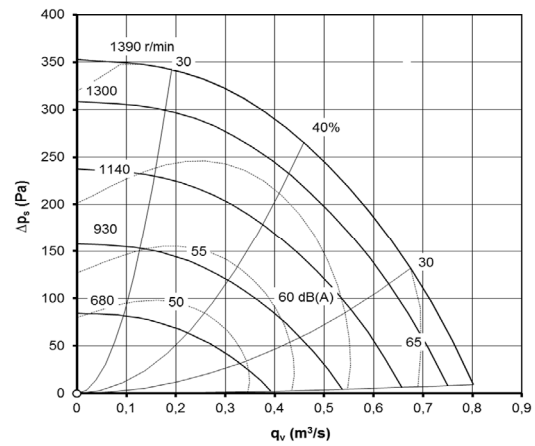


FAN CHART, VERTICAL - NON INSULATED - STOF-355

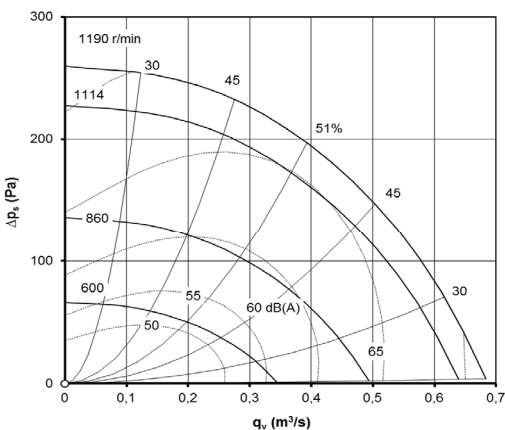
STOF - 355 - VAC -1~ SV351102



STOF - 355 - VAC - 3 - SV351302



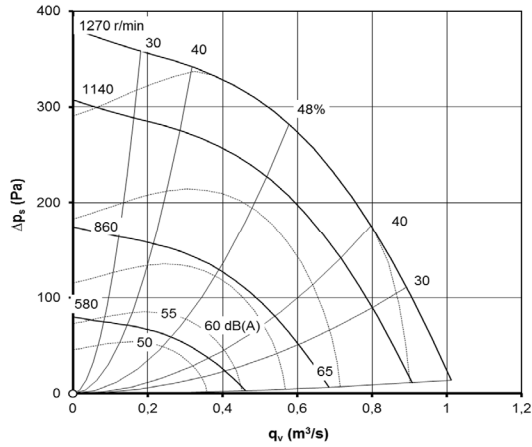
STOF - 355 - VEC -1~ SV353102



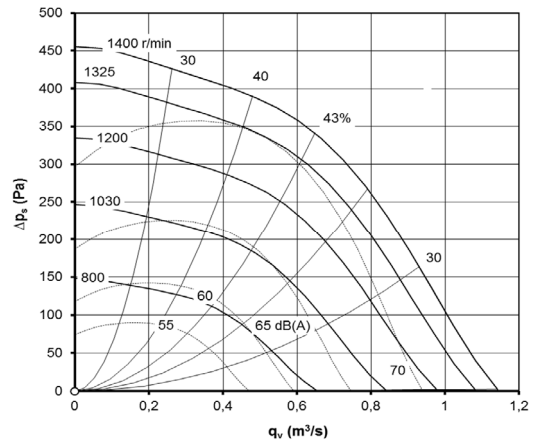
PERFORMANCE CHARTS

FAN CHART, VERTICAL – NON INSULATED – STOF-400

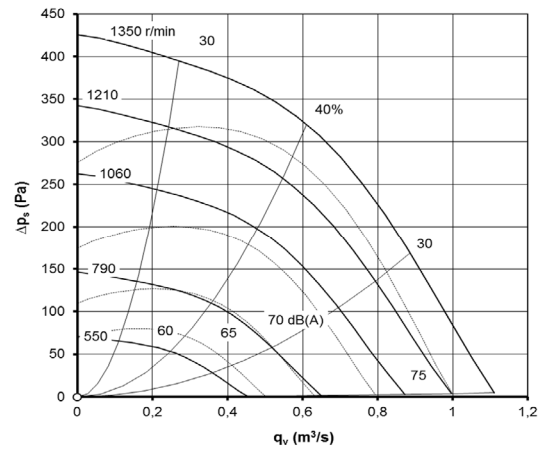
STOF - 400 - VEC - 1 - SV403102



STOF - 400 - VAC - 3 - SV401302

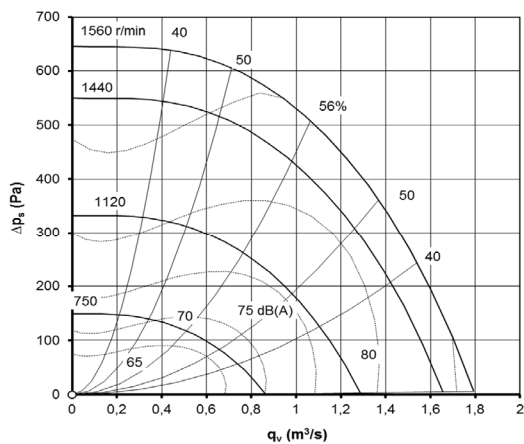


