

MultiMAXX[®] HG

DATA & FACTS



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Unit code		H	G	2	4	.	U	E	F	T	C	B	.	A	M	A
HG	Unit code															
Model size																
2	Model size 2															
4	Model size 4															
Capacity stage																
4	Capacity stage 4															
5	Capacity stage 5															
Air-flow function																
U	Recirculating-air unit															
M	Mixed-air unit															
Heating medium type																
E	Natural gas (NG), propane-butane (LPG)															
Heat Exchanger																
F	High-temperature resistant steel															
Regulation of heating capacity																
p	Regulation of supply air temperature (only with mixed-air units)															
T	Regulation of room temperature															
Unit Type																
B	Non-room-sealed firing															
O	Room-sealed firing															
Outlet																
A	Outlet nozzle ceiling															
B	Basis - wall															
C	Secondary-air louvre, ceiling, manually adjustable															
D	Motorized secondary-air louvre, ceiling, (230 V, open/close)															
K	Terminating flange, pressure side															
L	Air deflection louvre															
P	Profile ceiling/wall															
T	Gate nozzle															
U	Secondary-air louvre, wall installation, manual adjustment															
V	Four sides, ceiling															
W	Motorized secondary-air louvre, wall, (230 V, open/close)															
Z	Basic ceiling two sides															
Fan / speeds																
A	3x400V, 2-speed – low speed range, wide-blade fan, for capacity stage (4)															
B	3x400V, 2-speed – high speed range, wide-blade fan, for capacity stage (5)															
D	1x230V, 2-speed – low speed range, wide-blade fan, for capacity stage (4)															
E	1x230V, 2-speed – high speed range, wide-blade fan, for capacity stage (5)															
R	3x400V, 2-speed – high speed range, sickle-blade fan, for capacity stage (5)															
Electric equipment																
M	Control system (steel sheet box)															
Design																
D	Heat exchanger in industrial design RAL 7000															

Tab. 1: Unit code

Accessory key

Z H 2 . x x 0 x

ZH Accessory key

Model size

- 2 Model size 2
- 4 Model size 4

Air side accessories

- 20 Mixed-air module type 1
- 21 Mixed-air module, type 2
- 23 Fresh air blocking damper
- 25 Flexible connection
- 26 Rectangular duct 150
- 27 Rectangular duct 1000
- 28 Duct bend 90°, symmetrical
- 29 Duct bend 90°, asymmetrical
- 31 Wall air-intake hood
- 32 Weather protection grilles
- 33 Contact protection grille
- 34 Duct through slanted roof
- 35 Roof air-intake hood
(38 = spare filter for roof air intake hood)
- 36 Bag filter module
(39 = spare filter for bag filter module)
- 37 Mat-filter module
(40 = spare filter for mat-filter module)
- 49 Duct through roof with flat roof plinth
- 51 Frame for wall connection
- 52 Flange (for recirculating-air units)

Suspension

- 53 Compact C
- 54 Studio (for wall configuration)
- 55 Modular (for wall configuration)
- 56 Ceiling suspension

Material/Design

- 0 Standard configuration
- 8 Ecodesign *

Actuators for louvers and mixed-air modules

- 0 Actuator on site
- 1 Manual
- 2 Actuator 230 V, open/close
- 3 Actuator 230 V, open/close + poti
- 4 Actuator 230 V, open/close + final position switch
- 5 Actuator 230 V+ spring return

Filter class / electric equipment

- 0 without filter, without differential pressure switch
- 2 G2/without differential pressure switch
- 4 G4/without differential pressure switch
- 5 G2/ with differential pressure switch
- 7 G4/ with differential pressure switch
- 8 F7/ with differential pressure switch (Ecodesign)
- 9 F7/ without differential pressure switch (Ecodesign)

* only sizes 2 and 4

Accessory key

Z H 2 . x x 0 x

Modular (55) with accessories

- 0 without accessories
- 1 25+20+51
- 2 25+36+20+51
- 3 25+37+20+51
- 4 25+21+29+51
- 5 25+36+21+29+51
- 6 25+37+21+29+51
- 7 25+23+51
- 8 25+36+23+51
- 9 25+37+23+51
- A 26+36
- B 26+37
- C 25+28 (+49...)
- E Ecodesign
- W without unit accessories with vertical outlet

Mounting kit for ceiling (56)

- 0 Without threaded rod
- 1 Threaded rod 1 m
- 2 Threaded rod 2 m
- 3 Threaded rod 3 m

Tab. 2: Accessory items code

Dear Customer,

This catalogue focuses on the MultiMAXX HG unit heater and provides assistance in its layout according to your requirements and gives guidance in the selection of the corresponding order code.

The wide variety: We have a wide variety of possible equipment to choose from, so you're certain to find the right unit for your requirements. The following type code allows you to easily specify the configuration of your unit.

The catalogue is composed of four main sections:

- Part 1* Unit description
This section provides ample data on all unit components.
- Part 2* Unit samples
are used to demonstrate our know-how in most common applications with MultiMAXX HG units.
- Part 3* Unit data
specifies most essential technical information for the MultiMAXX HG unit heaters. Dimensions, sizes and weight are summarized in this section as well.
- Part 4* Layout data
Once you have decided on the unit, you can find data on possible regulation variants in this section

Unit code The entire unit code („Unit code“ on page 3) specifies the units in its variations. As with other FläktGroup products, the unit code contains all details necessary for ordering, subsequent extension of the unit or provision of spare parts.

Accessory items code Controls components are provided with an individual type code. „Accessory items code“ on page 4).

Should you require support, please contact our competent sales staff and we will be glad to help with the unit selection.

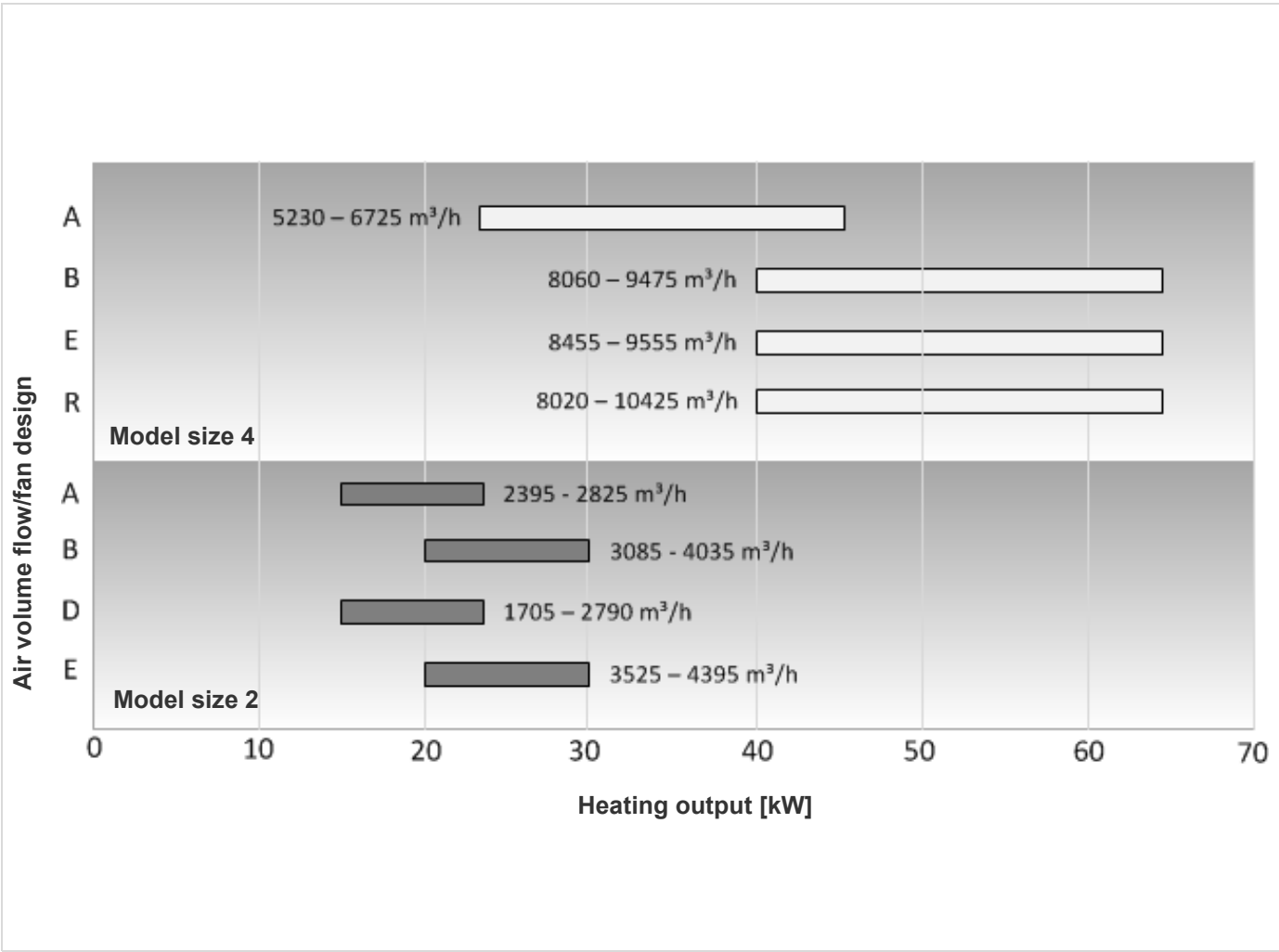


Fig. 1: Capacity overview of gas-fired unit heaters MultiMAXX HG

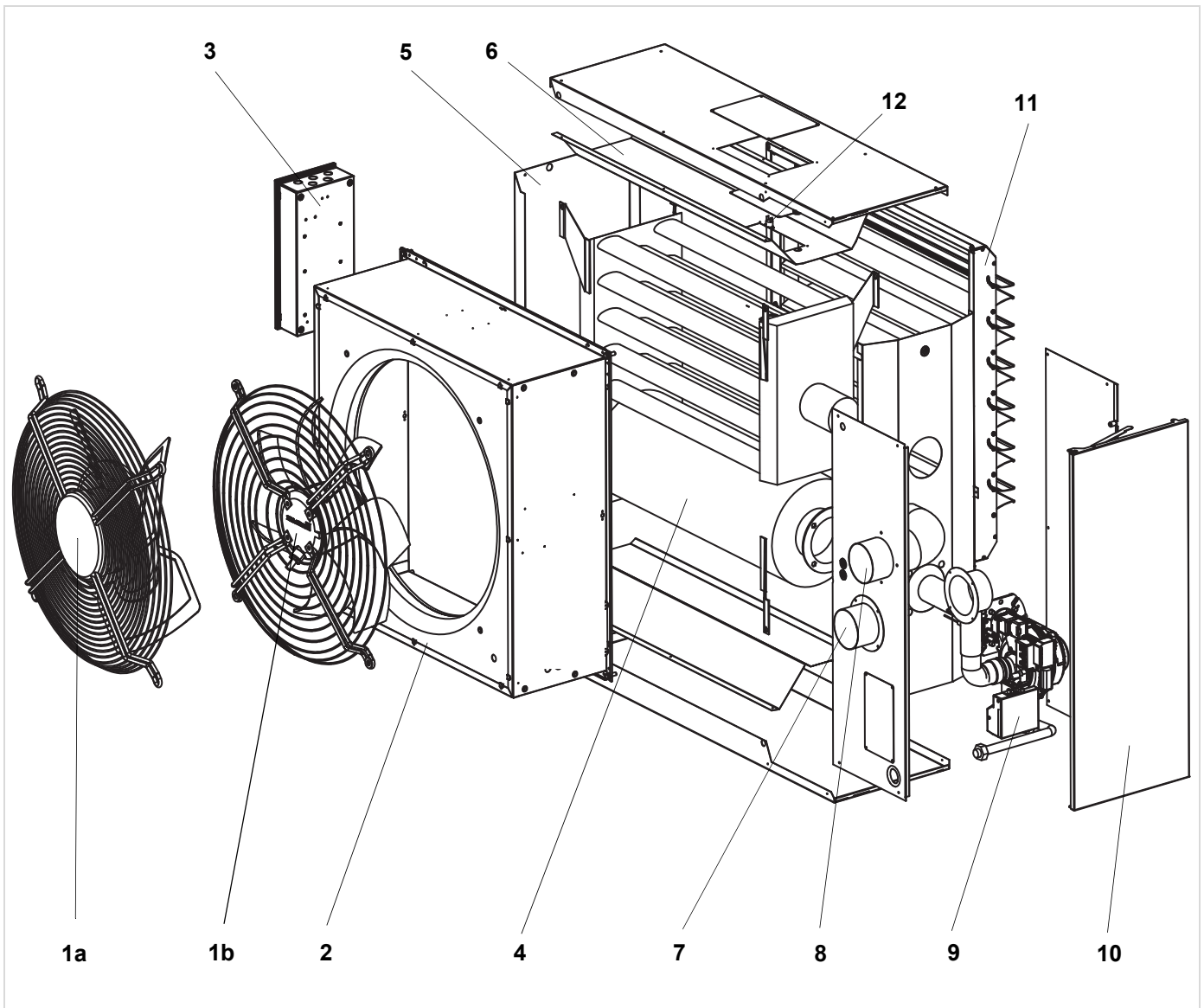


Fig. 2: Sample unit design with description of MultiMAXX HG unit components

- | | |
|--|---|
| 1: a) Wide-blade fan (optional) | 7: Flue pipe fitting on air-intake side |
| 1: b) Sickle-blade fan | 8: Flue pipe fitting for smoke exhaust |
| 2: Fan chamber with air inlet nozzle | 9: Gas burner |
| 3: Electric switch cabinet (metal sheet) | 10: Gas burner casing |
| 4: Fe heat exchanger | 11: Outlet (optional) |
| 5: Heat exchanger casing | 12: Thermal fuse |
| 6: Reflection plates | |

Operating conditions



Fig. 3: Gas unit heater

Unit heaters of MultiMAXX HG series operate with gas as heating medium and are designed for ambient temperatures from -5°C to +40 °C, i.e. normal ranges in accordance with EN 60 721-3-3. Unit protection class shall be IP 40 in conformity with EN 60 529.

Class of the gas burner:

- I_{2R} – natural gas (NG)
- I_{3R} – propane-butane (PB), propane (P), butane (B)

Class NO_x:

- 4 (<80mg/kWh) only for HG45
- 5 (<50mg/kWh)

Variant types of the exhaust installation:

- B₂₃, C₅₃, C₁₃, C₃₃ (according to EN 1020)

Gas burner input pressure of the heating medium:

- Natural gas 2 ±0.2 kPa
- Propane/Butane 3 ±0.3 kPa

fans



Fig. 4: Sickle-blade fan

Sickle-blade fan

Low-noise axial fan with an external rotor motor for increased pressure and sound requirements with an integrated contact protection grille according to EN ISO 13857. Pressure stable model, even in mixed-air applications with a filter stage or for larger air throws/suspension heights.

H G . E F . R M D
↑

Fan / Speed range

R - 3 phases 400 V 2-speed in high speed range

Air-intake nozzle developed as full nozzle for minimum noise emission. Sickle blade, balanced by the factory, maintenance-free with moisture-proof motor and wired to the terminal box. IP 54 protection class, thermal class F (as of EN 60 034-1), thermal contact in two variants 400 V, 50 Hz.

Range of application:

Air inlet temperature:	-20 to +45 °C
-------------------------------	----------------------

Wide-blade fan

Standard axial fan with an external rotor motor for normal pressure and sound requirements as well as fan protection curb with an integrated contact protection grille according to EN ISO 13857. Aluminium wide blades, balanced by the factory, maintenance-free with moisture-proof motor and wired to the terminal box.

H G . E F . A M D
↑

Fan / Speed range

A - 3 phases 400 V 2-speed - low speed range

B - 3 phases 400 V 2-speed - high speed range

D - 1 phase 230 V 2-speed - low speed range

E - 1 phase 230 V 2-speed - high speed range

IP 54 protection class, thermal class F (as of EN 60 034-1), thermal contact in two variants 400 V, 50 Hz and 30 V, 50 Hz.

Range of application:

Air inlet temperature:	-20 to +45 °C
-------------------------------	----------------------

Heat Exchanger



Fig. 6: Heat Exchanger

High performance heat exchanger for heating using flanged gas burner. The heat exchanger is fitted with a combustion chamber and a withdrawal device and ensures an optimal heat transmission between combustion chamber and air.

The heat exchanger and the combustion chamber are performed in high-temperature resistant steel.

H G . E F . M D
↑

Heat Exchanger

F = high-temperature resistant steel

Heat exchanger casing

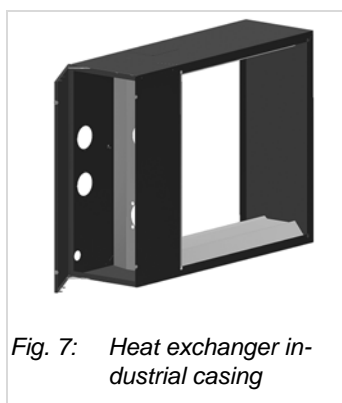


Fig. 7: Heat exchanger in industrial casing

The heat exchanger casing in the industrial version is mounted by the manufacturer and is performed in galvanized metal sheet in RAL 7000

H G . E F . M D
↑

Design

D = Heat exchanger casing in industrial design RAL 7000

Gas burner

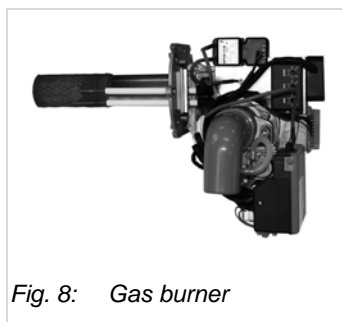


Fig. 8: Gas burner

The fully-automated gas pressure burner provides temperature rise in the heat exchanger and ensures residue-free combustion. The burner is designed for natural gas, propane or propane-butane versions.

The pressure burner makes it possible to optimally adjust the unit capacity depending on the thermal requirements in different rooms.

Protection class IP 40 (as of EN 60529), operating voltage 1~230 V, 50 Hz
control voltage 0...10V

H G . E F . M D
↑

Heating medium

E = natural gas (EG), propane-butane (LPG)

Outlets (wall)

Secondary-air louvre



Fig. 9: Secondary-air wall louvre

As anodized aluminium air deflection fins can be adjusted separately, the secondary-air louvre (SAL), which has been developed and patented by FläktGroup, allows to adjust the air discharge opening and therefore speed of the conditioned air to match individual requirements. Additional secondary air is therefore drawn in from the side and mixed with the primary air, making it possible to lower the air discharge temperature to a few degrees above the room temperature. The desired temperature is achieved faster contributing in such a way to an economic operation.

Discharge air speed of 14 m/s allows to achieve maximum air throws!

The secondary-air louvre is available in the following variants:

- Manual adjustment
- Motorized and adjustable (actuator 230 V up/down)

Profile outlet



Fig. 10: Profile outlet

The profile outlet consisting of aluminium air deflection fins presents a good compromise to a secondary-air louvre. The louvre blades are performed as aluminium profiles that are separated in two sections. The louvre frame is performed in galvanized and painted metal sheet in RAL 7000.

It is used to increase the air throw at constant air discharge velocity. Medium air throws can be achieved without any problems.

- The profile outlet is manually adjustable and self-locking.

Basic wall outlet



Fig. 11: Basic wall outlet

Galvanized metal sheet fins of a wall basic outlet enable to deflect conditioned air at the needed discharge angle. Each self-locking fin of the basic outlet can be adjusted manually.

The fins and the frame are performed in galvanized metal sheet.

Outlets (ceiling)

Secondary-air louvre



Fig. 12: Secondary-air louvre ceiling

As anodized aluminium air deflection fins can be adjusted separately, the secondary-air louvre (SAL), which has been developed and patented by FläktGroup, allows to adjust the air discharge opening and therefore speed of the conditioned air to match individual requirements. Additional secondary air is therefore drawn in from the side and mixed with the primary air, making it possible to lower the air discharge temperature to a few degrees above the room temperature. The desired temperature is achieved faster contributing in such a way to an economic operation. Discharge air speed of 14 m/s allows to achieve maximum air throws!

The secondary-air louvre is available in the following variants:

- Manual adjustment
- Motorized and adjustable (actuator 230 V up/down)

Profile outlet



Fig. 13: Profile outlet

The profile outlet consisting of aluminium air deflection fins presents a good compromise to a secondary-air louvre. The louvre blades are performed as aluminium profiles that are separated in two sections. The louvre frame is performed in galvanized and painted metal sheet in RAL 7000.

It is used to increase the air throw at constant air discharge velocity. Medium air throws can be achieved without any problems.

- The profile outlet is manually adjustable and self-locking.

Air deflection louvre



Fig. 14: Air deflection louvre

Customized outlet for low installation heights. Independently-adjustable short metal sheet fins angled at 90° allow to deflect air volume flow to match individual requirements.

Also suitable for wall mounting.

Two-side basic ceiling outlet



Fig. 15: Two-side basic ceiling outlet

Outlet for low installation heights.

Galvanized metal sheet fins enable to deflect conditioned air at two needed discharge angles.

