FläktGroup

MultiMAXX® HN

DATA & FACTS

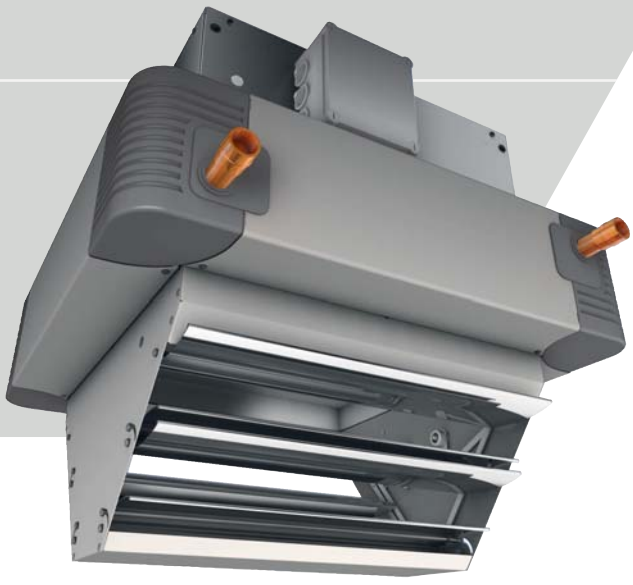


Table of Contents

Unit Type Code

Unit code	HN	2	.	1	U	W	A	R	A	B	.	A	K	A

HN	**Unit code**
Model size	
1-5	Model size 1 to 5
Capacity stage	
1	Capacity stage 1
2	Capacity stage 2
3	Capacity stage 3
4	Capacity stage 4
Air-flow function	
U	Recirculating-air unit
M	Mixed-air unit
Medium function	
S	Only heating/steam
W	Only heating/PWW, PHW
V	Heating/cooling with condensate drain
P	Cooling/heating with condensate pump
Heat Exchanger	
A	Cu/Al, max. 130 °C; 1.6 MPa
C	Cu/Cu, max. 130 °C; 1.6 MPa
S	Galvanized steel, elliptic Finned tube 3 mm
T	Galvanized steel, elliptic Finned tube 6 mm
R	Galvanized steel, round finned pipe 4 mm S, T, R (Galvanized steel, only for heating!)
Coil connection (front view)	
O	From top - **only for steel HE**
R	from right
L	from left
Heat exchanger connection	
A	External screw thread **PWW, PCW**
O	Without screw thread connection steam
Outlet	
Z	Basic outlet ceiling, two side **only heating**
C	Secondary-air louvre, ceiling, manually adjustable
D	Secondary-air louvre, actuator (230 V, open/close), for MATRIX
V	Four sides, ceiling
A	Outlet nozzle, ceiling, **only heating**
T	Gate nozzle, **only heating**
L	Deflection louvre, ceiling / wall, **only heating**
P	Profile, ceiling / wall, **only heating with ceiling installation**
U	Secondary-air louvre, wall installation, manual adjustment
W	Secondary-air louvre, actuator (230 V, open/close) for FläktGroup MATRIX
B	Basic - wall
K	Terminating flange, pressure side
O	Without outlet, (design panel not mountable)
Motor/speeds	
A	3 ~ 400 V 2-speed - low speed range - wide-blade fan
B	3 ~ 400 V 2-speed - high speed range - wide-blade fan
C	3 ~ 400 V 3-speed - wide-blade fan **only size 2-4**
D	1 ~ 230 V 1-speed - low speed range - wide-blade fan **only size 1-2**
E	1 ~ 230 V 1-speed - high speed range - wide-blade fan
R	3 ~ 400 V 2-speed high speed range - sickle-blade fan **only size 3-5**
S	3 ~ 400 V 3-speed - sickle-blade fan
V	3 ~ 500 V 3-speed - sickle-blade fan
Y	1 ~ 230 V continuous EC - sickle-blade fan
Z	3 ~ 400 V continuous EC - sickle-blade fan **Only size 3-5**
Electric equipment	
K	Terminal box
S	Fan isolator
R	FläktGroup MATRIX
Design	
A	Heat exchanger - design steel sheet RAL 9002, plastic corners RAL 7000
B	Heat exchanger and outlet in selectable RAL
D	Heat exchanger in industrial design RAL 7000

Tab. 1: Unit code

Controls code **I 3 . 0 5 1 . M A**

I **Controls code**

Controller type
- **2** MATRIX 2000
- **3** MATRIX 3000
- **4** MATRIX 4000

Controller package no.
- **1-999** Package Nr. 001-999

Control panel
IP54; with sensor 903454
- **G** MATRIX OP21I
- **I** MATRIX OP31I
- **K** MATRIX OP44I
- **L** MATRIX OP50I
- **M** MATRIX OP51I
- **Z** without control panel

Unit type
- **A** Master unit with loose control panel
- **C** master unit without control panel
- **D** Slave unit without control panel

Tab. 2: Controls code

Control unit **M C** **3 0 1 E C** **. W**

Type

Motor design
- **301EC** EC-Motor, 1 x 230 V
- **301EC** EC-Motor, 3 x 400 V
- **331EC** EC-Motor, 1 x 230 V
- **331EC** EC-Motor, 3 x 400 V

- **S** Connection for shut-off valve
- **W** Potential-free operating and error status, connection for shut-off valve
- **R** Potential-free operating and error status
- **K** Secondary air louver Up/Down

Tab. 3: Control unit MC301EC/MC331EC

Control unit **M C 4** **M** **3 A C** **Z K F**

Type
- **U** Recirculating air
- **M** Mixed air

Motor design
AC-Motor
- **1AC** 1-speed, 1 x 230 V AC, 50 Hz
- **2AC** 2-speed, 1 x 400 V AC, 50 Hz
- **3AC** 3-speed, 1 x 400 V AC, 50 Hz

Additional functions controls
Recirculating air
- **000** without optional functions
- **Z00** Secondary air louver – actuator 230 V, ON/OFF
- **00F** LED indication of filter contamination
- **Z0F** Secondary air louver - actuator 230 V, ON/OFF and LED indication of filter contamination

Mixed air
- **0KF** Mixing air module – actuator 230 V, ON/OFF and LED indication of filter contamination
- **ZKF** Secondary air louver – actuator 230 V, ON/OFF, Mixing air module – actuator 230 V, ON/OFF and LED indication of filter contamination

Tab. 4: Control unit MC4

Accessory items code	Z	H	x	x	x	x	x

ZH Accessory items code

1-5 Model size 1 to 5

Air-intake modules

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

Additional modules and suspensions

53 Compact C Wall
54 Studio wall
55 Modular (for wall mounting)
56 Ceiling suspension

Material/Design

0 Steel sheet, plastic
8 Ecodesign **

Actuators for louvers and mixed-air modules

0 Actuator on site
1 Manual adjustment
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
6 Actuator 24 V, open/close
7 Actuator 24 V, continuous control

If required, filter insert/electrical equipment

0 without
2 G2/ without differential pressure switch
3 G3/ without differential pressure switch *
4 G4/ without differential pressure switch
5 G2/ with differential pressure switch
6 G3/ with differential pressure switch *
7 G4/ with differential pressure switch
9 F7/ without differential pressure switch (Ecodesign)

Accessory items code	Z	H	x	x	x	x	x

Model 55 Modular suspension with types

0 without
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(26)+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 (25(26)+36+20+51)**
W without accessories for units with vertical outlet

Configuration 56 ceiling suspension

0 Installation without threaded rod
1 Kit with threaded rod 1 m
2 Kit with threaded rod 2 m
3 Kit with threaded rod 3 m

* *G3 only possible as mat filter*
** *only sizes 2 and 4*

Tab. 5: Accessory items code

Dear Customer,

This catalogue focuses on the Multi*MAXX* HN 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 1st part also comprises and specifies technical exceptions to be considered in certain operating conditions.

We recommend the most popular fresh-air units which are specified on page 19 and further pages: complete unit type and accessory codes are also presented.

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 Multi*MAXX* HN units. Typical and possible combinations of components are summarized in the selection table. Options and combinations, that are not feasible from the technical point of view, are not considered by the current document.

Part 3 **Unit data**
specifies most essential technical information for the Multi*MAXX* HN unit heaters. Dimensions, sizes and weight are summarized in this section as well.

Part 4 **Control units and regulation system**
Once you have decided on the unit, you can find data on possible regulation variants in Part 4 and then make your selection using controls order code (Table 2 on page 5)

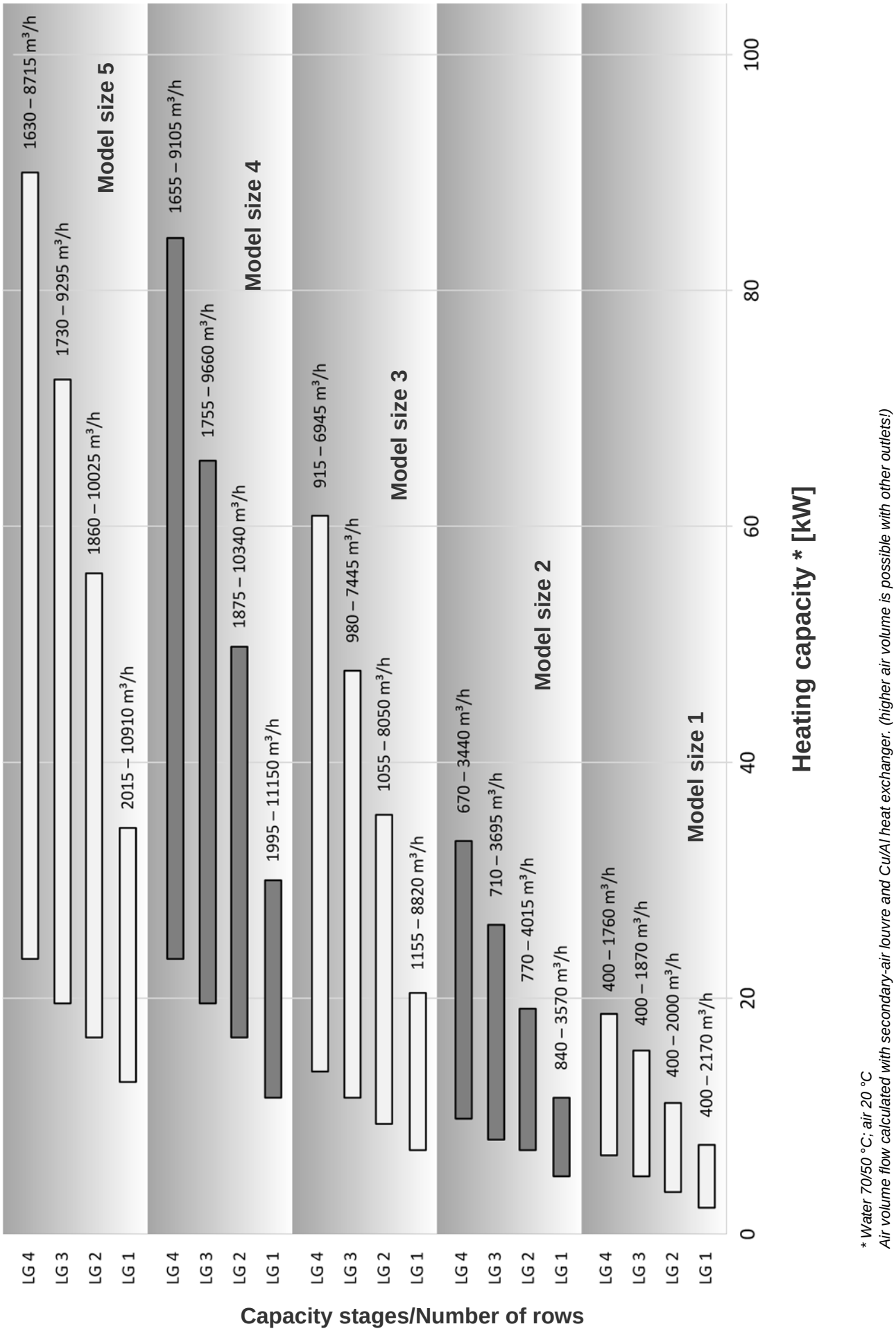
Unit code The entire unit code (Table 1 on page 4) specifies the unit in its variations. As with other FläktGroup products, the unit code contains all details necessary for ordering, subsequent extension of the unit or provision of spare parts.

Accessory items code Accessory items have an individual type code (Table 5 on page 6) and are to be added to the main unit code.

Controls code Controls components are also provided with a separate type code (Table 2 on page 5). The controls code is described in more detail in section “Control units and regulation system”.

The position of medium and coil connections (position 8 in unit code), connection type (position 9) and the design of heat exchanger casing (position 13) are covered in the **unit code** (Table 1 on page 4) - and then you're done.

If you need assistance, our trained sales staff will be glad to help you in the selection and layout of the unit using Aid@ design software, which can also provide complete technical data and specification texts.



** Water 70/50 °C; air 20 °C*
Air volume flow calculated with secondary-air louvre and Cu/Al heat exchanger. (higher air volume is possible with other outlets!)

Fig. 1: Diagram with capacity overview

The FläktGroup MultiMAXX HN unit heaters are designed for heating, cooling, ventilating and filtering of indoor and outdoor air in industrial buildings. Filters, mixed-air and air intake modules, suspension sets, control units and control devices can be supplied as optional accessories. Proper use also stipulates the observance of the operation manual as well as adherence to all inspection and maintenance intervals specified by FläktGroup.

Improper use

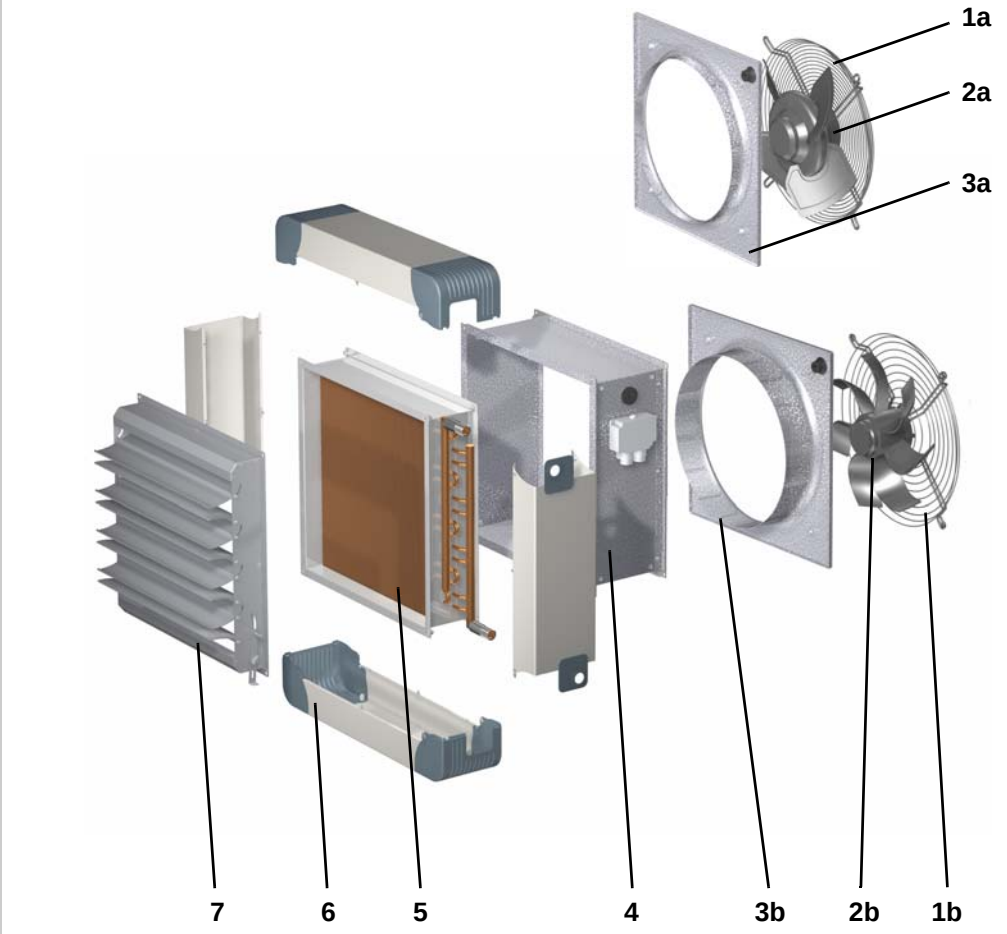
Any use other than that described above is considered improper. The manufacturer/supplier is not liable for any damages arising from improper use. The user alone bears the risk.

