Roof fan **ROOFMASTER STEF**

Standard, smoke extraction, ATEX

FläktWoods

ROOFMASTER STEF

Fan impeller and stable motor mounting plate.

Seven roof fans offer real comfort

ROOFMASTER is a series of roof fans designed for those who seek comfort in more ways than one. It runs quietly. It is easy to install and service. It fits in well in the environment. It is available with speed control. And it is efficient – for air flows up to 5 m^3/s.

Quiet operation

A roof fan is there to provide the comfort you expect. Naturally, it must also function without generating unnecessary noise that can disturb those nearby. This is one of the features that we have focused on when we developed the ROOFMASTER. We have insulated the fan casing with ample insulation. We have "streamlined" the fan impeller to generate less sound. We equip our units with quiet motors and have given the ROOFMASTER a very stable design which prevents unnecessary sound emission. In addition, the fan speed can be controlled which implies that the fan need never run faster than required for achieving the comfort desired.

Demand-controlled

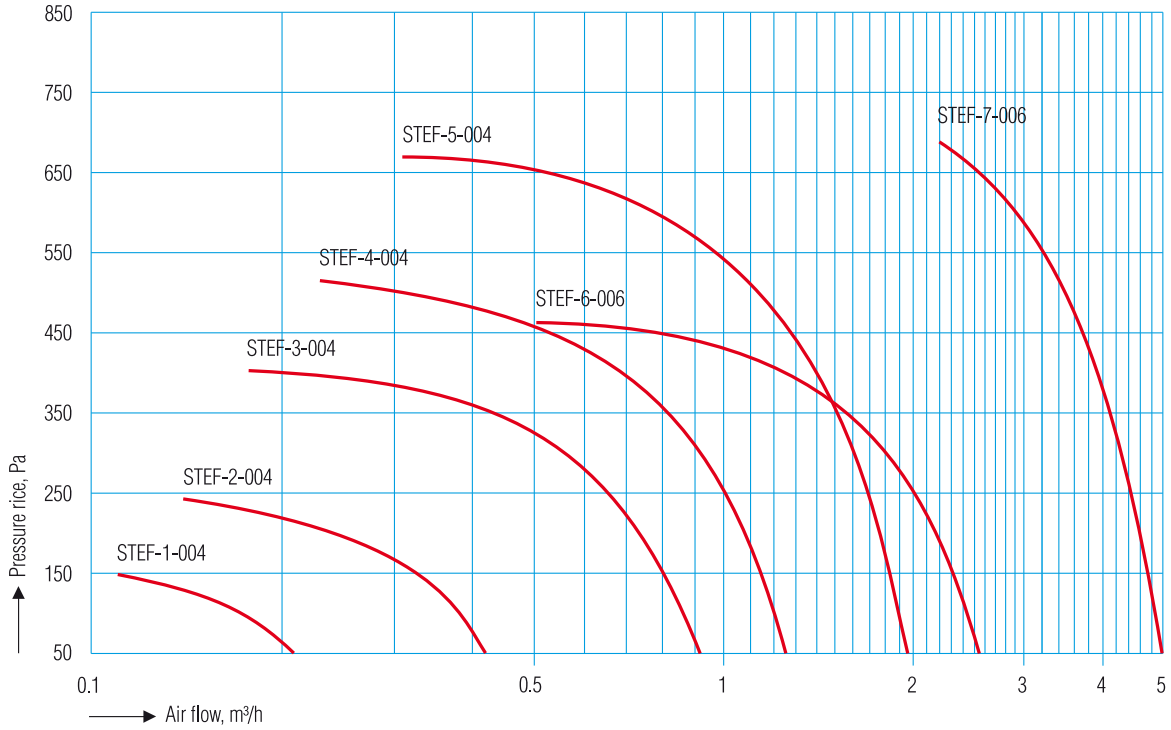
As a rule, the need for ventilation varies substantially at different times of the day and during different seasons of the year. Naturally, there are several reasons why the output of the fan should be matched to this need. There are also several ways in which this can be done. Thus, the ROOFMASTER always runs exactly at the speed called for by the present conditions. It generates a low level of sound, saves on electricity and heating costs.

Right design

Real comfort is determined not only by low sound emission and good air quality. It is also influenced by the visual impression that the roof fan conveys. Therefore, we have selected a design for the ROOFMASTER, which is well suited for installation in most types of roof structures.

Long-lived

A robust power roof ventilator must be able to withstand variations in climate and wear. The materials used in the manufacture of the ROOFMASTER satisfy the requirements of the environmental class C4.



Installation and service-friendly

When we designed the ROOFMASTER, we have also taken into consideration “the comfort” of thosewho install and carry out service on the unit. The power roof ventilator is easy to fit to a roof duct or chimney. The motor is easily accessible for servicing, and it is located outside the air flow. The durable hinges and safety brackets make it easy to open the unit and reach the components inside. And the impeller with backward-inclined blades reduce the need for servicing.

Frequency converter mounted into roof fan.

Broad range

Broad range guarantees an easy selection. Beside the standard version there is an ATEX-version for Group II, Category 3G according to Directive 94/9/EC (ATEX-100) with an Ex e or Ex de motor. ROOFMASTER is also available in smoke extraction version for Class F400 (400°C/2h) according to EN 12101-3. The smoke extraction version is tested and certified by SP Swedish National Testing and Research Institute.

Economical

The low sound level. The speed control which provides correct output and saves on energy. The attractive external appearance. The robust design of the unit. Its long life time. The materials. Simple installation and the low service costs. When you add up all these features, you have a roof fan which not only provides the right comfort, but also offers excellent overall economy. ROOFMASTER.

Technical specification

ROOFMASTER is a series of roof fans. The units are available in 7 sizes for air flows of up to 5 m^3/s and for a maximum pressure rise of 650 Pa.

Material and design

The fan casing in the standard version is made of pre-painted galvanised sheet steel, black; or aluminium and zinc coated sheet steel. The Al/Zn-coated casing can also be supplied with an external polyester powder painting. The materials meet the requirements of the environmental class C4, i.e. they are suitable for industrial and sea climates. The fan casing is internally insulated with mineral wool. The fan discharges air upward and the unit is very easy to open for cleaning.

Fan impeller

The fan impeller is made of galvanised sheet steel (in size 7 it is made of welded steel, powder painted) and has backward-inclined blades. The impeller is dynamically balanced to Class Q 6.3 in accordance with VDI 2060.

Motors

All the motors used are IEC standard, fully enclosed, flange motors to degree of protection IP 55. The motor is secured on a stable mounting plate and its location is outside the air flow. The max. permissible ambient temperature for the motor is +40°C. The values specified in the motor tables are applicable to the rated voltage and the rated frequency. Single-phase motors are equipped with bimetallic temperature detector (thermocontact) and are suited for speed control. The STYR-36 transformer (accessory) is available for single-phase motors. In the case of single speed three-phase motors, an ordinary static frequency converter can be used according to the manufacturer's instructions.

Technical particulars

The performance is applicable to a density of ρ = 1.2 kg/m3 and has been measured according to ISO 5801. Sound power level to surroundings has been measured according to ISO3741 and to duct work according to AMCA 300-85.

ATEX-version for Group II, Category 3G, according to Directive 94/9 (ATEX-100)

ROOFMASTER is available in ATEX-version for Category 3G, Zone 2. The fan is driven wither with an Ex IIT3 or an Ex de IIBT4 motor. If the roof fan is intended for frequency converter drive, the Ex de type motor must be selected. Ex de motor is equipped with thermistors. In size 1 and 2 the impeller shroud is made of brass and in other sizes the inlet cone is with a brass lining.
The fan has been mechanical test (impact test) described in EN13463-1. The ignition hazard assessment has been done according to 5.2.3 of EN 13463-1. The fan is CE-marked and there is an Ex –marking showing the classification of the fan. Installation and maintenance instructions are included in the delivery. For additional information please contact nearest Fläkt Woods representative.

Smoke extraction version

ROOFMASTER STEF roof fans are available also in smoke extraction version and they come in 7 sizes. The smoke extraction roof fans have been tested according to standard EN 12101-3 for class F400 (400°C/2h) by SP Swedish National Testing and Research Institute.

Construction

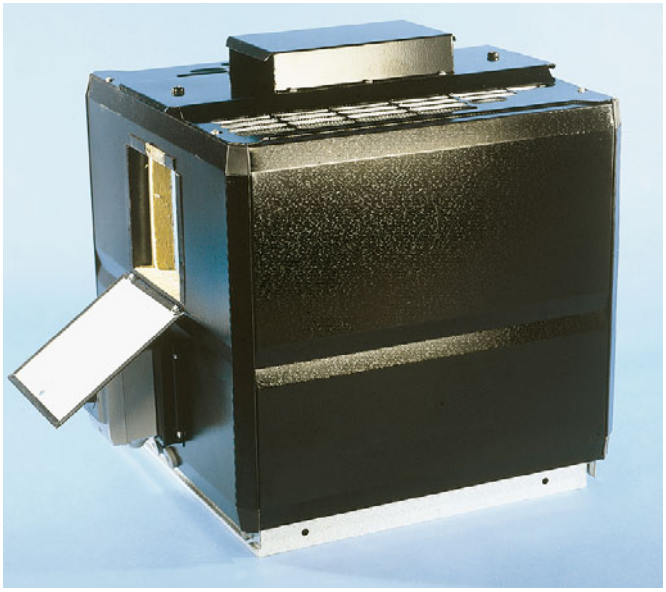
The fan casing is insulated with mineral wool and clad with fibre glass fabric and perforated sheet metal. The side plates and mounting plate of the motor compartment are isolated with sandwich-construction of galvanised steel and mineral wool.

Fan impeller and motors

The fan impeller is made of galvanised sheet steel (in size 7 it is made of welded steel, powder painted) and is provided with cooling ribs. Otherwise the construction is similar to that of the standard version. All the motors used are IEC standard, fully enclosed, flanged motors to degree of protection IP55. The motor is located outside the air flow. The motor is equipped with a metal cooling fan and external cooling air is supplied to the motor through automatically opening covers. The motor range consists of 400V single and two-speed motors, see also the motor table of each fan size. In case of two-speed motors, the higher speed must be used for smoke extraction. If a frequency converter is used local norms and standards must be followed. Special cable is required.

Safety switch and other accessories

The smoke extraction roof fan is supplied with the safety isolation switch SAFE as standard and it is mounted on the side panel (not into the side panel like in standard version) and it is factory-wired. Smoke extraction version can also be used for normal ventilation. The technical data is the same as in standard version. As other accessories are mounting frame MORA and STEZ-03 available.



ROOFMASTEF STOF

ROOFMASTER STOF-02 and 05 are available for smaller air flows between 10 and 180 l/s with max. pressure rise of 300 Pa.

Material and construction

The fan casing in the standard version is made of aluminium and zinc coated sheet steel. STOF-02 and 05 can also be supplied with an external polyester powder painting, color tone black (RAL 9005). The materials meet the requirements of the environmental class C4. The fan discharges air upward and the unit is very easy to dismantled for cleaning.

Fan impeller and motor

Fan impeller is made of plastic and has backward-curved blades. The impeller is dynamically balanced to Class Q 6.3 in accordance with VDI 2060. The motors are single phase outer rotor motors. Motors are suited for speed control and they are equipped with bimetallic temperature detector (thermocontact). The motor is located in the air flow and the max. exhaust air temperature can be +40°C.