The adjustment mechanism is divided in the middle.

Four-side ceiling outlet



Fig. 16: Four-side ceiling outlet

Air distributing outlet for low mounting heights made of galvanized metal sheet fins. Independent adjustability in four directions enables to individually direct air volume flow.

A direct flow of air to the vertical area underneath is avoided.

Outlet nozzle ceiling



Fig. 17: Outlet nozzle ceiling

Made of galvanized metal sheet square cone-shaped nozzle. Therefore air velocity is increased which enables larger installation heights.

Gate nozzle

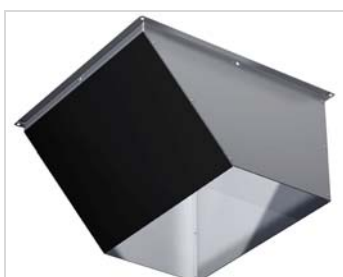


Fig. 18: Gate nozzle

Made of galvanized metal sheet one-sided cone-shaped nozzle.

Therefore air velocity is increased which enables targeted deflection of air volume flow for shielding larger gates in combination with multiple units.

Sample ceiling mounting - mixed-air unit

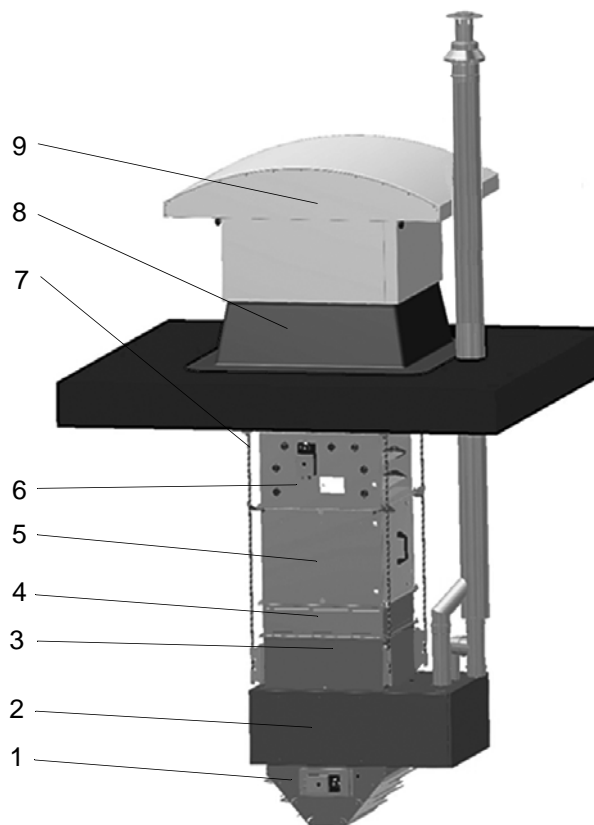


Fig. 19: Sample for ceiling mounting

Unit / accessory item		Unit type code
1	Secondary-air louver	HG#5.MEFPCD.BMD
2	Heat exchanger casing	
3	Fan module	
4	Rectangular duct 150 or flexible canvas connection	ZH#.2600 or ZH#.2500
5	Bag filter module G4 with differential pressure switch	ZH#.3607
6	Mixed-air module type 1 with actuator 230V, open/close + poti	ZH#.2003
7	Ceiling suspension	ZH#.5602
8	Duct through roof with flat roof plinth	ZH#.4900
9	Roof air-intake hood	ZH#.3500

= Size 2, 4

Sample wall mounting - mixed-air unit

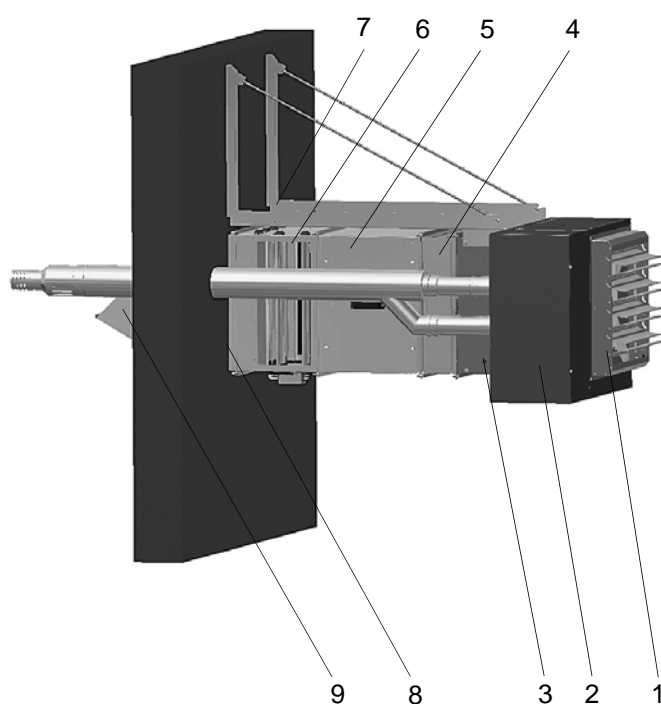


Fig. 20: Example for wall mounting

Unit / accessory item		Unit type code
1	Secondary-air louver	HG#5.MEFPCU.BMD
2	Heat exchanger casing	
3	Fan module	
4	Flexible connection	ZH#.2500
5	Bag filter module G4 with differential pressure switch	ZH#.3607
6	Mixed-air module type 1 with actuator 230V, open/close + poti	ZH#.2003
7	Modular suspension for selected accessories 25 + 37 + 20 + 51	ZH#.5503
8	Frame for wall connection	ZH#.5100
9	Wall air-intake hood	ZH#.3100

= Size 2, 4

Type	Heating capacity range Q _T	Speed	Air flow rate VL	Air throw (louvre B)	Air throw (louvre U, W)	Suspension height (louvre C, D)	Weight with burner without louvre
	[kW]	[min ⁻¹]	[m ³ /h]	[m]	[m]	[m]	[kg]
A – 3 ~ 400V 2-speed (low speed range)							
HG 24	15 ÷ 25	710	2395	6.4	8.3	11.4	65
		910	2835	7.1	9.2	13.5	
HG 44	25 ÷ 45	500	5210	5.1	6.7	7.9	112
		650	6725	6.0	7.9	10.2	
B – 3 ~ 400V 2-speed (high speed range)							
HG 25	20 ÷ 30	890	3085	7.5	9.8	14.7	65
		1270	4035	9.0	11.7	19.3	
HG 45	40 ÷ 65	740	8065	6.8	8.9	12.3	112
		910	9475	7.6	9.9	14.4	
D – 1 ~ 230V 2-speed (low speed range)							
HG 24	15 ÷ 25	460	1705	5.1	6.6	8.1	65
		890	2790	7.0	9.1	13.3	
E – 1 ~ 230V 2-speed (high speed range)							
HG25	20 ÷ 30	780	2820	7.1	9.2	13.5	65
		1210	4105	9.1	11.8	19.6	
HG45	40 ÷ 65	700	8455	7.0	9.2	12.9	112
		910	9555	7.6	10.0	14.5	
R – 3 ~ 400V 2-speed (high speed range)							
HG45	40 ÷ 65	650	8020	6.8	8.9	12.2	112
		870	10425	8.1	10.6	15.8	

Tab. 3

The air throw values are valid for air discharge temperature up to 20 K greater than air intake temperature.

Using performance data diagrams “Air-side pressure drops”

In order to explain how to use the following diagrams, individual steps with calculations and final results are presented in the following example.

Example

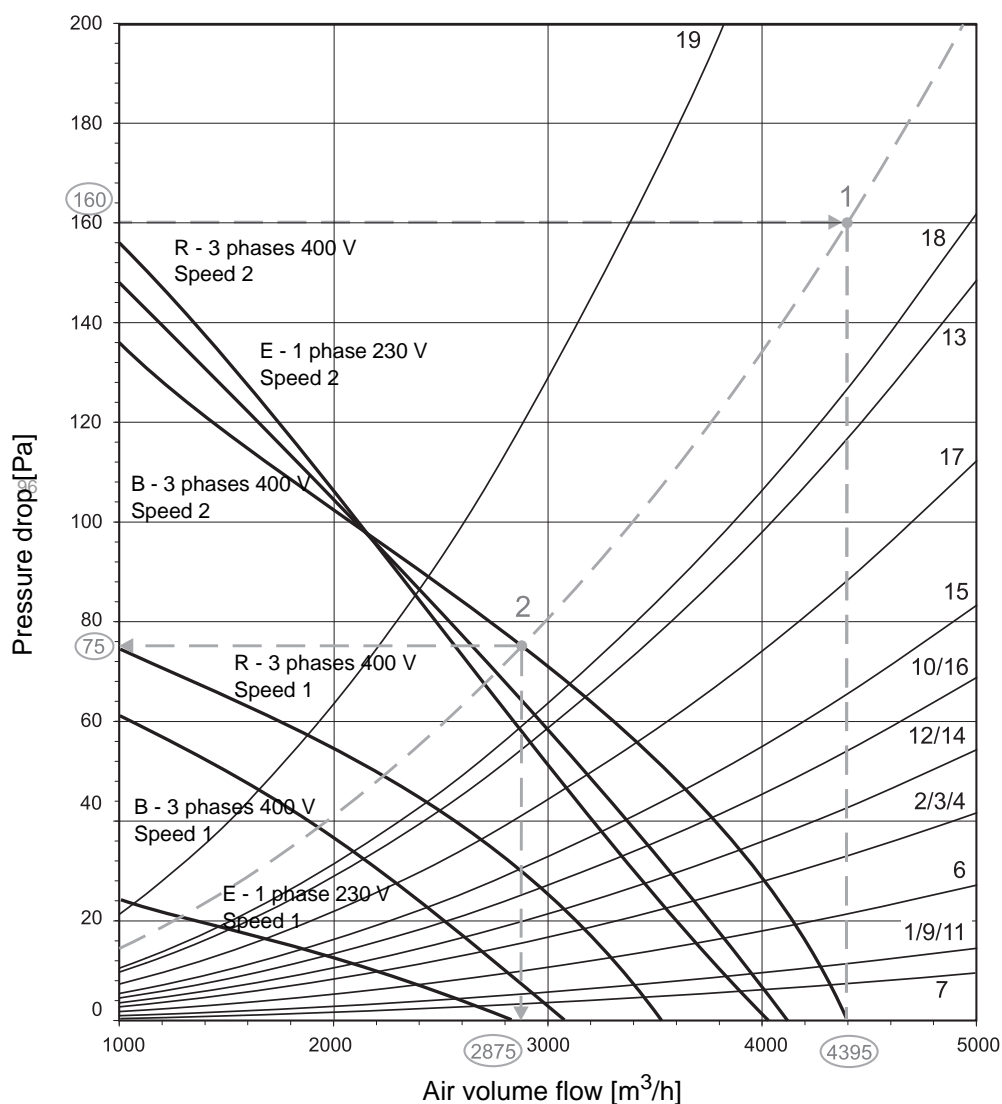
	Input data	→ Result
<p>Input</p> <p>This example is based on a size 2 unit equipped with a SAL (wall version) and a mat filter module (grade G2).</p>	<p>Air flow rate V_L → $V_{L1} = 4395 \text{ m}^3/\text{h}$</p> <p>Model size 2 / capacity stage 5 / fan R</p> <p>Secondary-air louver wall version (diagram legend Nr. 3)</p> <p>Mat filter module with filter insert G2 (diagram legend Nr. 18)</p>	
<p>1. Step</p> <p>Using the specified air volume flow V_L in the performance data tables on page 12, refer to the relevant diagram – “HG 25 - Size 2, fan B, E, R” on page 15. (Consider model size and fan type!)</p> <p>From the air volume flow V_{L1} on the x-axis extend a vertical line upwards to the intersection point with the characteristic curve for the air- and suction-side accessories. Then extend a horizontal line across to the y-axis and read off the relevant pressure-drop values p_1 and p_2.</p>	<p>Pressure drop SAL wall version (p_1) → 33 Pa</p> <p>Pressure drop mat filter module (p_2) → 127 Pa</p>	
<p>2. Step</p> <p>Sum up individual pressure drops</p>	<p>$p_1 + p_2 = p_G$ $33 \text{ Pa} + 127 \text{ Pa} = 160 \text{ Pa}$</p>	<p>→ 160 Pa</p>

3. Step

Re-enter the total sum p_G on the y-axis.

The intersection point with the air volume flow V_L returns a point 1 on the total characteristic curve that can now be continued according to the individual characteristic curves.

At intersection-point 2 on the fan heat exchanger characteristic curve, actual maximum air volume flow V_{LK} and the total pressure drop P_{GK} can be read off.



Read off air volume flow V_{LK} [m³/h]

→

2875 m³/h

Read off total pressure drop P_{GK} [Pa]

→

75 Pa

Diagram legend

- 1 Basic wall outlet/basic ceiling outlet two sides
- 2 Profile outlet
- 3 Secondary-air wall louver
- 4 Secondary-air ceiling louver
- 6 Outlet nozzle for ceiling/gate nozzle
- 7 Four-side ceiling outlet
- 9 Mixed-air module type 1

- 10 Mixed-air module, type 2
- 11 Fresh air blocking damper
- 12 Wall air-intake hood/contact protection grille
- 13 Weather protection grilles
- 14 Roof air-intake hood with G2 bag filter
- 15 Roof air-intake hood with G4 bag filter
- 16 Bag filter module G2
- 17 Bag filter module G4
- 18 Mat filter module G2
- 19 Mat filter module G4