Notice!
Should you require further information, please contact our knowledgeable staff, who can assist you with designing units for all application types using our layout software.

Medium types

The unit is not designed for medium types that can damage or destroy the surface coating due to corrosive, chemical or abrasive effects. Only non-corrosive and non-combustible liquids or steam must be used as a medium.

Fig. 1: Sample unit design with description of unit components



1a: Contact-protection grille, wide-blade fan
1b: Contact-protection grille, sickle-blade fan
2a: Wide-blade fan external rotor motor
2b: Sickle-blade fan with external rotor motor
3a: Air-intake nozzle, wide-blade fan
3b: Air-intake nozzle, sickle-blade fan
4: Fan casing
5: Heat exchanger Cu/Cu (sample)
6: Heat exchanger casing design (sample)
7: Secondary-air louvre wall (sample)

Operating conditions for basic units

Unit heaters of series Multi*MAXX* HN operate with water or steam as heating medium and are designed for ambient temperatures up to +40 °C and normal ranges in accordance with EN 60 721-3-3. Unit protection class is IP 54 in conformity with EN 60 529.

The FläktGroup MultiMAXX HN unit heaters are designed for heating, cooling and ventilating of industrial buildings and commercially used premises.

The MultiMAXX HN unit heater consist of a fan, heat exchanger and casing performed in metal sheet or painted metal sheet. The discharge side is fitted with an optional discharge louvre. The axial fan is fitted on the rear side and is equipped with a contact protection grille.

With cooling units make sure that the fan is not running and the supply of cooling medium is shut off (in order to prevent condensation in places that are not fitted with a drain pan).

Fans

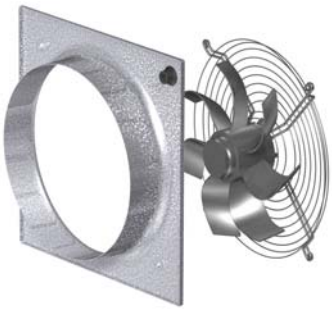


Fig. 2: Sickle-blade fan with air-intake as full nozzle

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 ISO 13 857.

Sickle blade, balanced by the factory, maintenance-free with moisture-proof motor and wired to the terminal box.

Pressure stabil model, even in mixed-air applications with filter step or for larger air throws/suspension heights.

Protection class IP 54 (as of EN 60 529), thermal class F (as of EN 60 034-1 ed. 2), thermal contact, in two 400 V variations, two 230 V variations, one continuous "EC" 400 V model and one 3-speed 500 V variation.

Air-intake nozzle developed as full nozzle for minimum noise emission.

Range of application:	
Air inlet temperature:	-20 to +40 °C

H	**N**			.						.	**R**			R = 3 phases 400 V 2-speed high speed range - sickle-blade fan
H	**N**			.						.	**S**			S = 3 phases 400 V 3-speed - sickle-blade fan
H	**N**			.						.	**V**			V = 3 phases 500 V 3-speed - sickle-blade fan
H	**N**			.						.	**Y**			Y = 1 ~ 230 V continuous EC - sickle-blade fan
H	**N**			.						.	**Z**			Z = 3 ~ 400 V continuous EC - sickle-blade fan

Fig. 3: Wide-blade fan with air-intake nozzle is performed as short nozzle

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 ISO 13 857.

Maintenance-free aluminium wide blades are balanced at factory and are wired on the terminal box with a humidity-proof motor.

Protection class IP 54 (as of EN 60 529), thermal class F (as of EN 60 034-1 ed. 2) in three 400 V variants and two 230 V variants.

Air inlet nozzle is performed as short nozzle.

Range of application:	
Air inlet temperature:	-20 to +60 °C

HN . **A**	A = 3 phases 400 V 2-speed low speed range - wide blade fan
HN . **B**	B = 3 phases 400 V 2-speed high speed range - wide blade fan
HN . **C**	C = 3 phases 400 V 3-speed - wide blade fan
HN . **D**	D = 1 phase 230 V 1-speed - low speed range - wide-blade fan
HN . **E**	E = 1 ~ 230 V 1-speed - high speed range - wide-blade fan

Heat exchanger (HE)

Fig. 4: HE Cu/Cu

Cu/Cu – HE

High-performance heat exchanger for heating with pumped warm water and cooling with pumped chilled water at average and high air contamination levels. Enhanced heat transfer between pipes and fins is reached even with larger fin spacing through optimal utilization of heat-transfer medium. Better heat transfer between Cu/Cu pipes and fins provides balanced and equal expansion of pipes and fins.

In heavy-duty industrial design performed with Cu pipes with profiled copper fins, fin spacing 3.0 mm (therefore significantly better cleaning capability), with 1, 2, 3 or 4 rows.

Cu/Cu **heat exchangers** are performed for **medium connection on the right or left side**.

Range of application:		
Maximum operating temperature:		130 °C
Maximum operating pressure:		16 bar

HN . **C** .

Fig. 5: Cu/Al HE

Cu/Al – HE

Standard heat exchanger for heating with pumped warm water and cooling with pumped chilled water designed for air with low dirt concentration.

Performed with copper pipes with profiled aluminium fins, fin spacing 2.5 mm, with 1, 2, 3 or 4 rows.

Cu/Al heat exchangers are performed for **medium connections on the right or left side**.

Range of application:		
Maximum operating temperature:		130 °C
Maximum operating pressure:		16 bar

HN . **A** .

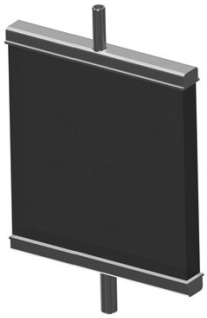
Heat exchanger (HE)

Fig. 6: Galvanized steel HE (pumped warm water(/ pumped hot water)

Galvanized steel - Heat exchanger
High performance industrial heat exchanger for heating with pumped hot water or steam
heating for heavily contaminated air. Extremely robust, heavy construction as well as efficient and reliable heat transfer between pipes and fins using **elliptical FläktGroup steel finned pipes** ("R" round pipe) with high mechanical stability. Intensive, continuous heat transfer between pipes and fins using hot-dip zinc coating, sections performed as pressure-resistant welded construction, fin spacing 3.0 mm with S, 6.0 mm with T and 4.0 mm with R, 1-2 rows.

The **heat exchanger variants** with **pumped warm / hot water** are fitted with top, right or left connections, **steam heat exchanger** medium connection is only possible from **top**!

Notice!
If inlet temperature exceeds 130 °C with wall units and 100 °C with ceiling units, medium supply must be shut off.



Range of application:	Pumped Warm/Hot Water	Steam
Maximum operating temperature:	160 °C	180 °C
Maximum operating pressure 1 row:	16 bar	8 bar (5 bar ≙ 158 °C)
Maximum operating pressure 2 rows:	10 bar	

H	**N**			.			**R**			.		
H	**N**			.			**S**			.		
H	**N**			.			**T**			.		

Fig. 7: Galvanized steel (Heat exchanger)

Notice!
Refer to page 74 for further details about heat exchangers.

Heat exchanger casing

Heat exchanger casing is available in the following variants.

The high-quality design casing is supplied separately packed and is equipped with clip fasteners for quick mounting.

– Heat exchanger casing made from stove-enamelled metal sheet in the standard colour RAL 9002 with rounded design plastic corners RAL 7000 **(A)**.
– Heat exchanger casing as before but stove-enamelled metal sheet and design plastic corners, as well as all external metal surfaces of the outlet in RAL colour of customer choice (not illustrated) **(B)**.

H	**N**			.							.			**A**
H	**N**			.							.			**B**

Fig. 8: ***Design*** *heat exchanger casing*

The heat exchanger casing in the **industrial version** is mounted by the manufacturer.

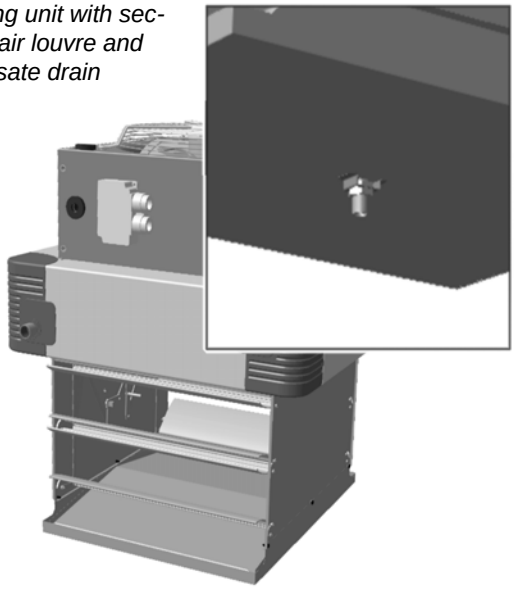
– Heat exchanger casing made of galvanized and painted metal sheet in RAL 7000 (**D**).

H	**N**			.							.			**D**

Fig. 9: ***Industry*** *heat exchanger casing*

Cooling with condensate drain or condensate pump

Fig. 10: a) Ceiling unit with secondary-air louvre and condensate drain



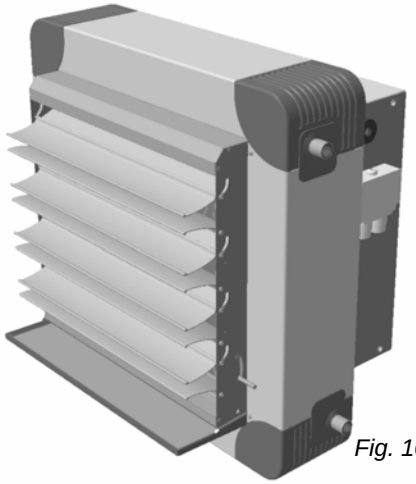
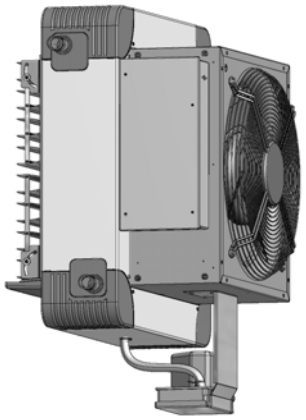


Fig. 10: b) Wall unit with secondary air-louvre and condensate drain



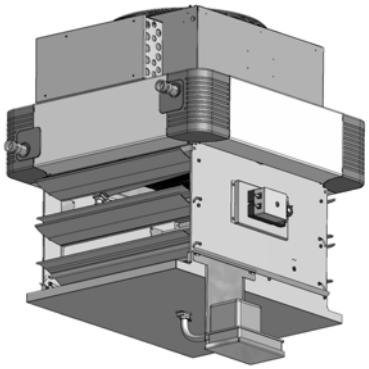


Fig. 10: c) Condensate pump wall and ceiling unit

In addition to heating, the MultiMAXX HN can be used for cooling application as well.

In this case, the heat exchanger (Cu/Cu or Cu/Al), as a **two-pipe system**, can be charged with chilled water or a water-glycol mixture.

For economic operation, we recommend to use a heat exchanger of **capacity stage 4** (4 rows) and **capacity stage 3** (3 rows) a low-speed motor. The lower air speed will ensure that the condensate is drained into the **coil drip tray** – see Fig. 9a and 19b.

The enlarged section of Fig. 9a shows you the connection for the condensate drain.

You then have the option of:

– connecting an insulated condensate main with sufficient slope (1 % - 5 %) (type code [V]),
– or forwarding accumulating condensate away from the unit using a condensate pump (type code [P], packaged content) – see Fig. 10c.

Please make sure that servicing condensate drain and condensate pump must be included in the maintenance activities.

Pump operating status and error messages can also be reported via the FläktGroup MATRIX control system.

Notice!
In case the fan is deactivated - the supply of coolant (valve) must be shut off!

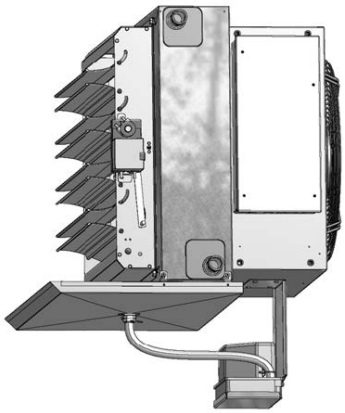
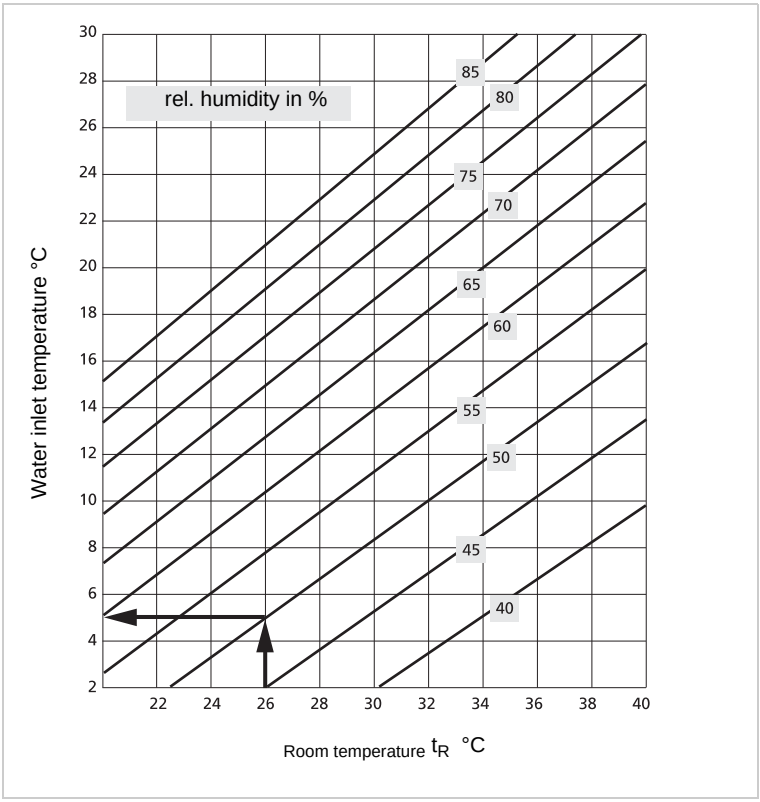


Fig. 10 d) Air handling unit - Cooling model with casing for on wall mounting in industrial design, with condensate pump

Cooling mode



To prevent condensate from forming on non-insulated casing parts when the temperature falls below the dew point during cooling operation, specific minimum water supply temperature or evaporating temperature must be maintained.

These depend on ambient temperature and indoor relative humidity and are specified in the following diagram.

For example, at room temperature of +26°C and relative humidity of 50% the medium inlet temperature should not fall below +5°C.

Technical data of condensate pump

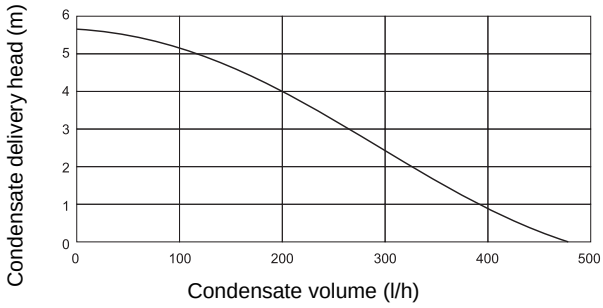
Technical Specifications	Values
Electrical Power Supply	230 V AC/50 Hz
Current consumption	0.8 A
Power Input	90 W
Protection class	IP 20
Max. pump head	5.4 +/- 0.4 m
Max. water volume	500 l/h
Sound pressure level	< 47 dBA (at 1 m)
Alarm sensor signal	1 A inductive, 4 A ohmic
Pump discharge line	3/8“ pipe at pump outlet

Notice!
If the specified operating conditions are not adhered to, this will lead to an excessive risk of condensate formation. In this case such condensate can be captured by air flow. During unit layout and design consider air humidity depending on supply and return medium temperature as well as ambient temperature - refer to the diagram above.