Safety switch

Safety switch is available in normal version and it is always supplied loose. Motor cable is not included in the delivery of STOF.

Quality

The products meet Quality Class 2 according to DIN 24 166. The manufacture has been granted approval to ISO 9001 and ISO 14001.

Accessories

Flat roof socket STEZ - 01 - b

Flexible connection STEZ - 02 - b

Mounting frame STEZ - 03 - b

Back drought shutter STEZ - 05 - b

Inlet sound attenuator STEZ - 07 - b

Roof duct BOGA - aa - b - 1 - 1

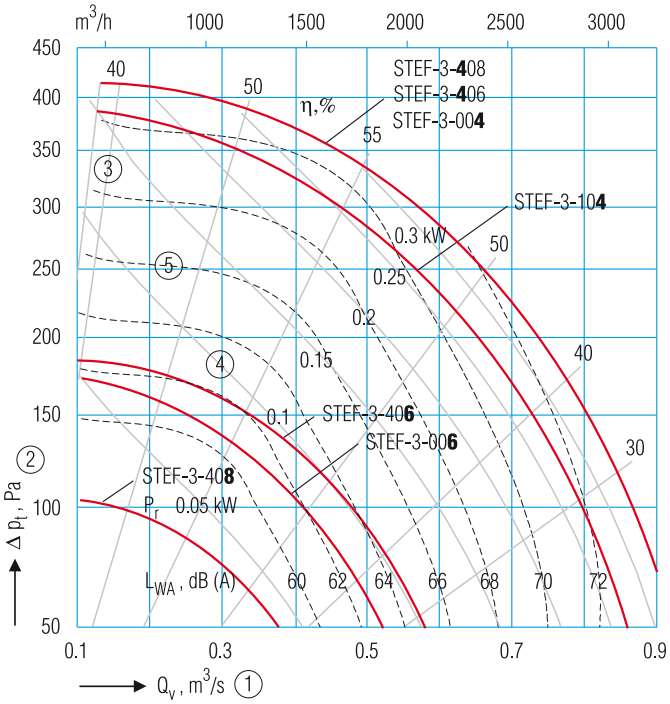
Safety isolation switch SAFE

Transformer controller STYR - 36 - b

Air flow measurement FLOW - a - b - 0

Air flow transmitter CENTRIMETER GTLZ - 86 - 10 - 1 - 0

ROOFMASTER is a registered trade-mark.



Symbols

①	Q_v	Air flow	m^3/s, (m^3/h)
②	Δ_{pt}	Total pressure rise	Pa
③	η	Fan efficiency	%
④	P_r	Power demand of the impeller	kW
⑤	L_{WA}	A-weighted total sound power level	dB(A)
	L_{wokt}	Sound power level by octave bands (without A-weighting)	dB
	K_{okt}	Correction	dB
	L_{pA}	A-weighted sound pressure level	dB(A)
	ΔL	Remote attenuation	dB

The specified values of remote attenuation are applicable to ideal conditions under which free, hemispherical sound propagation in all directions is assumed.

Fan curves are valid for all versions.

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 fan 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

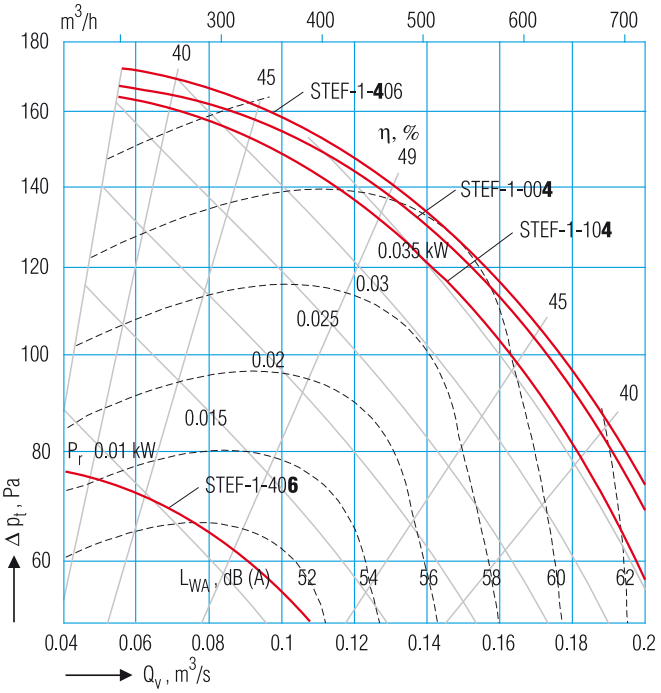
STEF-1

Sound data

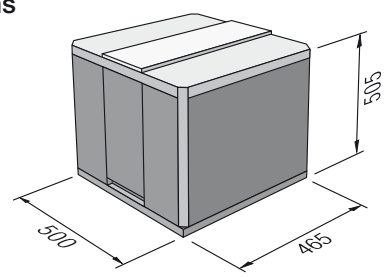
Sound path	Correction K_{okt} (dB)							
	Octave band mid-frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
Surroundings	-2	9	3	-3	-10	-15	-19	-15
To the duct	-2	2	-3	-6	-3	-3	-13	-19

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 duct (without A-weighting) can be obtained by using the following formula: $L_{wokt} = L_{WA} + K_{okt}$

The corrections K_{okt} are given in the table above.



Dimensions



Weight 31 kg

Motor data

Type		Speed	Output	Max. current	η	Frequency converter	
Standard	Smoke extr. 400°C/2h	r/min	kW	A	%	3 ~ supplied	1~ supplied
Single-phase, 230 V, 50 Hz							
STEF-1-104-c-1-5		1430	0.04	0.9	40	-	-
Three-phase, 400 V, 50 Hz							
STEF-1-004-c-1-6	STEF-1-004-c-6-3	1375	0.12	0.48/0.83*	54	STYR-14-3-S-d-1	STYR-13-1-S-d-1
STEF-1-406-c-1-5	STEF-1-406-c-6-3	1430/950	0.18/0.06	0.85/0.6	49/36	-	-
STEF-1-408-c-1-5	STEF-1-408-c-6-3	1435/705	0.18/0.03	0.8/0.4	56/27	-	-
ATEX 3G with Ex e IIT3 motor, not suited for inverter operation							
STEF-1-004-c-9-5		1380	0.25	0.79	65	-	-
ATEX 3G with Ex de IIBT4 motor, suited for inverter operation							
STEF-1-004-c-91-5		1380	0.25	0.77/1.34*	65	-	-

* Max. current given for 3 x 400 V/3 x 230 V

Roof fan **STEF-1-bbb-c-d-e**

Size

Motor
0 = three-phase motor
1 = single-phase motor
4 = 2-speed motor, higher rpm

Number of motor poles or thes lower rpm of the 2-speed motor

Material
1 = pre-painted galvanised sheet steel, black
2 = aluminium and zinc coated sheet steel

Version
1 = Standard, 6 = Smoke extraction, 9 = ATEX, 91 = ATEX for inverter drive

Generation

Flat roof socket	**STEZ-01-1**
Flexible connection	**STEZ-02-1**
Mounting frame	**STEZ-03-1**
Back drought shutter	**STEZ-05-1**
Inlet sound attenuator	**STEZ-07-1**
Connection plate	**STEZ-04-1**
Safety isolation switch	**SAFE-a-b-0**

1 = for single speed 3-phase motors
2 = for 1-phase motors or two-speed 3-phase motors
4 = for 3-phase motors, ATEX-version
0 = delivered loose, 1 = factory-wired

Transformer controller	**STYR-36-1**

For other accessories please see pages 15 - 17

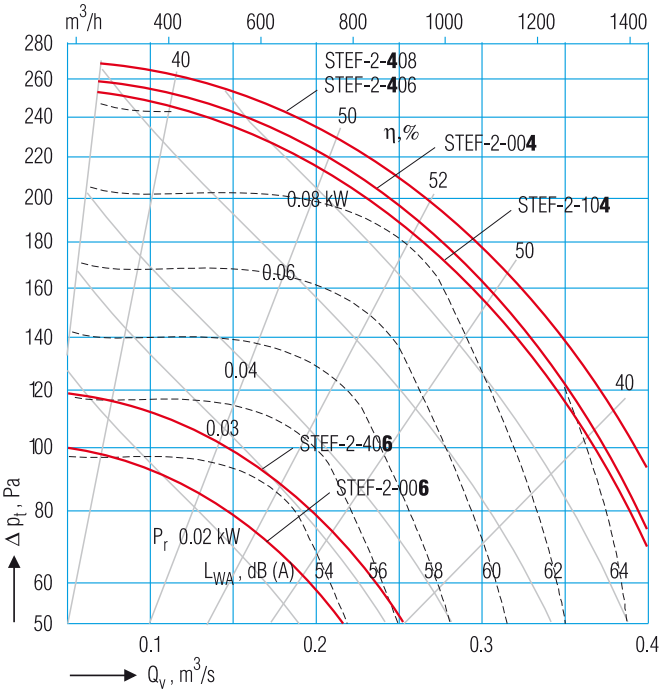
STEF-2

Sound data

Sound path	Correction K_{okt} (dB)							
	Octave band mid-frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
Surroundings	-3	8	3	-2	-8	-13	-17	-16
To the duct	1	1	-3	-6	-1	-5	-11	-19

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 duct (without A-weighting) can be obtained by using the following formula: $L_{wokt} = L_{WA} + K_{okt}$

The corrections K_{okt} are given in the table above.



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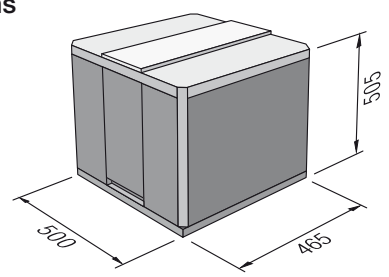


Weight 31 kg

Motor data

Type		Speed	Output	Max. current	η	Frequency converter	
Standard	Smoke extr. 400°C/2h	r/min	kW	A	%	3 ~ supplied	1~ supplied
Single-phase, 230 V, 50 Hz							
STEF-2-104-c-1-5		1425	0.12	1.3	52	-	-
Three-phase, 400 V, 50 Hz							
STEF-2-004-c-1-6	STEF-2-004-c-6-3	1375	0.12	0.48/0.83*	54	STYR-14-3-S-d-1	STYR-13-1-S-d-1
STEF-2-006-c-1-5	STEF-2-006-c-6-3	905	0.18	0.8/1.33*	55	STYR-14-3-S-d-1	STYR-14-1-S-d-1
STEF-2-406-c-1-5	STEF-2-406-c-6-3	1430/950	0.18/0.06	0.85/0.6	49/36	-	-
STEF-2-408-c-1-5	STEF-2-408-c-6-3	1435/705	0.18/0.03	0.8/0.4	56/27	-	-
ATEX 3G with Ex e IIT3 motor, not suited for inverter operation							
STEF-2-004-c-9-5		1380	0.25	0.79	65	-	-
ATEX 3G with Ex de IIBT4 motor, suited for inverter operation							
STEF-2-004-c-91-5		1380	0.25	0.77/1.34*	65	-	-

* Max. current given for 3 x 400 V/3 x 230 V

Roof fan **STEF-2-bbb-c-d-e**

Size

Motor
0 = three-phase motor
1 = single-phase motor
4 = 2-speed motor, higher rpm

Number of motor poles or thes lower rpm of the 2-speed motor

Material
1 = pre-painted galvanised sheet steel, black
2 = aluminium and zinc coated sheet steel