Fig. 21: HG 24 - Size 2 , fans A, D

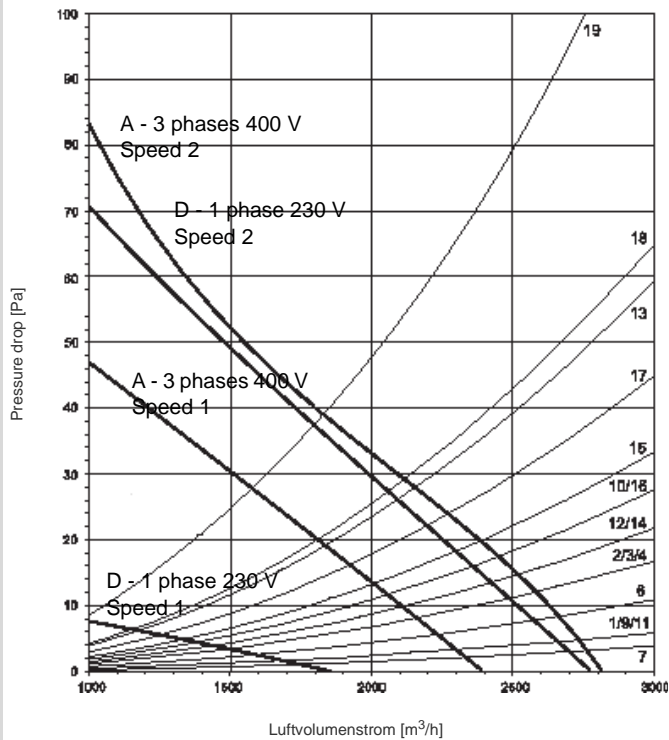


Fig. 22: HG 25 - Size 2 , fans B, E

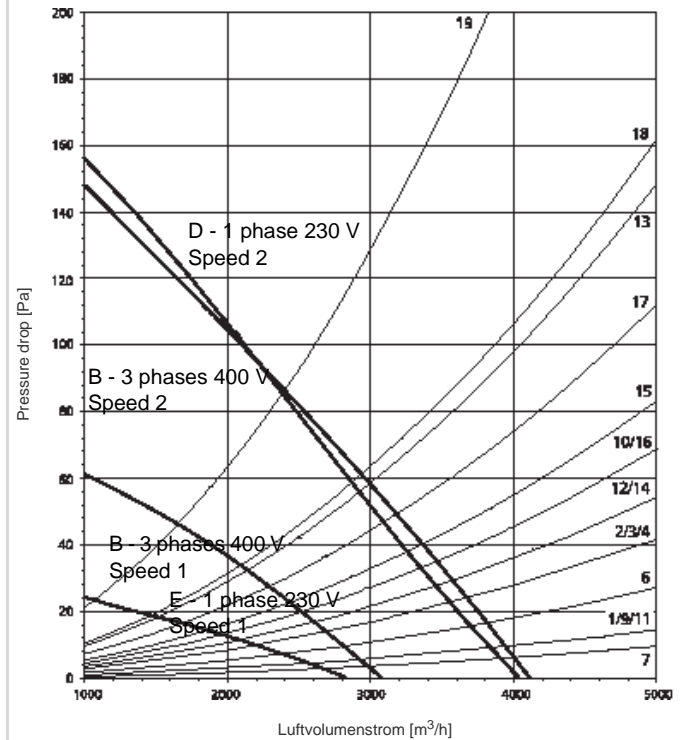


Fig. 23: HG 44 - Size 4 , fans A

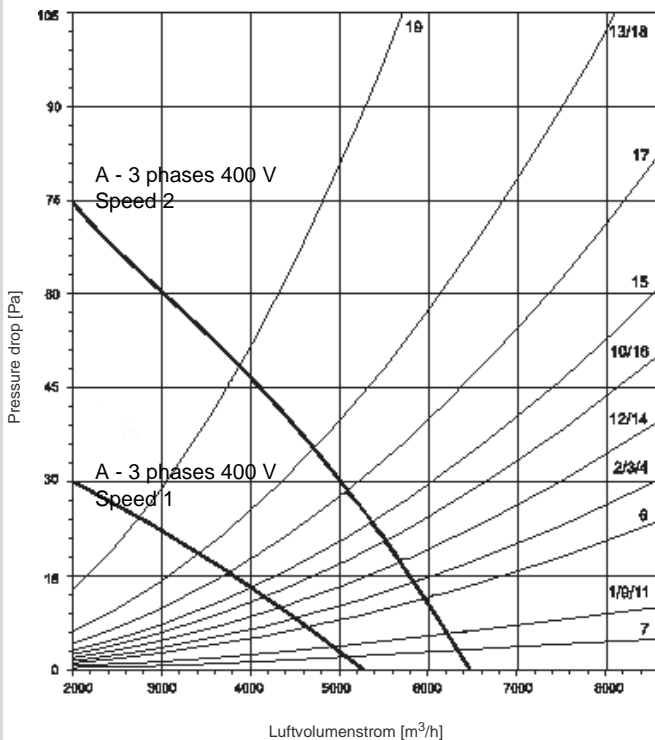


Fig. 24: HG 45 - Size 4 , fans B, E, R

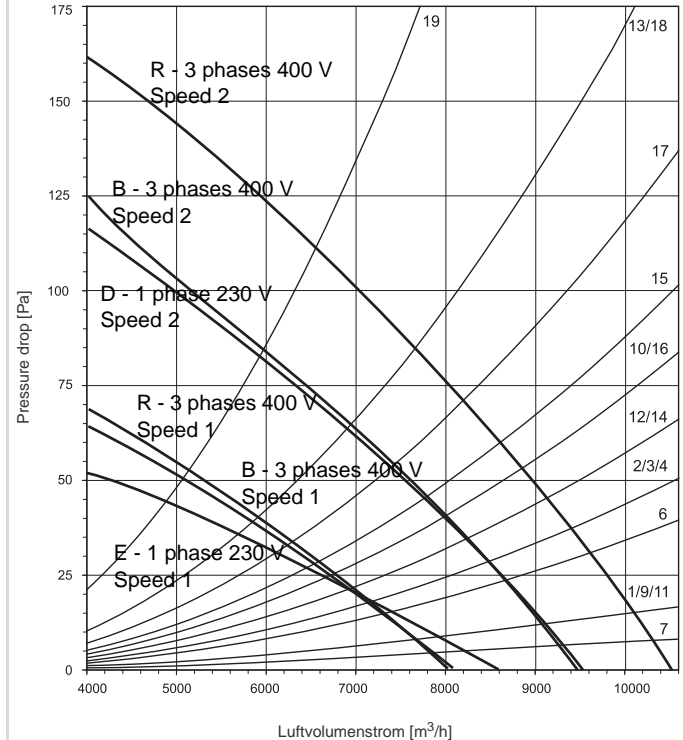
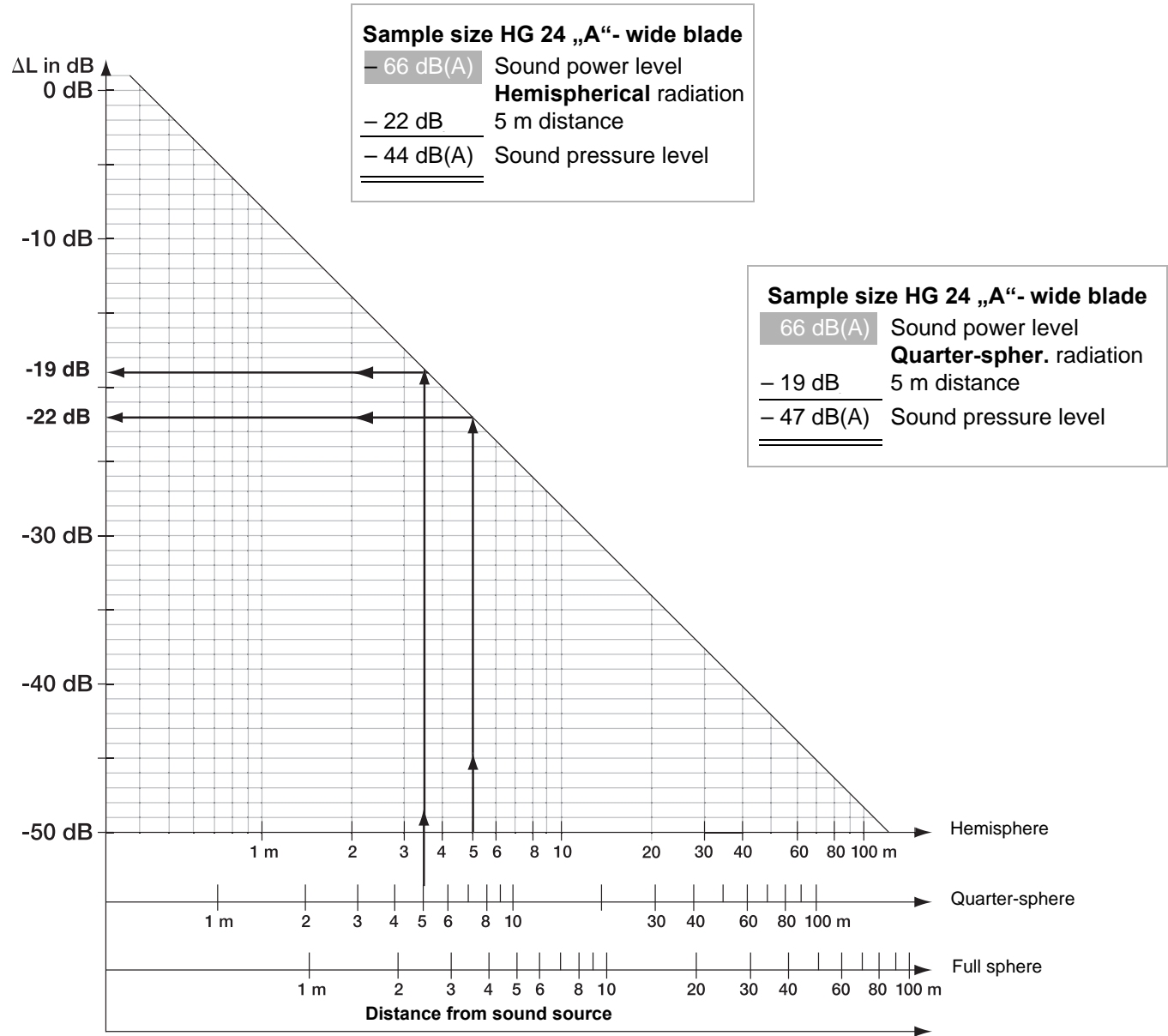
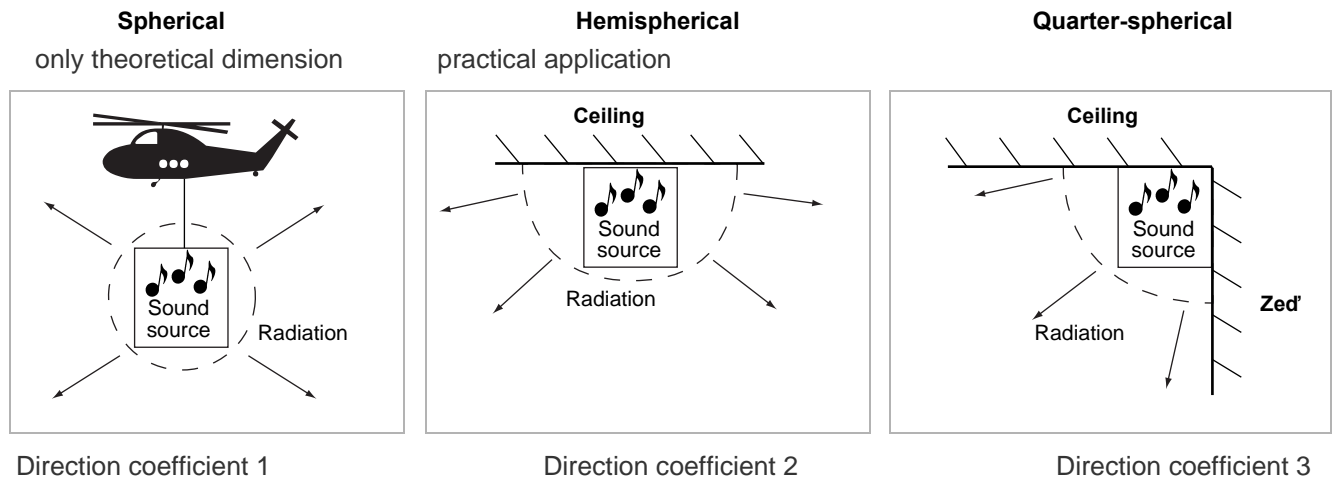


Diagram legend

- | | |
|--|---|
| 1 Basic wall outlet/basic ceiling outlet two sides | 10 Mixed-air module, type 2 |
| 2 Profile outlet | 11 Fresh air blocking damper |
| 3 Secondary-air wall louvre | 12 Wall air-intake hood/contact protection grille |
| 4 Secondary-air ceiling louvre | 13 Weather protection grilles |
| 6 Outlet nozzle for ceiling/gate nozzle | 14 Roof air-intake hood with G2 bag filter |
| 7 Four-side ceiling outlet | 15 Roof air-intake hood with G4 bag filter |
| 9 Mixed-air module type 1 | 16 Bag filter module G2 |
| | 17 Bag filter module G4 |
| | 18 Mat filter module G2 |
| | 19 Mat filter module G4 |

Radiation of sound source without reflections



Model size	Speed	Sound power level (dB)								A-rated sum level		Max. current consumption I	Max. power consumption P	Burner voltage U	Max. burner current consumption I	Max. burner power consumption P
		Octave centre frequency (Hz)								Sound power	Sound pressure *					
	RPM	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)	A	kW	V	A	kW
A - 3 ~ 400 V 2-speed (low speed range)																
2	710	73	64	64	60	58	54	48	40	63	48	0.26	0.07	1 x 230	0.52	0.12
	910	70	65	66	62	61	58	53	46	66	41	0.45	0.12			
4	500	68	68	66	60	59	57	48	40	64	49	0.41	0.15	1 x 230	0.65	0.15
	650	75	72	72	66	65	63	57	48	70	55	0.72	0.24			
B - 3 ~ 400 V 2-speed (high speed range)																
2	890	76	70	70	66	64	61	56	49	69	54	0.35	0.19	1 x 230	0.52	0.12
	1270	71	75	74	69	69	66	63	57	74	59	0.61	0.29			
4	740	91	76	75	71	69	68	63	54	75	60	0.76	0.37	1 x 230	0.65	0.15
	910	84	79	81	75	73	71	68	60	79	64	1.31	0.51			
D - 1 ~ 230 V 2-speed (low speed range)																
2	460	59	59	57	59	52	50	44	36	55	40	0.71	0.06	1 x 230	0.52	0.12
	890	72	68	66	64	60	58	53	46	66	51	0.88	0.14			
E - 1 ~ 230 V 2-speed (high speed range)																
2	780	73	68	68	62	60	58	53	47	66	51	1.51	0.18	1 x 230	0.52	0.12
	1210	74	74	74	69	69	66	63	58	74	59	1.61	0.33			
4	700	86	79	80	72	70	69	63	55	77	63	2.80	0.41	1 x 230	0.65	0.15
	910	87	80	88	76	73	71	69	65	82	67	2.80	0.55			
R - 3 ~ 400 V 2-speed (high speed range)																
4	650	78	73	74	68	68	64	55	48	72	57	1.06	0.47	1 x 230	0.65	0.15
	870	79	83	80	75	74	72	64	57	79	64	1.84	0.76			

Tab. 4

* Sound pressure: standard values at 5 m distance to the unit side, at maximum air volume flow and low-reflection room. Switching pressure is defined in accordance with EN ISO 3743-2. Additional pressure drop through suction-side or other auxiliary aerodynamic accessories can increase acoustical values of the unit.



Fans meet requirements of EU Regulation No. 327/2011 of the Commission as of 30th. March 2011 to implement Directive 2009/125/EG (ErP-regulation).

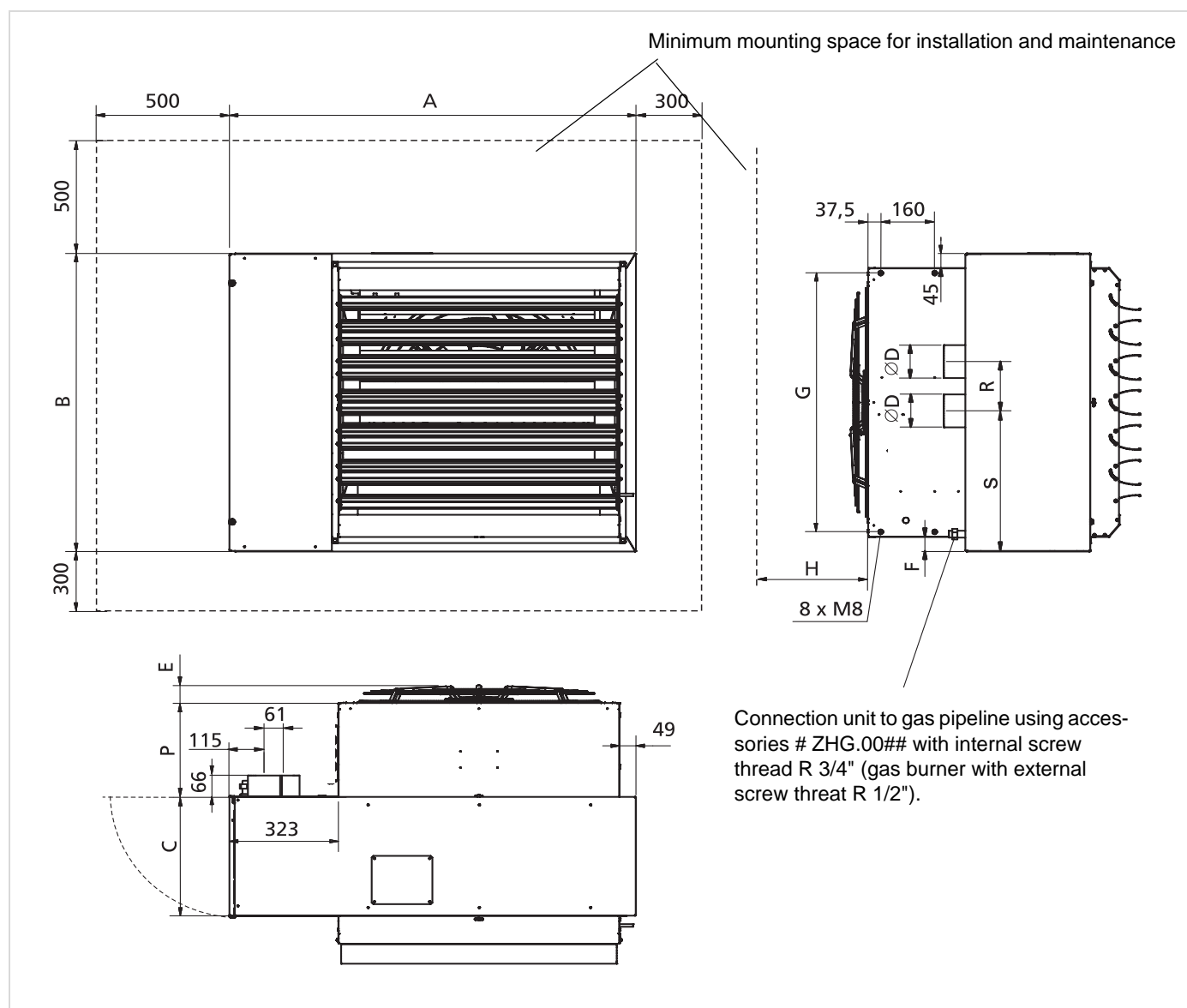


Fig. 26: Unit dimensions MultiMAXX HG

Size / unit model size	2	4
A [mm]	918	1206
B [mm]	701	954
C [mm]	340	370
D [mm]	80	100
E (for fan A, B, D, E) [mm]	81	112
E (for fan Q, R) [mm]	50	66
F [mm]	110	75
G [mm]	514	802
H [mm]	300	400
P [mm]	222.5	288
R [mm]	126	195
S [mm]	352	424

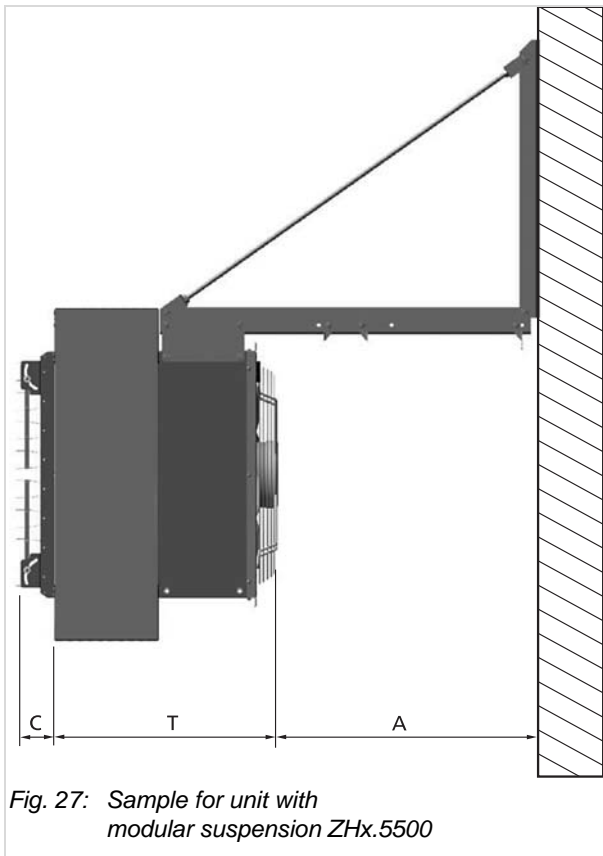


Fig. 27: Sample for unit with modular suspension ZHx.5500

Unit installation with a modular suspension on the wall is presented in fig. 27.

If FläktGroup modular suspension is used, it is required to maintain a minimum clearance to **Wall A**. Keep this clearance to ensure supply of required air flow and thus the designed unit capacity.

If the units are not mounted on the original FläktGroup suspensions consider the minimum clearance to the wall.

The overall depth of the unit is made up of the total $T + C$.

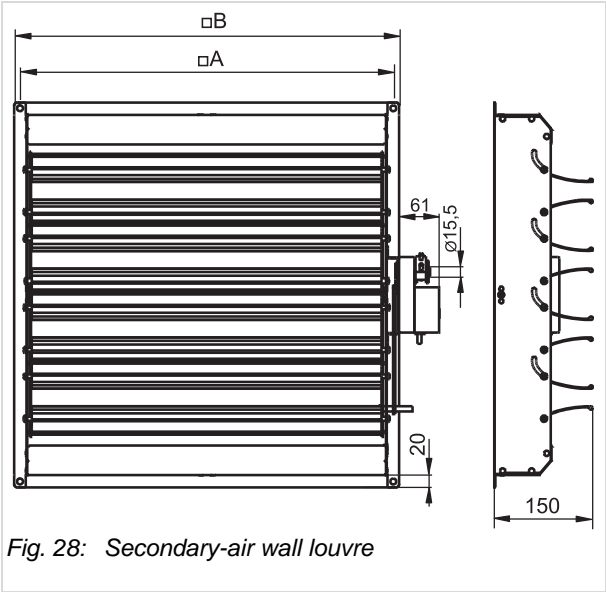
Unit depth T depends on the fan type and the unit model size.

Dimension C is made up of different outlet types.

Wall clearance A [mm]			HG 2	HG 4
			300	400
Unit depth T [mm]			HG 2	HG 4
Unit with fan type Q, R			613	724
Unit with fan type A, B, D, E			644	770
Depth of outlet C [mm]			HG 2	HG 4
Basic wall outlet/basic ceiling outlet two sides	B / Z	Wall / ceiling	105	105
Secondary-air louvre	C, D	Ceiling	291	376
Four-side ceiling outlet	V	Ceiling	260	260
Outlet nozzle ceiling	A	Ceiling	178	253
Gate nozzle	T	Wall / ceiling	302	525
Air deflection louvre	L	Wall / ceiling	70	70
Profile outlet	P	Wall / ceiling	100	100
Secondary-air louvre	U, W	Wall	150	150
Terminating flange, pressure side	K	Wall / ceiling	60	60

Outlets (wall)

Secondary-air louvre



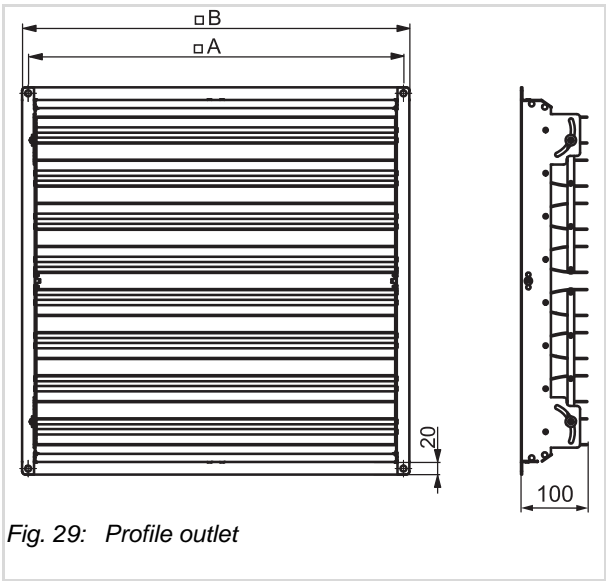
For adjusting discharge speed and air throw in the following variants:



- HG U – Manual adjustment
- HG W – Motorized adjustable
(actuator 230 V up/down)

Model size	2	4
A (mm)	566	854
B (mm)	585	873
Weight (kg)	8.9	17.7

Profile outlet



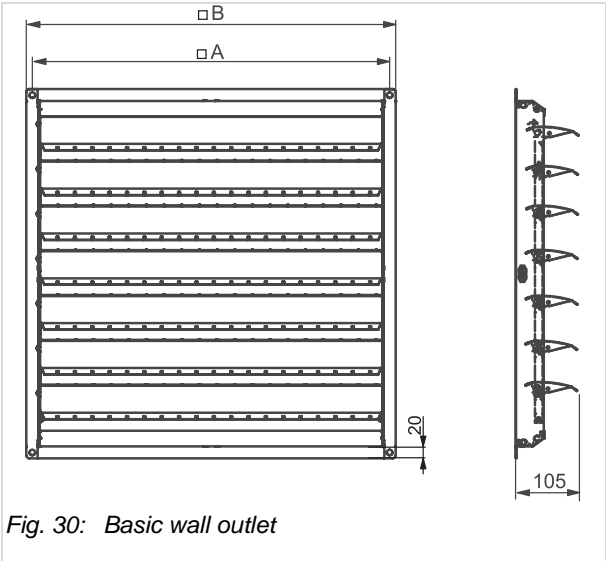
made from aluminium air-deflection profiles for increasing air-discharge speed and air throw



- HG P – manually adjustable
self-locking

Model size	2	4
A (mm)	566	854
B (mm)	585	873
Weight (kg)	7.8	16.4

Basic wall outlet



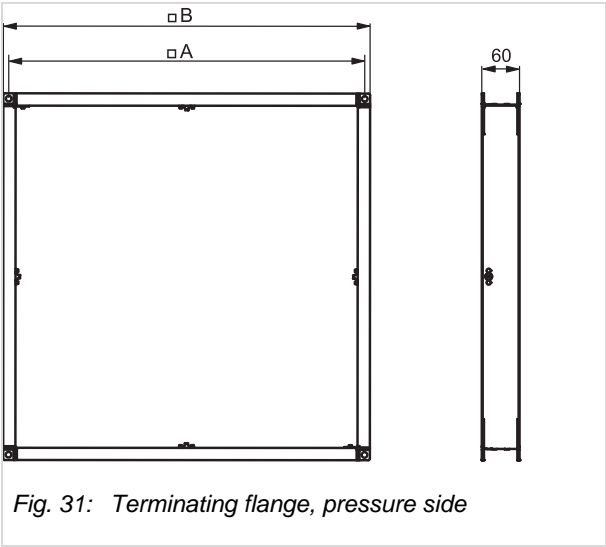
adjustable, self-locking to adjust air-flow direction



HG . . . B . . . – manually adjustable self-locking

Model size	2	4
A (mm)	566	854
B (mm)	585	873
Weight (kg)	3.6	8

Terminating flange, pressure side



can be used for connecting a short duct directly to the unit discharge side, enables placement of unit behind the wall in a different area.