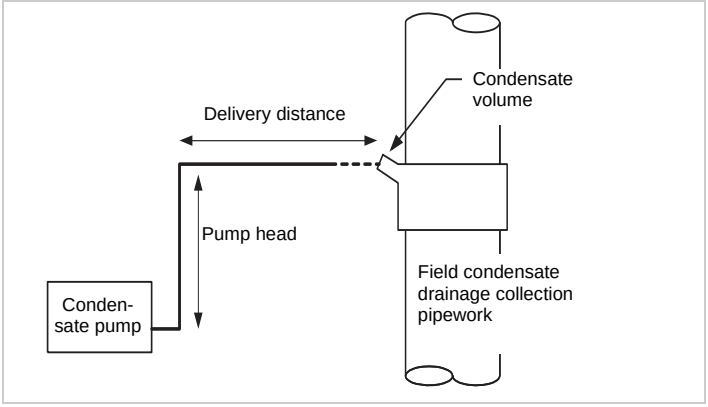
Delivery distance of condensate pump

Delivery head	Delivery distance			
	5 m (l/h)	10 m (l/h)	20 m (l/h)	30 m (l/h)
1 m	460	380	280	200
2 m	390	320	240	180
3 m	300	250	190	150
4 m	200	180	130	100
5 m	90	80	60	50

Condensate pump duty



Connecting condensate pump to drainage collection pipework



Outlets (wall)

Notice!
All wall outlets are also suitable for cooling operation (not illustrated)!

Fig. 11: Secondary-air wall louvre

Secondary-air 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) for FläktGroup MATRIX

H	**N**			.					**U**	.			
H	**N**			.					**W**	.			

Fig. 12: Profile outlet

Profile outlet

The profile outlet consisting of aluminium air deflection fins is a good compromise. 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.

H	**N**			.					**P**	.			

Fig. 13: Basic wall outlet

Basic wall outlet

Galvanized metal sheet fins of a basic wall outlet enable to deflect conditioned air at the needed discharge angle.

Individual fins of the basic outlet are manually adjustable and self-locking.

H	**N**			.					**B**	.			

Outlets (ceiling)

Heating

Cooling

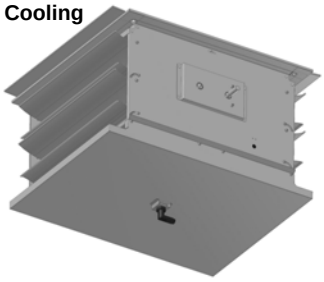


Fig. 14: Secondary-air louvre

Secondary-air 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!

Special version for **cooling operation** with drip tray, insulated (not illustrated).

The secondary-air louvre is available in the following variants
– Manual adjustment
– Motorized and adjustable (actuator 230 V up/down) for FläktGroup MATRIX
– Actuator can be installed on-site on request

H	N			.						C	.			
H	N			.						D	.			

Fig. 15: Profile outlet

Profile outlet

The profile outlet consisting of aluminium anodized air deflection fins is a good compromise. It is used to increase the air throw at constant air discharge velocity.

In such a way the unit can be easily installed at average mounting heights.

The profile outlet is manually adjustable and self-locking.

Only suitable for heating!

H	N			.						P	.			

Fig. 16: Air deflection louvre

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.

Only suitable for heating!

H	N			.						L	.			

Fig. 17: Terminating flange

Terminating flange, pressure side

The blank flange on discharge side is used for connecting the air-flow pipe with the unit discharge side. This makes the installation of the unit possible behind a wall or in a different room.

H	N			.						K	.			

Fig. 18: Basic ceiling outlet

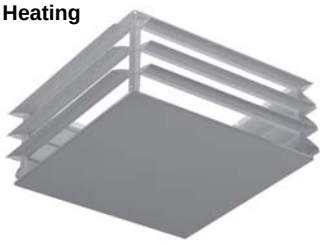
Basic ceiling outlet

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.

Only suitable for heating!

H	N			.						Z	.			

Heating



Cooling

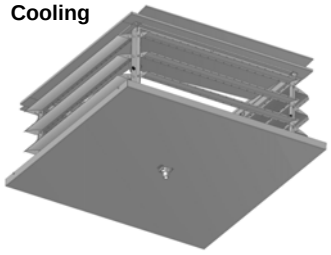


Fig. 19: Four-side outlet

Four-side 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.

Configured as a cooling version without a condensate pump with an additionally insulated drain pan available (not illustrated).

H	N			.						V	.			

Fig. 20: Outlet nozzle

Outlet nozzle

Made of galvanized metal sheet square cone-shaped nozzle.

Therefore air velocity is increased which enables larger installation heights.

Only suitable for heating!

H	N			.						A	.			

Fig. 21: Gate nozzle

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 lager gates in combination with multiple units.

Only suitable for heating!

H	N			.						T	.			

We have put together four typical applications examples. They show how to proceed in order to lay out a comparable facility with FläktGroup Multi*MAXX* HN units.

Factory/production halls (heating - mixed-air)

Heating and ventilation or mixed-air operation are often required in this case (also refer to DIN 4701ff). In addition to the required outside-air volume flow, the transmission and air-ventilation heat requirement must also be covered in these operating conditions.

Practice shows that it makes sense to use two unit variations in these cases (recirculating-air and outside-air units).

FläktGroup unit heaters can be selected as mixed-air units or as a combination of recirculating and **outside-air units** for wall and **ceiling mounting**.

The type of mounting and number of units depends primarily on the on-site furnishing and fittings. The FläktGroup MATRIX control system provides ideal regulation possibilities.

The presented FläktGroup Multi*MAXX* HN with sickle-blade fans together with the profile outlet or secondary-air louvre (SAL) meet the requirements for outside-air operation such as overcoming pressure drop of the required air-intake accessories and the use of filters.

The presented **bag filter module** combines maximum service life with optimal filtration efficiency.

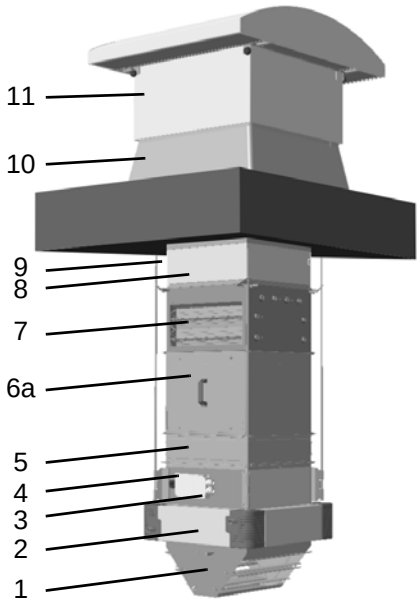


Fig. 22: a: Sample Ceiling mounting, heater with secondary-air louvre

Sample of ceiling mounting

Pos No.	Unit/ accessory item	Unit/accessory type code
1	Secondary-air louvre (Fig. 22a) four-side outlet (Fig. 22b)	Fig. 22a: HNnm.MWCRAD.SKA Fig. 22b: HNnm.MVCRAV.SRA
2	Heat exchanger-module with casing	
3	Fan module (sickle-blade fan)	
4	Integrated control system	
5	Rectangular duct 150 *or* flexible canvas connection	ZHn.2600 or ZHn.2500
6a	Bag filter module G4 with differential pressure switch	ZHn.3607
6b	Mat filter module with G4 filter and differential pressure switch	ZHn.3707
7	Mixed-air module type 1 with actuator 230 V, open/close + potentiometer	ZHn.2003
8/10	Roof duct (8) (partially visible in the figure) with flat roof-duct base (10)	ZHn.4900
9	Ceiling suspension	ZHn.5602
11	Roof air intake hood optional with filtration (VDI 6022)	ZHn.3500

n = model size 1...5 selectable
m = capacity stage/rows 1...4 selectable

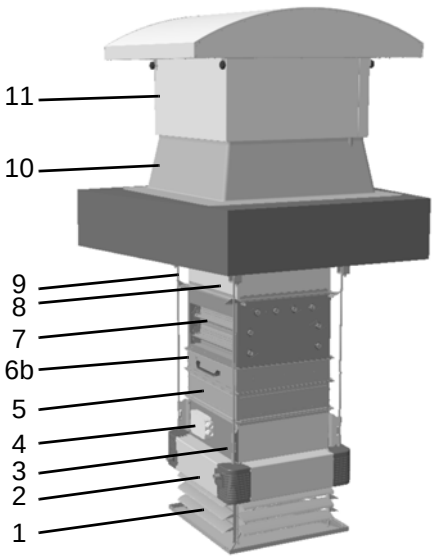


Fig. 22b: Sample Ceiling mounting Heater with four-side outlet

FläktGroup MATRIX controls allows you to perform the following settings. These settings influence the comfort and quality of air handling on site:
– Air volume flow
– free cooling or supply of warm air using outside-temperature control and modulating mixed-air rate
– Regulation of secondary-air louver for optimal air distribution.

The FläktGroup MATRIX control system independently controls the outlet angle of the SAL according to air discharge temperature and suspension height and in such a way prevents draught formation.
If used properly, the SAL ensures air speeds of 0.1 to 0.2 m/s in the occupied zone and in such a way guarantees all-round comfortable conditions.

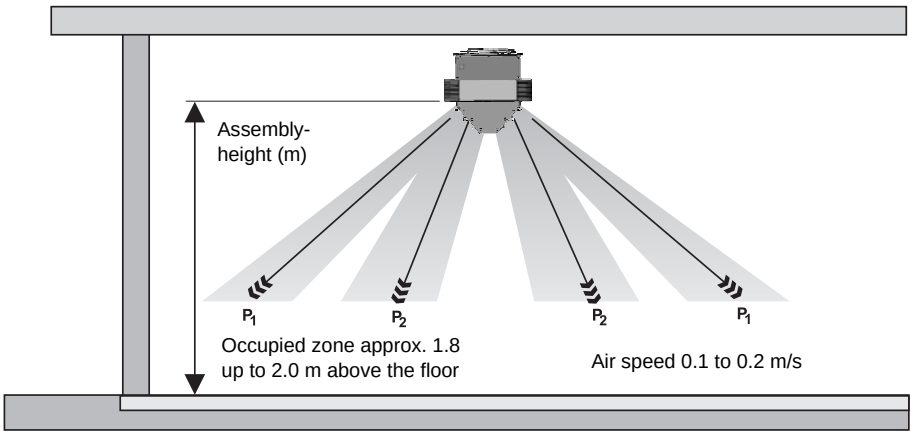


Fig. 23: P1 = draught-free setting for isothermal air jet
P2 = draught-free setting for warmest air jet

Hall height	Air change/h
up to 4 m	1.0 times
4 - 8 m	1.0 to 0.5 times
over 8 m	0.5 times

Air change rate

The opposite table contains reference air change values depending on the to hall height.

Air change or the **air change coefficient** “L” indicates how often the entire geometric hall volume is **replaced by fresh air on an hourly basis**. (This air change is not the same as air circulation – see also "Air circulation" on page 24.)

The following table highlights the current **application case** in grey and puts the used components in frames. This application is **evaluated** according to collected experience to date. (Technical exceptions are marked by 0.)

There are more alternatives available in terms of different motor models, outlet options and heat exchangers. Our trained sales staff will be glad to help you find the best equipment for your particular application.

Areas of application / **Components**			**Warehouse**		**Workshop** (normal profile of specifications)		**Production hall** (demanding profile of specifications)		**Supermarket/ DIY store**		**Primarily cooling operation**		**Installation height**			
													> 8 m	6 m	4 m	
	Mounting type		Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Ceiling	Ceiling	Wall
Motor selection (sickle type)	400 V	3-sp.	++	++	++	++	++	++	++	++	o	o	++	++	++	++
		2-sp. high	++	++	+	+	+	+	+	+	o	o	++	+	+	+
	230 V 400 V	Continuous	++	++	+	+	++	++	++	++	+	+	++	++	++	++
Outlet variants	Basic outlet		+	+	+	+	+	+	+	+	o	+	o	+	+	+
	Air deflection louvre		+	o	+	o	+	o	+	o	o	o	–	+	++	o
	2/4-side outlet		++	o	++	o	++	o	++	o	o/+	o	o	o	++	o
	Profile outlet		++	++	++	++	+	+	–	++	o	++	+	++	–	++
	Outlet nozzle		++	o	++	o	+	o	o	o	o	o	+	–	–	o
	Secondary-air louvre		+	+	+	+	++	++	++	++	+	++	++	++	++	++
Heat exchanger (HE)	Cu/Al		+	+	+	+	–	–	++	++	+	+	No effect			
	Cu/Cu		++	++	+	+	++	++	++	++	++	++				
	Steel		++	++	++	++	++	++	+	+	o	o				

++ ideally suitable, + quite suitable, – less suitable, o technically unfeasible

Sales rooms (heating or cooling with outside air)

Heating and ventilation as well as cooling operation with fresh air supply are often required in this case (also refer to VDI 2082).

Special requirements are placed on air routing and air velocity (development of draughts).

FläktGroup unit heaters can be selected as recirculating-air or mixed-air heating or cooling units with motorized adjustable outlets. The units can mounted on a ceiling or wall.

The FläktGroup MATRIX control system provides ideal regulation possibilities. The type of mounting and number of units primarily depend on the on-site furnishing and fittings.

The presented FläktGroup Multi*MAXX* HN fitted with **sickle-blade fans** together with the secondary-air louvre (SAL) or a **profile outlet** meet the requirements for outside-air operation such as overcoming pressure drop of the required air-intake accessories and the use of filters.

Example for wall mounting

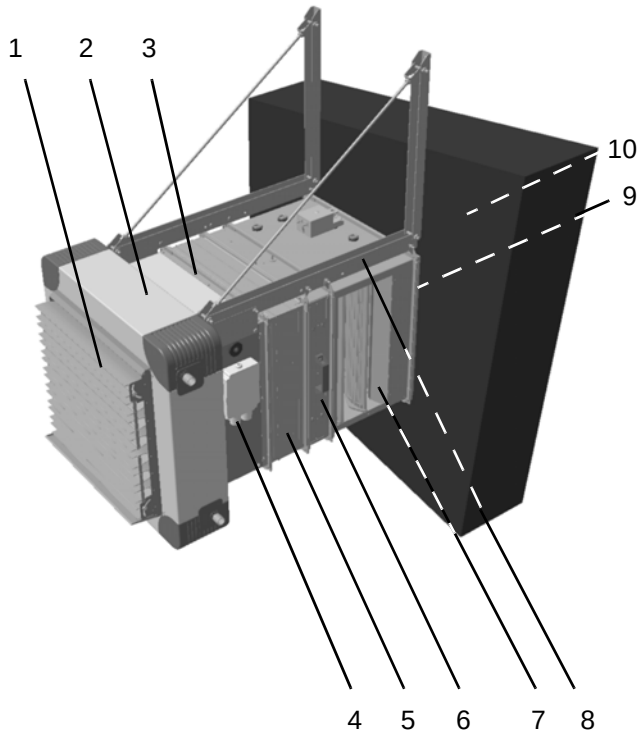


Fig. 24: Example for wall mounting

Item No.	Unit/ accessory item	Unit/accessory type code
1	Profile outlet	HNnm.MPAROP.YRA
2	Heat exchanger module with casing	
3	Fan module (EC sickle-blade fan)	
4	Integrated control system	
5	Rectangular duct 150 *or* flexible canvas connection	ZHn.2600 or ZHn.2500
6	Mat filter module with G4 filter and differential pressure switch	ZHn.3707
7	Mixed-air module type 1 with actuator 230 V, open/close + potentiometer	ZHn.2003
8	Modular suspension for selected accessories 25/26 + 37 + 20 + 51	ZHn.5503
9	Wall connection frame (not illustrated)	ZHn.5100
10	External weather grille *or* vertical air-intake hood (not illustrated)	ZHn.3200 or ZHn.3100

n = *Model size 1...5 selectable*
m = *Capacity stage/rows (for cooling 4 or 3 is preferred)*

Two heat exchanger models are available for cooling:

– Cu/Al with 2.5 mm fin spacing (mounted in this example)
– or a high-performance Cu/Cu heat exchanger with 3.0 fin spacing enabling higher air volume flow thanks to lower pressure drop.