Version
1 = Standard, 6 = Smoke extraction, 9 = ATEX, 91 = ATEX for inverter drive

Generation

Flat roof socket	**STEZ-01-2**
Flexible connection	**STEZ-02-2**
Mounting frame	**STEZ-03-2**
Back drought shutter	**STEZ-05-2**
Inlet sound attenuator	**STEZ-07-2**
Connection plate	**STEZ-04-2**
Safety isolation switch	**SAFE-a-b-0**

1 = for single speed 3-phase motors
2 = for 1-phase motors or two-speed 3-phase motors
4 = for 3-phase motors, ATEX-version
0 = delivered loose, 1 = factory-wired

Transformer controller	**STYR-36-2**

For other accessories please see pages 15 - 17

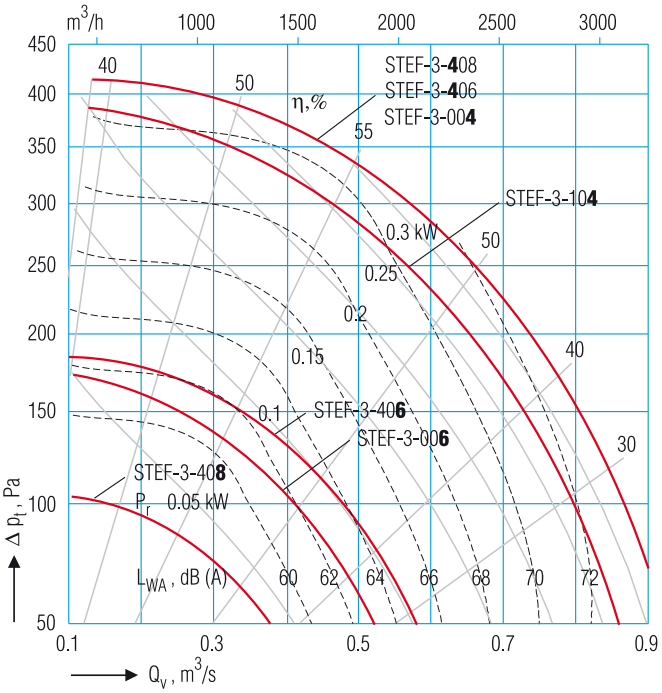
STEF-3

Sound data

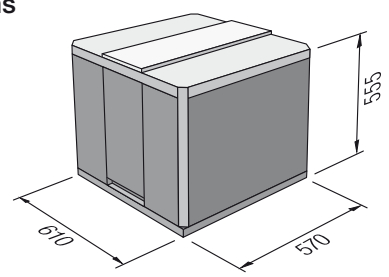
Sound path	Correction K_{okt} (dB)							
	Octave band mid-frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
Surroundings	-8	3	6	-4	-8	-13	-17	-16
To the duct	-9	-6	-6	-6	-6	-10	-15	-19

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 duct (without A-weighting) can be obtained by using the following formula: $L_{wokt} = L_{WA} + K_{okt}$

The corrections K_{okt} are given in the table above.



Dimensions



Weight 45 kg

Motor data

Type		Speed	Output	Max. current	η	Frequency converter	
Standard	Smoke extr. 400°C/2h	r/min	kW	A	%	3 ~ supplied	1~ supplied
Single-phase, 230 V, 50 Hz							
STEF-3-104-c-1-5		1360	0.3	2.5	58	-	-
Three-phase, 400 V, 50 Hz							
STEF-3-004-c-1-5	STEF-3-004-c-6-3	1410	0.55	1.7/2.9*	68	STYR-16-3-S-d-1	STYR-16-1-S-d-1
STEF-3-006-c-1-5	STEF-3-006-c-6-3	905	0.18	0.8/1.33*	55	STYR-14-3-S-d-1	STYR-14-1-S-d-1
STEF-3-406-c-1-5	STEF-3-406-c-6-3	1430/970	0.75/0.25	2/1.3	70/51	-	-
STEF-3-408-c-1-5	STEF-3-408-c-6-3	1430/710	0.6/0.15	1.7/0.8	68/30	-	-
ATEX 3G with Ex e IIT3 motor, not suited for inverter operation							
STEF-3-004-c-9-5		1380	0.55	1.51	69	-	-
STEF-3-006-c-9-5		920	0.37	1.3	62	-	-
ATEX 3G with Ex de IIBT4 motor, suited for inverter operation							
STEF-3-004-c-91-5		1421	0.55	1.4/2.5*	77	-	-
STEF-3-006-c-91-5		953	0.37	1.3/2.3*	67	-	-

* Max. current given for 3 x 400 V/3 x 230 V

Roof fan **STEF-3-bbb-c-d-e**

Size

Motor
0 = three-phase motor
1 = single-phase motor
4 = 2-speed motor, higher rpm

Number of motor poles or thes lower rpm of the 2-speed motor

Material
1 = pre-painted galvanised sheet steel, black
2 = aluminium and zinc coated sheet steel

Version
1 = Standard, 6 = Smoke extraction, 9 = ATEX, 91 = ATEX for inverter drive

Generation

Flat roof socket	**STEZ-01-3**
Flexible connection	**STEZ-02-3**
Mounting frame	**STEZ-03-3**
Back drought shutter	**STEZ-05-3**
Inlet sound attenuator	**STEZ-07-3**
Connection plate	**STEZ-04-3**
Safety isolation switch	**SAFE-a-b-0**

1 = for single speed 3-phase motors
2 = for 1-phase motors or two-speed 3-phase motors
4 = for 3-phase motors, ATEX-version
0 = delivered loose, 1 = factory-wired

Transformer controller	**STYR-36-3**

For other accessories please see pages 15 - 17

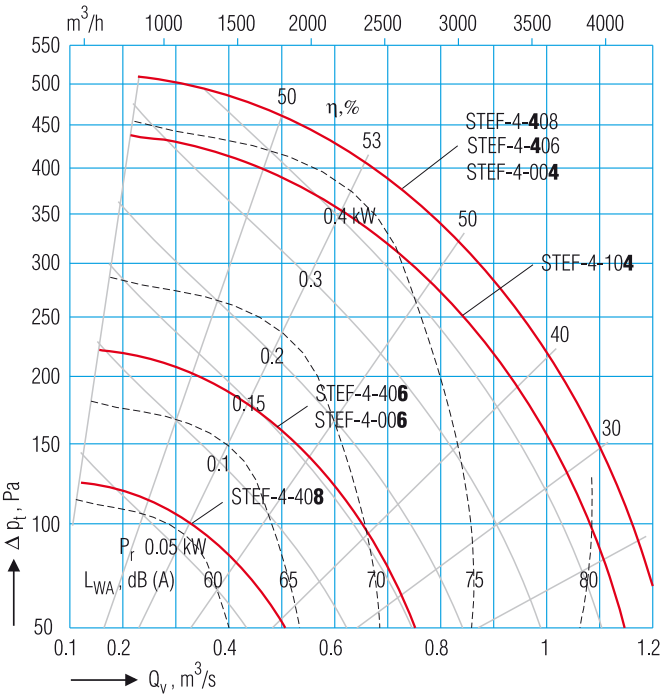
STEF-4

Sound data

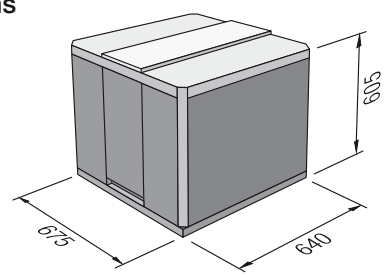
Sound path	Correction K_{okt} (dB)							
	Octave band mid-frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
Surroundings	-8	3	6	-5	-10	-15	-20	-25
To the duct	-8	-6	-8	-7	-5	-10	-17	-22

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 duct (without A-weighting) can be obtained by using the following formula: $L_{wokt} = L_{WA} + K_{okt}$

The corrections K_{okt} are given in the table above.



Dimensions



Weight 50 kg

Motor data

Type		Speed	Output	Max. current	η	Frequency converter	
Standard	Smoke extr. 400°C/2h	r/min	kW	A	%	3 ~ supplied	1~ supplied
Single-phase, 230 V, 50 Hz							
STEF-4-104-c-1-5		1330	0.55	3.8	66	-	-
Three-phase, 400 V, 50 Hz							
STEF-4-004-c-1-5	STEF-4-004-c-6-3	1395	0.75	2.3/4*	72	STYR-16-3-S-d-1	STYR-16-1-S-d-1
STEF-4-006-c-1-5	STEF-4-006-c-6-3	900	0.25	1/1.8	64	STYR-14-3-S-d-1	STYR-14-1-S-d-1
STEF-4-406-c-1-5	STEF-4-406-c-6-3	1430/970	0.75/0.25	2/1.3	70/51	-	-
STEF-4-408-c-1-5	STEF-4-408-c-6-3	1430/710	0.6/0.15	1.7/0.8	68/30	-	-
ATEX 3G with Ex e IIT3 motor, not suited for inverter operation							
STEF-4-004-c-9-5		1390	0.75	2	72	-	-
STEF-4-006-c-9-5		920	0.37	1.3	62	-	-
ATEX 3G with Ex de IIBT4 motor, suited for inverter operation							
STEF-4-004-c-91-5		1413	0.75	1.8/3.2*	78	-	-
STEF-4-006-c-91-5		953	0.37	1.3/2.3*	67	-	-

* Max. current given for 3 x 400 V/3 x 230 V

Roof fan **STEF-4-bbb-c-d-e**

Size

Motor
0 = three-phase motor
1 = single-phase motor
4 = 2-speed motor, higher rpm

Number of motor poles or thes lower rpm of the 2-speed motor

Material
1 = pre-painted galvanised sheet steel, black
2 = aluminium and zinc coated sheet steel

Version
1 = Standard, 6 = Smoke extraction, 9 = ATEX, 91 = ATEX for inverter drive

Generation

Flat roof socket **STEZ-01-4**

Flexible connection **STEZ-02-4**

Mounting frame **STEZ-03-4**

Back drought shutter **STEZ-05-4**

Inlet sound attenuator **STEZ-07-4**

Connection plate **STEZ-04-4**

Safety isolation switch **SAFE-a-b-0**

1 = for single speed 3-phase motors
2 = for 1-phase motors or two-speed 3-phase motors
4 = for 3-phase motors, ATEX-version
0 = delivered loose, 1 = factory-wired

Transformer controller **STYR-36-4**

For other accessories please see pages 15 - 17

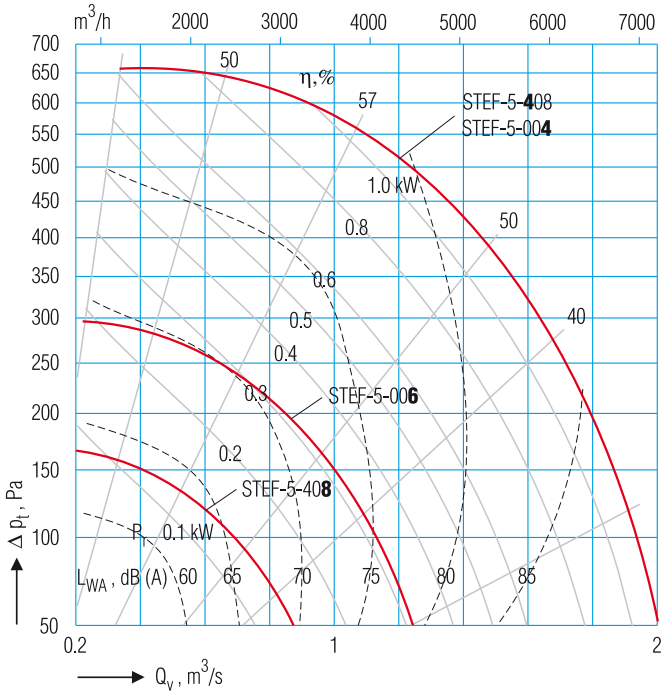
STEF-5

Sound data

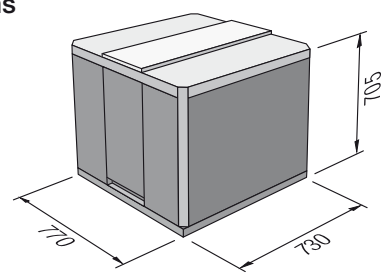
Sound path	Correction K_{okt} (dB)							
	Octave band mid-frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
Surroundings	-8	3	6	-5	-12	-16	-19	-22
To the duct	-11	-7	-8	-9	-11	-11	-18	-25

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 duct (without A-weighting) can be obtained by using the following formula: $L_{wokt} = L_{WA} + K_{okt}$

The corrections K_{okt} are given in the table above.