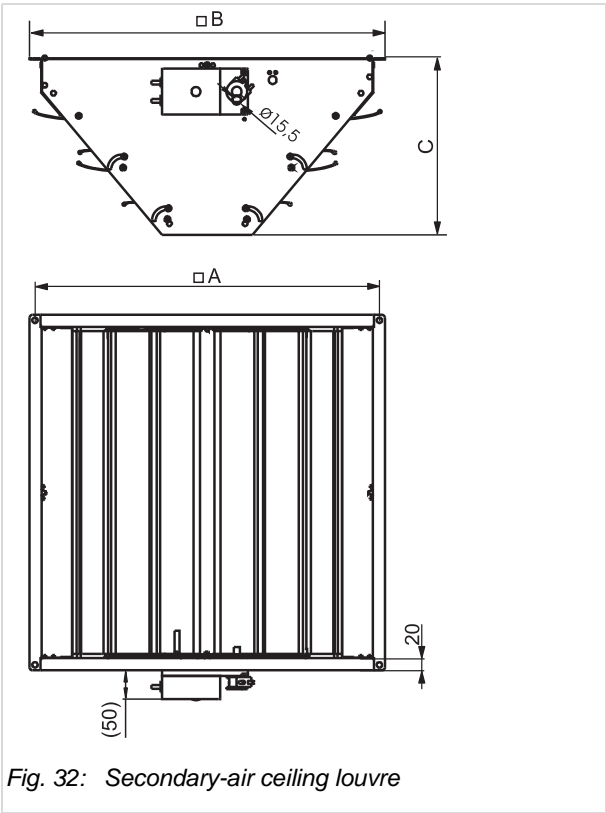


HG . . . K . . . – Duct connection on discharge side

Model size	2	4
A (mm)	566	854
B (mm)	585	873
Weight (kg)	2.5	3.8

Outlets (ceiling)

Secondary-air louver



for adjusting discharge speed and air throw in the following variants:

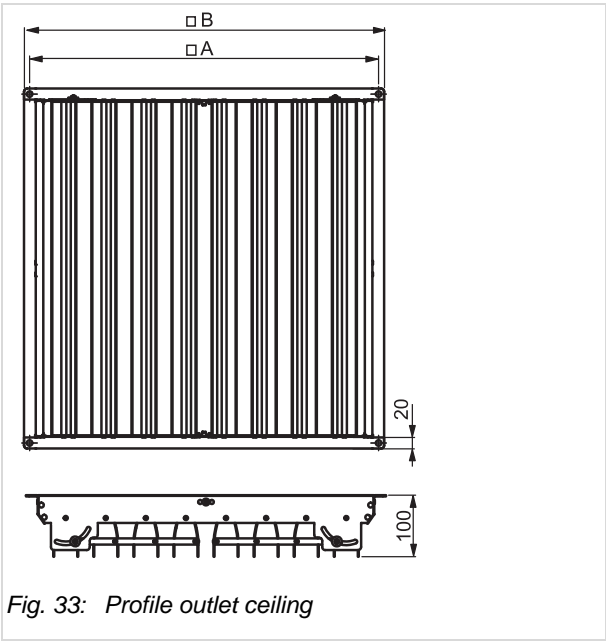


- HG . . . C . . . – Manual adjustment
- HG . . . D . . . – Motorized adjustable (actuator 230 V up/down)

Shaft diameter = 15.5 mm

Model size	2	4
A (mm)	566	854
B (mm)	585	873
C (mm)	291	376
Weight (kg) without actuator	11.1	19.9

Profile outlet



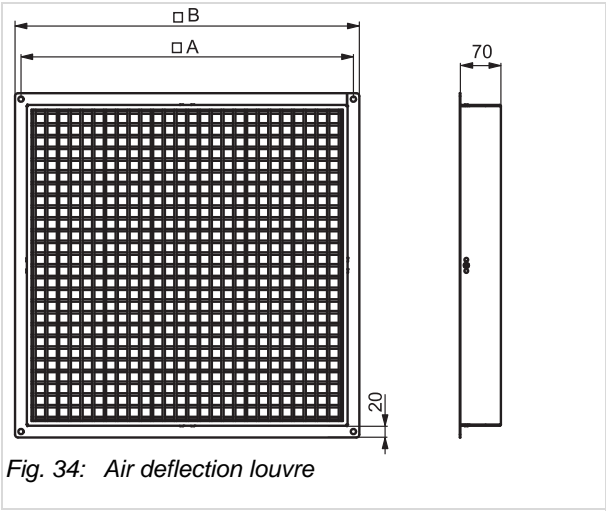
made from aluminium air-deflection profiles for increasing air-discharge speed and air throw



- HG . . . P . . . – manually adjustable self-locking

Model size	2	4
A (mm)	566	854
B (mm)	585	873
Weight (kg)	7.8	16.4

Air deflection louvre



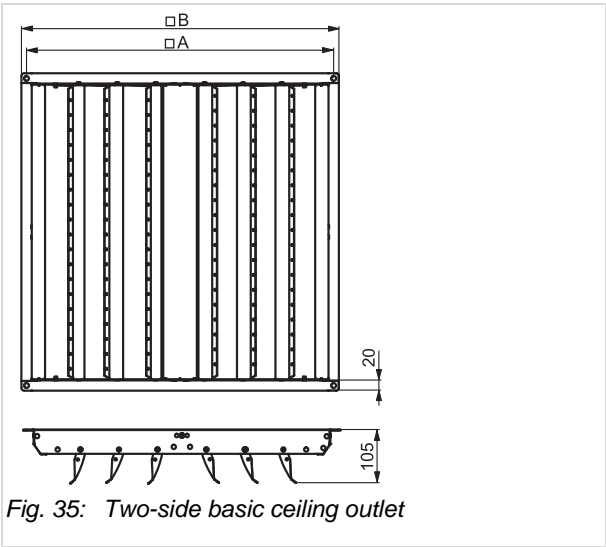
Air deflection unit for distributing supply air flow in required directions



HG . . . L . . . – manually adjustable self-locking

Model size	2	4
A (mm)	566	854
B (mm)	585	873
Weight (kg)	6.8	15.6

Two-side basic ceiling outlet



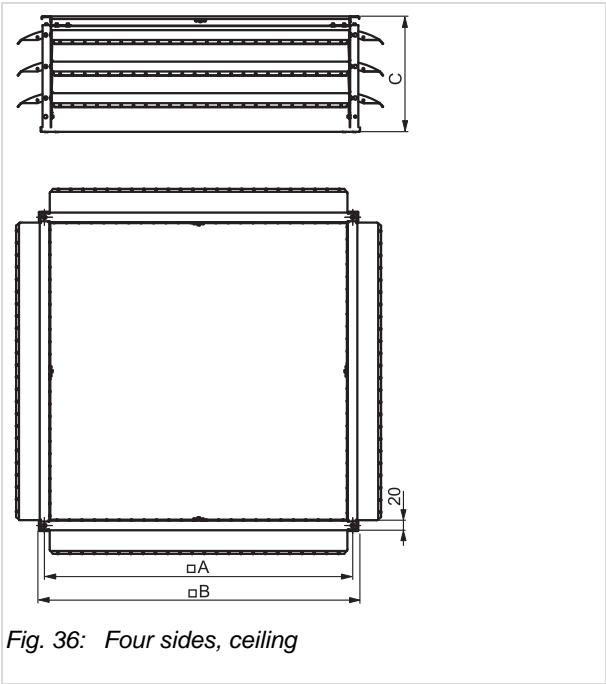
Air deflection unit for distributing supply air flow in 2 directions



HG . . . Z . . . – manually adjustable self-locking

Model size	2	4
A (mm)	566	854
B (mm)	585	873
Weight (kg)	3.6	8

Four sides, ceiling



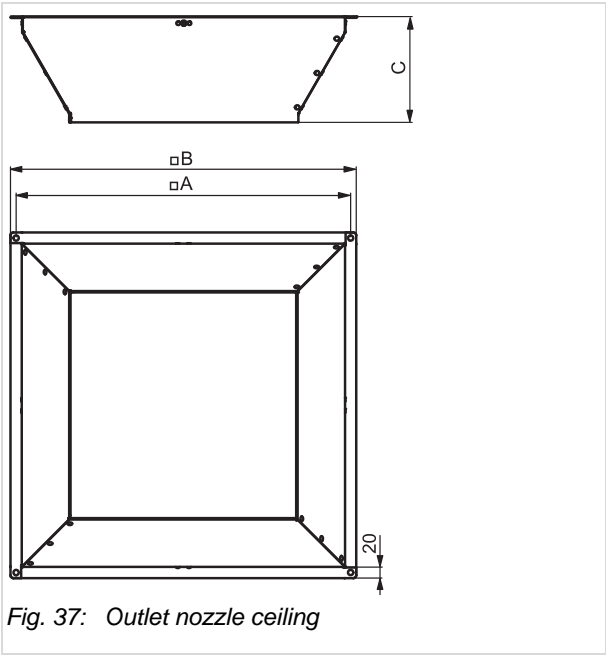
Air deflection unit for low installation height (2.5 - 3.5 m); air distribution in 4 directions prevents direct blowing at persons



HG . . . V . . . – manually adjustable self-locking

Model size	2	4
A (mm)	566	854
B (mm)	585	873
C (mm)	260	260
E (mm)	700	985
Weight (kg)	8.5	16.6

Outlet nozzle ceiling



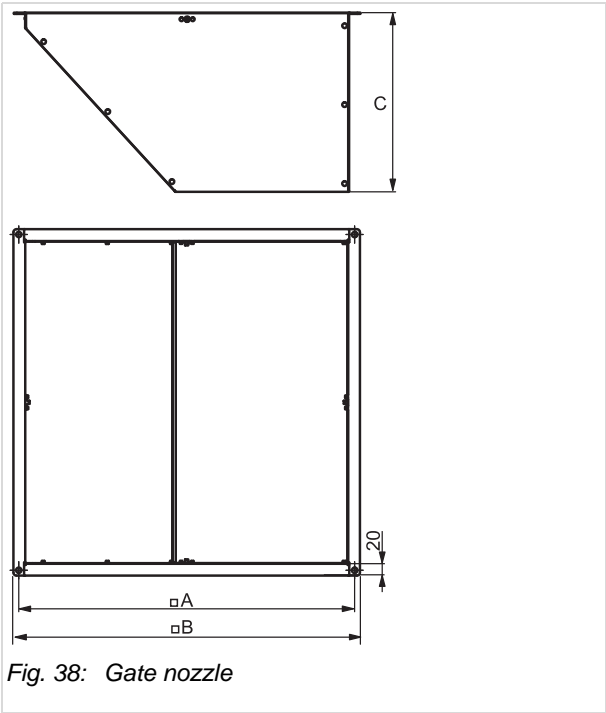
square, cone-shaped, air speed and air throw increase
due to reduced outlet surface



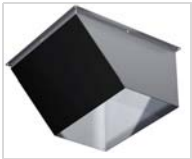
HG A – for large mounting heights

Model size	2	4
A (mm)	566	854
B (mm)	585	873
C (mm)	178	253
Weight (kg)	5	10.5

Gate nozzle



Increase of discharge speed for precise air-flow diffusion

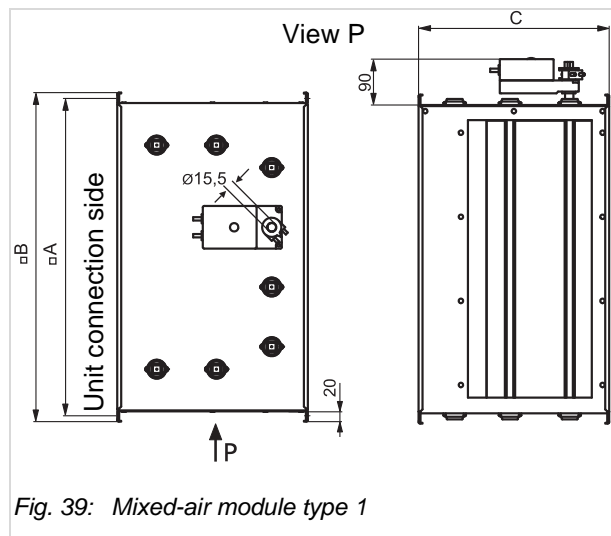


HG T – for gate curtains

Model size	2	4
A (mm)	566	854
B (mm)	585	873
C (mm)	302	525
Weight (kg)	5.6	14

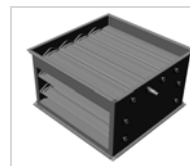
Air side accessories

Mixed-air module type 1



1 outside-air damper (FA) and 2 recirculating-air louvers (RA); outside and recirculating-air flows angled at 90°

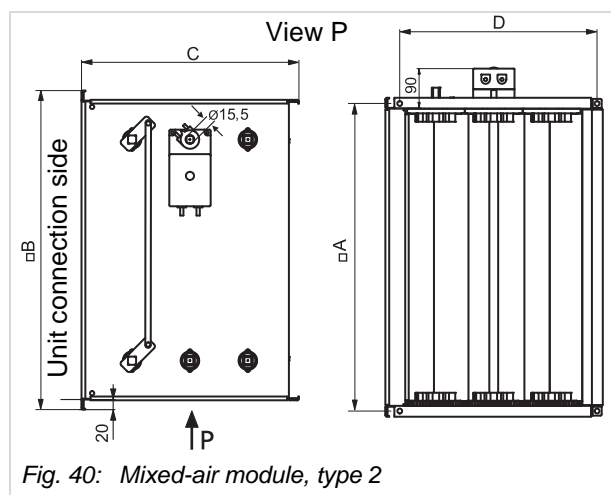
Shaft diameter = 15.5 mm



ZH# . 2 0 0 # – depending on equipment
complete data according to the table below

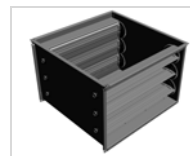
Model size	2	4
A (mm)	566	854
B (mm)	587	875
C (mm)	340	450
Weight (kg)	16	31

Mixed-air module, type 2



Model with 1 outside-air damper (FA) and 1 recirculating-air louvre (RA); outside and recirculating-air flow at opposing 180°;

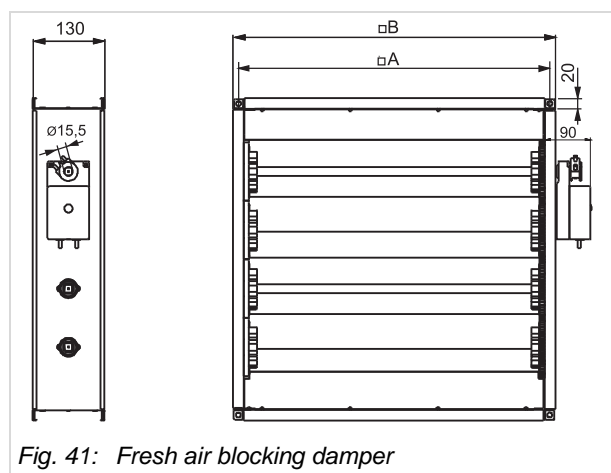
Shaft diameter = 15.5 mm



ZH# . 2 1 0 # – depending on equipment
Complete data according to table below

Model size	2	4
A (mm)	566	854
B (mm)	587	875
C (mm)	400	510
D (mm)	363	473
Weight (kg)	15.4	31.5

Fresh air blocking damper



Blocking damper fins made of galvanized metal sheet

Shaft diameter = 15.5 mm



ZH# . 2 3 0 # – depending on equipment
Complete data according to table below

Model size	2	4
A (mm)	566	854
B (mm)	587	875
Weight (kg)	8.2	15.1

Z H # . 2 # # 0	– with actuator provided by others (shaft diameter = 15.5 mm) for on-site regulation
Z H # . 2 # # 1	– manual adjustment
Z H # . 2 # # 2	– with actuator 230 V open/close
Z H # . 2 # # 3	– with actuator 230 V open/close + poti
Z H # . 2 # # 4	– with actuator 230 V open/close + final position switch (for control system by others)
Z H # . 2 # # 5	– with actuator 230 V open/close + spring return

Tab. 5: Unit type code for mixed-air modules and fresh air blocking damper depending on the actuator

Flexible connection

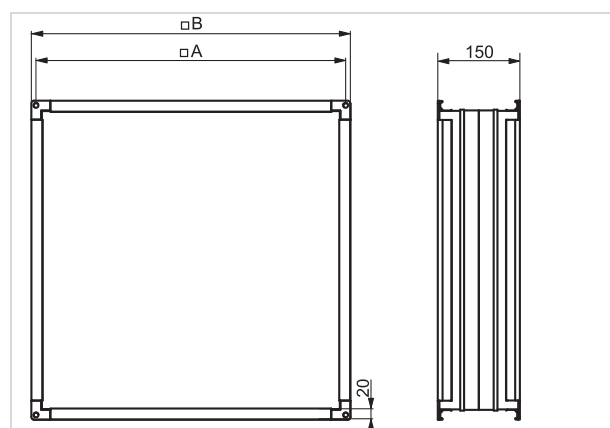
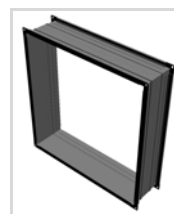


Fig. 42: Flexible connection

Flexible fitting with run-around mounting frame; to be used if filter module is to be installed directly below the fan module (alternative rectangular duct 150)

Z H # . 2 5 0 0	– air-tight, tear-resistant
Z H # . 2 5 8 0	– Ecodesign



Model size	2	4
A (mm)	566	854
B (mm)	583	871
Weight (kg)	3.2	4.8

Rectangular duct 150

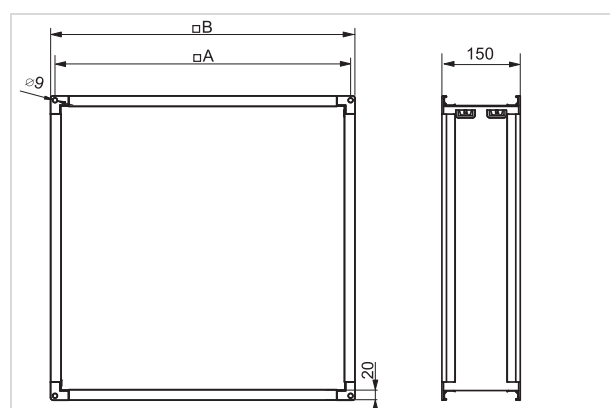


Fig. 43: Rectangular duct 150

Spacer made of metal sheet with run-around mounting frame; to be used if filter module is to be installed directly below the fan module.