Notice!
In case the fan is deactivated - the supply of coolant (valve) must be shut off!

In the following table the current **application** case is highlighted in grey. This application is **evaluated** according to collected experience to date. (Technical exceptions are marked by 0.)

There are more alternatives available in terms of different motor models, outlet options and heat exchangers. Our trained sales staff will be glad to help you find the best equipment for your particular application.

Areas of application / **Components**			**Warehouse**		**Workshop** (normal profile of specifications)		**Production hall** (demanding profile of specifications)		**Supermarket/ DIY store**		**Primarily cooling operation**		**Installation height**			
													> 8 m	6 m	4 m	
	Mounting type		Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Ceiling	Ceiling	Wall
Motor selection (sickle type)	400 V	3-sp.	++	++	++	++	++	++	++	++	o	o	++	++	++	++
		2-sp. high	++	++	+	+	+	+	+	+	o	o	++	+	+	+
	230 V 400 V	Continuous	++	++	+	+	++	++	++	++	+	+	++	++	++	++
Outlet variants	Basic outlet		+	+	+	+	+	+	+	+	o	+	o	+	+	+
	Air deflection louvre		+	o	+	o	+	o	+	o	o	o	–	+	++	o
	2/4-side outlet		++	o	++	o	++	o	++	o	c/+	o	o	o	++	o
	Profile outlet		++	++	++	++	+	+	–	++	o	++	+	++	–	++
	Outlet nozzle		++	o	++	o	+	o	o	o	o	o	+	–	–	o
	Secondary-air louvre		+	+	+	+	++	++	++	++	+	++	++	++	++	++
Heat exchanger (HE)	Cu/Al		+	+	+	+	–	–	++	++	+	+	No effect			
	Cu/Cu		++	++	+	+	++	++	++	++	++	++				
	Steel		++	++	++	++	++	++	+	+	o	o				

++ ideally suitable, + quite suitable, – less suitable, o technically unfeasible

Application example warehouse (heating)

This section mainly focuses on areas where requirements for air quality are generally low. Air circulation and heat demand are the most crucial technical requirements that the units have to meet. Air circulation is determined by the geometrical dimensions of the hall.

Heat demand in order to maintain frost-free conditions depends on the building type (insulation) and location.

For this application FläktGroup unit heaters can be selected as **recirculating-air units** for ceiling or **wall installation**. Suspension type and number of units primarily depend on the arrangement and furnishing/equipment of the warehouse.

FläktGroup Multi*MAXX* HN units with a Cu-Al heat exchanger°(2) and wide-blade fan°(3) combined with basic or profile (1) outlet variants fulfil all relevant requirements here. The wide-blade fan achieves good air and temperature distribution.

In a normal case all acoustic requirements for warehouses are usually satisfied.

With dusty air using a **mat filter** (7) is recommended. Optional filter monitoring indicates when it is necessary to change the filter. In such a way dirt is prevented from penetrating into the heat exchanger and its heating output is maintained. Maintenance expenses are then reduced to filter maintenance which enables to save operating costs. Additional resistance of the filter reduces air volume flow and must be adjusted during design stage with a help of the diagram “Air-side pressure drop” on page 60 and on.

The best way to install the unit is by using “**modular**” unit suspension (8). Along with other variants, the suspension is available as an accessory item.

Electrical connection must be established by others on site and a well-accessible **terminal box** (4) is fitted on the side of the fan module.

Example for wall mounting:

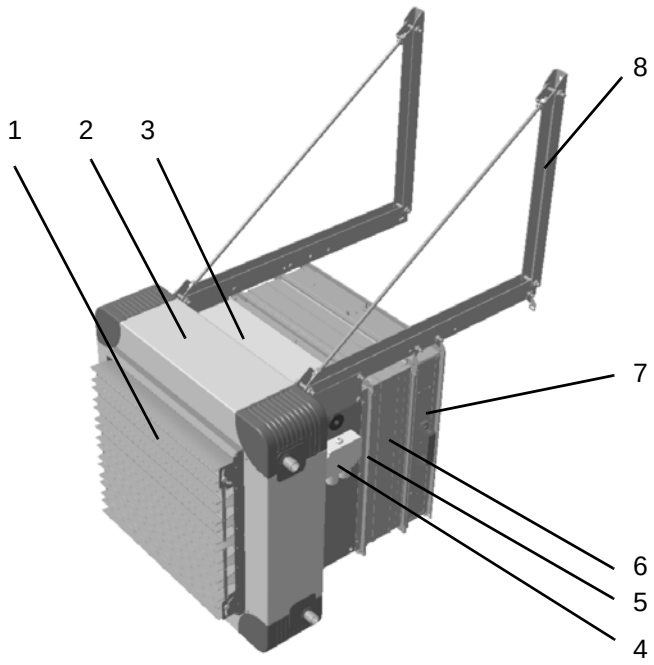


Fig. 25: Example for wall mounting

Item No.	Unit/ accessory item	Unit/accessory type code
1	Profile outlet	HNnm.UWARAP.EKA
2	Heat exchanger module with casing	
3	Fan module (wide-blade fan)	
4	Terminal box	
5	Flange	ZHn.5200
6	Rectangular duct 150 *or* flexible canvas connection	ZHn.2600 or ZHn.2500
7	Mat filter module with G2 filter without differential pressure switch	ZHn.3702
8	Modular suspension for selected accessories 25/26 + 37	ZHn.5503

n = model size 1...5 selectable
m = capacity stage/rows 1...4 selectable

Hall height	Air circulation rate
up to 6 m	2 to 5 times
over 6 m	2 to 4 times

Air circulation

The following table contains reference air circulation rates depending on the hall height.

Air circulation or **air circulation rate** determines how often the **entire geometric hall or room volume is conveyed through unit heaters** in an hour. (This air circulation is not the same as air change – see also "Air change rate" on page 20.)

In the following table the current **application** case is highlighted in grey. This application is **evaluated** according to collected experience to date. (Technical exceptions are marked by 0.)

There are more alternatives available in terms of different motor models, outlet options and heat exchangers. Our trained sales staff will be glad to help you find the best equipment for your particular application.

Areas of application / **Components**			**Warehouse**		**Workshop** (normal profile of specifications)		**Production hall** (demanding profile of specifications)		**Supermarket/ DIY store**		**Primarily cooling operation**		**Installation height**			
													> 8 m	6 m	4 m	
	Mounting type		Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Ceiling	Ceiling	Wall
Motor selection (wide)	400 V	3-sp.	++	++	++	++	++	++	++	++	o	o	++	++	++	++
		2-sp. high	++	++	+	+	+	+	+	+	o	o	++	+	+	+
		2-sp. low	–	–	–	–	++	++	++	++	++	++	–	+	++	++
	230 V	1-sp. high	+	+	+	+	+	+	–	–	o	o	++	+	+	+
		1-sp. low	–	–	–	–	–	–	+	+	+	+	–	+	+	+
Outlet variants	Basic outlet		+	+	+	+	+	+	+	+	o	+	o	+	+	+
	Air deflection louvre		+	o	+	o	+	o	+	o	o	o	–	+	++	o
	2/4-side outlet		++	o	++	o	++	o	++	o	o/+	o	o	o	++	o
	Profile outlet		++	++	++	++	+	+	–	++	o	+	+	++	–	++
	Outlet nozzle		++	o	++	o	+	o	o	o	o	o	+	–	–	o
	Secondary-air louvre		+	+	+	+	++	++	++	++	++	++	++	++	++	++
Heat exchanger (HE)	Cu/Al		+	+	+	+	–	–	++	++	+	+	No effect			
	Cu/Cu		++	++	+	+	++	++	++	++	++	++				
	Steel		++	++	++	++	++	++	+	+	o	o				

++ ideally suitable, + quite suitable, – less suitable, o technically unfeasible

Sales rooms (heating or cooling with outside air)

Due to the passage of customers, the required fresh air supply must also be considered in addition to heating. (refer to VDI 2082).

In this operating state special requirements are placed on air routing and air velocity (development of draughts).

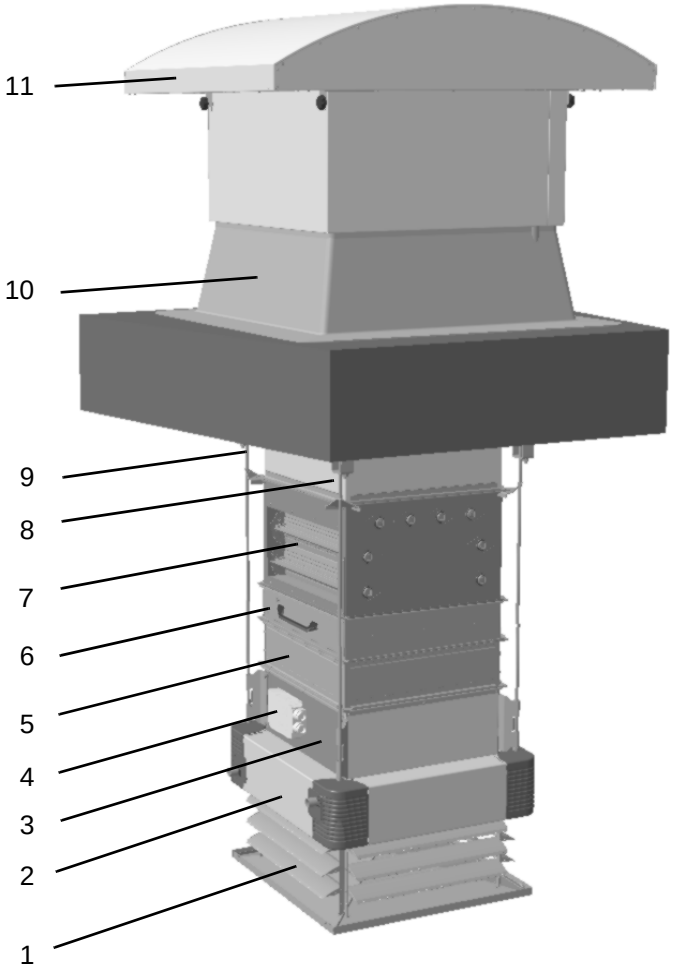
FläktGroup unit heaters can be selected as recirculating-air or **mixed-air units** for low mounting heights in order to avoid direct blowing with **four-side outlet** for **ceiling mounting**. Please consider that the maximum mounting height here amounts to 4 m.

FläktGroup Multi*MAXX* HN units with wide-blade fans in connected with the presented outlet variant meet all requirements for outside air operation.

In outside-air operation however, the use of a **mat filter** (6) or bag filter module must nevertheless be ensured. Optional filter monitoring indicates when it is necessary to change the filter. In such a way dirt is prevented from penetrating into the heat exchanger and its heating output is maintained. Maintenance expenses are then reduced to replacing the filter or its cleaning which enables to save operating costs.

Additional resistance of the filter reduces air volume flow and must be adjusted during design stage with a help of the diagram “Air-side pressure drop” on page 60 and on.

Sample of ceiling mounting:



Item No.	Unit/ accessory item	Unit/accessory type code
1	Four-side outlet	HNnm.MPAROV.ARA
2	Heat exchanger module with casing	
3	Fan module (metal blade ventilator)	
4	Integrated control system	
5	Rectangular duct 150 *or* flexible canvas connection	ZHn.2600 or ZHn.2500
6	Mat filter module with G4 filter without differential pressure switch	ZHn.3704
7	Mixed-air module type 1 with 230 V actuator, spring return	ZHn.2005
8/10	Roof opening duct (8) with flat roof-duct base (10) (partially visible in the figure)	ZHn.4900
9	Ceiling suspension	ZHn.5602
11	Roof air intake hood optional with filtration (VDI 2082)	ZHn.3500

n = *Model size 1...5 selectable*
m = *Capacity stage/rows (for cooling 4 or 3 is preferred)*

Fig. 26: Sample of ceiling mounting

Notice!
In case the fan is deactivated - the supply of coolant (valve) must be shut off!

In the following table the current **application** case is highlighted in grey. This application is **evaluated** according to collected experience to date. (Technical exceptions are marked by 0.)

There are more alternatives available in terms of different motor models, outlet options and heat exchangers. Our trained sales staff will be glad to help you find the best equipment for your particular application.

Areas of application / **Components**			**Warehouse**		**Workshop** (normal profile of specifications)		**Production hall** (demanding profile of specifications)		**Supermarket/ DIY store**		**Primarily cooling operation**		**Installation height**			
													> 8 m	6 m	4 m	
	Mounting type		Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Ceiling	Ceiling	Wall
Motor selection (wide)	400 V	3-sp.	++	++	++	++	++	++	++	++	o	o	++	++	++	++
		2-sp. high	++	++	+	+	+	+	+	+	o	o	++	+	+	+
		2-sp. low	–	–	–	–	++	++	++	++	++	++	–	+	++	++
	230 V	1-sp. high	+	+	+	+	+	+	–	–	o	o	++	+	+	+
		1-sp. low	–	–	–	–	–	–	+	+	+	+	–	+	+	+
Outlet variants	Basic outlet		+	+	+	+	+	+	+	+	o	+	o	+	+	+
	Air deflection louvre		+	o	+	o	+	o	+	o	o	o	–	+	++	o
	2/4-side outlet		++	o	++	o	++	o	++	o	o/+	o	o	o	++	o
	Profile outlet		++	++	++	++	+	+	–	++	o	+	+	++	–	++
	Outlet nozzle		++	o	++	o	+	o	o	o	o	o	+	–	–	o
	Secondary-air louvre		+	+	+	+	++	++	++	++	++	++	++	++	++	++
Heat exchanger (HE)	Cu/Al		+	+	+	+	–	–	++	++	+	+	No effect			
	Cu/Cu		++	++	+	+	++	++	++	++	++	++				
	Steel		++	++	++	++	++	++	+	+	o	o				

++ ideally suitable, + quite suitable, – less suitable, o technically unfeasible

For fast selection of Multi*MAXX* HN unit heaters please use the following tables and graphs.

Notice!
Should you require further information, please contact our knowledgeable staff, who can design units for all application types using our layout software.

Capacity tables

The **tables** contain all parameters for all heat exchangers and three fan models covering different medium and air intake temperatures.

The fan types designed for low speed are specified with the cooling models.

Diagrams

Should you require medium temperature or spreading which is not covered by the following tables, intermediate values are presented in the **diagrams** starting from page 50.

Please refer to the relevant unit data on the following pages:

Recirculating/ mixed-air	**Heating** with water (Pumped Warm Water)	**Wide-blade fan**	**P. 28**
		Sickle-blade fan	**P. 30**
	Heating with hot water (Pumped Hot Water) and steam	**Wide-blade fan**	**P. 36**
		Sickle-blade fan	**P. 38**
	Cooling or Heating with water (Pumped Chilled Water)	**Wide-blade fan sickle-blade fan**	**P. 44**

Having selected a recirculating or mixed-air unit, choose the connection type of medium and the design of the heat exchanger connection.

Order code

H	**N**	_	_	.	_	_	_	_	_	_	.	_	_	_

U - recirculating-air unit
M - mixed-air unit

O - Medium connection from top (only for steel HE)
R - Medium connection from right
L - Medium connection from left

A - HE-connection external screw thread
O - without screw thread connection

Make your designated selection on this page.