Dimensions



Weight 66 kg

Motor data

Type		Speed	Output	Max. current	η	Frequency converter	
Standard	Smoke extr. 400°C/2h	r/min	kW	A	%	3 ~ supplied	1~ supplied
Three-phase, 400 V, 50 Hz							
STEF-5-004-c-1-5	STEF-5-004-c-6-3	1410	1.5	3.6/6.3*	79	STYR-18-3-S-d-1	STYR-18-1-S-d-1
STEF-5-006-c-1-5	STEF-5-006-c-6-3	930	0.55	1.9/3.3*	67	STYR-16-3-S-d-1	STYR-16-1-S-d-1
STEF-5-408-c-1-5	STEF-5-408-c-6-3	1440/715	1.4/0.18	3.9/1.2	74/44	-	-
ATEX 3G with Ex e IIT3 motor, not suited for inverter operation							
STEF-5-004-c-9-5		1410	1.35	3.1	79	-	-
STEF-5-006-c-9-5		920	0.37	1.3	62	-	-
ATEX 3G with Ex de IIBT4 motor, suited for inverter operation							
STEF-5-004-c-91-5		1431	1.5	3.3/5.9*	82	-	-
STEF-5-006-c-91-5		953	0.37	1.3/2.3*	67	-	-

* Max. current given for 3 x 400 V/3 x 230 V

Roof fan STEF-5-bbb-c-d-e

Size

Motor
0 = three-phase motor
4 = 2-speed motor, higher rpm

Number of motor poles or thes lower rpm of the 2-speed motor

Material
1 = pre-painted galvanised sheet steel, black
2 = aluminium and zinc coated sheet steel

Version
1 = Standard, 6 = Smoke extraction, 9 = ATEX, 91 = ATEX for inverter drive

Generation

Flat roof socket	STEZ-01-5
Flexible connection	STEZ-02-5
Mounting frame	STEZ-03-5
Back drought shutter	STEZ-05-3
Inlet sound attenuator	STEZ-07-5
Connection plate	STEZ-04-5
Safety isolation switch	SAFE-a-b-0

1 = for single speed 3-phase motors
2 = for 1-phase motors or two-speed 3-phase motors
4 = for 3-phase motors, ATEX-version
0 = delivered loose, 1 = factory-wired

For other accessories please see pages 15 - 17

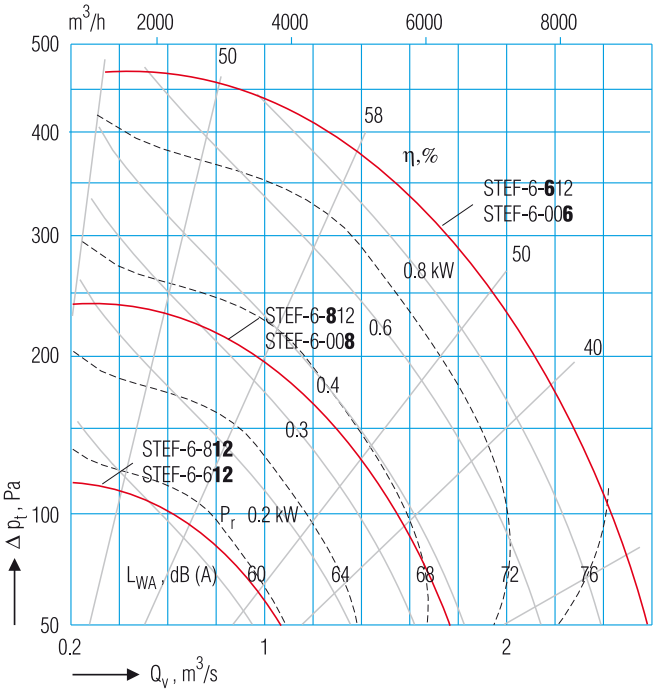
STEF-6

Sound data

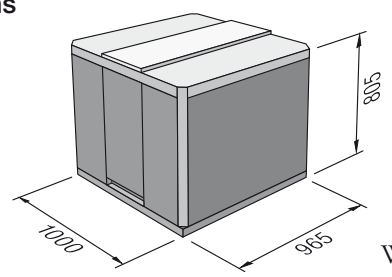
Sound path	Correction K_{okt} (dB)							
	Octave band mid-frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
Surroundings	3	8	3	-2	-8	-12	-15	-21
To the duct	3	6	1	-2	-7	-7	-12	-15

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 duct (without A-weighting) can be obtained by using the following formula: $L_{wokt} = L_{WA} + K_{okt}$

The corrections K_{okt} are given in the table above.



Dimensions



Weight 116 kg

Motor data

Type		Speed	Output	Max. current	η	Frequency converter	
Standard	Smoke extr. 400°C/2h	r/min	kW	A	%	3 ~ supplied	1~ supplied
Three-phase, 400 V, 50 Hz							
STEF-6-006-c-1-5	STEF-6-006-c-6-3	925	1.1	3.3/5.7*	73	STYR-18-3-S-d-1	STYR-18-1-S-d-1
STEF-6-612-c-1-5	STEF-6-612-c-6-3	950/485	1.2/0.13	3.6/1.2	70/34	-	-
STEF-6-812-c-1-5		720/485	0.55/0.18	2.6/1.7	60/40	-	-
ATEX 3G with Ex e IIT3 motor, not suited for inverter operation							
STEF-6-006-c-9-5		940	1.4	3.75	75	-	-
STEF-6-008-c-9-5		695	0.55	2.15	64	-	-
ATEX 3G with Ex de IIBT4 motor, suited for inverter operation							
STEF-6-006-c-91-5		940	1.1	3.3/5.8*	75	-	-

* Max. current given for 3 x 400 V/3 x 230 V

Roof fan **STEF-6-bbb-c-d-e**

Size

Motor
0 = three-phase motor
6,8 = 2-speed motor, higher rpm

Number of motor poles or thes lower rpm of the 2-speed motor

Material
1 = pre-painted galvanised sheet steel, black
2 = aluminium and zinc coated sheet steel

Version
1 = Standard, 6 = Smoke extraction, 9 = ATEX, 91 = ATEX for inverter drive

Generation

Flat roof socket	**STEZ-01-6**
Flexible connection	**STEZ-02-6**
Mounting frame	**STEZ-03-6**
Back drought shutter	**STEZ-05-6**
Inlet sound attenuator	**STEZ-07-6**
Connection plate	**STEZ-04-6**
Safety isolation switch	**SAFE-a-b-0**

1 = for single speed 3-phase motors
2 = for 1-phase motors or two-speed 3-phase motors
4 = for 3-phase motors, ATEX-version
0 = delivered loose, 1 = factory-wired

For other accessories please see pages 15 - 17

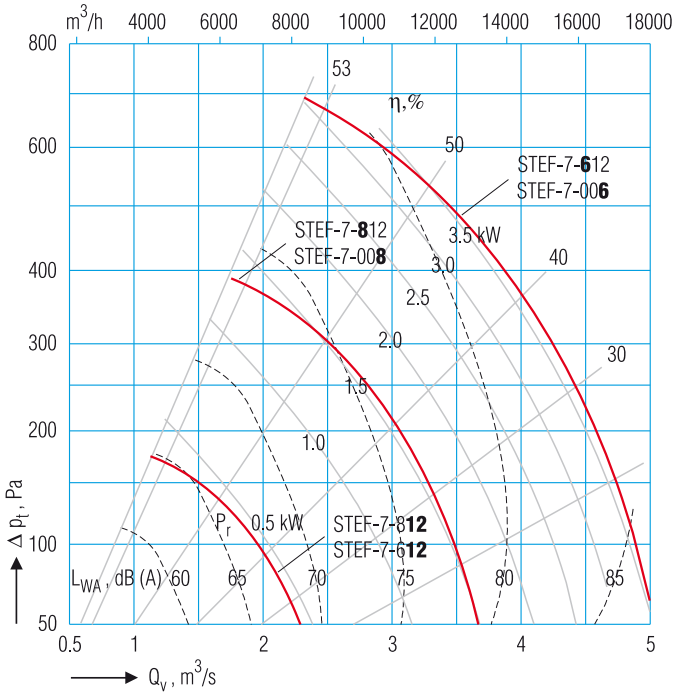
STEF-7

Sound data

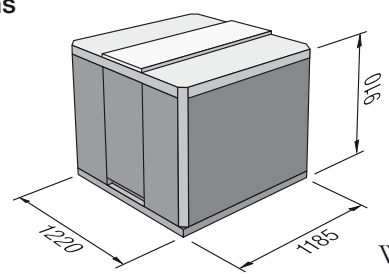
Sound path	Correction K_{okt} (dB)							
	Octave band mid-frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
Surroundings	3	7	3	-3	-7	-12	-15	-21
To the duct	1	3	5	1	-2	-4	-10	-15

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 duct (without A-weighting) can be obtained by using the following formula: $L_{wokt} = L_{WA} + K_{okt}$

The corrections K_{okt} are given in the table above.