Z H # . 2 6 0 0	– Overall length 150 mm
Z H # . 2 6 8 0	– Ecodesign



Model size	2	4
A (mm)	566	854
B (mm)	583	871
Weight (kg)	2.2	3.3

Rectangular duct 1000

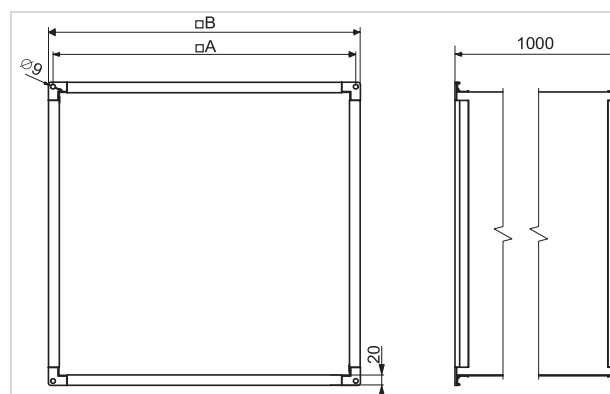
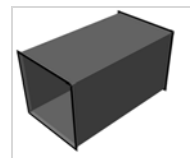


Fig. 44: Rectangular duct 1000

Fitting made of galvanized metal sheet with run-around mounting frame

Z H # . 2 7 0 0	– Overall length 1000 mm
-----------------	--------------------------



Model size	2	4
A (mm)	566	854
B (mm)	583	871
Weight (kg)	15	22.4

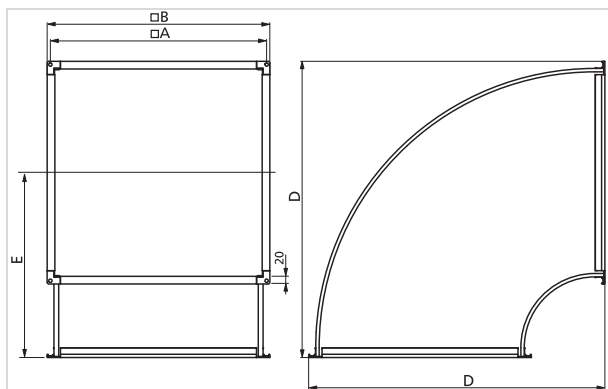
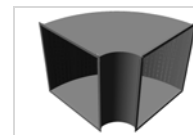
Duct bend 90°, symmetrical

Fig. 45: Duct bend 90°, symmetrical

made of galvanized metal sheet with run-around mounting frame



ZH# . 2 8 0 0 – symmetrical

Model size	2	4
A (mm)	566	854
B (mm)	583	871
D (mm)	742	1030
E (mm)	451	595
Weight (kg)	11.5	33

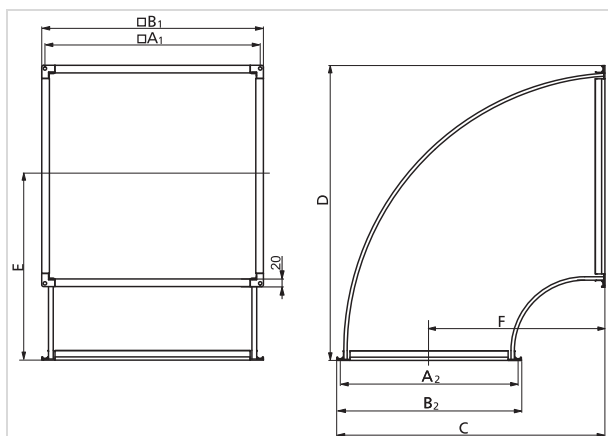
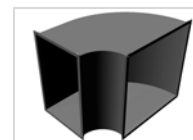
Duct bend 90°, asymmetrical

Fig. 46: Duct bend 90°, asymmetrical

made of galvanized metal sheet with run-around mounting frame



ZH# . 2 9 0 0 – asymmetrical

Model size	2	4
A1 (mm)	566	854
A2 (mm)	363	473
B1 (mm)	583	871
B2 (mm)	380	490
C (mm)	540	650
D (mm)	742	1030
E (mm)	451	595
F (mm)	350	405
Weight (kg)	11.5	33

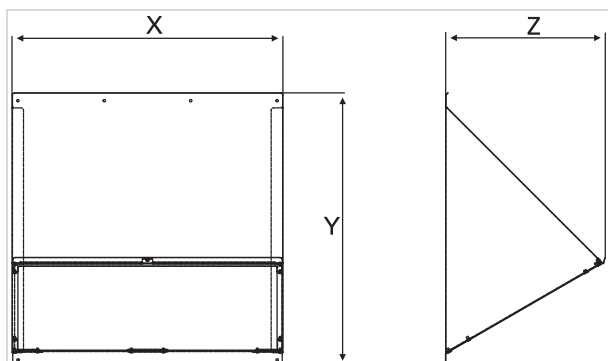
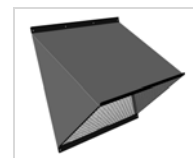
Wall air-intake hood

Fig. 47: Wall air-intake hood

External weather grille made of galvanized metal sheet with bird protection, low pressure drop, RAL 9002



ZH# . 3 1 0 0 – for connection to a wall

Model size	2	4
X (mm)	592	880
Y (mm)	596	884
Z (mm)	350	532
Weight (kg)	3.9	8.6

Weather protection grilles

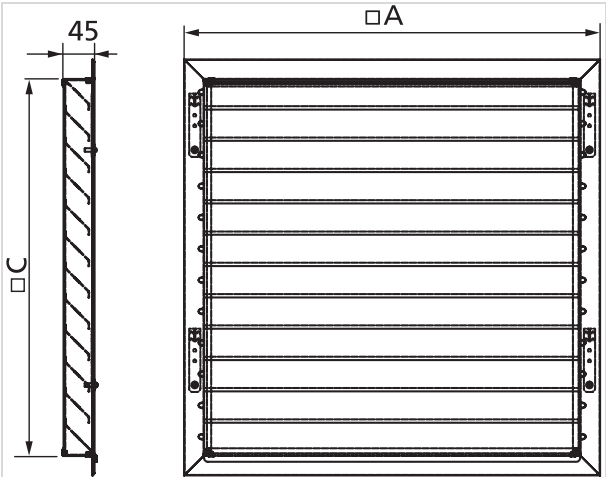


Fig. 48: Weather protection grilles

Made of metal sheet with bird protection grille and removeable wall bracket



ZH# 3200 – Overall length 45 mm

Model size	2	4
A (mm)	592	880
C (mm)	534	822
Weight (kg)	5.2	11.5

Contact protection grille

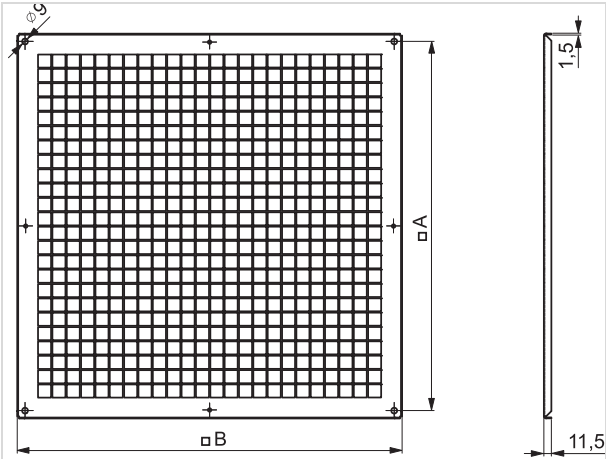
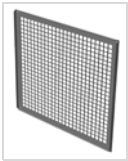


Fig. 49: Contact protection grille

made of galvanized metal sheet, for completion of the suction side accessories



ZH# 3300 – Overall length 11.5 mm

Model size	2	4
A (mm)	566	854
B (mm)	590	878
Weight (kg)	3.3	5.1

Duct through slanted roof

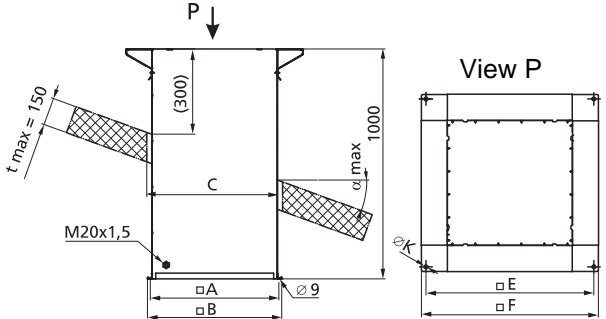


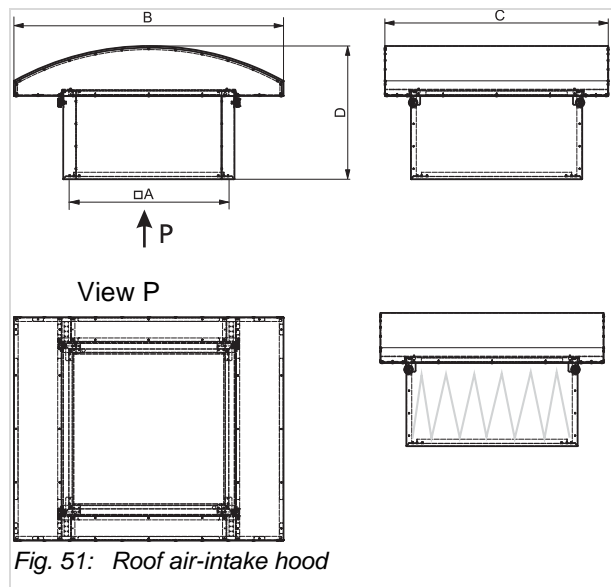
Fig. 50: Duct through slanted roof

Performed in galvanized metal sheet, including mounting bracket with a peripheral run-around mounting frame

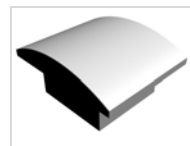
ZH# 3400

Model size	2	4
A (mm)	566	854
B (mm)	583	871
C (mm)	630	920
E (mm)	730	1050
F (mm)	768	1088
K (mm)	16	16
a max	45°	35°
Weight (kg)	32	68

Roof air-intake hood



made of metal sheet in RAL 9002 with bird protection grille; other colours on request; optionally with bag filter (quality class G2-G4 as of DIN EN 779), then the hood can be tilted at 90° for easier filter replacement

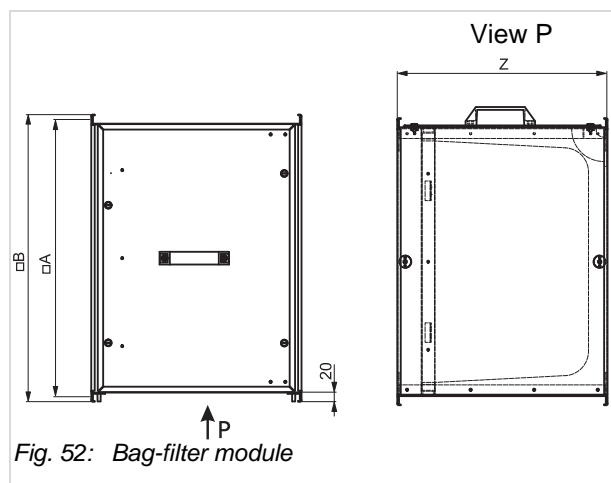


ZH# . 3 5 0 # – complete - depending on equipment
the following table as required
complete – depending on equipment
„Type code designations for mat filter modules, bag filter modules and roof air-intake hood“ on page 32

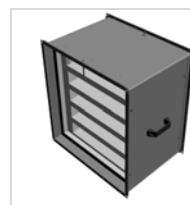
ZH# . 3 8 0 2 – Spare filter for bag filter module G2
ZH# . 3 8 0 4 – Spare filter for bag filter module G4

Model size	2	4
A (mm)	730	1050
B (mm)	1260	1700
C (mm)	1044	1500
D (mm)	623	712
Weight (kg)	39.5	78

Bag-filter module



Bag filter cassette, quality class G2 and G4 as of DIN EN 779; casing made of galvanized metal sheet, lateral service opening with 20 mm run-around connection frame; optional differential pressure switch



ZH# . 3 6 0 # – complete - depending on equipment
the following table as required

ZH# . 3 9 0 2 – Spare filter for bag filter module G2
ZH# . 3 9 0 4 – Spare filter for bag filter module G4

Model size	2	4
A (mm)	566	854
B (mm)	587	875
Z (mm)	430	430
Weight (kg)	16	25

Mat-filter module

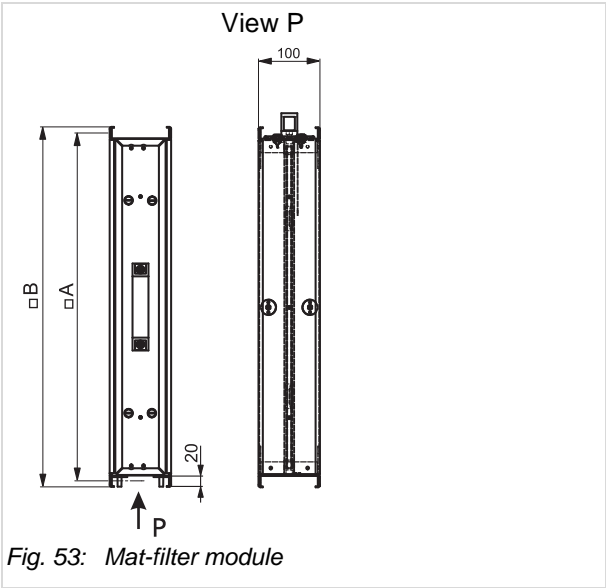


Fig. 53: Mat-filter module

in frame, with filter mat of quality grade G2 - G4 as of DIN EN 779;
Casing made of galvanized metal sheet, lateral service opening with 20 mm run-around connection frame; removable, optional differential pressure switch

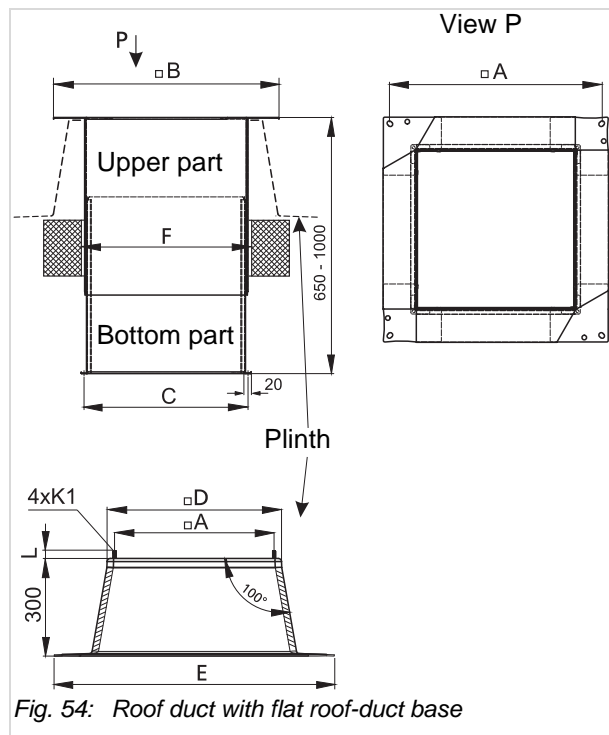
- ZH# . 3 7 0 # – complete - depending on equipment the following table as required
- ZH# . 4 0 0 2 – Spare filter for mat filter module G2
ZH# . 4 0 0 3 – Spare filter for mat filter module G3
ZH# . 4 0 0 4 – Spare filter for mat filter module G4

Model size	2	4
A (mm)	566	854
B (mm)	587	875
Weight (kg)	6.2	10

- ZH# . 3 # # 0 – without filter insert and differential pressure switch
ZH# . 3 # # 2 – with G2 filter and without differential pressure switch
ZH# . 3 # # 3 – with G3 filter and without differential pressure switch (only for mat filter)
ZH# . 3 # # 4 – with G4 filter and without differential pressure switch
ZH# . 3 # # 5 – with G2 filter and with differential pressure switch
ZH# . 3 # # 6 – with G3 filter and with differential pressure switch (only for mat filter)
ZH# . 3 # # 7 – with G4 filter and with differential pressure switch
ZH# . 3 6 8 8 – with F7 filter and without differential pressure switch (Ecodesign)
ZH# . 3 6 8 9 – with F7 filter and with differential pressure switch (Ecodesign)
ZH# . 3 5 8 8 – with F7 filter and without differential pressure switch (Ecodesign)
ZH# . 3 5 8 9 – with F7 filter and with differential pressure switch (Ecodesign)

Tab. 6: Type code designations for mat filter modules, bag filter modules and roof air-intake hood

Roof duct with flat roof-duct base

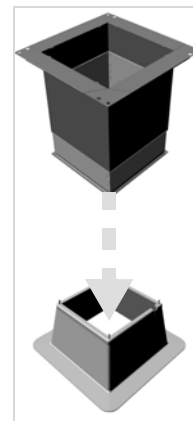


Roof opening performed in galvanized metal sheet, including flat roof plinth, plastic, thermally insulated

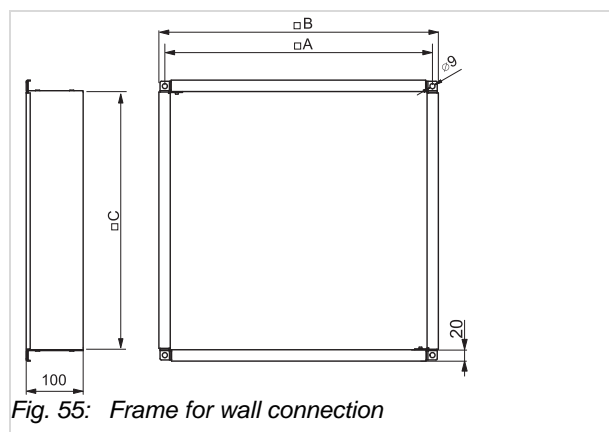
The upper part of the roof opening is inserted into the plinth from the top, the bottom part is connected with unit accessories and is then inserted from below into the upper part of the opening.

ZH# . 4 9 0 0

Model size	2	4
A (mm)	730	1050
B (mm)	775	1095
C (mm)	566	854
D (mm)	775	1095
E (mm)	1100	1420
F (mm)	630	920
Weight (kg) roof opening	19.2	29.4
Plinth weight (kg)	10	13
K1xL (mm)	M12x27	M12x27



Frame for wall connection



as spacer for wall opening performed in galvanized metal sheet.

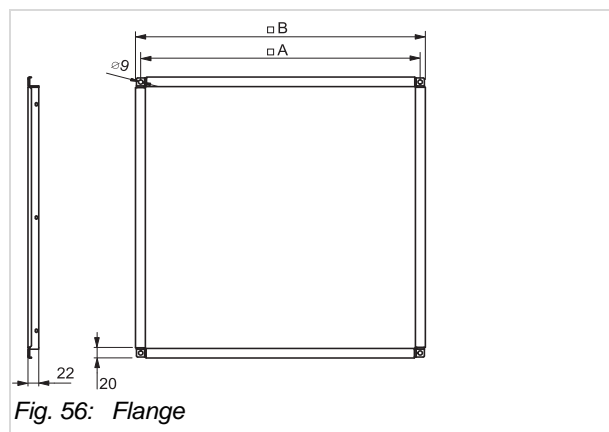
Placement from inside the room

ZH# . 5 1 0 0 – for connection to a wall

Model size	2	4
A (mm)	566	854
B (mm)	587	875
C (mm)	547	835
Weight (kg)	3.1	4.8



Flange

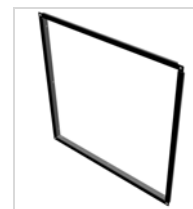


(only required for recirculating-air units, integral part of mixed-air units)

Flange with run-around peripheral mounting frame for suction-side accessories in recirculating-air units.

ZH# . 5 2 0 0 – galvanized metal sheet

Model size	2	4
A (mm)	566	854
B (mm)	587	875
Weight (kg)	3.1	4.8



Suspensions

Suspension type compact C

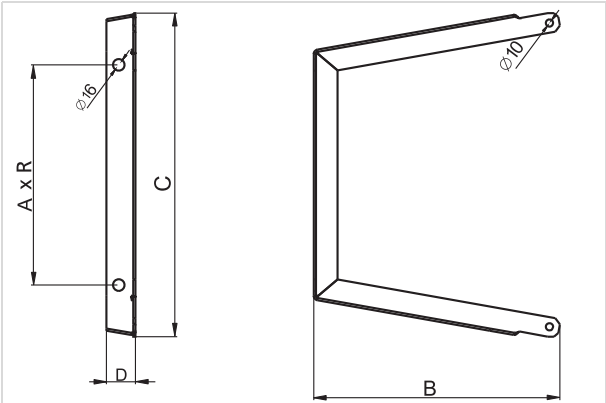


Fig. 57: Suspension type compact C

Suspension for recirculating-air units for wall and ceiling installation; galvanized metal sheet



ZH#. 5300 – Wall/ceiling mounting

Model size	2	4
A (mm)	389	628
B (mm)	392	578
C (mm)	544	845
D (mm)	40	62
R (mm)	510	776
Weight (kg)	3.9	12.2

Suspension type Studio

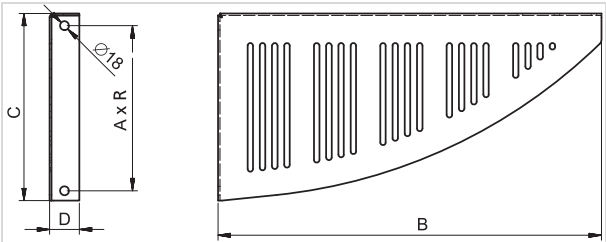
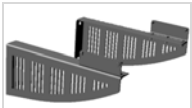


Fig. 58: Suspension type Studio

Suspension for recirculating-air units; made of painted metal sheet in RAL 7000; other colours on request



ZH#. 5400 – Wall installation

Model size	2	4
A (mm)	175	282
B (mm)	544	728
C (mm)	220	327
D (mm)	60	60
R (mm)	496	784
Weight (kg)	8.1	13.5

Modular type suspension

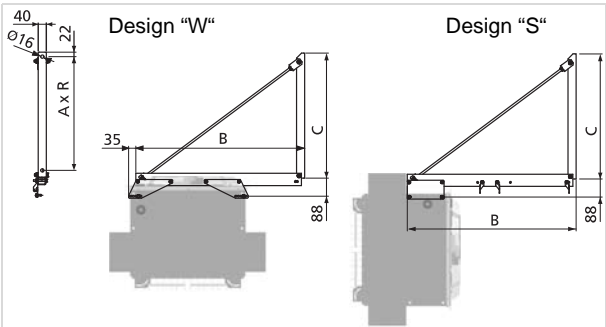


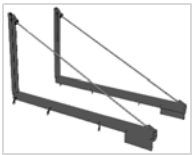
Fig. 59: Modular type suspension

comprising brackets performed in galvanized metal sheet; mounting rails with threaded rods and tensioning locks.