STOF - 400 - VAC - 1 - SV401102

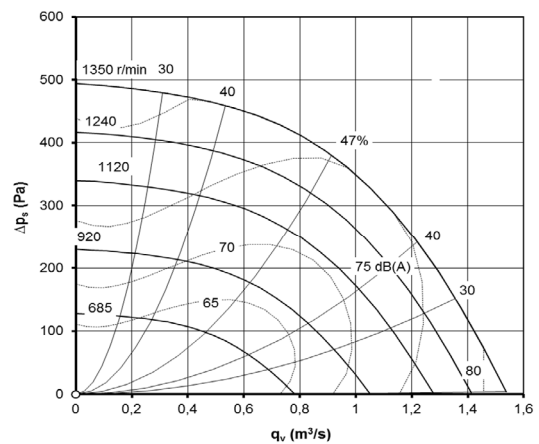


FAN CHART, VERTICAL – NON INSULATED – STOF-450

STOF - 450 - VEC - 3 - SV451302



STOF - 450 - VAC - 3 - SV453302

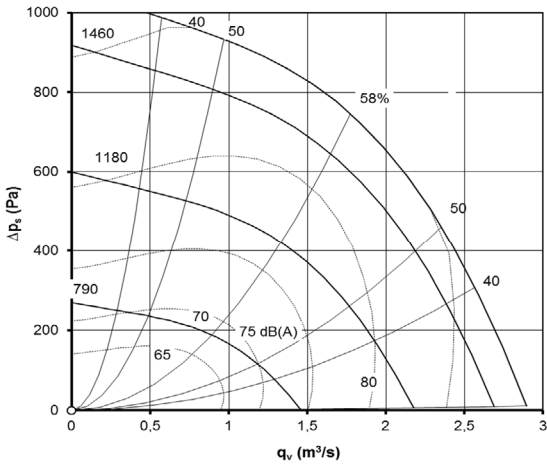




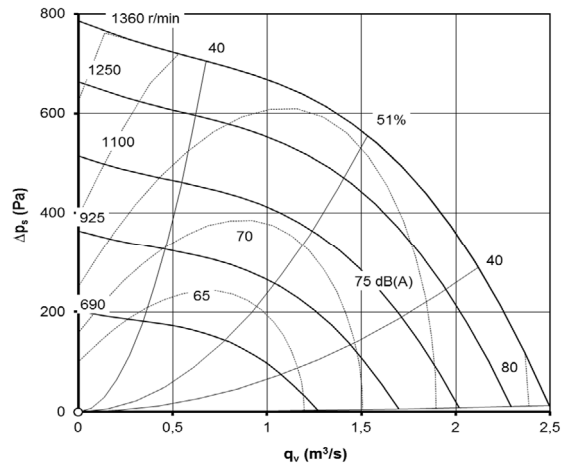
PERFORMANCE CHARTS

FAN CHART, VERTICAL – NON INSULATED – STOF-500

STOF - 500 - VEC - 3 - SV503302

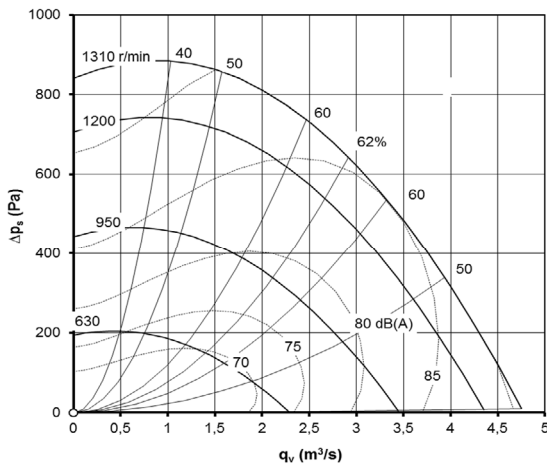


STOF - 500 - VAC - 3 - SV501302

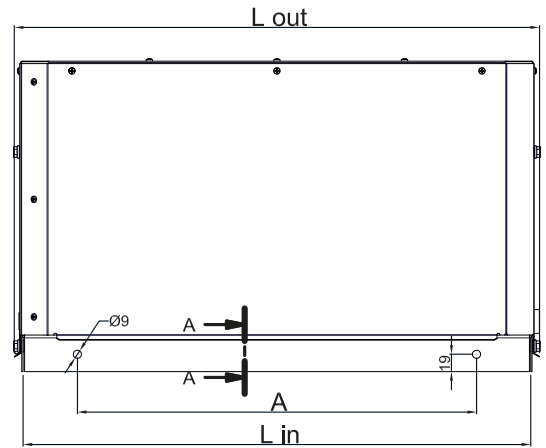