Dimensions



Weight 199 kg

Motor data

Type		Speed	Output	Max. current	η	Frequency converter	
Standard	Smoke extr. 400°C/2h	r/min	kW	A	%	3 ~ supplied	1~ supplied
Three-phase, 400 V, 50 Hz							
STEF-7-006-c-1-5	STEF-7-006-c-6-3	960	4.0	9.4/16.3*	84	STYR-21-3-S-d-1	-
STEF-7-008-c-1-5		710	2.2	5.9/10.2*	81	STYR-19-3-S-d-1	-
STEF-7-612-c-1-5	STEF-7-612-c-6-3	960/485	3.7/0.6	8.6/3.3	82/56	-	-
STEF-7-812-c-1-5		720/485	1.8/0.5	5.6/2.8	77/58		
ATEX 3G with Ex e IIT3 motor, not suited for inverter operation						-	-
STEF-7-006-c-9-5		963	4.8	10	83.5	-	-
ATEX 3G with Ex de IIBT4 motor, suited for inverter operation							
STEF-7-006-c-91-5		967	4.0	9.3/16.2*	85	-	-
STEF-7-008-c-91-5		720	2.2	6.3/11*	79	-	-

* Max. current given for 3 x 400 V/3 x 230 V

Roof fan STEF-7-bbb-c-d-e

Size

Motor
0 = three-phase motor
6,8 = 2-speed motor, higher rpm

Number of motor poles or thes lower rpm of the 2-speed motor

Material
1 = pre-painted galvanised sheet steel, black
2 = aluminium and zinc coated sheet steel

Version
1 = Standard, 6 = Smoke extraction, 9 = ATEX, 91 = ATEX for inverter drive

Generation

Flat roof socket	STEZ-01-7
Flexible connection	STEZ-02-7
Mounting frame	STEZ-03-7
Back drought shutter	STEZ-05-7
Inlet sound attenuator	STEZ-07-7
Connection plate	STEZ-04-7
Safety isolation switch	SAFE-a-b-0

1 = for single speed 3-phase motors
2 = for 1-phase motors or two-speed 3-phase motors
4 = for 3-phase motors, ATEX-version
0 = delivered loose, 1 = factory-wired

For other accessories please see pages 15 - 17

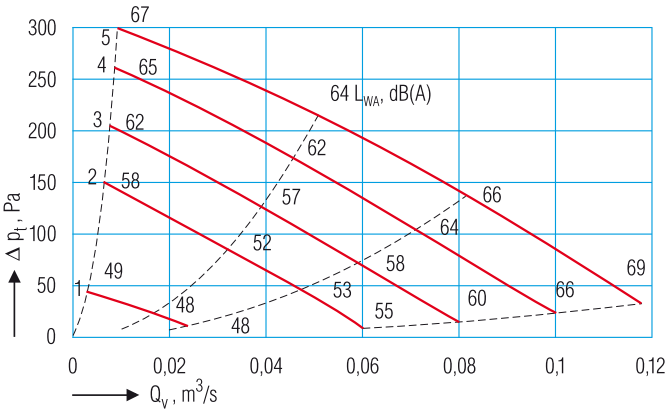
STOF-02

Sound data

Sound path	Correction K_{okt} (dB)							
	Octave band mid-frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
Surroundings	-2	-3	-3	-5	-4	-7	-15	-24
To the duct	-1	-1	-1	-2	-2	-4	-10	-18

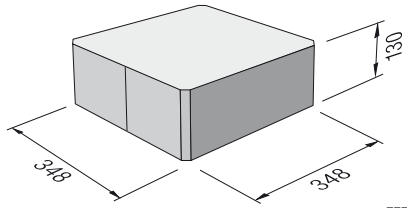
The total A-weighted sound power level, L_{WA}, emitted from the power roof ventilator to the surroundings can be read in the fan chart. The sound power level by octave band to the surroundings and to the duct (without A-weighting) can be obtained by using the following formula: $L_{wokt} = L_{WA} +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

The corrections K_{okt} are given in the table above.

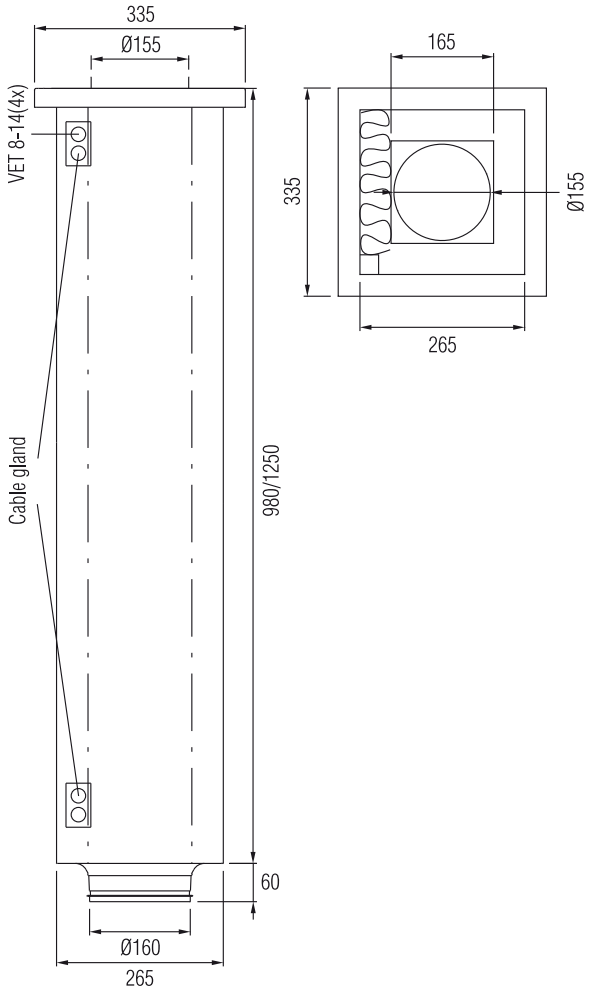


5 = 230 V, 4 = 170 V, 3 = 135 V, 2 = 110 V, 1 = 65 V

Dimensions



Weight 5,6 kg



Motor data

Type	Speed	Output	Max. current	Condenser, yF
	r/min	kW	A	
Single-phase motor				
STOF-02-504-c-1-3	2500	0.058	0.26	2

Roof fan STOF-02-bbb-c-1-3

Size

Motor
504 = single-phase outer rotor motor

Material
1 = aluminium and zinc coated sheet steel, black
2 = aluminium and zinc coated sheet steel

Generation

Roof duct BOGA-005-b-c-1

Back drought shutter
1 = with
2 = without

Height
1 = 980 mm EI30
2 = 1250 mm EI30

Safety switch SAFE-2-0-0

Transformer STYR-36-1

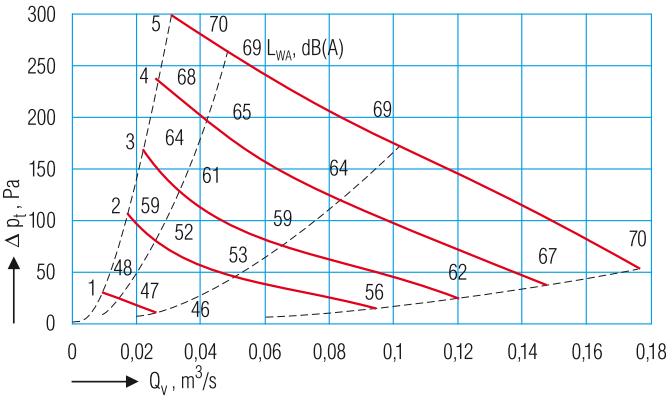
STOF-05

Sound data

Sound path	Correction K_{okt} (dB)							
	Octave band mid-frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
Surroundings	-3	-5	-1	-4	-5	-8	-13	-20
To the duct	-1	-2	-1	-2	-3	-5	-11	-16

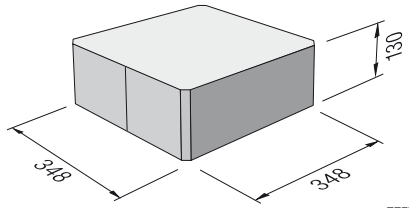
The total A-weighted sound power level, L_{WA}, emitted from the power roof ventilator to the surroundings can be read in the fan chart. The sound power level by octave band to the surroundings and to the duct (without A-weighting) can be obtained by using the following formula: $L_{wokt} = L_{WA} +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

The corrections K_{okt} are given in the table above.

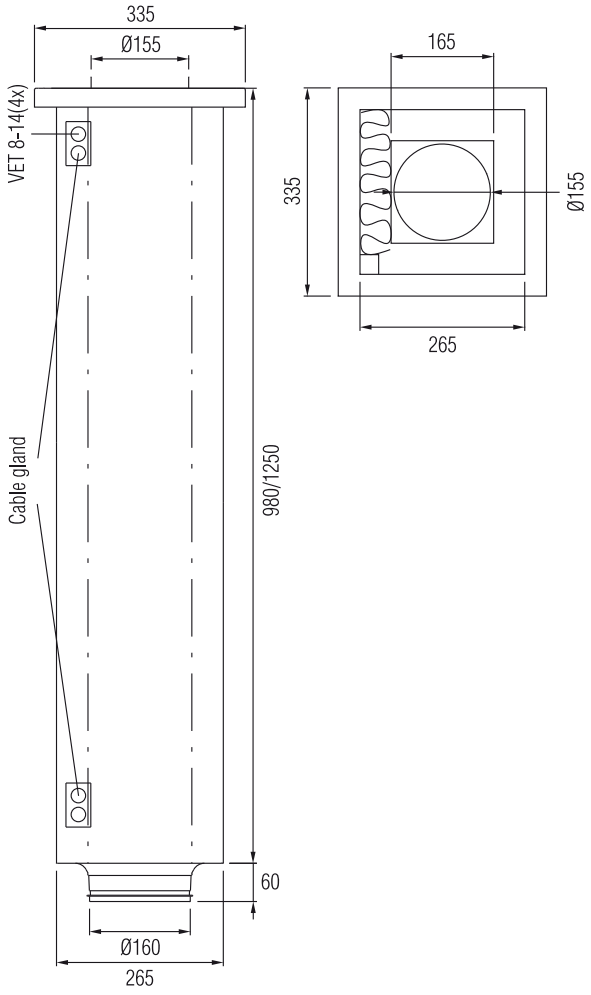


5 = 230 V, 4 = 170 V, 3 = 135 V, 2 = 110 V, 1 = 65 V

Dimensions



Weight 5,8 kg



Motor data

Type	Speed	Output	Max. current	Condenser, yF
	r/min	kW	A	
Single-phase motor				
STOF-05-504-c-1-3	2600	0.085	0.38	3

Roof fan — STOF-05-bbb-c-1-3

Size

Motor
504 = single-phase outer rotor motor

Material
1 = aluminium and zinc coated sheet steel, black
2 = aluminium and zinc coated sheet steel

Generation

Roof duct — BOGA-005-b-c-1

Back drought shutter
1 = with
2 = without

Height
1 = 980 mm EI30
2 = 1250 mm EI30

Safety switch SAFE-2-0-0

Transformer STYR-36-1

Accessories

BOGA Roof duct with 50 mm insulation

The BOGA consists of a sheet steel duct, insulated on the inside with 50 mm thick mineral wool mat. The insulation is backed with perforated sheet metal. The duct is equipped with two cable glands and one built-in cable conduit which can accommodate two cables for electrical connection to the power roof ventilator. Adjustable mounting brackets, which can be set to suit the pitch of the roof, are fitted to the outside of the roof duct. The roof fan is secured by means of four screws through holes in the sides of the base plate. The BOGA is made of aluminium and zinc coated sheet steel. The check damper blades are made of aluminium.

BOGA Roof duct with 100 mm insulation

The BOGA consists of a sheet steel duct, insulated on the inside with 100 mm thick mineral wool mat. The insulation is backed with perforated sheet metal. The duct is equipped with two cable glands and one built-in cable conduit which can accommodate two cables for electrical connection to the power roof ventilator. Adjustable mounting brackets, which can be set to suit the pitch of the roof, are fitted to the outside of the roof duct. The roof fan is secured to the BOGA with mounting frame MORA which is included in the delivery. The BOGA is made of aluminium and zinc coated sheet steel. The check damper blades are made of aluminium.