Wall mounting using steel brackets

W – vertical unit outlet

S – horizontal unit outlet



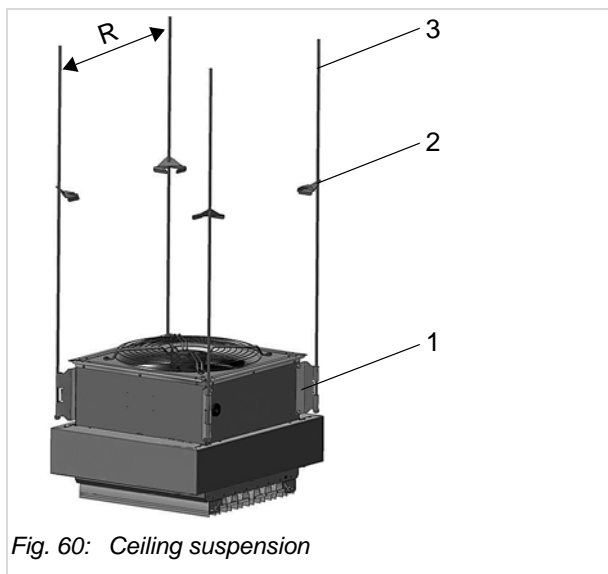
ZH#. 550# – Wall mounting

Model size	2	4
R (mm)	510	798

Z	H	#	.	5	5	0	0	1	2	3	4	5	6	7	8	9	A	B	C	W	E
	Model size		Structure of accessories																		
			without accessories	25 (or 26) +20+51	25 (or 26) +36+20+51	25 (or 26) +37+20+51	25 (or 26) +21+29+51	25 (or 26) +36+21+29+51	25 (or 26) +37+21+29+51	25 (or 26) +23+51	25 (or 26) +36+23+51	25 (or 26) +37+23+51	25 (or 26)+36	25 (or 26)+37	25 (or 26) +28 (+29...)	without accessories for vertical outlet	Ecodesign				
			Description																		
		2		6S	7S	11S	8S	9S	13S	10S	5S	9S	6S	11S	8S	11S	8W	16S			
		4		8S	8S	12S	9S	10S	14S	11S	5S	9S	6S	12S	9S	14S	11W	17S			

Designation	5S	6S	7S	8S/8W	9S	10S	11S/11W	12S	13S	14S	16S	17S
A (mm)	386	386	386	556	556	556	556	556	656	656	656	656
B (mm)	505	605	715	825	935	1045	1155	1265	1375	1485	1405	1515
C (mm)	442	442	442	612	612	612	612	612	712	712	712	712
Weight (kg)	7.5	8.3	9.3	11.2	12.1	12.9	13.9	15	16.1	17	16.7	17,4

Ceiling suspension



comprising 4 unit mounting brackets (1) including fixing material for optional accessories (2) and 4 threaded rods (3); for ceiling mounting.

The threaded rods are available in different lengths:

Z H # .	5	6	0	0	– without threaded rod
Z H # .	5	6	0	1	– 4 x threaded rods M10; length 1 m
Z H # .	5	6	0	2	– 4 x threaded rods M10; length 2 m
Z H # .	5	6	0	3	– 4 x threaded rods M10; length 3 m

Model size	2	4
R (mm)	627	915

Flue gas pipework

Some elements of the flue gas pipework contain a silicone seal. Silicone-free flue gas pipework available on request

Pipe with sleeve

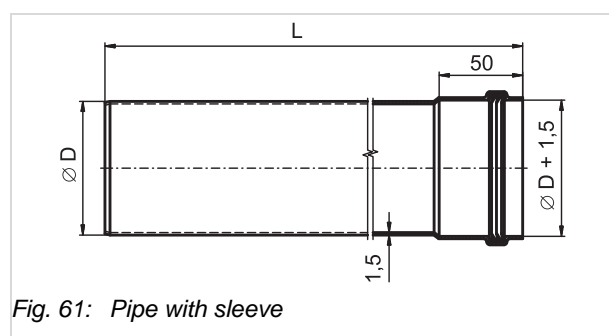


Fig. 61: Pipe with sleeve

made of Al,
diameter 80 and 100 mm
length 0.5, 1 and 2 m



ZHG	3780	– Ø D 80 mm, length 0.22 m
ZHG	3710	– Ø D 100 mm, length 0.22 m
ZHG	3880	– Ø D 80 mm, length 0.17 m
ZHG	3810	– Ø D 100 mm, length 0.17 m
ZHG	3980	– Ø D 80 mm, length 0.31 m
ZHG	3910	– Ø D 100 mm, length 0.35 m
ZHG	4080	– Ø D 80 mm, length 0.5 m
ZHG	4010	– Ø D 100 mm, length 0.5 m
ZHG	4180	– Ø D 80 mm, length 1 m
ZHG	4110	– Ø D 100 mm, length 1 m
ZHG	4280	– Ø D 80 mm, length 2 m
ZHG	4210	– Ø D 100 mm, length 2 m

ZHG	3780	3710	3880	3810	3980	3910	4080	4010	4180	4110	4280	4210
Ø D (mm)	80	100	80	100	80	100	80	100	80	100	80	100
L (m)	0.22	0.22	0.17	0.17	0.31	0.35	0.5	0.5	1	1	2	2
Weight (kg)	0.2	0.3	0.3	0.2	0.3	0.4	0.5	0.6	1.0	1.3	2.0	2.6

Coaxial pipe with sleeve

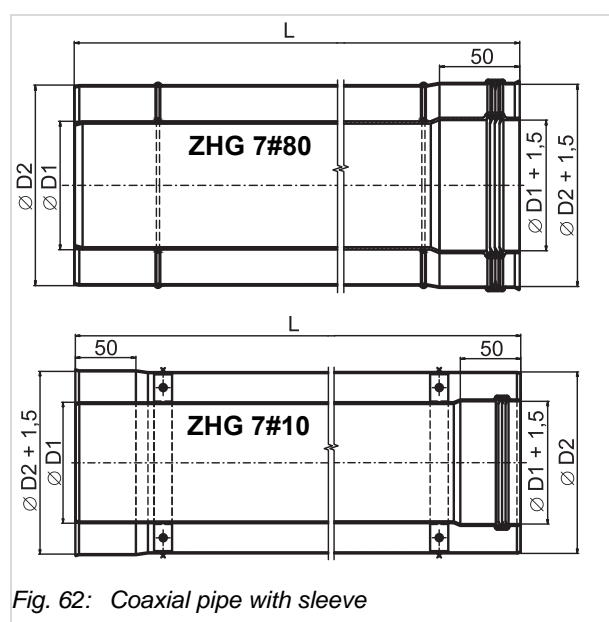


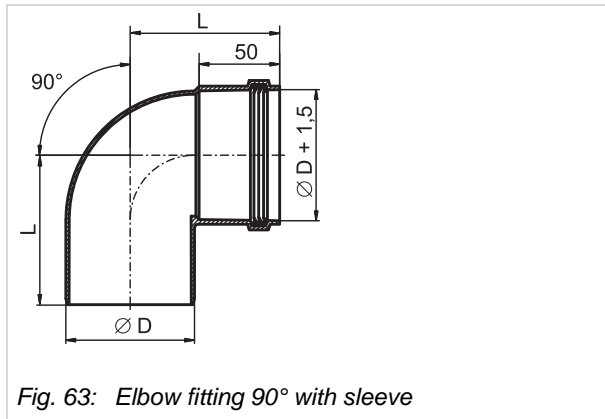
Fig. 62: Coaxial pipe with sleeve

made of Al,
diameter 80/125 and
100/150 mm,
length 0.5, 1 and 2 m



ZHG	7080	Äi Ø D 80/125 mm, length 0.5 m
ZHG	7010	Äi Ø D 100/150 mm, length 0.5 m
ZHG	7180	Äi Ø D 80/125 mm, length 1 m
ZHG	7110	Äi Ø D 100/150 mm, length 1 m
ZHG	7280	Äi Ø D 80/125 mm, length 2 m
ZHG	7210	Äi Ø D 100/150 mm, length 2 m

ZHG	7080	7010	7180	7110	7280	7210
Ø D1 (mm)	80	100	80	100	80	100
Ø D2 (mm)	125	150	125	150	125	150
L (m)	0.5	0.5	1	1	2	2
Weight (kg)	1.0	1.4	2.0	2.8	4.0	5.2

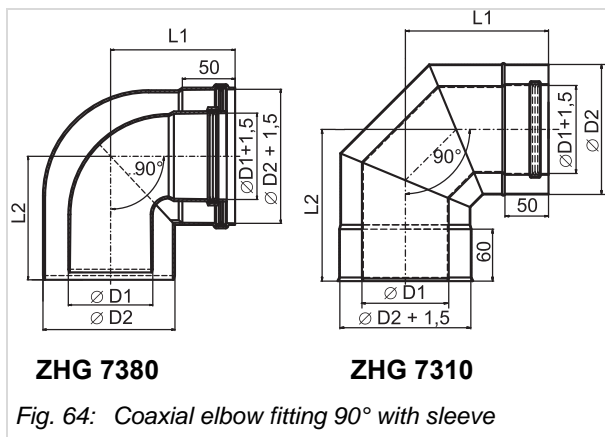
Elbow fitting 90° with sleeve

made of Al alloy,
diameter 80 and 100 mm



ZHG	4	3	8	0	– Ø D 80 mm
ZHG	4	3	1	0	– Ø D 100 mm

ZHG	4380	4310
Ø D (mm)	80	100
L (mm)	93	120
Weight (kg)	0.3	0.4

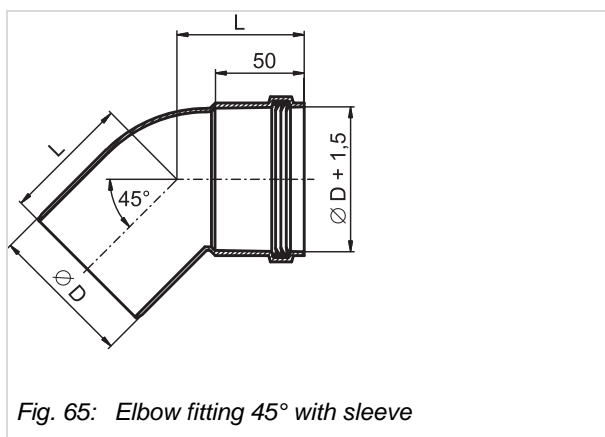
Coaxial elbow fitting 90° with sleeve

made of Al,
diameter 80/125 and 100/150 mm



ZHG	7	3	8	0	– Ø D 80/125 mm
ZHG	7	3	1	0	– Ø D 100/150 mm

ZHG	7380	7310
Ø D1 (mm)	80	100
Ø D2 (mm)	125	150
L1 (mm)	118	165
L2 (mm)	117	175
Weight (kg)	0.5	0.9

Elbow fitting 45° with sleeve

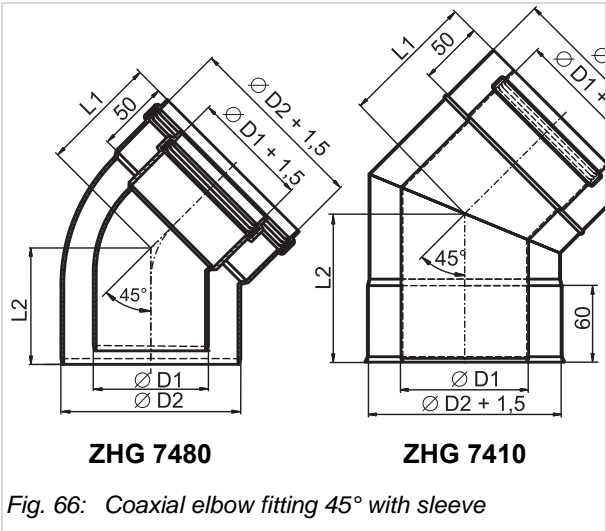
made of Al,
diameter 80 and 100 mm



ZHG	4	4	8	0	– Ø D 80 mm
ZHG	4	4	1	0	– Ø D 100 mm

ZHG	4480	4410
Ø D (mm)	80	100
L (mm)	72	80
Weight (kg)	0.2	0.3

Coaxial elbow fitting 45° with sleeve



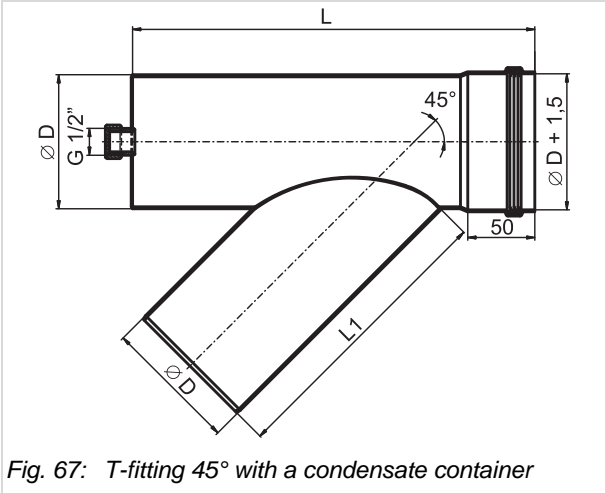
made of Al,
diameter 80/125 and 100/150 mm



ZHG	7	4	8	0	– Ø D 80/125 mm
ZHG	7	4	1	0	– Ø D 100/150 mm

ZHG	7480	7410
Ø D1 (mm)	80	100
Ø D2 (mm)	125	150
L1 (mm)	81	106
L2 (mm)	81	116
Weight (kg)	0.5	0.6

T-fitting 45° with a condensate container



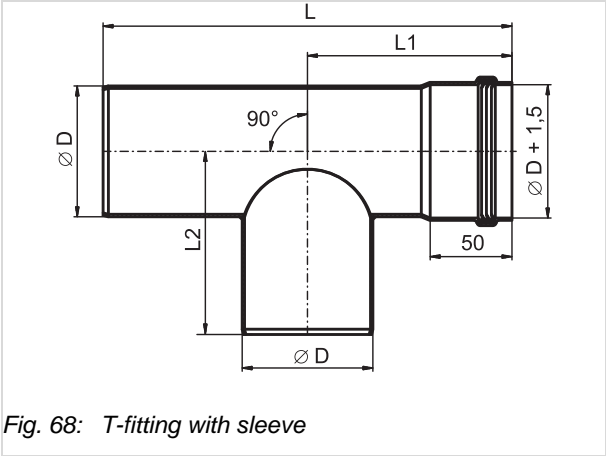
made of Al,
diameter 80 and 100 mm



ZHG	4	5	8	0	– Ø D 80 mm
ZHG	4	5	1	0	– Ø D 100 mm

ZHG	4580	4510
Ø D (mm)	80	100
L (mm)	280	300
L1 (mm)	184	216
Weight (kg)	0.5	0.6

T-fitting with sleeve

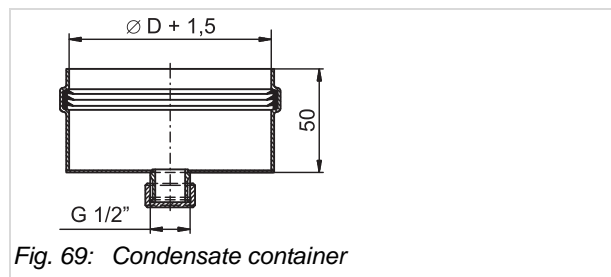


made of Al,
diameter 80 and 100 mm



ZHG	4	6	8	0	– Ø D 80 mm
ZHG	4	6	1	0	– Ø D 100 mm

ZHG	4680	4610
Ø D (mm)	80	100
L (mm)	250	216
L1 (mm)	125	103
L2 (mm)	112	113
Weight (kg)	0.2	0.4

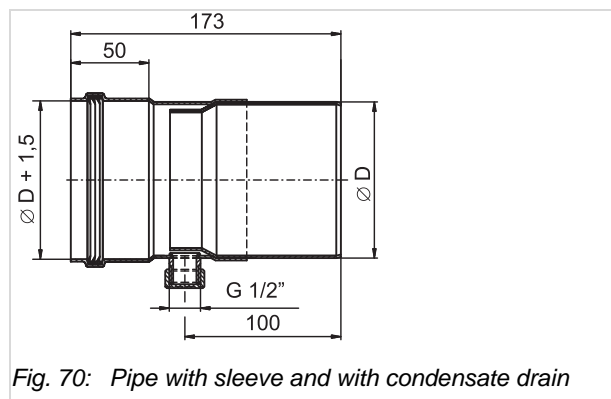
Condensate container

made of Al,
diameter 80 and 100 mm

ZHG	4780	– Ø D 80 mm
ZHG	4710	– Ø D 100 mm



ZHG	4780	4710
Ø D (mm)	80	100
Weight (kg)	0.1	0.1

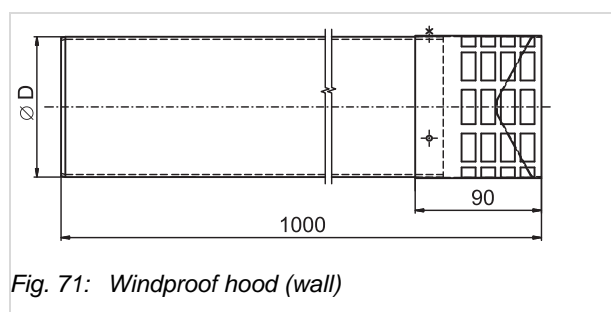
Pipe with sleeve and with condensate drain

made of Al,
diameter 80 and 100 mm

ZHG	4880	– Ø D 80 mm
ZHG	4810	– Ø D 100 mm



ZHG	4880	4810
Ø D (mm)	80	100
Weight (kg)	0.2	0.3

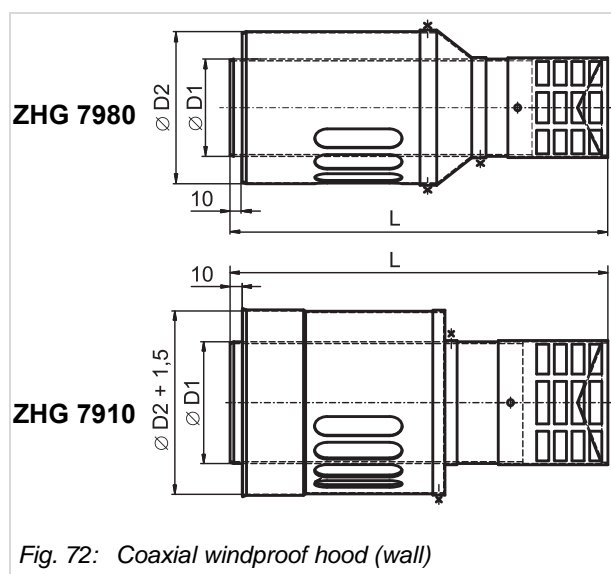
Windproof hood (wall)

made of Al,
diameter 80 and 100 mm

ZHG	4980	Äi Ø D 80 mm
ZHG	4910	Äi Ø D 100 mm



ZHG	4980	4910
Ø D (mm)	80	100
Weight (kg)	0.9	1.2

Coaxial windproof hood (wall)

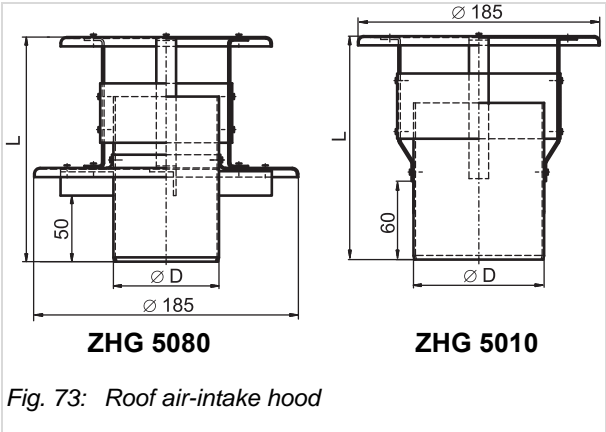
made of Al,
diameter 80/125 and 100/150 mm

ZHG	7980	– Ø D 80/125 mm
ZHG	7910	– Ø D 100/150 mm



ZHG	7980	7910
Ø D1 (mm)	80	100
Ø D2 (mm)	125	150
L (mm)	310	310
Weight (kg)	0.2	0.4

Weatherproof hood (ceiling)



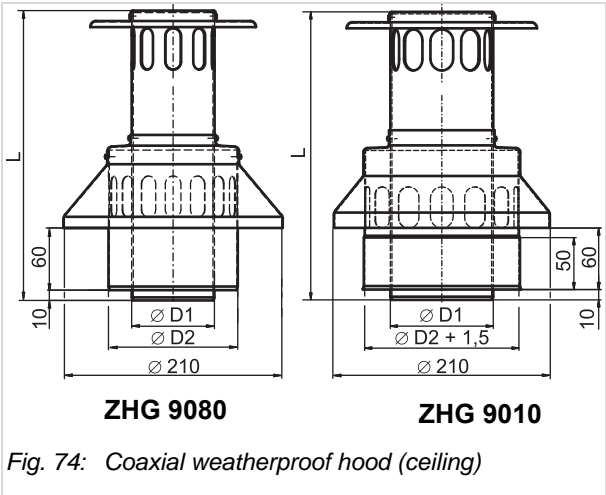
made of Al,
diameter 80 and 100 mm

ZHG.	5	0	8	0	– Ø D 80 mm
ZHG.	5	0	1	0	– Ø D 100 mm



ZHG	5080	5010
Ø D (mm)	80	100
L (mm)	172	171
Weight (kg)	0.4	0.3

Coaxial weatherproof hood (ceiling)