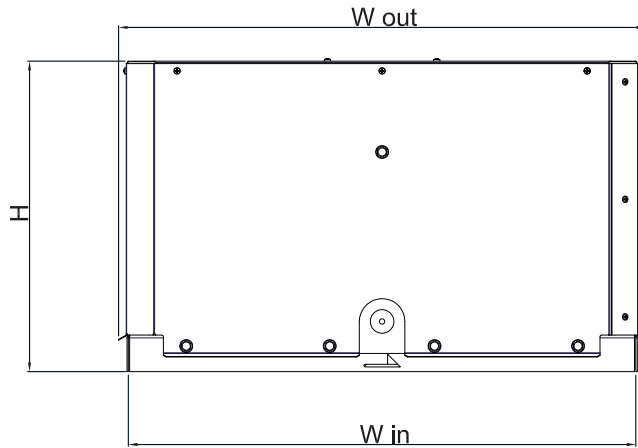


FAN CHART, VERTICAL – NON INSULATED – STOF-630

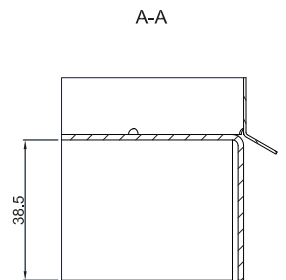
STOF - 630 - VEC - 3 - SV633302



DRAWING AND DIMENSIONS



Uninsulated vertical							
Fan size	A	H	L _{in}	L _{out}	W _{in}	W _{out}	Weight
190	234	182	342	362	342	364	8
225	328	226	447	467	447	469	10
310	328	306	447	467	447	469	16
355	438	341	557	577	557	579	22
400	508	351	627	647	627	649	27
450	598	382	717	737	717	739	36
500	778	461	897	917	897	919	56
630	998	520	1117	1137	1117	1139	82