Model size 1

W - pumped warm water

Fan motor - Selection		Capacity stage 1			Capacity stage 2			Capacity stage 3			Capacity stage 4		
C > 400 V 3-speed		1	2	3	1	2	3	1	2	3	1	2	3
B > 400 V 2-speed high		-	2	3	-	2	3	-	2	3	-	2	3
E > 230 V 1-speed high		-	-	3	-	-	3	-	-	3	-	-	3
Air volume flow[1] C	m³/h	-	1940	2310	-	1730	2110	-	1590	1960	-	1480	1850
Air throw² basic	m	-	8,7	9,8	-	6,0	7,0	-	4,8	5,7	-	4,2	4,9
Air throw ² SAL	m	-	9,6	11,2	-	7,1	8,3	-	5,8	6,9	-	5,1	6,0
Max. height ² basic	m	-	9,3	11,3	-	5,5	6,9	-	4,0	5,1	-	3,2	4,1
Max. height ² SAL	m	-	14,4	18,1	-	9,1	11,6	-	6,7	8,7	-	5,5	7,1

Heating capacities/ Discharge temperature		Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
80°/60°C	5 °C	-	-	11,5	22,7	12,5	21,2	-	-	18,7	37,1	20,7	34,2	-	-	23,6	49,3	27,0	46,1	-	-	27,1	59,5	31,7	56,0
	10°C	-	-	10,6	26,2	11,5	24,8	-	-	16,9	39,1	19,0	36,8	-	-	21,8	50,9	24,9	47,8	-	-	25,0	60,4	29,2	57,1
	15°C	-	-	9,6	29,7	10,3	28,3	-	-	15,4	41,4	17,2	39,3	-	-	19,8	52,1	22,7	49,5	-	-	22,9	61,1	26,8	58,2
	18°C	-	-	9,0	31,8	9,7	30,4	-	-	14,4	42,8	16,2	40,8	-	-	18,7	52,9	21,4	50,5	-	-	21,7	61,6	25,4	58,8
	20°C	-	-	8,6	33,2	9,2	31,9	-	-	13,8	43,7	15,5	41,8	-	-	17,9	53,5	20,5	51,1	-	-	20,8	61,9	24,4	59,2
70°/50°C	5°C	-	-	9,4	19,4	10,1	18,0	-	-	15,0	30,9	16,9	28,8	-	-	19,6	41,7	22,4	39,0	-	-	22,7	50,7	26,6	47,8
	10°C	-	-	8,3	22,7	9,0	21,6	-	-	13,5	33,2	15,0	31,1	-	-	17,7	43,1	20,2	40,7	-	-	20,6	51,5	24,1	48,9
	15°C	-	-	7,3	26,2	7,9	25,2	-	-	11,9	35,5	13,2	33,6	-	-	15,8	44,6	18,0	42,4	-	-	18,5	52,3	21,7	49,9
	18°C	-	-	6,7	28,3	7,3	27,4	-	-	10,8	36,6	12,1	35,1	-	-	14,6	45,4	16,7	43,3	-	-	17,3	52,8	20,2	50,6
	20°C	-	-	6,3	29,7	6,9	28,8	-	-	10,2	37,5	11,4	36,1	-	-	13,8	45,9	15,8	44,0	-	-	16,4	53,1	19,1	50,7
60°/45°C	5°C	-	-	8,2	17,6	8,8	16,4	-	-	13,1	27,6	14,7	25,8	-	-	16,9	36,8	19,4	34,5	-	-	19,6	44,4	22,9	41,9
	10°C	-	-	7,2	21,1	7,7	20,0	-	-	11,6	29,9	13,0	28,3	-	-	15,1	38,2	17,2	36,2	-	-	17,5	45,2	20,5	42,9
	15°C	-	-	6,1	24,4	6,7	23,6	-	-	10,0	32,2	11,1	30,6	-	-	13,2	39,7	15,0	37,9	-	-	15,4	46,0	18,0	44,0
	18°C	-	-	5,5	26,5	6,0	25,8	-	-	8,9	33,4	10,0	32,1	-	-	11,9	40,3	13,7	38,9	-	-	14,1	46,5	16,6	44,7
	20°C	-	-	5,1	27,9	5,6	27,2	-	-	8,3	34,3	9,3	33,1	-	-	11,1	40,9	12,8	39,5	-	-	13,3	46,8	15,6	45,1
50°/35°C	5°C	-	-	5,9	14,1	6,5	13,3	-	-	9,6	21,5	10,7	20,1	-	-	12,8	29,0	14,8	27,4	-	-	15,2	35,6	17,8	33,7
	10°C	-	-	4,9	17,6	5,3	16,9	-	-	8,0	23,7	8,8	22,5	-	-	10,9	30,4	12,4	28,9	-	-	13,1	36,4	15,3	34,7
	15°C	-	-	3,9	20,9	4,2	20,4	-	-	6,2	25,7	7,0	24,9	-	-	8,9	31,7	10,2	30,5	-	-	11,0	37,2	13,0	35,9
	18°C	-	-	3,2	22,9	3,5	22,5	-	-	5,1	26,8	5,8	26,2	-	-	7,7	32,4	8,8	31,3	-	-	9,7	37,5	11,5	36,5
	20°C	-	-	2,7	24,2	3,0	23,9	-	-	4,3	27,4	4,9	26,9	-	-	6,8	32,8	7,8	31,9	-	-	8,9	38,0	10,4	36,7

Model size 2

W - pumped warm water

Air volume flow[1] C	m³/h	1850	3180	3880	1710	2880	3620	1590	2640	3390	1500	2470	3180
Air throw² basic	m	5,9	9,9	11,3	4,6	7,2	8,5	3,9	5,9	7,2	3,4	5,0	6,1
Air throw ² SAL	m	7,0	11,2	13,4	5,5	8,4	10,3	4,8	7,1	8,7	4,2	6,2	7,5
Max. height ² basic	m	5,2	11,1	13,7	3,5	6,9	9,0	2,8	5,2	7,0	2,3	4,1	5,5
Max. height ² SAL	m	8,6	17,3	22,7	6,0	11,3	15,1	4,8	8,7	11,8	4,0	7,0	9,4

Heating capacities/ Discharge temperature		Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
80°/60°C	5°C	14,2	27,9	18,7	22,5	20,5	20,7	21,9	43,2	29,8	35,8	33,8	32,8	25,8	53,3	37,3	47,1	43,5	43,2	29,7	63,9	43,3	57,2	51,5	53,3
	10°C	13,1	31,1	17,1	26,0	18,8	24,4	20,1	45,1	27,3	38,2	31,0	35,5	23,7	54,3	33,9	48,3	40	45,1	27,5	64,5	39,9	58,2	47,6	54,6
	15°C	11,9	34,2	15,6	29,6	17,1	28,1	18,1	46,6	24,8	40,7	28,2	38,2	21,6	55,4	30,9	49,9	36	46,7	25,2	65,1	36,6	59,1	43,3	55,5
	18°C	11,2	36,0	14,7	31,7	16,1	30,4	17,1	47,7	23,3	42,1	26,5	39,8	20,3	56,0	29,1	50,8	33,9	47,8	24,1	65,8	34,6	59,7	41,1	56,4
	20°C	10,7	37,3	14,1	33,2	15,4	31,8	16,3	48,4	22,3	43,1	25,4	40,9	19,4	56,3	27,9	51,4	32,5	48,5	23,2	66,0	33,2	60,1	39,6	57,1
70°/50°C	5°C	11,7	23,9	15,3	19,4	16,8	17,9	17,8	36,1	24,4	30,2	27,7	27,8	21,2	44,8	30,5	39,4	35,5	36,2	25,2	55,1	36,2	48,7	43,1	45,4
	10°C	10,6	27,0	13,8	22,9	15,0	21,5	16,0	37,9	21,9	32,7	24,6	30,3	19,1	45,8	27,4	41	31,9	38	22,9	55,5	32,9	49,7	39,4	46,9
	15°C	9,4	30,1	12,3	26,5	13,3	25,2	14,2	39,7	19,4	35,1	21,8	32,9	17,0	46,8	24,4	42,5	28,3	39,9	20,5	55,8	29,5	50,6	35,3	48,1
	18°C	8,6	31,8	11,3	28,6	12,3	27,4	13,1	40,8	17,9	36,5	20,1	34,5	15,6	47,3	22,5	43,4	26,2	41	19,1	55,9	27,5	51,2	32,9	48,8
	20°C	8,1	33,1	10,6	29,9	11,6	28,9	12,4	41,5	16,7	37,3	19,0	35,6	14,7	47,6	21,3	44	24,7	41,7	18,1	56,0	26,2	51,5	31,3	49,3
60°/45°C	5°C	10,2	21,4	13,3	17,5	14,6	16,2	15,5	32,0	21,2	27,0	24,1	24,9	18,4	39,6	26,4	34,8	30,8	32,1	21,5	47,7	31,2	42,7	36,9	39,5
	10°C	9,0	24,5	11,8	21,1	13,0	19,9	13,7	33,9	18,8	29,4	21,1	27,4	16,3	40,6	23,4	36,4	27,3	34	19,4	48,6	27,9	43,6	33,2	41,1
	15°C	7,9	27,7	10,3	24,6	11,1	23,6	11,9	35,7	16,3	31,8	18,3	30,0	14,2	41,6	20,4	38	23,7	35,8	17,1	48,9	24,5	44,6	29,5	42,7
	18°C	7,2	29,5	9,3	26,8	10,1	25,8	10,8	36,8	14,8	33,3	16,6	31,6	12,9	42,2	18,6	38,9	21,6	36,9	15,6	49,1	22,5	45,2	26,9	43,2
	20°C	6,6	30,6	8,6	28,1	9,5	27,3	10,1	37,5	13,6	34,1	15,4	32,7	11,9	42,4	17,1	39,3	20,1	37,7	14,7	49,2	21,2	45,5	25,3	43,7
50°/35°C	5°C	7,7	17,4	10,0	14,4	10,9	13,4	11,6	25,2	15,7	21,2	17,8	19,6	13,9	31,0	19,7	27,3	23,2	25,3	16,8	38,4	24,2	34,2	29	32,1
	10°C	6,4	20,4	8,4	17,9	9,2	17,1	9,6	26,8	13,2	23,6	15,0	22,3	11,7	32,0	16,7	28,8	19,4	27	14,4	38,7	20,9	35,2	25	33,4
	15°C	5,2	23,5	6,9	21,4	7,5	20,8	7,7	28,4	10,5	25,9	11,9	24,8	9,4	32,7	13,4	30,1	15,7	28,8	12,1	38,9	17,7	36,3	20,8	34,5
	18°C	4,5	25,2	5,9	23,5	6,4	22,9	6,4	29,2	8,9	27,2	10,1	26,3	7,9	32,9	11,5	31	13,3	29,7	10,6	39,1	15,5	36,7	18,3	35,2
	20°C	4,0	26,4	5,2	24,9	5,7	24,4	5,5	29,6	7,8	28,0	8,9	27,3	6,9	32,8	10	31,3	11,8	30,4	9,6	39,2	14	36,9	16,7	35,6

Model size 3

W - pumped warm water

Air volume flow[1] C	m³/h	2470	4170	5130	2260	3730	4690	2110	3410	4350	1990	3170	4080
Air throw² basic	m	5,7	9,4	10,8	4,4	6,7	8,0	3,7	5,5	6,6	3,3	4,7	5,7
Air throw ² SAL	m	6,7	10,6	12,7	5,3	7,9	9,6	4,6	6,6	8,1	4,1	5,8	7,1
Max. height ² basic	m	4,8	9,8	12,4	3,2	6,0	7,9	2,5	4,5	6,0	2,1	3,6	4,8
Max. height ² SAL	m	7,7	15,2	20,1	5,4	9,8	13,1	4,4	7,6	10,1	3,6	6,2	8,3

Heating capacities/ Discharge temperature		Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
80°/60°C	5°C	20,2	29,3	26,5	23,9	29,2	22,0	30,5	45,2	41,9	38,5	47,5	35,2	36,0	55,8	51,0	49,5	60,1	46,2	40,8	66,1	58,7	60,2	70,0	56,1
	10°C	18,5	32,3	24,3	27,4	26,9	25,6	28,0	46,9	38,5	40,8	43,6	37,7	33,1	56,7	47,1	51,1	55,3	47,9	37,4	66,0	54,2	60,9	64,7	57,2
	15°C	16,9	35,3	22,1	30,8	24,4	29,2	25,5	48,6	35,1	43,0	39,7	40,2	30,4	58,0	43,1	52,7	50,5	49,5	34,4	66,5	49,6	61,6	59,3	58,3
	18°C	15,9	37,1	20,8	32,9	23,0	31,3	24,0	49,7	33,0	44,3	37,3	41,7	28,7	58,5	40,7	53,6	47,5	50,5	32,6	66,8	46,9	62,1	56,0	58,9
	20°C	15,2	38,3	19,9	34,2	22,0	32,8	23,0	50,3	31,6	45,2	35,7	42,7	27,5	58,8	39,1	54,2	45,6	51,2	31,4	67,0	45,1	62,3	53,9	59,3
70°/50°C	5°C	16,6	25,0	21,8	20,6	24,0	19,0	25,2	38,2	34,5	32,6	39,0	29,8	30,0	47,4	42,5	42,1	49,8	39,1	34,2	56,2	49,2	51,2	58,7	47,9
	10°C	15,0	28,0	19,6	24,0	21,7	22,6	22,7	39,9	30,7	34,6	35,1	32,3	27,1	48,2	38,4	43,5	44,9	40,8	31,2	56,7	44,6	51,9	53,4	49,0
	15°C	13,3	31,0	17,4	27,4	19,2	26,2	19,9	41,3	27,3	36,8	31,2	34,8	24,1	49,0	34,2	44,9	40,1	42,4	28,4	57,5	40,1	52,6	48,0	50,0
	18°C	12,3	32,8	16,1	29,5	17,6	28,2	18,4	42,2	25,2	38,1	28,8	36,3	22,3	49,4	31,7	45,6	37,1	43,4	26,4	57,5	37,3	53,1	44,7	50,6
	20°C	11,6	34,0	15,2	30,9	16,6	29,6	17,4	42,9	23,8	39,0	26,9	37,1	21,0	49,7	29,9	46,1	35,1	44,0	25,1	57,5	35,5	53,3	42,2	50,8
60°/45°C	5°C	14,4	22,4	18,9	18,5	20,9	17,1	21,8	33,8	30,0	29,0	33,9	26,6	25,8	41,4	37,1	37,4	43,2	34,6	29,3	48,9	42,4	44,8	50,6	41,9
	10°C	12,8	25,4	16,8	22,0	18,5	20,8	19,4	35,5	26,3	31,0	30,0	29,1	22,9	42,3	32,7	38,6	38,3	36,2	26,3	49,4	37,8	45,6	45,2	43,0
	15°C	11,1	28,4	14,6	25,4	16,1	24,4	16,7	37,0	22,8	33,2	26,1	31,6	20,1	43,4	28,6	40,0	33,5	37,9	23,3	49,9	33,3	46,3	39,8	44,1
	18°C	10,1	30,2	13,3	27,5	14,5	26,4	15,1	38,0	20,7	34,6	23,7	33,1	18,3	43,8	26,1	40,8	30,5	38,9	21,6	50,4	30,6	46,7	36,6	44,7
	20°C	9,5	31,4	12,4	28,8	13,5	27,9	14,1	38,6	19,3	35,4	21,9	33,9	17,1	44,1	24,4	41,3	28,5	39,5	20,3	50,4	28,7	47,0	34,4	45,1
50°/35°C	5°C	10,9	18,1	14,2	15,2	15,6	14,1	16,3	26,4	22,3	22,8	25,5	21,2	19,5	32,5	27,8	29,3	32,8	27,5	23,2	39,8	32,9	35,9	39,3	33,7
	10°C	9,1	21,0	12,1	18,6	13,2	17,7	13,7	28,1	18,8	25,0	21,2	23,5	16,5	33,3	23,6	30,7	27,6	28,9	20,0	39,9	28,3	36,6	33,8	34,7
	15°C	7,4	24,0	9,7	22,0	10,7	21,2	11,0	29,5	15,1	27,0	17,2	25,9	13,7	34,3	19,3	31,9	22,7	30,5	16,7	40,0	23,8	37,3	28,6	35,9
	18°C	6,4	25,7	8,4	24,0	9,2	23,3	9,3	30,2	12,8	28,2	14,6	27,3	11,8	34,7	16,7	32,6	19,4	31,3	14,7	40,0	20,8	37,5	25,3	36,5
	20°C	5,6	26,8	7,4	25,3	8,2	24,7	8,0	30,6	11,3	29,0	12,9	28,2	10,4	34,6	14,7	32,9	17,3	31,9	13,3	40,0	19,2	38,0	22,8	36,7