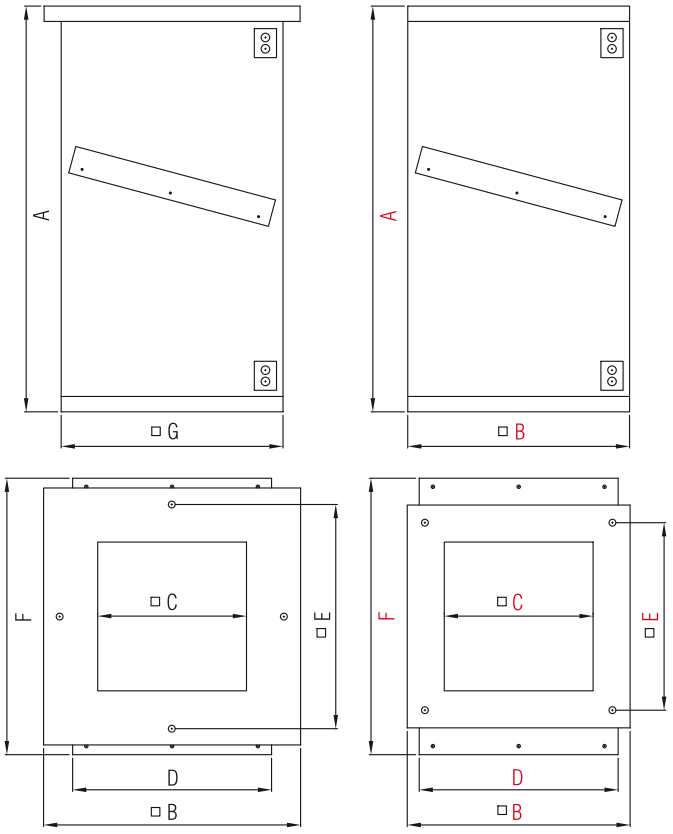
Roof duct **BOGA-aa-b-c-1**

Size (01, 02, 03, 04, 05, 06, 07)

Check damper
1 = with
2 = without

Height
1 = 980 mm EI30, 50 mm insulation
2 = 1230 mm EI30, 50 mm insulation
4 = 1230 mm EI60, 100 mm insulation

Version



EI30 EI60

EI30

Size	A	B	C	D	E	F	G	W. kg
01	980/1230	442	211	310	368	485	325	18
02	980/1230	442	211	310	368	485	325	18
03	980/1230	552	435	530	468	705	545	43
04	980/1230	622	435	530	498	705	545	43
05	980/1230	712	435	530	573	705	545	43
06	980/1230	892	768	870	800	1040	880	85
07	980/1230	1112	768	870	853	1040	880	85

EI60

Size	A	B	C	D	E	F	W. kg
01	1228	429	211	385	369	586	41
02	1228	429	211	385	369	586	41
03	1228	653	435	605	479	810	69
04	1228	653	435	605	549	810	69
05	1228	653	435	605	590	810	69
06	1228	986	768	940	819	1143	111
07	1228	986	768	940	900	1143	111

Accessories

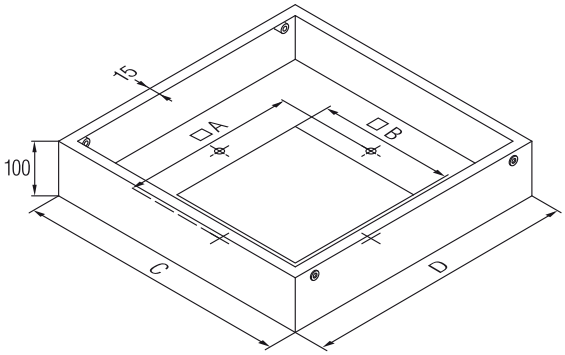
Mounting frame MORA

The mounting frame is designed for securing the power roof ventilator to an in-situ built chimney or other types of roof ducts. Mounting frame is made of aluminium and zink coated sheet steel. Mounting frame MORA has a square opening whereas STEZ-03 has a round connection flange, see page 18.

Mounting frame **MORA-a-2**

Size 1, 2, 3, 4, 5, 6, 7
(Corresponds the fan size)

Version



MORA

Size	A	B	C	D	W. kg
1	368	322	442	415	4
2	368	322	442	415	4
3	468	402	552	525	5
4	498	452	622	595	6
5	573	517	712	685	7
6	800	647	865	865	9
7	853	807	1085	1085	12

Safety switch SAFE

The safety isolation switch has been tested to IEC 947-3.
It is available in standard version or in ATEX-version and can be supplied either loose or factory-wired.

Safety isolation switch **SAFE-a-b-0**

1 = for single speed 3-phase motors
2 = for 1-phase motors or two-speed 3-phase motors
4 = for 3-phase motors, ATEX-version

0 = delivered loose
1 = factory-wired

Version 0

Airflow measurement

STEF roof fans can be equipped with air flow measurement device FLOW. Air flow is measured as differential pressure measurement with a manometer. Measuring nipples are placed on the same side of the fan as the safety switch and are marked with +/- (Fig. 1). The accuracy in normal conditions is ±10 %. The air flow is calculated as a function of measured pressure difference Δp_m at air density 1,2 kg/m³ as follows:

$$Q_v = \frac{\sqrt{\Delta p_m}}{K}$$

Where
Q_v = air flow (m³/s)
Δp_m = measuring pressure difference (Pa)
K = factor for given fan size
K-factors are given in the adjacent table.

When the roof fan is equipped with FLOW mounting must be done with help of mounting frame MORA which is included in the delivery of FLOW. FLOW cannot be used with flat roof socket STEZ-01, sound attenuator STEZ-07 or mounting frame STEZ-03.

K-factor

STEF	FLOW	K
1	1	67,04
2	2	37,08
3	3	23,72
4	4	22,64
5	5	15,33
6	6	10,41
7	7	5,89

Airflow measurement FLOW-a-b-0

Size (1, 2, 3, 4, 5, 6, 7)
Material
1 = standard
2 = with painting, black
Version

Airflow transmitter CENTRIFLOW

CENTRIMETER provides a simple and accurate means of measuring a fan's airflow. CENTRIMETER is delivered mounted to the roof fan. The device allows the user to select the displayed units of measured airflow, either in m³/s or m³/h, or differential pressure in Pa. Airflow is displayed on the device by means of measuring fan differential pressure and converting it to airflow from a constant "k-factor" which varies for each individual type and size. The measuring device is self-calibrating and automatically sets a reference zero point and adjusts itself for changes in ambient temperature. The airflow transmitter is programmed from factory with the k-factors of ROOFMASTER STEF roof fans, CENTRIFLOW Plus plug fans as well as CENTRIMASTER double inlet fans. The type and size of fan connected to the CENTRIMETER can be easily selected. CENTRIMETER has 24 V VAC/DC supply and two 0…10 V output functions, which are proportional to the actual measured airflow or pressure. If the roof fan is supplied with a built-in frequency converter the 24 V supply can be taken from the frequency converter.

Centrimeter GTLZ-86-10-1-0

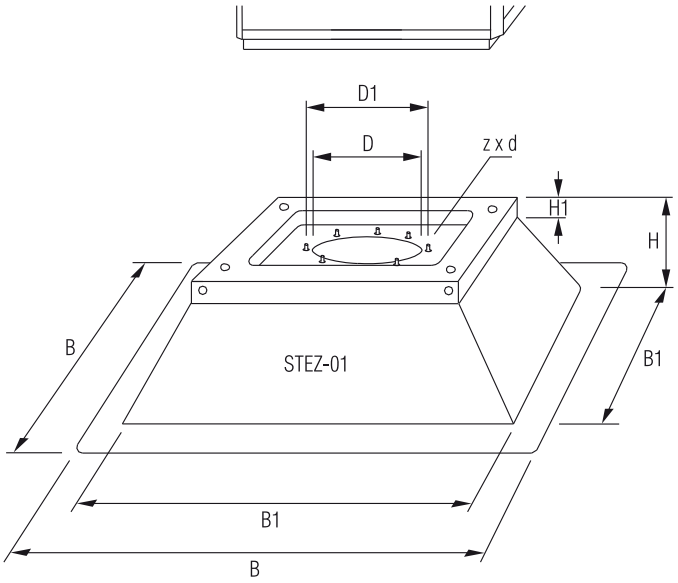
10 = STEF
1 = factory-mounted
Version

Accessories

Flat roof socket STEZ-01

The roof socket STEZ-01 is made of corrosion resistant fibre glass. It is designed for mounting on flat roofs or roofs with a maximum pitch of 15°. For saddle roofs a BOGA roof duct is available. The roof socket is equipped with a connection flange according to DIN 24 154, part 1. The roof fan is secured to the flat roof socket by means of 4 screws.

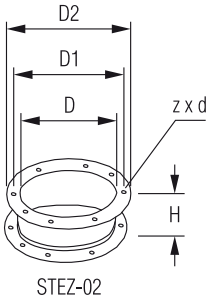
STEZ-01-	D	D1	B	B1	H	H1	zxd	W. kg
STEZ-01-1	182	212	782	682	260	40	6x7	4.5
STEZ-01-2	253	283	782	682	260	40	6x7	4.5
STEZ-01-3	358	392	892	792	260	40	8x9.5	5.0
STEZ-01-4	358	392	962	862	260	40	8x9.5	6.0
STEZ-01-5	454	488	1052	952	260	40	8x9.5	7.0
STEZ-01-6	454	488	1232	1132	260	40	8x9.5	8.0
STEZ-01-7	564	600	1452	1352	260	40	12x9.5	9.5



Flexible connection STEZ-02

The flexible connection STEZ-02 is used to disconnect the fan from the ductwork. The flanges are according to DIN 24 154, part 1.

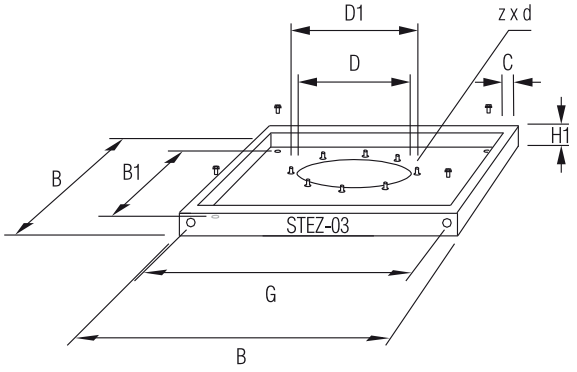
STEZ-02-	D	D1	D2	H	zxd	W. kg
STEZ-02-1	182	212	232	130	6x7	0.7
STEZ-02-2	253	283	303	130	6x7	2.0
STEZ-02-3	358	392	418	140	8x9.5	3.4
STEZ-02-4	358	392	418	140	8x9.5	3.4
STEZ-02-5	454	488	514	140	8x9.5	4.2
STEZ-02-6	454	488	514	140	8x9.5	4.2
STEZ-02-7	564	600	634	140	12x9.5	5.4



Mounting frame STEZ-03

The mounting frame is designed for securing the roof fan to an in-situ built chimney or other types of roof ducts. The power roof ventilator is secured to the mounting frame by means of 4 screws. Mounting frame is made of aluminium and zink coated sheet steel and the connection flange is according to DIN 24 154, part 1.