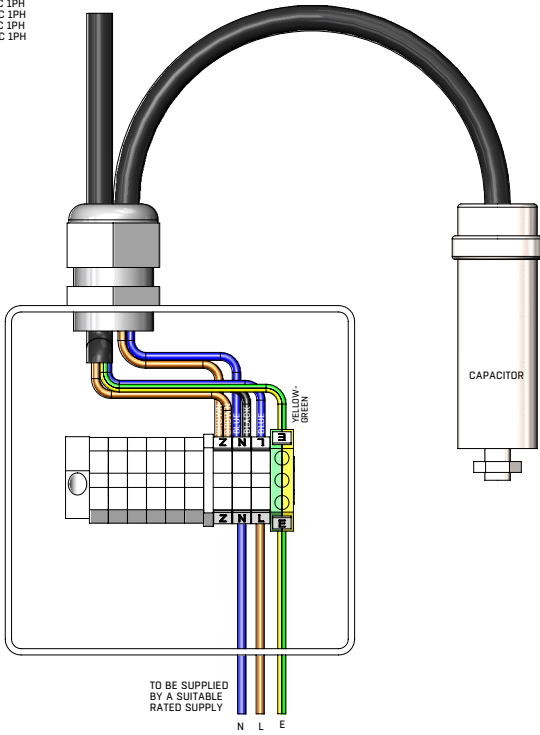
All dimensions shown in mm



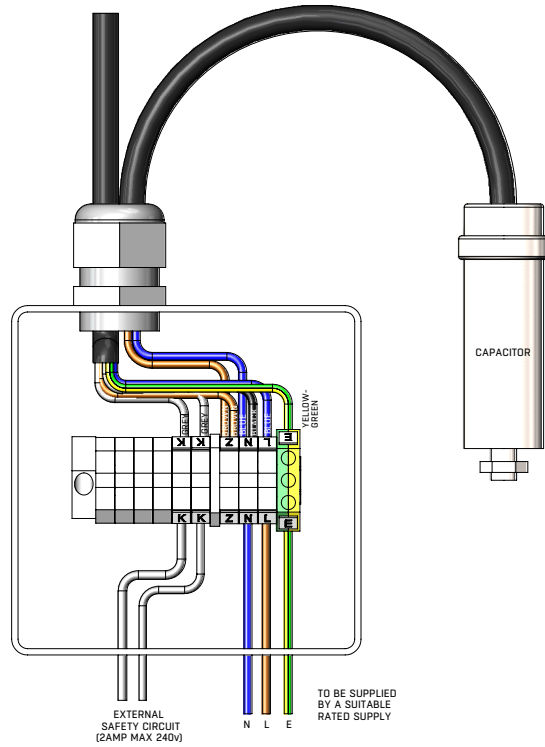
WIRING DIAGRAMS - STOF

STOF AC 1ph 190, 225, 310, 355

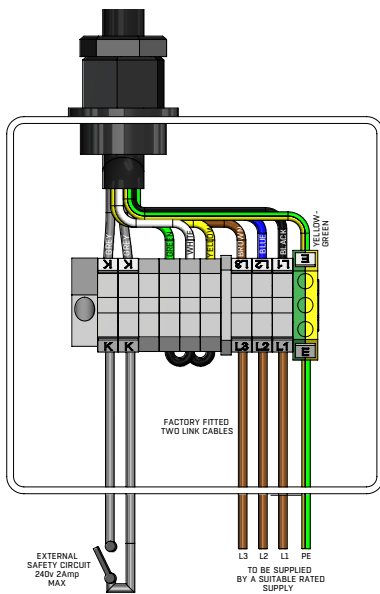
STOF 190 AC 1PH
STOF 225 AC 1PH
STOF 310 AC 1PH
STOF 355 AC 1PH



STOF AC 1ph 400

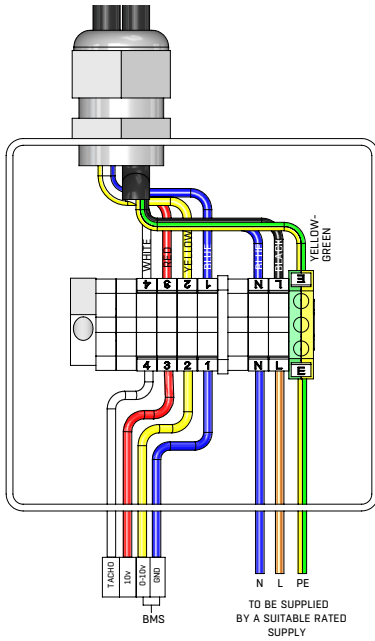


STOF AC 3ph 355, 450, 500, 630

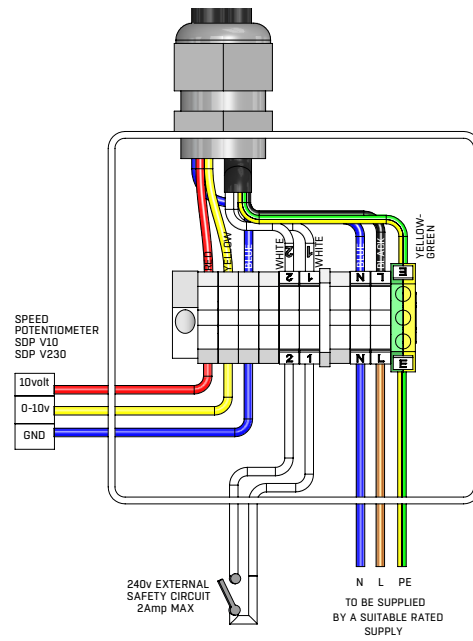


WIRING DIAGRAMS - STOF

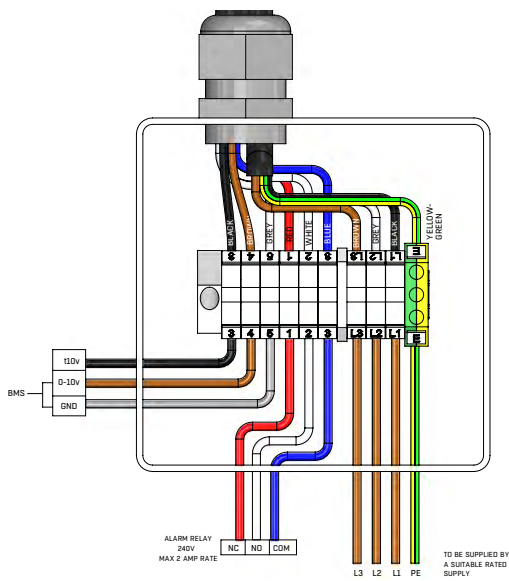
STOF EC 1ph 190, 225, 310, 355



STOF EC 1ph 400



STOF EC 3ph 450



STOF EC 3ph 500, 630