			Capacity stage 1			Capacity stage 2			Capacity stage 3			Capacity stage 4		
	Fan motor - Selection													
	C > 400 V 3-speed		1	2	3	1	2	3	1	2	3	1	2	3
	B > 400 V 2-speed high		-	2	3	-	2	3	-	2	3	-	2	3
	E > 230 V 1-speed high		-	-	3	-	-	3	-	-	3	-	-	3
	Air volume flow[1] C	m³/h	3850	6170	8130	3550	5580	7450	3330	5140	6930	3150	4790	6510
	Air throw[2] basic	m	6,4	9,8	12,3	4,9	7,2	9,0	4,2	6,0	7,5	3,7	5,1	6,4
	Air throw [2] SAL	m	7,5	11,2	14,4	5,9	8,5	10,8	5,2	7,2	9,1	4,5	6,3	8,0
	Max. height [2] basic	m	5,3	10,0	14,3	3,6	6,3	9,0	2,9	4,8	6,9	2,4	3,9	5,5
	Max. height [2] SAL	m	8,7	16,0	23,1	6,1	10,5	15,0	5,0	8,1	11,7	4,1	6,6	9,5
	Heating capacities/ Discharge temperature		**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C
Model size 4	**W** - pumped warm water	80°/60°C	5°C	30,9	28,9	39,5	24,1	45,1	21,5	47,4	44,8	63,1	38,7	74,0	34,6	55,9	55,0	76,8	49,5	93,8	45,3	64,3	65,8	89,4	60,6	110,7	55,7
			10°C	28,4	32,0	36,3	27,5	41,4	25,2	43,5	46,5	57,9	40,9	67,9	37,1	51,3	55,9	70,9	51,1	86,2	47,1	59,0	65,8	82,5	61,3	102,3	56,8
			15°C	25,8	35,0	33,0	30,9	37,7	28,8	39,6	48,3	52,7	43,1	61,8	39,7	47,2	57,2	65,0	52,6	78,6	48,8	54,3	66,4	75,6	62,0	93,8	57,9
			18°C	24,3	36,8	31,0	33,0	35,4	31,0	37,3	49,3	49,6	44,5	58,1	41,2	44,4	57,7	60,8	53,2	74,0	49,8	51,5	66,7	71,5	62,4	88,7	58,6
			20°C	23,3	38,0	29,7	34,3	33,9	32,4	35,7	50,0	47,5	45,3	55,6	42,2	42,6	58,1	58,3	53,7	70,9	50,5	49,6	66,9	68,7	62,7	85,2	59,0
		70°/50°C	5°C	25,4	24,7	32,4	20,7	37,0	18,6	39,1	37,8	51,9	32,7	60,7	29,3	46,1	46,2	63,7	41,9	77,5	38,3	54,0	56,1	74,9	51,6	92,9	47,5
			10°C	22,9	27,7	29,2	24,1	33,3	22,2	34,8	39,2	46,2	34,6	54,6	31,8	41,9	47,5	57,5	43,3	69,9	40,0	49,3	56,6	68,0	52,3	84,4	48,6
			15°C	20,3	30,7	25,9	27,5	29,2	25,7	30,9	40,9	40,9	36,8	47,9	34,2	37,2	48,3	51,2	44,7	61,6	41,5	44,8	57,4	61,1	53,0	75,9	49,7
			18°C	18,7	32,5	23,9	29,5	27,0	27,9	28,5	41,9	37,7	38,1	44,2	35,7	34,3	48,7	47,4	45,5	56,9	42,5	41,7	57,5	56,9	53,4	70,1	50,1
			20°C	17,5	33,6	22,5	30,9	25,4	29,3	26,8	42,5	35,6	39,0	41,7	36,7	32,4	48,9	44,7	45,9	53,8	43,1	39,7	57,5	54,1	53,7	67,0	50,6
		60°/45°C	5°C	22,1	22,1	28,2	18,6	32,2	16,8	33,9	33,5	45,1	29,1	52,8	26,1	40,0	40,8	55,2	37,0	67,2	33,9	46,3	48,8	64,5	45,1	80,0	41,6
			10°C	19,6	25,1	24,9	22,0	28,5	20,4	30,0	35,2	39,5	31,1	46,7	28,7	35,4	41,7	49,0	38,4	59,6	35,6	41,6	49,3	57,7	45,9	71,6	42,7
			15°C	17,0	28,1	21,7	25,5	24,5	24,0	25,8	36,7	34,3	33,3	40,5	31,2	30,8	42,5	42,8	39,8	52,0	37,3	36,8	49,8	50,8	46,6	63,1	43,9
			18°C	15,4	29,9	19,7	27,5	22,2	26,1	23,4	37,7	31,1	34,6	36,4	32,6	28,0	43,0	38,7	40,4	46,8	38,1	34,2	50,3	46,6	47,0	58,0	44,5
			20°C	14,3	31,0	18,3	28,9	20,7	27,6	21,8	38,3	29,0	35,5	33,9	33,6	26,1	43,3	36,1	40,9	43,7	38,8	32,1	50,4	43,8	47,2	54,0	44,7
		50°/35°C	5°C	16,6	17,8	21,1	15,2	23,9	13,8	25,2	26,1	33,4	22,8	39,1	20,6	30,1	32,0	41,6	29,1	50,3	26,6	36,7	39,7	50,1	36,2	62,3	33,5
			10°C	13,9	20,7	17,7	18,5	20,1	17,4	21,2	27,8	28,1	25,0	32,9	23,2	25,4	32,8	35,2	30,4	42,6	28,3	31,6	39,9	43,2	36,9	53,8	34,6
			15°C	11,2	23,7	14,3	21,9	16,4	21,0	16,9	29,2	22,5	27,0	26,4	25,5	20,9	33,7	28,6	31,6	34,5	29,8	26,4	40,0	36,3	37,6	45,3	35,7
			18°C	9,5	25,4	12,3	23,9	13,9	23,1	14,2	29,9	19,0	28,1	22,5	27,0	17,7	33,8	24,3	32,1	29,7	30,8	23,3	40,1	32,1	38,0	40,2	36,4
			20°C	8,4	26,5	10,8	25,2	12,3	24,5	12,3	30,3	16,7	28,9	19,7	27,9	15,4	33,8	21,6	32,5	26,1	31,2	21,2	40,1	29,1	38,1	36,3	36,6

1 Air volume flow: specified table data are calculated for units with fan type „C“ = 3-speed with secondary-air louvre wall outlet. The data are valid for Cu/Al and Cu/Cu heat exchangers and the other fan models "B“ and "E“.

2 Air throw: air throw is calculated for air intake temperature 18 °C and medium temperature 70 °C/50 °C. The values are valid for air discharge temperature up to 15 K greater than air intake temperature. Pay attention to medium values!

Order code

H	N	_	_	.	_	W	_	_	_	_	.	_	_	_

		A
Model size (1,2,3,4)		C HE
Capacity stages (1,2,3,4)		
B - 3x400 V 2-speed - high speed range - wide blade fan		
C - 3x400 V 3-speed - wide blade fan (size 2,3,4)		
E - 1x230 V 1-speed - high speed range wide blade fan		

Make your designated selection on these two pages.

Model size 1

Fan motor - Selection		Capacity stage 1			Capacity stage 2			Capacity stage 3			Capacity stage 4		
S > 400 V 3-speed		1	2	3	1	2	3	1	2	3	1	2	3
R > 400 V 2-sp.high size 3,4,5		-	2	3	-	2	3	-	2	3	-	2	3
Air volume flow[1] S	m³/h	1050	1820	2140	970	1640	1950	910	1510	1810	860	1410	1700
Air throw[2] basic	m	4,8	8,1	9,1	3,7	5,8	6,6	3,1	4,6	5,3	2,7	4,0	4,6
Air throw [2] SAL	m	5,7	9,1	10,5	4,4	6,7	7,8	3,8	5,6	6,4	3,4	4,9	5,7
Max. height [2] basic	m	4,0	8,5	10,2	2,7	5,2	6,3	2,1	3,8	4,6	1,7	3,0	3,8
Max. height [2] SAL	m	6,5	13,2	16,4	4,5	8,4	10,5	3,6	6,4	7,9	3,0	5,2	6,5
Heating capacities/Discharge temperature		Q [kW] / t °C											
W - pumped warm water	5 °C	8,4 / 28,8	11,2 / 23,3	12,1 / 21,8	12,9 / 44,6	18,1 / 37,8	19,8 / 35,3	15,7 / 56,3	22,6 / 49,5	25,8 / 47,5	17,8 / 66,6	26,2 / 60,3	29,9 / 57,3
	10 °C	7,7 / 31,8	10,2 / 26,7	11,1 / 25,4	11,8 / 46,3	16,6 / 40,1	18,1 / 37,7	14,4 / 57,1	20,9 / 51,1	23,8 / 49,1	16,4 / 66,9	24,2 / 61,1	27,6 / 58,3
80°/60°C	15 °C	7,0 / 34,7	9,3 / 30,2	10,0 / 29,0	10,8 / 48,0	14,9 / 42,0	16,5 / 40,1	13,3 / 58,4	19,1 / 52,7	21,7 / 50,8	15,0 / 66,8	22,2 / 61,8	25,3 / 59,3
	18 °C	6,5 / 36,5	8,7 / 32,2	9,4 / 31,1	10,0 / 48,7	14,0 / 43,3	15,4 / 41,6	12,5 / 58,8	18,1 / 53,6	20,3 / 51,4	14,2 / 67,1	20,9 / 62,2	23,9 / 59,9
	20 °C	6,2 / 37,7	8,3 / 33,6	8,9 / 32,4	9,6 / 49,4	13,3 / 44,2	14,8 / 42,6	12,0 / 59,2	17,3 / 54,2	19,4 / 52,0	13,7 / 67,3	20,1 / 62,5	23,0 / 60,2
	5°C	6,8 / 24,3	9,1 / 19,9	9,7 / 18,5	10,5 / 37,1	14,6 / 31,5	16,1 / 29,7	13,1 / 47,8	18,9 / 42,2	21,2 / 40,0	14,9 / 56,6	22,0 / 51,4	25,0 / 48,9
	10°C	6,0 / 27,1	8,1 / 23,3	8,7 / 22,1	9,4 / 38,7	13,1 / 33,7	14,5 / 32,1	11,8 / 48,6	17,0 / 43,6	19,2 / 41,5	13,6 / 57,0	19,9 / 52,1	22,8 / 49,9
70°/50°C	15°C	5,3 / 30,1	7,1 / 26,6	7,7 / 25,7	8,3 / 40,3	11,5 / 35,9	12,6 / 34,3	10,5 / 49,4	15,2 / 45,0	17,1 / 43,1	12,3 / 57,5	17,9 / 52,8	20,5 / 50,8
	18°C	4,9 / 31,8	6,5 / 28,6	7,0 / 27,8	7,6 / 41,3	10,6 / 37,2	11,6 / 35,7	9,7 / 49,8	14,1 / 45,7	15,8 / 44,0	11,6 / 58,0	16,7 / 53,2	19,1 / 51,4
	20°C	4,6 / 33,0	6,1 / 30,0	6,6 / 29,2	7,1 / 41,7	9,9 / 37,9	10,9 / 36,6	9,2 / 50,0	13,3 / 46,2	15,0 / 44,6	11,0 / 58,0	15,9 / 53,5	18,1 / 51,8
	5 °C	5,9 / 21,9	7,9 / 18,0	8,6 / 16,9	9,2 / 33,2	12,7 / 28,1	14,1 / 26,5	11,2 / 41,8	16,4 / 37,4	18,4 / 35,3	12,8 / 49,2	18,9 / 45,0	21,6 / 42,8
	10°C	5,2 / 24,8	7,0 / 21,4	7,5 / 20,4	8,0 / 34,6	11,2 / 30,3	12,4 / 28,9	10,1 / 42,9	14,5 / 38,6	16,3 / 36,9	11,5 / 49,7	16,9 / 45,7	19,3 / 43,8
60°/45°C	15°C	4,5 / 27,7	6,0 / 24,7	6,4 / 24,0	6,9 / 36,2	9,7 / 32,5	10,6 / 31,2	8,8 / 43,7	12,7 / 40,0	14,3 / 38,5	10,2 / 50,2	14,9 / 46,4	17,0 / 44,8
	18°C	4,0 / 29,4	5,4 / 26,8	5,8 / 26,1	6,2 / 37,2	8,7 / 33,9	9,6 / 32,6	8,0 / 44,1	11,6 / 40,9	13,0 / 39,4	9,4 / 50,4	13,7 / 46,9	15,6 / 45,3
	20°C	3,7 / 30,6	5,0 / 28,2	5,4 / 27,5	5,7 / 37,6	8,0 / 34,6	8,9 / 33,6	7,5 / 44,4	10,8 / 41,4	12,2 / 40,0	8,9 / 50,8	12,8 / 47,1	14,7 / 45,7
	5 °C	4,3 / 17,2	5,8 / 14,4	6,2 / 13,7	6,6 / 25,3	9,3 / 21,8	10,2 / 20,7	8,6 / 33,1	12,5 / 29,7	14,0 / 28,1	10,1 / 39,9	14,7 / 36,0	16,8 / 34,4
	10°C	3,5 / 20,0	4,8 / 17,8	5,1 / 17,1	5,5 / 26,8	7,7 / 24,0	8,5 / 23,0	7,3 / 33,8	10,5 / 30,8	11,9 / 29,6	8,7 / 40,3	12,7 / 36,8	14,5 / 35,4
50°/35°C	15°C	2,8 / 22,8	3,8 / 21,1	4,1 / 20,7	4,2 / 27,8	6,0 / 25,9	6,7 / 25,2	6,0 / 34,5	8,6 / 32,0	9,7 / 31,0	7,3 / 40,3	10,6 / 37,5	12,2 / 36,3
	18°C	2,2 / 24,4	3,1 / 23,1	3,4 / 22,7	3,2 / 27,9	5,0 / 27,0	5,5 / 26,4	5,1 / 34,8	7,4 / 32,7	8,3 / 31,7	6,4 / 40,3	9,4 / 37,9	10,8 / 36,9
	20°C	1,8 / 25,2	2,6 / 24,3	2,9 / 24,0	2,9 / 28,8	4,1 / 27,5	4,6 / 27,1	4,5 / 34,8	6,6 / 33,0	7,4 / 32,2	5,9 / 40,3	8,6 / 38,1	9,9 / 37,3