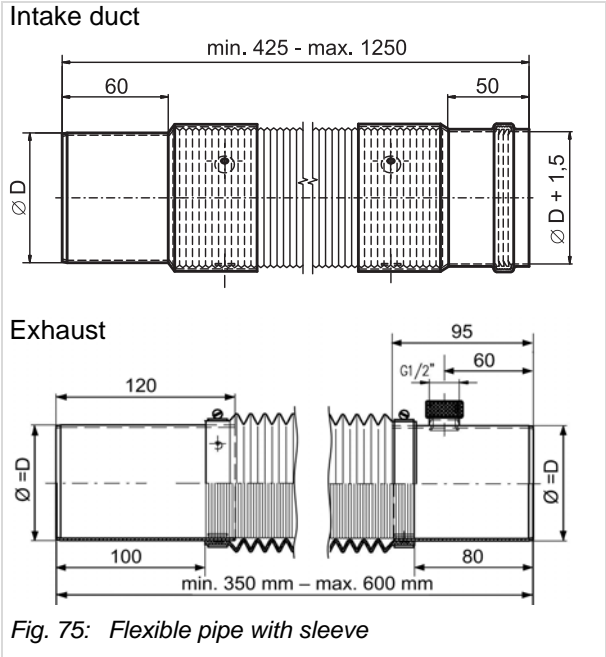
made of Al,
diameter 80/125 and 100/150 mm

ZHG.	9	0	8	0	– Ø D 80/125 mm
ZHG.	9	0	1	0	– Ø D 100/150 mm



ZHG	9080	9010
Ø D1 (mm)	80	100
Ø D2 (mm)	125	150
L (mm)	280	280
Weight (kg)	0.5	0.6

Flexible pipe with sleeve



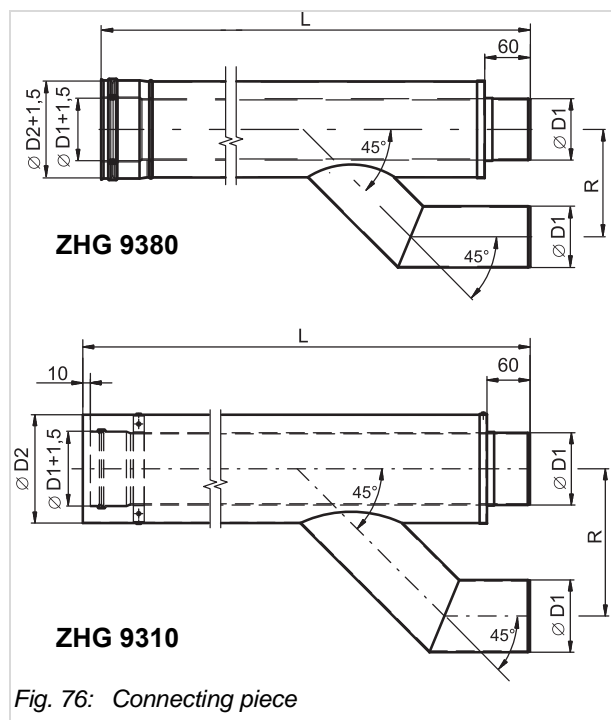
made of Al,
diameter 80 and 100 mm

ZHG.	5	1	8	0	– Ø D 80 mm, intake
ZHG.	5	1	1	0	– Ø D 100 mm, intake
ZHG.	5	2	8	0	– Ø D 80 mm, exhaust
ZHG.	5	2	1	0	– Ø D 100 mm, exhaust



ZHG	5180	5110	5280	5210
Ø D (mm)	80	100	80	100
Weight (kg)	0.5	0.5	0.8	1.0

Connecting piece



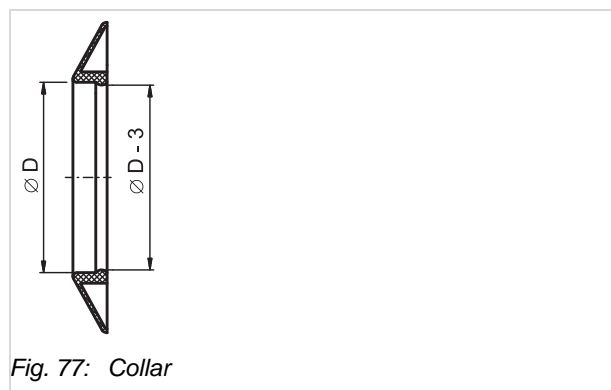
made of Al,
diameter 80/125 and 100/150 mm

ZHG	9380	– Ø D 80/125 mm
ZHG	9310	– Ø D 100/150 mm



ZHG	9380	9310
Ø D1 (mm)	80	100
Ø D2 (mm)	125	150
R (mm)	140	204
L (mm)	1000	1010
Weight (kg)	2.2	2.9

Collar



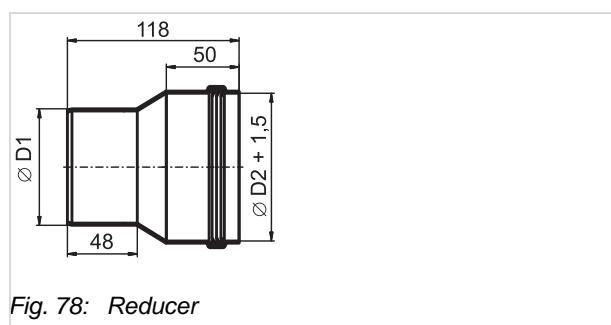
made of rubber, Ø 80,100,125 mm
made of Al, Ø 150 mm

ZHG	5680	– Ø D 80 mm
ZHG	5610	– Ø D 100 mm
ZHG	9680	– Ø D 125 mm
ZHG	9610	– Ø D 150 mm



ZHG	5680	5610	9680	9610
Ø D (mm)	80	100	125	150
Weight (kg)	0.1	0.1	0.3	0.3

Reducer



made of Al,
diameter 80/100 mm

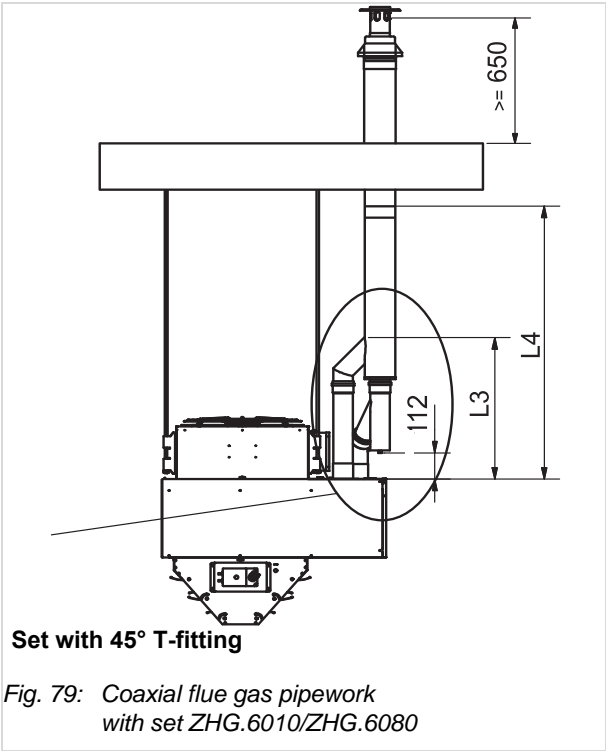
ZHG	5480	– Ø D 80/100 mm
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ZHG	5480
Ø D1 (mm)	80
Ø D2 (mm)	100
Weight (kg)	0.1

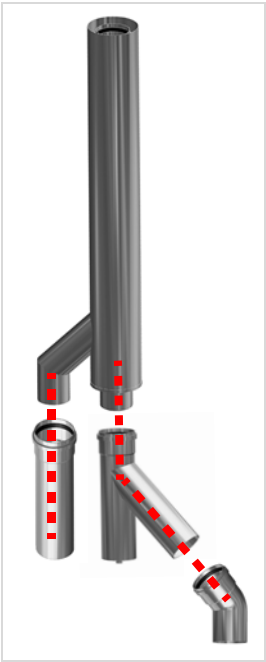
Sets for connecting flue gas pipework

Set with 45° T-fitting



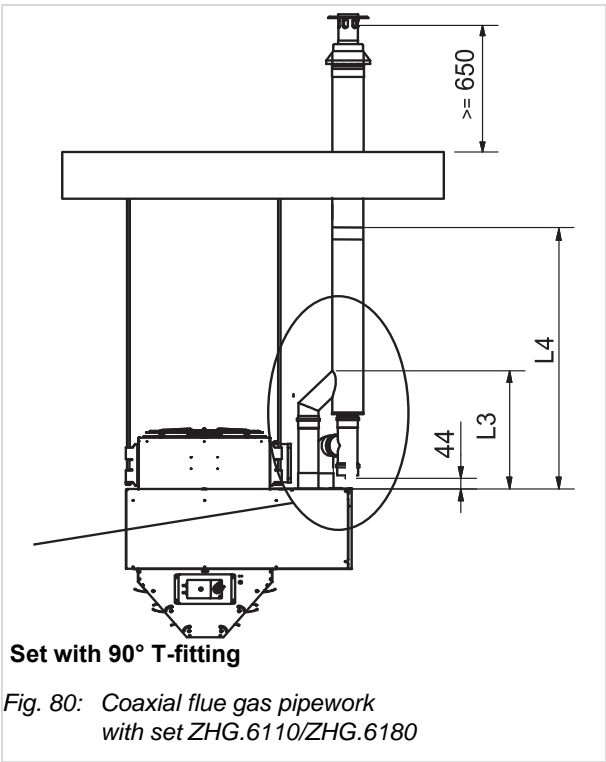
- ZHG. 6080** – Ø D 80 mm
ZHG 3980 - pipe length 0.31m
ZHG 4480 - elbow fitting 45°
ZHG 4580 - T-fitting 45° with a condensate vessel
ZHG 9380 - connecting piece

- ZHG. 6010** – Ø D 100 mm
ZHG 3910 - pipe length 0.35m
ZHG 4410 - elbow fitting 45°
ZHG 4510 - T-fitting 45° with condensate vessel
ZHG 9310 - connecting piece



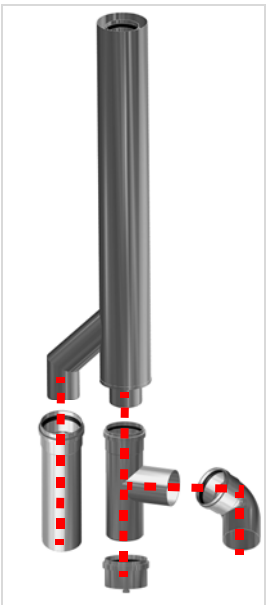
ZHG	6080	6010
L1 (mm)	551	618
L2 (mm)	1261	1310
Weight (kg)	3.3	4.2

Set with 90° T-fitting



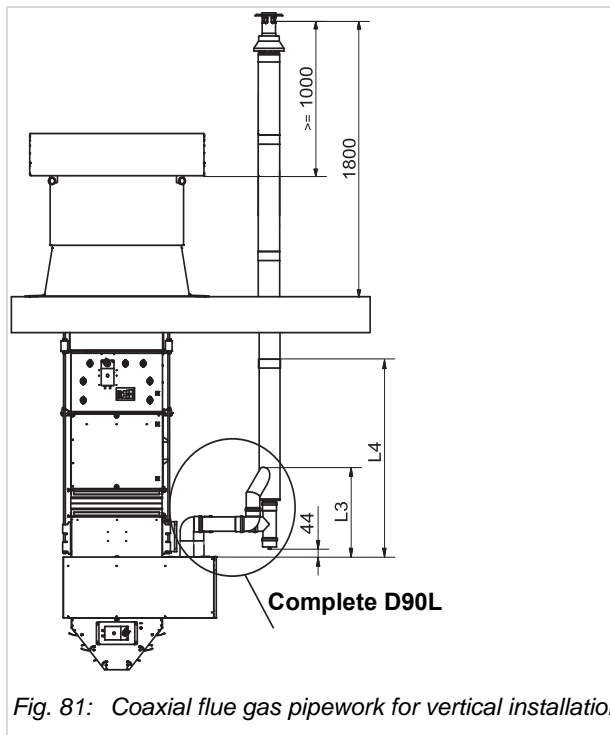
- ZHG. 6180** – Ø D 80 mm
ZHG 3780 - pipe length 0.22m
ZHG 4380 - elbow fitting 90°
ZHG 4680 - T-fitting 90°
ZHG 4780 - condensate vessel
ZHG 9380 - connecting piece

- ZHG. 6110** – Ø D 100 mm
ZHG 3710 - pipe length 0.22m
ZHG 4310 - elbow fitting 90°
ZHG 4610 - T-fitting 90°
ZHG 4710 - condensate vessel
ZHG 9310 - connecting piece



ZHG	6180	6110
L1 (mm)	461	488
L2 (mm)	1171	1180
Weight (kg)	3.2	4.0

Set with 3x 45° bends

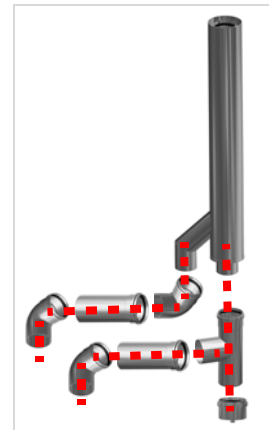


ZHG.6380 – Ø 80 mm

- ZHG.4080 - pipe with sleeve 0.5m 2x
- ZHG.4380 - elbow fitting 90° (3x)
- ZHG.4680 - T-fitting with sleeve 90°
- ZHG.4780 - condensate vessel
- ZHG.9380 - connecting piece

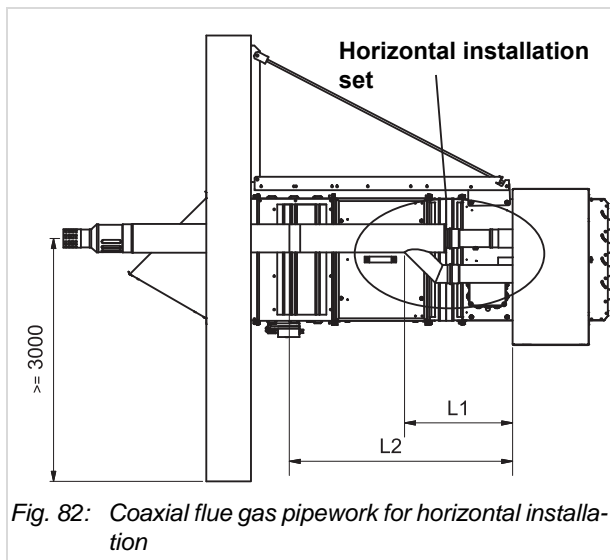
ZHG.6310 – Ø 100 mm

- ZHG.4010 - pipe with sleeve 0.5m 2x
- ZHG.4310 - elbow fitting 90° (3x)
- ZHG.4610 - T-fitting with sleeve 90°
- ZHG.4710 - condensate vessel
- ZHG.9310 - connecting piece



ZHG	6180	6110
L3 (mm)	461	488
L4 (mm)	1171	1180
Weight (kg)	4.7	5.8

Horizontal installation set



ZHG.6280 – Ø 80 mm

- ZHG.3880 - pipe with sleeve 0.17m
- ZHG.4880 - pipe with sleeve and condensate drain
- ZHG.9380 - connecting piece

ZHG.6210 – Ø 100 mm

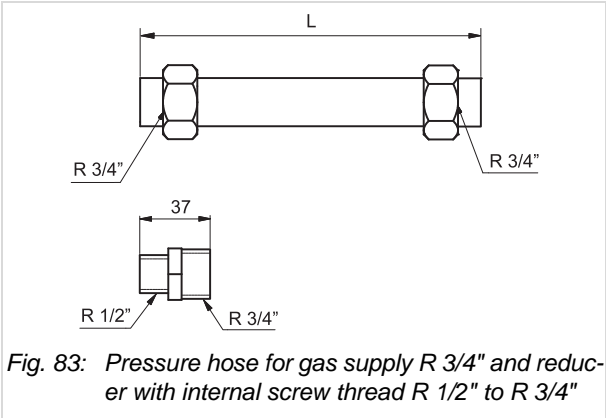
- ZHG.3810 - pipe with sleeve 0.17m
- ZHG.4810 - pipe with sleeve and condensate drain
- ZHG.9310 - connecting piece



ZHG	6280	6210
L3 (mm)	461	488
L4 (mm)	1171	1180
Weight (kg)	2.6	3.4

Gas-distribution accessories

Pressure-side hose R 3/4"



made of stainless steel,
length 0.4; 0.7 and 1 m + reducer with internal
screw drain R 3/4" to R 1/2"



ZHG.	0	0	4	0	– Length 0.4 m
ZHG.	0	0	7	0	– Length 0.7 m
ZHG.	0	0	1	0	– Length 1 m

ZHG	0040	0070	0010
L (m)	0.4	0.7	1
Weight (kg)	0.8	1.4	1.9

Gas distribution

The gas pipework to the unit heater burner shall be performed in accordance with the valid codes and relevant regulations. The connection of the gas burner is performed as R 1/2" internal screw thread. For connecting the gas pipework to the burner, elastic pressure hoses shall be used – refer to optional accessories ZHG.0040 (length 0.4 m), ZHG.0070 (length 0.7 m) and ZHG.0010 (length 1 m) with internal screw thread R 3/4" and reducer with external screw thread (R3/4" to 1/2").

Gas-distribution system

The gas pipework can be fitted with an air-vent and sampling valve, pressure gauge and a shut-off valve. The manually-operated gas shut off valve shall be installed in such a way as to be easily accessible for the service staff (consider installation height). The end positions shall be marked. For connecting unit to the gas pipework - refer to diagram fig. 84.

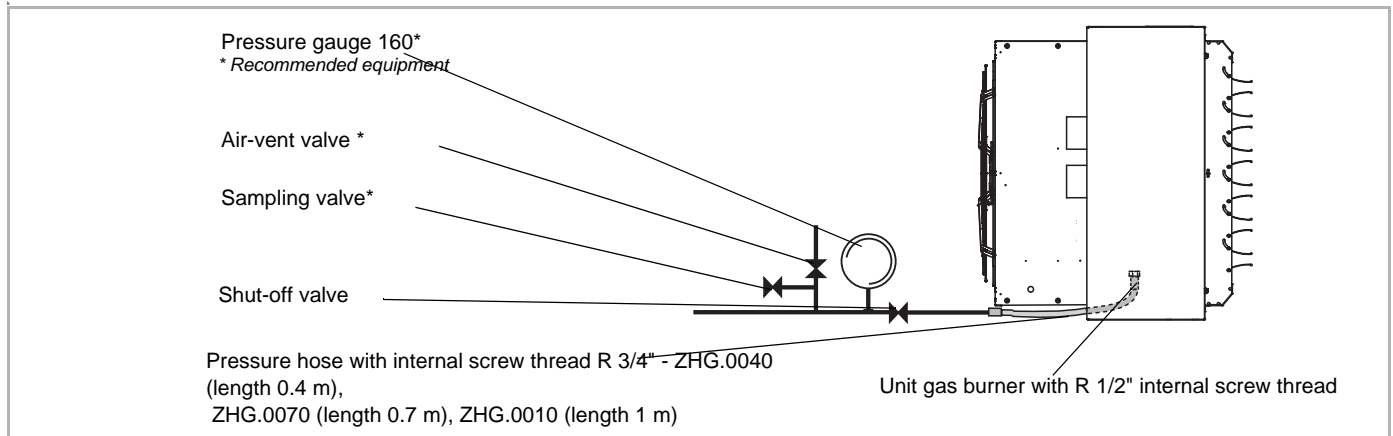


Fig. 84: Diagram for connecting unit to the gas pipework

Flue gas pipework

The flue-gas pipework shall be leak tight (\varnothing 80 mm for size 2 and \varnothing 100 mm for size 4) and installed in such a way that the exterior outlet is not mounted lower than the unit itself. Connection shall be performed between pipework and wall hood ZHG 49## (ZHG 79##) or roof hood ZHG 50## (ZHG 90##). On-site a standard condensate hose (pipe) is required for the drainage of the condensate. No further treatment of the condensate is necessary. The exhaust system shall be implemented in accordance with the EN 1856-1 and EN 1856-2 – refer to fig. 84 and fig. 85.

For the units the flue-gas exhaust system shall be leak tight. When using the coaxial flue-gas pipework a minimum length of 1 m shall be considered. The maximum length may not exceed the values that are specified in the table. There is a risk of overheated supply air.

The overall length of the flue-gas pipework may not exceed 16 m (combined supply air and exhaust).

1 elbow fitting 90° single type corresponds to 1 m length of a direct pipe with a sleeve as single type.

1 elbow fitting 90° coaxial type corresponds to 1 m length of a direct pipe with a sleeve as coaxial type or 2 m as single type.

The total pressure drop of the flue-gas pipework may not exceed 10 Pa in cold state.