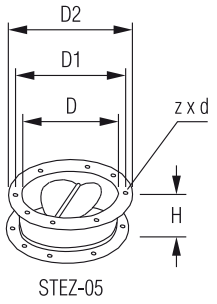
STEZ-03-	D	D1	B	B1	G	C	H	zxd	W. kg
STEZ-03-1	182	212	450	369	328	15	40	6x7	3.6
STEZ-03-2	253	283	450	369	328	15	40	6x7	3.6
STEZ-03-3	358	392	555	479	438	15	40	8x9.5	5.5
STEZ-03-4	358	392	625	549	508	15	40	8x9.5	6.5
STEZ-03-5	454	488	715	639	598	15	40	8x9.5	8.5
STEZ-03-6	454	488	895	819	778	15	40	8x9.5	12
STEZ-03-7	564	600	1115	1039	998	15	40	12x9.5	18



Back drought shutter STEZ-05

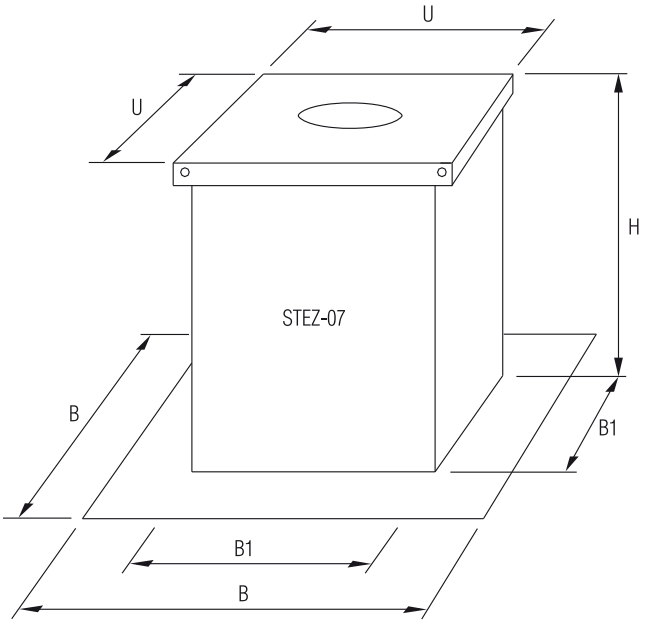
Back drought shutter prevents outdoor air to stream into the duct system while the roof fan is off. The back drought shutter is made of aluminium and zink coated sheet steel and the flanges are according to DIN 24 154, part 1.

STEZ-05-	D	D1	D2	H	zxd	W. kg
STEZ-05-1	182	212	232	125	6x7	1.9
STEZ-05-2	253	283	303	150	6x7	3.4
STEZ-05-3	358	392	418	180	8x9.5	6.0
STEZ-05-4	358	392	418	220	8x9.5	6.0
STEZ-05-5	454	488	514	280	8x9.5	8.0
STEZ-05-6	454	488	514	330	8x9.5	8.0
STEZ-05-7	564	600	634	400	12x9.5	12.4



Sound attenuator STEZ-07

The STEZ-07 sound attenuator is used to attenuate the sound level to the duct. It is made of aluminium and zink coated sheet steel. The baffles are made of mineral wool and covered by fibre glass film. The inlet of the sound attenuator is square. If the sound attenuator is supposed to be connected to a round duct, a separate STEZ-04 connection plate with a flange according to DIN 24 154, part 1, is available.STEZ-04 is mounted under the STEZ-07.

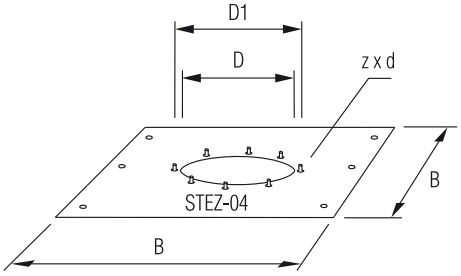


Dimensions STEZ-07

STEZ-07-	B	B1	U	H	W. kg
STEZ-07-1	690	390	442	660	15
STEZ-07-2	690	390	442	660	15
STEZ-07-3	803	503	552	760	35
STEZ-07-4	873	573	622	760	40
STEZ-07-5	963	663	712	960	45
STEZ-07-6	1133	833	892	960	60
STEZ-07-7	1363	1063	1112	960	80

Dimensions STEZ-04

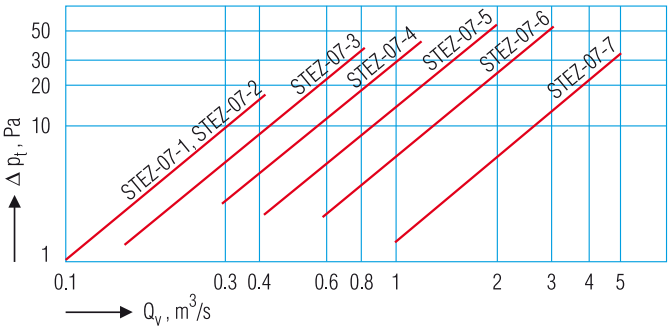
STEZ-04-	D	D1	B	zxd	W. kg
STEZ-04-1	182	212	435	6x7	2.2
STEZ-04-2	253	283	435	6x7	2.2
STEZ-04-3	358	392	548	8x9.5	3.6
STEZ-04-4	358	392	618	8x9.5	4.6
STEZ-04-5	454	488	708	8x9.5	6.1
STEZ-04-6	454	488	888	8x9.5	9.5
STEZ-04-7	564	600	1108	12x9.5	14.7



Sound attenuation when using STEZ-07

STEZ-07-	63	125	250	500	1000	2000	4000	8000
STEZ-07-1	-1	-2	-4	-9	-13	-20	-21	-12
STEZ-07-2	-1	-2	-4	-9	-13	-20	-21	-12
STEZ-07-3	-1	-2	-6	-9	-15	-18	-18	-11
STEZ-07-4	-1	-2	-6	-9	-16	-19	-19	-12
STEZ-07-5	-1	-3	-8	-14	-18	-24	-25	-23
STEZ-07-6	-1	-3	-8	-14	-18	-24	-25	-23
STEZ-07-7	-1	-2	-7	-13	-16	-22	-23	-20

Pressure loss



Control options

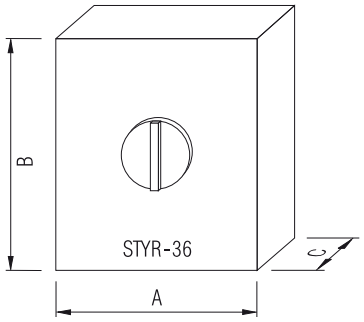
Transformer controller STYR-36

STYR-36 is a 5-speed transformer controller with casing and it is suitable for manual speed control of the single-phase motor.

Transformer controller **STYR - 36 - b**

Size 1, 2, 3, 4
(Corresponds the fan size)

Technical data:
Degree of protection: IP 54
Supply voltage: 230 V
Output voltage: 230-160-130-105-80 V



STYR-36-	A	B	C	Current/A	Weight, kg
STYR-36-1	154	200	79	1.5	2.6
STYR-36-2	154	200	79	1.5	2.6
STYR-36-3	200	254	98	4	4.7
STYR-36-4	200	254	98	7	4.5

Control options with frequency converters

ROOFMASTER STEF in standard version can be supplied with frequency converter and accessories depending on the desired control option. In the following pages the control options are introduced.

Motors which are suited for frequency converter operation are given in the motor tables. These motors are three-phase motors. If the frequency converter is with single-phase supply, the motor must be Δ-connected (3 x 230V). In case the frequency converter is with three-phase supply, the motor must be Y-connected (3 x 400V).

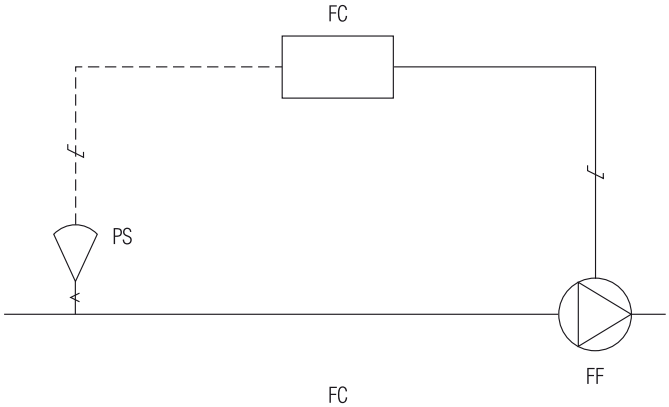
Constant pressure control (ON/OFF)

Frequency converter FC controls the fan speed via pressure switch PS so that a constant underpressure is maintained in the duct system.

FF = roof fan

FC = frequency converter

PS = pressure switch STYZ-01-20-0-0



Constant pressure control

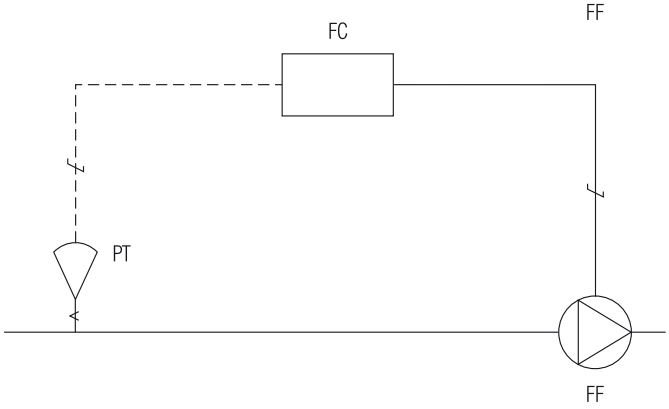
Frequency converter FC controls the fan speed via pressure transmitter PT so that a constant underpressure is maintained in the duct system. Pressure transmitter guarantees a higher precision compared to pressure switch.

FF = roof fan

FC = frequency converter

PT = pressure transmitter STYZ-01-10-c-0

A clock STYZ-01-40-0-0 can be connected to the pressure transmitter.



Two-speed/manual/BMS-control

Two-speed operation

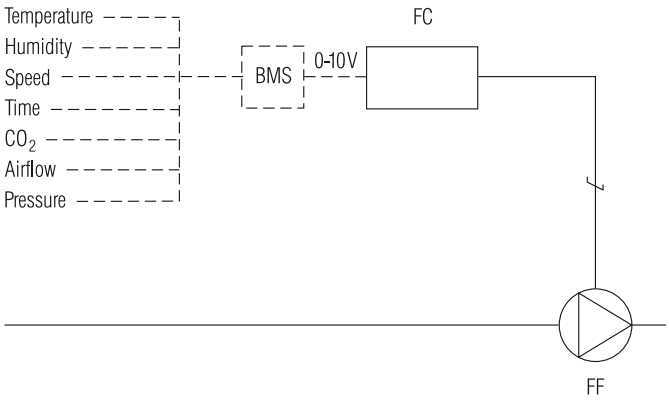
In two-speed operation two operating frequencies are given in the frequency converter. According to demand one of these speeds is selected e.g. with clock or thermostat.

Manual operation

In manual operation the fan speed is steplessly selected with a potentiometer between the preprogrammed max. and min. frequency.

BMS-control

BMS-control is based on 0…10 V control signal



Components marked with dashed lines are not included in our delivery.