Model size 2

Air volume flow[1] S	m³/h	1840	2680	3570	1720	2510	3400	1620	2350	3210	1530	2230	3050
Air throw[2] basic	m	5,6	7,8	10,1	4,5	6,1	7,9	3,9	5,2	6,7	3,4	4,6	5,8
Air throw [2] SAL	m	7,0	9,6	12,4	5,5	7,5	9,7	4,9	6,5	8,3	4,3	5,7	7,3
Max. height [2] basic	m	4,9	8,0	11,8	3,5	5,5	8,1	2,8	4,4	6,3	2,3	3,6	5,2
Max. height [2] SAL	m	8,5	13,8	20,3	6,0	9,5	14,0	5,0	7,6	11,0	4,1	6,3	9,0
Heating capacities/Discharge temperature		Q [kW] / t °C											
W - pumped warm water	5 °C	14,2 / 28,0	17,3 / 24,3	19,7 / 21,4	22,0 / 43,1	27,7 / 37,9	32,7 / 33,6	26,1 / 53,1	34,3 / 48,5	42,0 / 44,0	30,2 / 63,7	40,3 / 58,8	50,1 / 53,9
	10°C	13,0 / 31,1	15,8 / 27,5	18,1 / 25,1	20,2 / 45,0	25,4 / 40,2	30,0 / 36,3	24,0 / 54,1	31,6 / 50,0	38,6 / 45,8	27,9 / 64,3	37,2 / 59,6	46,2 / 55,1
80°/60°C	15°C	11,9 / 34,2	14,4 / 30,9	16,5 / 28,7	18,2 / 46,5	22,9 / 42,2	27,3 / 38,9	21,9 / 55,2	28,8 / 51,5	35,2 / 47,6	25,9 / 65,4	34,0 / 60,5	42,4 / 56,4
	18°C	11,2 / 36,1	13,5 / 33,0	15,5 / 30,9	17,1 / 47,6	21,5 / 43,6	25,6 / 40,4	20,6 / 55,8	27,1 / 52,4	33,1 / 48,7	24,5 / 65,6	32,2 / 60,9	40,1 / 57,1
	20°C	10,7 / 37,3	12,9 / 34,4	14,8 / 32,4	16,4 / 48,4	20,6 / 44,5	24,5 / 41,5	19,7 / 56,2	26,0 / 52,9	31,4 / 49,1	23,5 / 65,7	30,9 / 61,3	38,2 / 57,3
	5 °C	11,7 / 23,9	14,1 / 20,7	16,2 / 18,5	17,9 / 36,0	22,5 / 31,7	26,8 / 28,5	21,5 / 44,6	28,4 / 41,0	34,3 / 36,8	25,6 / 54,9	33,7 / 50,0	41,6 / 45,6
	10°C	10,5 / 27,1	12,7 / 24,1	14,6 / 22,2	16,1 / 37,9	20,2 / 34,0	23,8 / 30,9	19,4 / 45,7	25,4 / 42,1	30,9 / 38,6	23,2 / 55,2	30,6 / 50,9	38,0 / 47,2
70°/50°C	15°C	9,4 / 30,2	11,3 / 27,5	12,8 / 25,7	14,3 / 39,7	17,9 / 36,3	21,1 / 33,5	17,2 / 46,6	22,5 / 43,6	27,4 / 40,4	20,8 / 55,6	27,5 / 51,7	34,5 / 48,7
	18°C	8,6 / 31,9	10,4 / 29,6	11,8 / 27,9	13,2 / 40,8	16,5 / 37,6	19,4 / 35,0	15,9 / 47,2	20,8 / 44,4	25,3 / 41,5	19,4 / 55,7	25,6 / 52,2	32,0 / 49,2
	20°C	8,1 / 33,1	9,9 / 31,0	11,2 / 29,3	12,4 / 41,5	15,6 / 38,5	18,3 / 36,0	14,9 / 47,5	19,6 / 44,9	23,9 / 42,2	18,4 / 55,8	24,3 / 52,5	30,4 / 49,7
	5 °C	10,2 / 21,5	12,3 / 18,6	14,1 / 16,8	15,6 / 32,0	19,6 / 28,3	23,3 / 25,4	18,7 / 39,4	24,6 / 36,2	30,1 / 32,9	21,9 / 47,6	29,1 / 43,8	36,2 / 40,3
	10°C	9,0 / 24,6	10,9 / 22,1	12,5 / 20,4	13,8 / 33,8	17,3 / 30,5	20,6 / 28,0	16,6 / 40,5	21,7 / 37,4	26,4 / 34,5	19,7 / 48,4	25,9 / 44,7	32,0 / 41,3
60°/45°C	15°C	7,8 / 27,7	9,5 / 25,5	10,8 / 24,1	11,9 / 35,7	15,0 / 32,8	17,7 / 30,5	14,4 / 41,5	18,8 / 38,9	22,9 / 36,3	17,3 / 48,7	22,8 / 45,5	28,5 / 42,8
	18°C	7,1 / 29,5	8,6 / 27,6	9,8 / 26,1	10,8 / 36,8	13,6 / 34,2	16,0 / 32,0	13,0 / 41,9	17,1 / 39,7	20,8 / 37,3	15,9 / 48,9	20,9 / 46,0	26,4 / 43,7
	20°C	6,6 / 30,7	8,0 / 28,9	9,1 / 27,6	10,1 / 37,5	12,7 / 35,0	14,9 / 33,1	12,1 / 42,3	16,0 / 40,3	19,4 / 38,0	14,9 / 49,0	19,7 / 46,3	24,6 / 44,0
	5 °C	7,7 / 17,4	9,2 / 15,3	10,5 / 13,8	11,6 / 25,1	14,6 / 22,3	17,2 / 20,1	14,1 / 31,0	18,4 / 28,3	22,4 / 25,8	17,1 / 38,2	22,5 / 35,1	28,4 / 32,7
	10°C	6,4 / 20,4	7,8 / 18,7	8,9 / 17,4	9,7 / 26,7	12,2 / 24,4	14,5 / 22,7	11,9 / 31,9	15,4 / 29,5	18,9 / 27,5	14,7 / 38,5	19,4 / 35,9	24,3 / 33,7
50°/35°C	15°C	5,2 / 23,5	6,3 / 22,0	7,2 / 21,0	7,7 / 28,3	9,8 / 26,6	11,5 / 25,1	9,6 / 32,6	12,4 / 30,7	15,2 / 29,1	12,2 / 38,8	16,1 / 36,6	20,2 / 34,7
	18°C	4,5 / 25,2	5,4 / 24,0	6,2 / 23,1	6,4 / 29,2	8,2 / 27,8	9,8 / 26,6	8,1 / 32,8	10,6 / 31,4	12,9 / 30,0	10,8 / 39,0	14,5 / 37,3	17,8 / 35,4
	20°C	4,0 / 26,4	4,8 / 25,3	5,5 / 24,6	5,5 / 29,6	7,2 / 28,5	8,6 / 27,5	7,0 / 32,8	9,3 / 31,7	11,4 / 30,6	9,8 / 39,1	13,1 / 37,5	16,2 / 35,8

Model size 3

Air volume flow[1] S	m³/h	2790	4310	5400	2620	4020	5030	2480	3780	4720	2330	3570	4470
Air throw[2] basic	m	6,1	8,9	11,0	4,8	6,8	8,3	4,2	5,8	7,0	3,7	5,1	6,1
Air throw [2] SAL	m	7,5	10,9	13,3	5,9	8,4	10,2	5,2	7,2	8,6	4,6	6,4	7,6
Max. height [2] basic	m	5,3	9,4	12,8	3,7	6,3	8,4	3,0	5,0	6,5	2,5	4,1	5,3
Max. height [2] SAL	m	9,0	15,9	21,5	6,4	10,8	14,3	5,3	8,6	11,2	4,4	7,1	9,2
Heating capacities/Discharge temperature		Q [kW] / t °C											
W - pumped warm water	5 °C	21,6 / 28,1	26,9 / 23,6	29,9 / 21,5	33,8 / 43,4	43,9 / 37,5	49,4 / 34,3	40,6 / 53,8	55,0 / 48,4	63,4 / 45,0	46,1 / 63,9	63,8 / 58,3	74,6 / 54,7
	10°C	19,8 / 31,2	24,7 / 27,1	27,5 / 25,2	31,1 / 45,3	40,3 / 39,9	45,4 / 36,9	37,3 / 54,8	50,7 / 49,9	58,3 / 46,8	42,7 / 64,5	58,9 / 59,2	68,9 / 55,9
80°/60°C	15°C	18,1 / 34,3	22,5 / 30,5	25,0 / 28,8	28,3 / 47,2	36,3 / 41,9	41,3 / 39,4	34,0 / 55,8	46,3 / 51,4	53,2 / 48,6	39,2 / 65,1	54,0 / 60,0	63,2 / 57,1
	18°C	17,0 / 36,2	21,2 / 32,6	23,6 / 31,0	26,4 / 48,0	34,2 / 43,3	38,8 / 41,0	32,0 / 56,4	43,6 / 52,4	50,1 / 49,6	37,5 / 65,9	51,0 / 60,6	59,7 / 57,8
	20°C	16,3 / 37,4	20,3 / 34,0	22,6 / 32,4	25,2 / 48,7	32,7 / 44,2	37,2 / 42,0	30,7 / 56,8	41,8 / 53,0	48,1 / 50,3	36,0 / 66,0	49,1 / 60,9	57,4 / 58,2
	5 °C	17,8 / 24,0	22,1 / 20,3	24,6 / 18,6	27,6 / 36,4	35,7 / 31,5	40,6 / 29,0	33,6 / 45,3	45,8 / 41,1	52,5 / 38,2	39,3 / 55,2	53,5 / 49,6	62,6 / 46,7
	10°C	16,0 / 27,1	19,9 / 23,8	22,2 / 22,2	24,8 / 38,2	32,1 / 33,8	36,5 / 31,6	30,3 / 46,4	40,9 / 42,3	47,4 / 39,9	35,6 / 55,6	48,6 / 50,5	56,9 / 47,9
70°/50°C	15°C	14,3 / 30,2	17,7 / 27,2	19,5 / 25,8	22,0 / 40,0	28,5 / 36,1	32,1 / 34,0	26,9 / 47,3	36,5 / 43,7	42,3 / 41,7	32,0 / 55,9	43,6 / 51,4	50,9 / 48,9
	18°C	13,2 / 32,1	16,4 / 29,3	18,0 / 27,9	20,3 / 41,1	26,3 / 37,5	29,6 / 35,5	24,9 / 47,9	33,7 / 44,6	38,7 / 42,4	29,8 / 56,0	40,7 / 51,9	47,8 / 49,8
	20°C	12,3 / 33,2	15,5 / 30,7	17,0 / 29,4	19,2 / 41,8	24,8 / 38,4	27,9 / 36,5	23,7 / 48,5	31,9 / 45,1	36,6 / 43,1	28,3 / 56,2	38,7 / 52,2	45,7 / 50,4
	5 °C	15,5 / 21,5	19,2 / 18,3	21,4 / 16,8	24,0 / 32,2	31,1 / 28,0	35,3 / 25,9	29,1 / 40,0	39,6 / 36,2	45,5 / 33,7	33,4 / 47,7	46,1 / 43,5	53,9 / 40,9
	10°C	13,7 / 24,6	17,0 / 21,8	19,0 / 20,5	21,2 / 34,1	27,5 / 30,4	31,2 / 28,5	25,8 / 41,0	35,2 / 37,8	40,4 / 35,5	30,2 / 48,6	41,2 / 44,4	48,2 / 42,1
60°/45°C	15°C	11,9 / 27,7	14,8 / 25,2	16,5 / 24,1	18,4 / 35,9	23,9 / 32,7	27,1 / 31,1	22,5 / 42,0	30,5 / 39,0	35,3 / 37,3	26,6 / 49,0	36,3 / 45,2	42,1 / 43,0
	18°C	10,9 / 29,6	13,5 / 27,3	14,9 / 26,2	16,7 / 37,0	21,7 / 34,1	24,4 / 32,4	20,5 / 42,6	27,8 / 39,9	31,9 / 38,1	24,4 / 49,2	33,3 / 45,8	38,9 / 43,9
	20°C	10,0 / 30,7	12,6 / 28,7	13,9 / 27,6	15,6 / 37,8	20,2 / 35,0	22,7 / 33,5	19,1 / 43,0	26,0 / 40,5	29,8 / 38,8	22,9 / 49,3	31,3 / 46,1	36,8 / 44,5
	5 °C	11,7 / 17,5	14,5 / 15,0	16,0 / 13,8	18,0 / 25,5	23,3 / 22,3	26,2 / 20,5	22,1 / 31,6	29,9 / 28,5	34,2 / 26,6	26,2 / 38,5	35,8 / 34,9	41,9 / 32,9
	10°C	9,8 / 20,4	12,1 / 18,4	13,5 / 17,4	15,0 / 27,1	19,5 / 24,4	22,1 / 23,1	18,6 / 32,3	25,4 / 30,0	29,1 / 28,4	22,5 / 38,8	30,9 / 35,8	36,2 / 34,2
50°/35°C	15°C	8,0 / 23,5	9,9 / 21,8	11,0 / 21,1	12,2 / 28,8	15,8 / 26,7	17,7 / 25,5	15,5 / 33,6	20,7 / 31,3	23,7 / 29,9	18,9 / 39,1	25,7 / 36,5	30,5 / 35,3
	18°C	6,8 / 25,3	8,5 / 23,9	9,4 / 23,2	10,3 / 29,7	13,4 / 27,9	15,2 / 27,0	13,3 / 33,9	17,7 / 32,0	20,4 / 30,9	16,6 / 39,2	23,1 / 37,3	26,7 / 35,8
	20°C	6,1 / 26,5	7,5 / 25,2	8,4 / 24,6	9,0 / 30,2	11,8 / 28,7	13,3 / 27,9	11,8 / 34,2	15,8 / 32,5	18,3 / 31,5	15,1 / 39,3	20,9 / 37,5	24,3 / 36,2