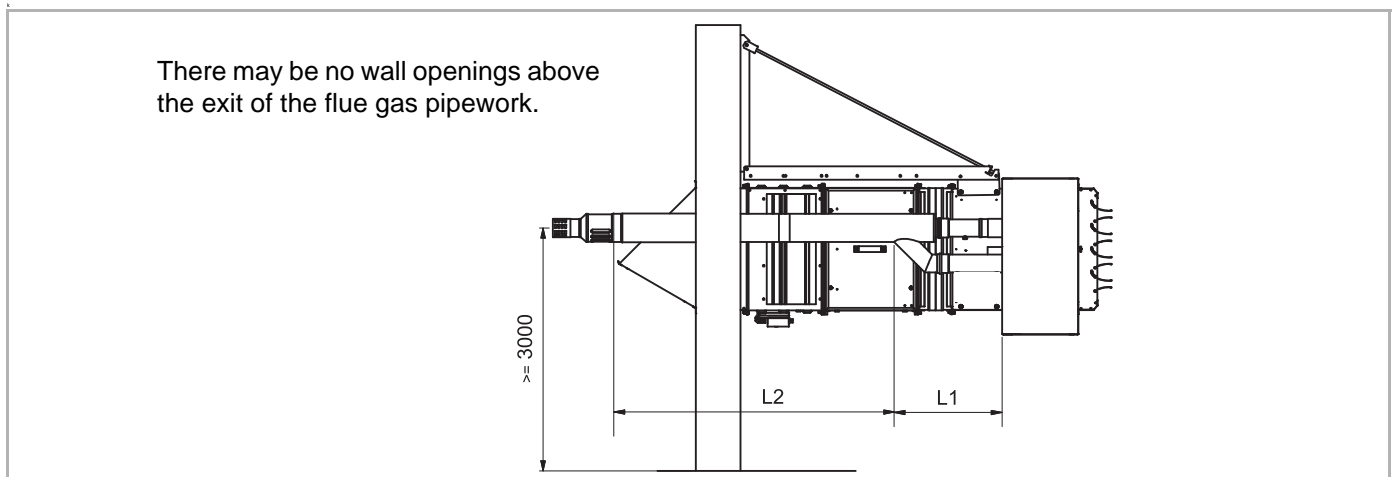


Fig. 85: Length of the flue gas pipework

Unit type	Combination of the flue-gas exhaust system	Unit heating capacity	Length of flue-gas exhaust system (for unit with accessories on suc- tion side) L2	Length of flue-gas exhaust system (for unit without accessories on suc- tion side) L2
		Q _T (kW)	(m)	(m)
HG 24	Coaxial	25	5	6
	Coaxial + 1 m Single (L1)	25	6	7
	Coaxial + 2 m Single (L1)	25	7	7
HG 25	Coaxial	30	2	3
	Coaxial + 1 m Single (L1)	30	3	4
	Coaxial + 2 m Single (L1)	30	6	6
HG 44	Coaxial	45	4	5
	Coaxial + 1 m Single (L1)	45	5	6
	Coaxial + 2 m Single (L1)	45	6	6
HG 45	Coaxial	65	3	4
	Coaxial + 1 m Single (L1)	65	4	5
	Coaxial + 2 m Single (L1)	65	5	6

Tab. 7: Maximum lengths of the flue-gas exhaust system

Recommended height above roof for flue-gas exhaust system

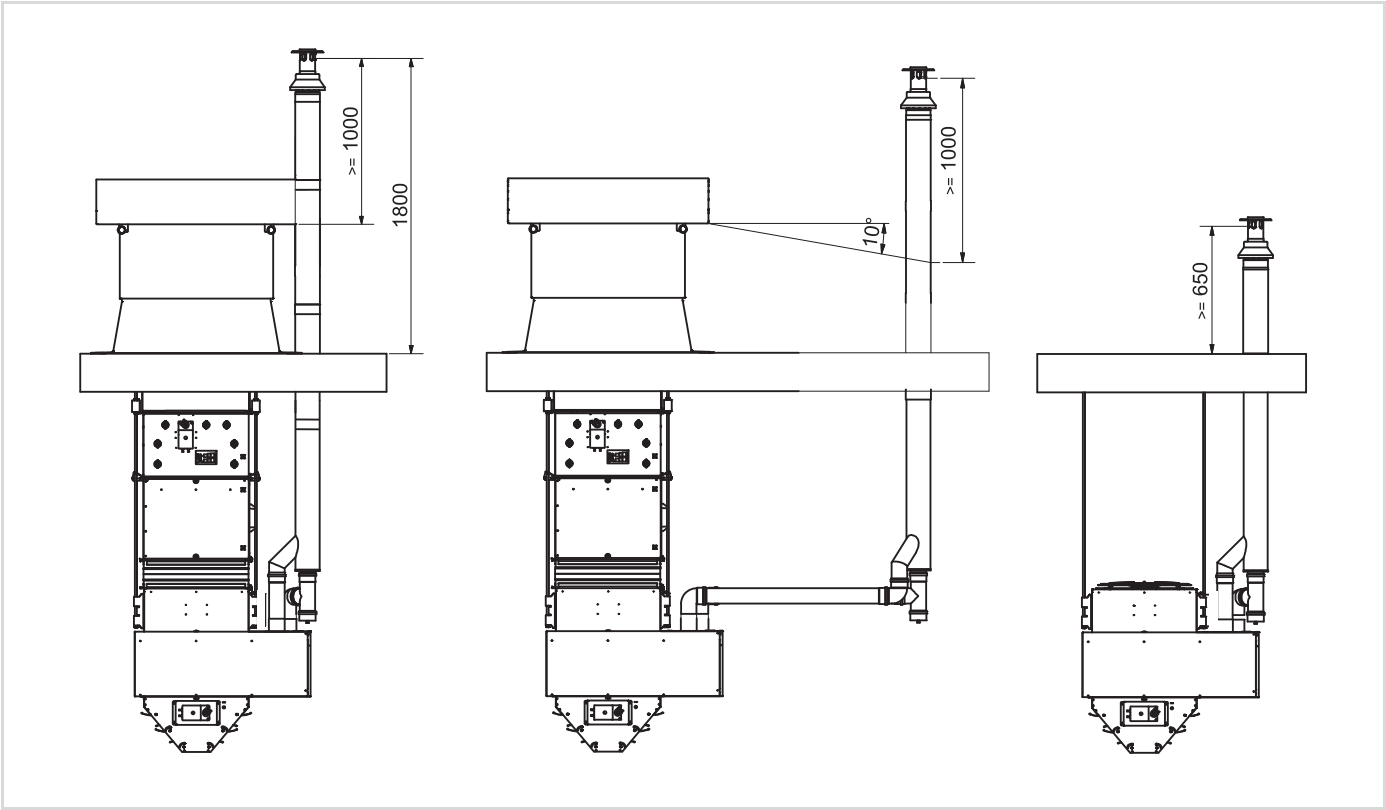


Fig. 86: Recommended height above roof for flue-gas exhaust system

The heights and clearances can be specified differently in the regulations. Here the relevant applicable local regulations must be observed.

Controls

- Continuous regulation of the burner (selectable option from the heating range with 2-speed fans)
- Actuator of mixed-air module (open/close, continuous mode with poti or spring return) ensures interruption of outside air supply in case of deactivation of control system or unit
- Fan run-on for cooling down heat exchanger.
- Gas burner overrun (200s) to extract hot flue gas
- Possible connection of an external room thermostat or external room sensor
- The run-on circuitry protects the heat exchanger against corrosion formation and simultaneously also against overheating

Regulation of heating capacity

Regulation of room temperature (see fig. 87)

In order to maintain an optimal temperature regulation, the unit is activated through a switching difference $\pm 1\text{ K}$, the gas burner is regulated in a continuous mode.

In the room temperature does not reach the setpoint by 1 K - the fan and gas burner of recirculating-air units are activated at minimum heating duty, with mixed-air units only the gas burner is activated (fan is running continuously). With further drop in temperature the heating capacity of the gas burner increases to 100%, with the next approx. 1 K difference 50% heating capacity is reached.

If the room temperature exceeds the setpoint by 1 K - the fan and gas burner of recirculating-air units are deactivated, with mixed-air units only the gas burner is deactivated (fan is running continuously). (Operation mode see fig. 87)

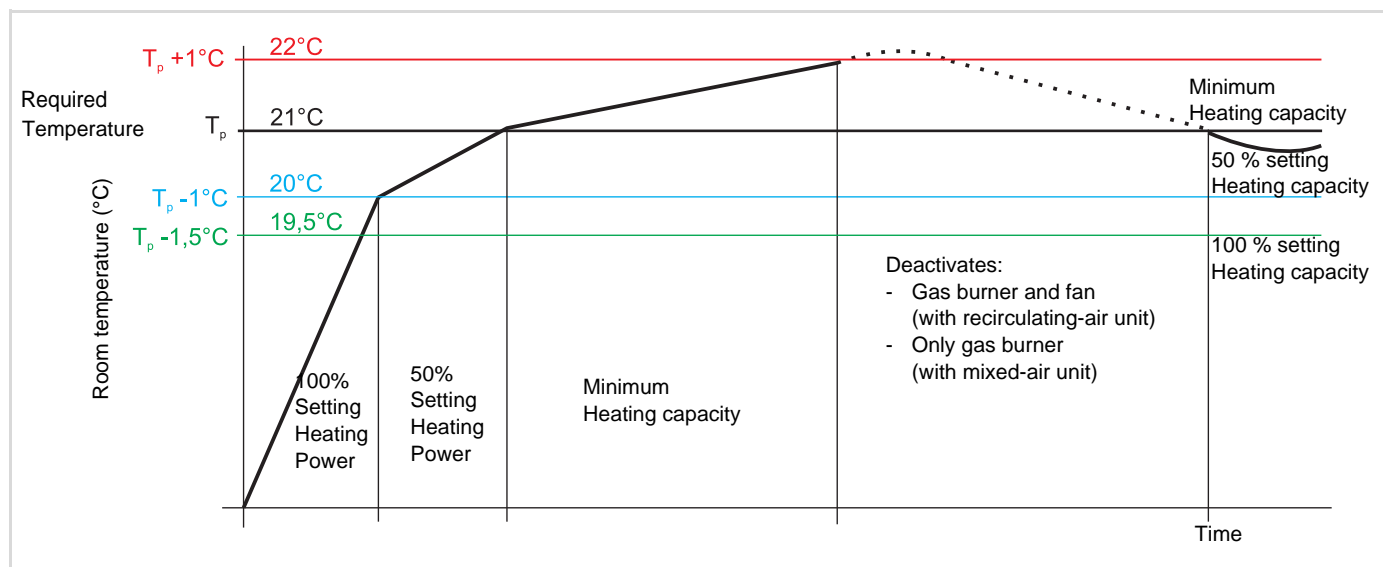


Fig. 87: Sample of room temperature regulation

Supply-air temperature control (only with mixed-air units):

The desired supply air temperature is adjusted with this control. At this point the room temperature and the intake temperature (measured before the heater bank) are compared with each other. In case of a difference $<5\text{ K}$ between the calculated supply-air temperature and the intake temperature the burner is switched off. In case of a difference $>5\text{ K}$ the burner is first switched on to minimum heating capacity; if the difference increases the heating capacity will be increased to maximum.

Regulation with control panel OSHG 0.000M

A stand-alone unit or a unit group can be controlled via the control panel up to max. 10 gas unit heaters MultiMAXX HG. The group can consist of units with different capacity stages. Every unit can be regulated individually on the basis of the room temperature (with recirculating-air and mixed-air units) or supply air temperature (only with mixed-air units):

- Max. ambient temperature 0 °C to +40 °C
- Protection class: IP 40, after opening IP 20

A unit group comprises an OSHG 0.000M control panel with a graphical display equipped with an installed room temperature sensor and relevant number (max. 10 pieces) of OSHG #####M unit controllers (mounted on individual units) - see fig. 89.

Dimension of the control panel OSHG 0.000M 150 x 130 x 80 mm.

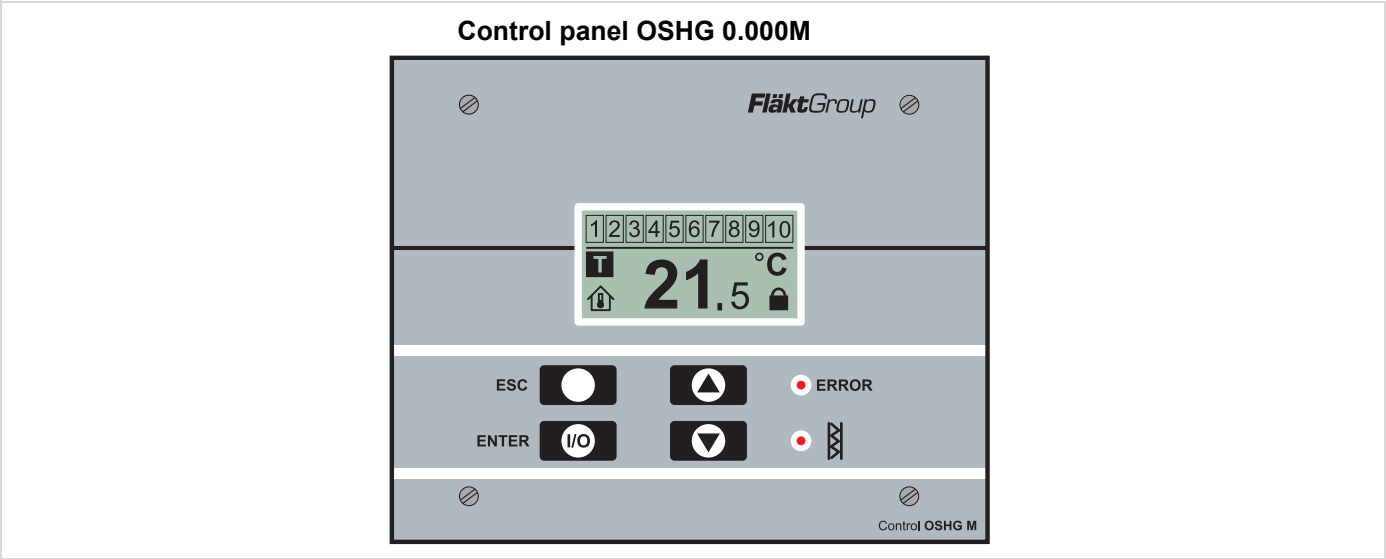


Fig. 88: Control panel OSHG 0.000M

Unit type code of the switch box mounted on the unit

OSHG		2	24	P	M
Fan speeds					
2	2- speed 3 phases 400 V				
4	2-speed 1 phase 230 V				
Unit type					
24	HG 24	15 - 25 kW			
25	HG 25	20 - 30 kW			
44	HG 44	25 - 45 kW			
45	HG 45	40 - 60 kW			
Regulation system - unit accessories					
O	without accessories				
P	with accessories				
Regulation system - unit					
M	Single/group control (max. 10 units)				

and control panel

OSHG	0	00	0	M
Fan speeds				
0	Control panel			
Unit type				
00	Control panel			
Regulation system - unit accessories				
0	Control panel			
Regulation system - unit				
M	Single/group control (max. 10 units)			

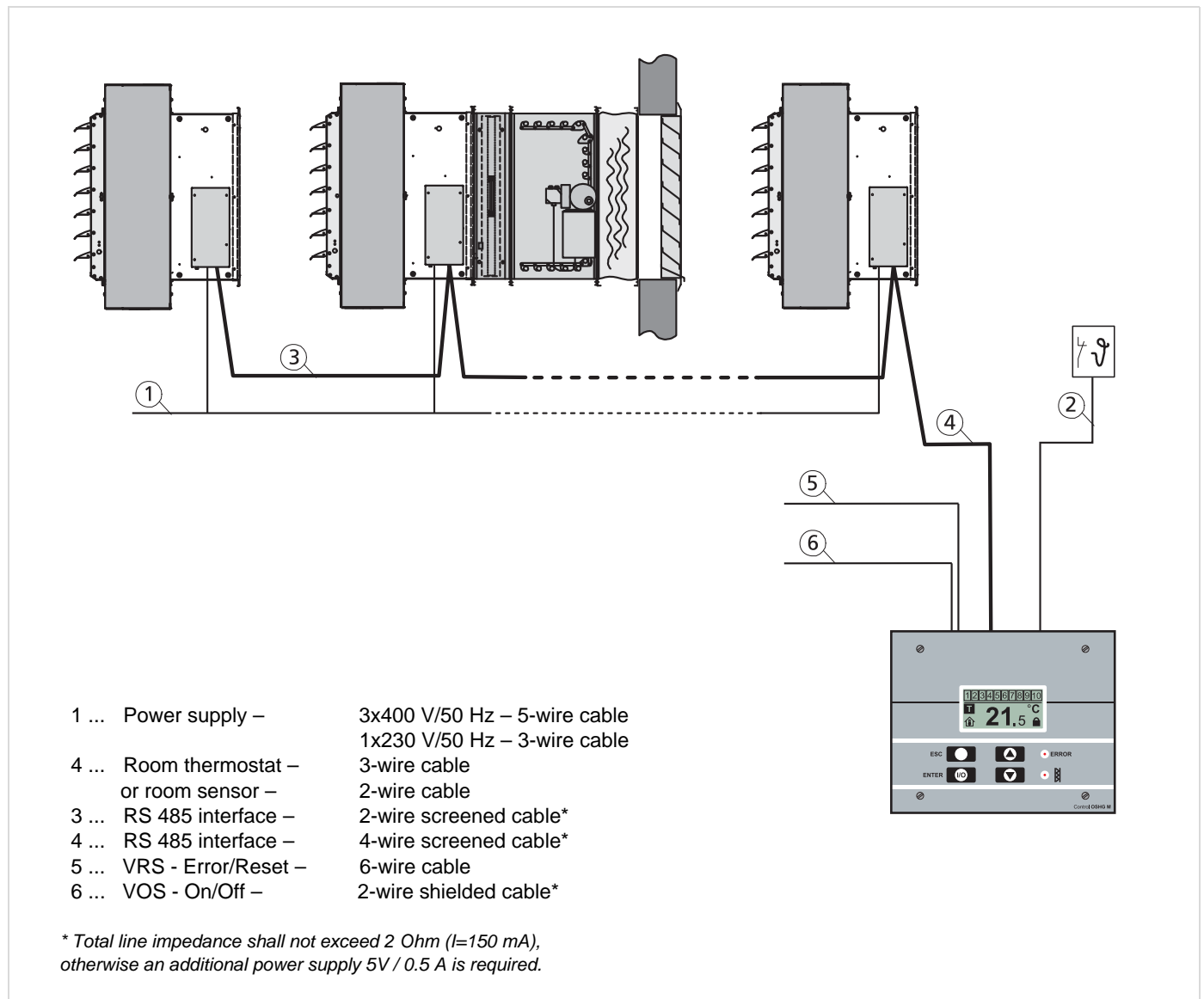
Connection diagram of MultiMAXX HG unit with OSHG #####M control box and OSHG 0.000M control panel

Fig. 89: Connection diagram

Industrial thermostat



Fig. 90: Thermostat 902113

Measurement of room temperature, casing performed in high-quality ABS-plastic with closed capillary system:

- Setpoint range: 0 ... 60 °C
- Ambient temperature: -10 °C ... 65 °C
- Capillary tubes: V4A
- Protection class: IP 54
- Switching difference: 1 K (fixed)
- Output: Change-over contact 250 V AC
 NC: 16 A ohm., 6 A inductive
 NO: 6 A ohm., 4 A inductive 250 V AC
- Dimension in mm (W x H x D): 108 x 105 x 72

Type: 902113

Room temperature sensor

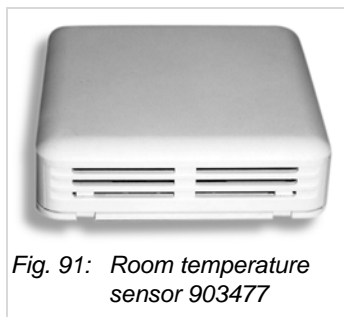


Fig. 91: Room temperature sensor 903477

Measurement of room temperature, plastic casing, PT 1000 sensor:

- Protection class: IP 20
- Resistance at 0 °C: 1000 Ohm
- Every 1 Ω cable line increases measurement temperature by 0.25 °C
- Dimension in mm (W x H x D): 84 x 84 x 22

Type: 903477

Clock thermostat

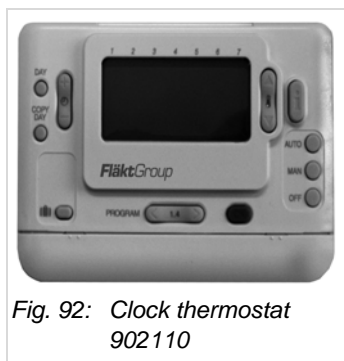


Fig. 92: Clock thermostat 902110

Measurement of room temperature, plastic casing

- Setpoint range 5 bis 35 °C
- Ambient temperature max. 40 °C
- Protection class: IP 30
- Output 24 VAC
 5 A ohmic, 2 A inductive
 230 VAC
 8 A ohmic, 2 A inductive
- Dimension in mm (W x H x D): 133 x 86 x 26

Type: 902110

Note on commissioning

Assembly and commissioning shall only be entrusted to authorized bodies and performed by licensed and trained staff. For the initial commissioning the installation firm is trained and instructed by the producer. Following final assembly and commissioning - an authorized organization shall draw up a report with the specification of all settings performed on the gas burner (including measured values). A guarantee certificate shall also be issued. The service for guarantee and repairs on FläktGroup MultiMAXX Gas Heating Units is performed by the same company which has also performed the installation.

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