Frequency converter STYR-aa-b-S-d-1

12 … 21 Size
(see the table below or motor tables)

1 = single-phase supply 1 x 230 V
3 = three-phase supply 3 x 400 V

Max. cable length 15 m
(cable not included in our delivery)

0 = loose delivered IP21
2 = mounted into roof fan IP24

Pressure transmitter STYZ-01-10-c-0

0 = loose delivered IP54
1 = mounted into roof fan IP54

Pressure switch STYZ-01-20-0-0

Clock STYZ-01-40-0-0

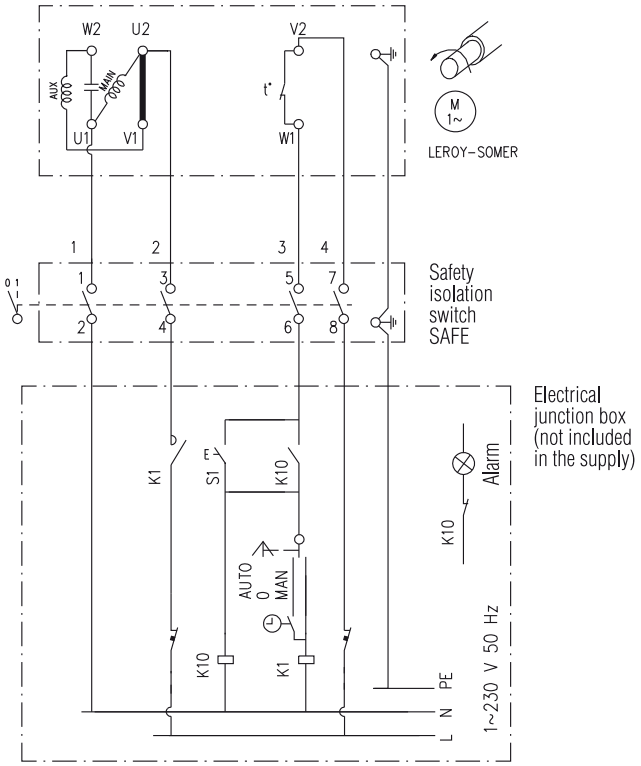
Casing IP55 for clock STYZ-01-41-0-0

Roof fan	FC, 3 ~ supply, 400 V	FC,1 ~ supply, 230 V	Max. frequency
	STYR-Kode	STYR-Kode	Hz
STEF-1-004-c-1-5	STYR-14-3-S-d-1	STYR-13-1-S-d-1	60
STEF-2-004-c-1-5	STYR-14-3-S-d-1	STYR-13-1-S-d-1	52
STEF-2-006-c-1-5	STYR-14-3-S-d-1	STYR-14-1-S-d-1	60
STEF-3-004-c-1-5	STYR-16-3-S-d-1	STYR-16-1-S-d-1	55
STEF-3-006-c-1-5	STYR-14-3-S-d-1	STYR-14-1-S-d-1	56
STEF-4-004-c-1-5	STYR-16-3-S-d-1	STYR-16-1-S-d-1	54
STEF-4-006-c-1-5	STYR-14-3-S-d-1	STYR-14-1-S-d-1	56
STEF-5-004-c-1-5	STYR-18-3-S-d-1	STYR-18-1-S-d-1	54
STEF-5-006-c-1-5	STYR-16-3-S-d-1	STYR-16-1-S-d-1	58
STEF-6-006-c-1-5	STYR-18-3-S-d-1	STYR-18-1-S-d-1	50
STEF-7-006-c-1-5	STYR-21-3-S-d-1	-	50
STEF-7-008-c-1-5	STYR-19-3-S-d-1	-	55

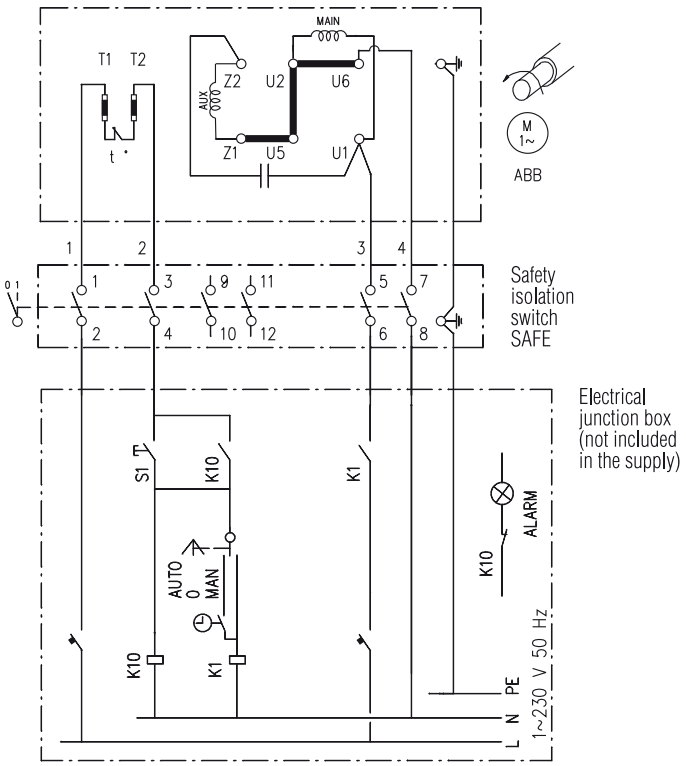
Please note: min. frequency is 20Hz. If the frequency converter is mounted into the roof fan, the fan must be running continuously.

Wiring diagrams

Single-phase motor
STEF-1, 2

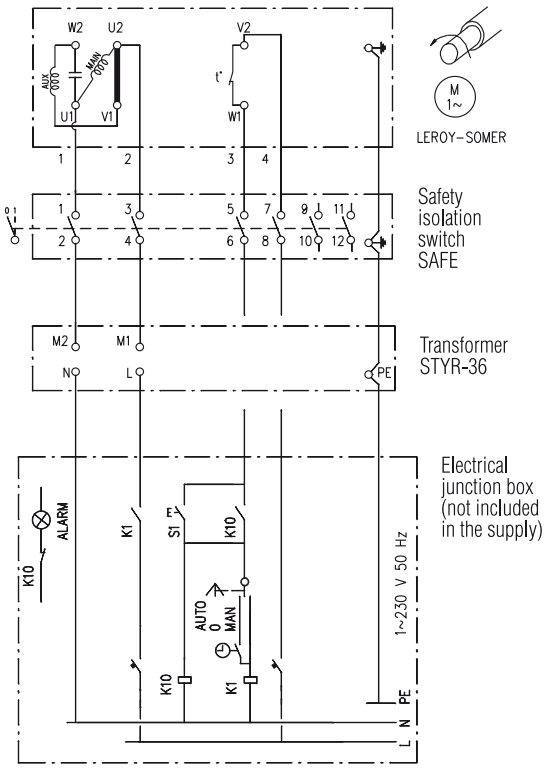


Single-phase motor
STEF-3, 4

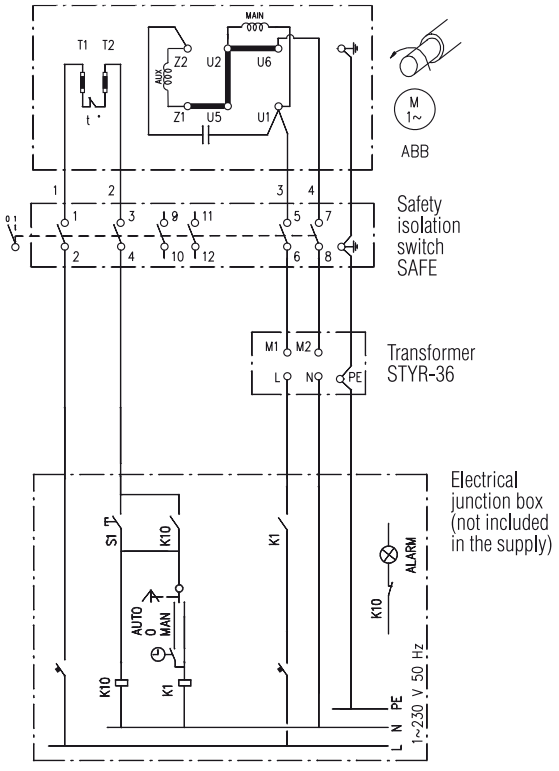


*) This connection prevents the automatic restart when the thermocontact has switched off the motor.

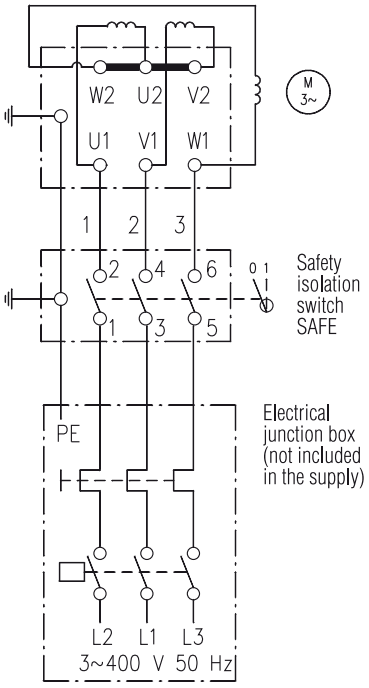
Single-phase motor with
transformer controller STYR-36, STEF-1, 2



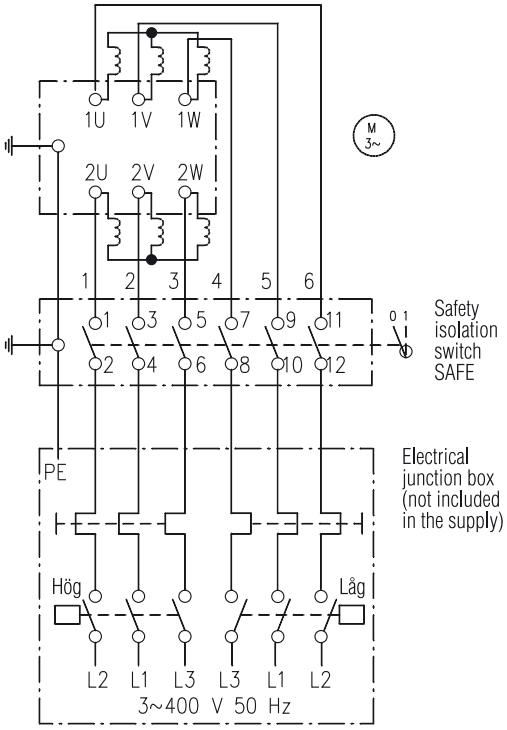
Single-phase motor with
transformer controller STYR-36, STEF-3, 4



Three-phase single-speed motor

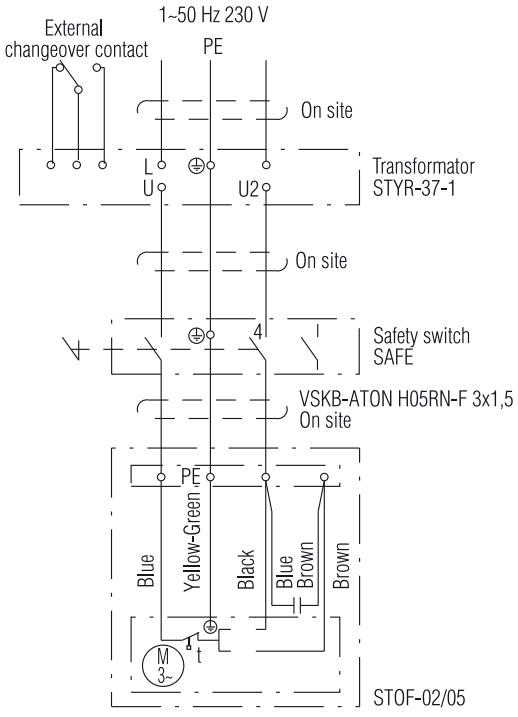


Three-phase two-speed motor with separate windings



*) This connection prevents the automatic restart when the thermocontact has switched off the motor.

Single-phase outer rotor motor, 2-poles STOF-02-05



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ROOFMASTER/G/3.09/1000

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