	Fan motor - Selection		Capacity stage 1			Capacity stage 2			Capacity stage 3			Capacity stage 4		
	S > 400 V 3-speed		1	2	3	1	2	3	1	2	3	1	2	3
	R > 400 V 2-sp.high size 3,4,5		-	2	3	-	2	3	-	2	3	-	2	3
Model size 4	Air volume flow[1] S	m³/h	4140	6780	8250	3870	6170	7610	3630	5720	7100	3430	5340	6700
	Air throw[2] basic	m	6,6	10,5	12,3	5,2	7,7	9,1	4,5	6,5	7,6	3,9	5,6	6,6
	Air throw [2] SAL	m	8,0	12,2	14,5	6,3	9,2	11,0	5,5	7,8	9,3	4,8	6,8	8,1
	Max. height [2] basic	m	5,7	11,2	14,3	3,9	7,1	9,2	3,2	5,5	7,0	2,6	4,4	5,6
	Max. height [2] SAL	m	9,6	18,1	23,6	6,7	11,8	15,4	5,5	9,3	12,0	4,5	7,5	9,8
	Heating capacities/Discharge temperature		Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
W - pumped warm water	80°/60°C	5 °C	32,2	28,2	41,4	23,2	45,4	21,4	50,3	43,7	67,1	37,4	74,9	34,3	59,6	53,9	83,0	48,2	95,3	45,0	68,5	64,4	96,5	58,8	112,9	55,2
		10°C	29,6	31,3	38,0	26,7	41,7	25,1	46,2	45,6	61,6	39,7	68,7	36,9	54,8	54,9	76,4	49,8	87,6	46,7	63,4	65,1	89,1	59,7	104,3	56,4
		15°C	26,9	34,4	34,6	30,2	37,9	28,7	42,1	47,4	55,5	41,8	62,5	39,5	49,9	55,9	69,7	51,3	79,9	48,5	58,3	65,6	81,7	60,5	95,7	57,5
		18°C	25,3	36,2	32,5	32,3	35,7	30,9	39,2	48,2	52,1	43,2	58,8	41,0	46,9	56,5	65,7	52,2	75,2	49,5	55,2	66,0	77,2	61,0	90,4	58,2
		20°C	24,3	37,4	31,1	33,7	34,1	32,3	37,5	48,9	49,9	44,1	56,3	42,0	45,0	56,9	63,0	52,8	72,1	50,2	53,2	66,2	74,2	61,4	87,0	58,6
	70°/50°C	5 °C	26,5	24,1	34,0	19,9	37,3	18,5	41,0	36,6	54,5	31,3	61,4	29,1	49,2	45,4	68,9	40,9	78,8	38,0	57,9	55,3	80,9	50,1	94,8	47,1
		10°C	23,8	27,2	30,5	23,4	33,5	22,1	36,9	38,4	49,0	33,7	55,2	31,6	44,3	46,3	61,5	42,0	71,0	39,8	53,3	56,3	73,5	51,0	86,2	48,3
		15°C	21,2	30,2	27,1	26,9	29,4	25,6	32,7	40,2	43,4	36,0	48,5	34,0	39,3	47,3	54,7	43,5	62,5	41,2	47,8	56,5	66,0	51,8	77,5	49,4
		18°C	19,3	31,9	25,0	29,0	27,1	27,8	30,2	41,2	40,1	37,3	44,7	35,5	36,3	47,8	50,6	44,3	57,8	42,2	44,5	56,7	61,5	52,3	71,9	49,9
		20°C	18,3	33,1	23,4	30,3	25,6	29,2	28,5	41,9	37,8	38,3	42,2	36,5	34,5	48,3	47,8	44,9	54,6	42,9	42,3	56,7	58,5	52,6	68,7	50,5
	60°/45°C	5 °C	23,0	21,6	29,5	18,0	32,4	16,7	36,0	32,7	47,4	27,9	53,4	25,9	42,7	40,0	59,7	36,1	68,3	33,7	49,7	48,2	69,7	43,9	81,6	41,3
		10°C	20,4	24,7	26,1	21,5	28,7	20,4	31,5	34,3	41,9	30,2	47,3	28,5	37,8	41,0	52,5	37,3	60,6	35,4	44,6	48,7	62,3	44,8	73,0	42,5
		15°C	17,7	27,7	22,7	25,0	24,7	23,9	27,4	36,1	36,4	32,6	41,0	31,1	32,9	42,0	45,7	38,8	52,3	36,9	39,7	49,5	54,9	45,6	64,3	43,6
		18°C	15,9	29,5	20,6	27,1	22,4	26,1	24,9	37,1	33,0	33,9	36,9	32,4	29,9	42,6	41,6	39,7	47,6	38,0	36,5	49,7	50,4	46,1	58,6	44,0
		20°C	14,9	30,7	19,2	28,4	20,9	27,5	23,2	37,8	30,8	34,9	34,3	33,4	27,9	42,9	38,9	40,2	44,4	38,6	34,3	49,7	47,4	46,4	55,4	44,6
	50°/35°C	5 °C	17,1	17,3	22,1	14,7	24,0	13,7	26,7	25,6	35,5	22,1	39,6	20,5	32,2	31,5	44,8	28,3	51,1	26,5	39,2	39,0	54,2	35,2	63,0	33,0
		10°C	14,4	20,4	18,5	18,1	20,3	17,3	22,3	27,1	29,6	24,3	33,3	23,0	27,2	32,3	38,0	29,8	43,3	28,2	33,7	39,3	46,8	36,1	55,2	34,5
		15°C	11,7	23,4	15,0	21,6	16,5	20,9	18,0	28,8	23,9	26,5	26,7	25,4	22,4	33,4	30,7	31,0	35,0	29,7	28,2	39,5	39,3	36,9	46,3	35,6
		18°C	9,9	25,2	12,8	23,6	14,0	23,1	15,1	29,6	20,2	27,7	22,8	26,9	19,0	33,6	26,2	31,6	30,1	30,6	24,9	39,6	34,7	37,4	41,0	36,2
		20°C	8,8	26,3	11,3	25,0	12,4	24,5	13,1	30,1	17,8	28,6	19,9	27,8	16,6	33,6	23,2	32,1	26,5	31,1	22,7	39,7	31,7	37,7	37,0	36,5
Model size 5	Air volume flow[1] S	m³/h	5750	7680	11420	5330	7060	10770	4980	6580	10020	4690	6180	9330
	Air throw[2] basic	m	7,3	9,5	13,4	5,7	7,2	10,0	4,9	6,1	8,5	4,3	5,3	7,2
	Air throw [2] SAL	m	9,0	11,5	16,4	7,1	8,9	12,7	6,2	7,6	10,7	5,4	6,7	9,2
	Max. height [2] basic	m	6,4	9,5	15,8	4,4	6,3	10,4	3,5	4,8	8,0	2,9	3,9	6,3
	Max. height [2] SAL	m	10,7	15,6	26,4	7,5	10,6	17,9	6,1	8,3	13,8	5,0	6,9	11,0
	Heating capacities/Discharge temperature		Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
W - pumped warm water	80°/60°C	5 °C	44,4	28,0	51,8	25,1	62,2	21,2	68,4	43,2	81,2	39,3	102,9	33,5	81,4	53,7	98,8	49,7	132,1	44,3	93,2	64,2	116,4	61,1	155,2	54,5
		10°C	40,7	31,1	47,6	28,5	57,1	24,9	62,8	45,1	74,5	41,4	94,4	36,1	74,8	54,8	91,2	51,3	121,5	46,1	86,3	64,8	107,5	61,8	143,3	55,8
		15°C	37,1	34,2	42,9	31,6	52,0	28,6	56,6	46,6	67,8	43,6	85,8	38,7	68,2	55,8	83,6	52,8	110,8	47,9	79,4	65,4	98,5	62,5	131,5	57,0
		18°C	34,9	36,1	40,4	33,7	48,9	30,7	53,2	47,7	63,8	44,9	80,7	40,3	64,2	56,4	78,9	53,7	104,4	49,0	75,2	65,7	93,1	62,9	124,3	57,7
		20°C	33,5	37,3	38,7	35,0	46,8	32,2	51,0	48,5	61,1	45,8	77,2	41,4	61,5	56,8	75,8	54,3	100,1	49,7	72,4	66,0	89,5	63,1	119,5	58,1
	70°/50°C	5 °C	36,5	23,9	42,2	21,4	51,1	18,3	55,7	36,1	66,7	33,2	84,4	28,3	67,3	45,2	83,3	42,7	109,3	37,5	78,9	55,1	97,6	52,0	130,3	46,6
		10°C	32,9	27,1	38,0	24,7	46,0	22,0	50,1	38,0	59,4	35,1	75,1	30,8	60,6	46,3	74,7	43,8	97,6	39,0	72,4	56,0	88,6	52,7	118,4	47,8
		15°C	29,3	30,2	33,8	28,1	40,5	25,6	44,4	39,8	52,6	37,2	66,4	33,4	53,9	47,2	66,5	45,1	86,8	40,8	65,0	56,3	79,6	53,4	106,1	48,9
		18°C	27,1	32,0	31,2	30,1	37,4	27,8	40,9	40,9	48,5	38,5	61,2	34,9	49,7	47,7	61,5	45,9	80,3	41,9	60,6	56,5	74,2	53,7	99,6	49,8
		20°C	25,3	33,1	29,5	31,4	35,3	29,2	38,6	41,6	45,7	39,3	57,7	36,0	47,3	48,3	58,1	46,3	75,9	42,5	57,6	56,6	70,5	54,0	95,2	50,4
	60°/45°C	5 °C	31,8	21,5	36,7	19,2	44,4	16,6	48,4	32,1	58,0	29,5	73,4	25,3	58,4	39,9	71,9	37,5	94,8	33,2	67,7	48,0	84,1	45,5	112,2	40,8
		10°C	28,1	24,6	32,5	22,6	39,4	20,3	42,8	33,9	51,3	31,6	64,9	27,9	51,7	40,9	64,3	39,1	84,1	35,0	60,7	48,6	75,1	46,2	100,4	42,0
		15°C	24,5	27,7	28,3	26,0	33,9	23,8	37,1	35,8	44,0	33,6	55,7	30,4	45,1	42,0	55,6	40,2	72,6	36,6	54,0	49,3	66,2	46,9	87,6	43,0
		18°C	22,3	29,5	25,7	28,0	30,8	26,0	33,7	36,8	40,0	34,9	50,5	32,0	41,0	42,5	50,7	41,0	66,1	37,6	49,6	49,5	60,7	47,3	81,1	43,9
		20°C	20,6	30,7	24,0	29,3	28,8	27,5	31,4	37,6	37,2	35,7	47,0	33,0	38,3	42,9	47,4	41,5	61,7	38,3	46,6	49,6	57,1	47,5	76,7	44,5
	50°/35°C	5 °C	24,0	17,4	27,6	15,7	33,1	13,6	36,2	25,2	42,9	23,1	54,2	20,0	44,2	31,4	54,7	29,8	71,0	26,1	53,3	38,9	65,3	36,5	87,3	32,9
		10°C	20,1	20,4	23,4	19,1	28,0	17,3	30,1	26,8	36,1	25,2	45,6	22,6	37,3	32,3	45,9	30,8	60,2	27,9	45,9	39,2	56,3	37,2	75,6	34,1
		15°C	16,4	23,5	18,9	22,3	22,9	21,0	24,0	28,4	28,8	27,2	36,4	25,1	30,8	33,4	37,4	31,9	48,8	29,5	38,5	39,4	47,3	37,8	63,7	35,3
		18°C	14,0	25,2	16,3	24,3	19,5	23,1	20,4	29,4	24,3	28,2	31,1	26,6	26,2	33,7	32,2	32,6	42,1	30,5	33,9	39,6	41,8	38,2	55,9	35,8
		20°C	12,5	26,5	14,5	25,6	17,4	24,5	17,6	29,8	21,3	29,0	27,1	27,5	23,0	33,8	28,4	32,8	37,1	31,0	30,9	39,6	38,1	38,4	50,9	36,3

1 Air volume flow: specified table data are calculated for units with fan type „S" = 3-speed with secondary-air louvre wall outlet. The data are valid for Cu/Al and Cu/Cu heat exchangers and the other fan model "R".

2 Air throw: air throw is calculated for air intake temperature 18 °C and medium temperature 70 °C/50 °C. The values are valid for air discharge temperature up to 15 K greater than air intake temperature. Pay attention to medium values!

Order code

H	N	_	_	.	_	W	_	_	_	_	.	_	_	_
							A							
							C	HE						

Model size (1,2,3,4,5)

Capacity stages (1,2,3,4)

R - 3x400 V 2-speed high speed range - Sickle-blade fan (size 3,4,5)

S - 3 phases 400 V 3-speed - sickle-blade fan

Make your designated selection on these two pages.

Model size 1 – W - pumped warm water

Fan motor - Selection			Capacity stage 1				Capacity stage 2				Capacity stage 3				Capacity stage 4			
Y > 230 V EC motor			MIN		MAX		MIN		MAX		MIN		MAX		MIN		MAX	
Air volume flow[1] Y		m³/h	645		3270		605		2980		565		2735		540		2545	
Air throw[2] basic		m	3,0		11,7		2,4		8,9		2,1		7,2		1,9		6,2	
Air throw [2] SAL		m	3,6		14,0		3,0		10,6		2,6		8,7		2,4		7,6	
Max. height [2] basic		m	2,0		15,2		1,5		9,9		1,2		7,3		1,0		5,8	
Max. height [2] SAL		m	3,4		25,2		2,5		16,8		2,0		12,4		1,8		16,4	
Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
	80°/60°C	5°C	6,2	33,6	14,5	18,2	9,1	49,7	24,7	29,7	10,8	62,0	33,0	41,0	12,6	74,5	38,8	50,5
		10°C	5,7	36,2	13,3	22,1	8,4	51,3	22,6	32,6	9,9	62,2	30,4	43,0	10,9	70,2	36,4	52,6
		15°C	5,1	38,7	12,0	25,9	7,6	52,2	20,5	35,5	9,0	62,5	27,7	45,1	10,1	70,9	33,4	54,1
		18°C	4,8	4,3	11,3	28,3	7,1	53,0	19,2	37,2	8,5	62,6	26,1	46,4	9,6	70,9	31,6	55,0
		20°C	4,6	41,1	10,8	29,8	6,8	53,5	18,4	38,4	8,1	62,7	25,0	47,2	9,2	70,9	30,4	55,5
	70°/50°C	5°C	5,0	28,1	11,8	15,7	7,4	41,7	20,1	25,1	8,9	51,7	27,3	34,7	10,1	60,6	33,1	43,7
		10°C	4,5	30,6	10,5	19,6	6,6	42,5	18,0	28,0	8,1	52,4	24,6	36,8	9,1	60,2	30,1	45,2
		15°C	3,9	33,1	9,2	23,4	5,8	43,6	15,7	30,7	7,2	52,7	21,9	38,9	8,3	60,8	27,1	46,7
		18°C	3,6	34,6	8,4	25,7	5,3	44,2	14,4	32,4	6,6	52,9	20,3	40,1	7,8	60,7	25,0	47,3
		20°C	3,4	35,6	7,9	27,2	4,9	44,3	13,6	33,6	6,2	52,9	19,2	40,9	7,4	60,7	23,8	47,9
	60°/45°C	5°C	4,4	25,3	10,3	14,4	6,5	36,9	17,5	22,5	7,7	45,6	23,7	30,8	9,2	55,8	28,2	38,1
		10°C	3,8	27,7	9,0	18,2	5,7	37,8	15,4	25,4	6,8	45,9	21,0	32,9	7,7	52,7	25,5	39,9
		15°C	3,3	30,2	7,7	22,0	4,9	39,0	13,3	28,3	6,0	46,5	18,3	34,9	6,8	52,6	22,5	41,3
		18°C	3,0	31,7	7,0	24,3	4,4	39,6	11,9	29,9	5,4	46,6	16,7	36,2	6,3	52,9	20,7	42,2
		20°C	2,7	32,7	6,5	25,9	4,0	39,8	11,1	31,0	5,1	46,7	15,6	37,0	6,0	52,9	19,3	42,6
	50°/35°C	5°C	3,2	19,7	7,4	11,8	4,6	27,8	12,8	17,8	5,8	35,7	18,0	24,6	6,8	42,5	22,3	31,1
		10°C	2,6	22,0	6,2	15,7	3,7	28,4	10,6	20,6	4,9	35,8	15,1	26,4	5,8	42,2	19,0	32,3
		15°C	2,0	24,0	4,9	19,4	2,9	29,2	8,4	23,4	4,0	36,2	12,4	28,5	5,0	42,5	15,9	33,7
		18°C	1,5	25,0	4,1	21,7	2,5	30,4	7,0	24,9	3,4	35,8	10,6	29,6	4,4	42,1	14,1	34,5
		20°C	1,4	26,4	3,5	23,2	2,3	31,2	6,0	26,0	3,0	35,7	9,5	30,3	4,0	41,8	12,7	34,9

Model size 2 – W - pumped warm water

Air volume flow[1] Y		m³/h	840		4370		770		4015		710		3695		670		3440	
Air throw[2] basic		m	3,0		11,3		2.4		8.8		2.1		7.4		1.8		6.3	
Air throw [2] SAL		m	3,5		13,7		2.9		10.7		2.6		9.0		2.3		7.8	
Max. height [2] basic		m	1,9		13,9		1.4		9.5		1.1		7.4		0.9		5.8	
Max. height [2] SAL		m	3,1		23,4		2.3		16.1		1.9		12.5		1.6		10.0	
Heating capacities/Discharge temperature			Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C
	80°/60°C	5°C	8,8	36,2	21,6	19,7	12,1	51,6	35,8	31,5	13,6	62,1	45,4	41,6	14,8	70,7	54,1	51,9
		10°C	8,0	38,4	19,8	23,5	11,1	52,8	32,8	34,3	12,5	62,3	41,7	43,6	13,8	71,3	50,2	53,5
		15°C	7,3	40,8	17,9	27,2	10,1	53,9	29,5	36,9	11,3	62,3	38,0	45,6	12,6	70,9	46,3	55,1
		18°C	6,9	42,3	16,8	29,4	9,5	54,6	27,7	38,6	10,7	62,8	35,7	46,8	12,0	71,5	44,0	56,0
		20°C	6,6	43,3	16,1	31,0	9,0	54,7	26,5	39,7	10,2	62,9	34,2	47,6	11,6	71,4	41,9	56,2
	70°/50°C	5°C	7,2	30,5	17,6	17,0	9,9	43,2	29,0	26,5	11,2	51,9	37,4	35,1	12,6	61,1	45,6	44,5
		10°C	6,5	32,9	15,8	20,8	8,9	44,6	26,0	29,3	10,0	52,1	33,6	37,1	11,4	60,6	41,5	45,9
		15°C	5,7	35,4	14,0	24,6	7,9	45,5	23,0	32,1	8,8	52,1	29,9	39,1	10,4	61,2	37,3	47,3
		18°C	5,3	36,8	13,0	26,8	7,3	46,1	21,2	33,7	8,1	52,0	27,6	40,2	9,7	61,0	34,8	48,1
		20°C	5,0	37,8	12,2	28,3	6,8	46,4	20,0	34,8	7,6	51,8	26,1	41,0	9,2	60,9	33,1	48,7
	60°/45°C	5°C	6,2	27,1	15,3	15,4	8,5	38,0	25,2	23,7	9,6	45,4	32,5	31,2	10,7	52,6	39,4	39,2
		10°C	5,5	29,6	13,5	19,2	7,6	39,5	22,3	26,5	8,6	45,9	28,7	33,2	9,7	53,1	35,1	40,4
		15°C	4,8	32,1	11,7	23,0	6,6	40,6	19,3	29,3	7,4	46,0	25,0	35,1	8,5	52,8	31,0	41,8
		18°C	4,4	33,5	10,7	25,3	6,0	41,2	17,5	31,0	6,7	46,0	22,7	36,3	7,9	53,2	28,5	42,6
		20°C	4,1	34,5	10,0	26,8	5,6	41,6	16,3	32,1	6,2	45,9	21,2	37,1	7,4	53,0	26,8	43,2
	50°/35°C	5°C	4,7	21,7	11,5	12,8	6,4	29,7	18,8	18,9	7,1	34,8	24,4	24,7	8,5	42,8	30,6	31,5
		10°C	3,9	24,0	9,7	16,6	5,3	30,5	15,6	21,6	5,8	34,4	20,4	26,4	7,3	42,3	26,2	32,7
		15°C	3,2	26,4	7,8	20,3	4,0	30,5	12,6	24,4	4,8	35,1	16,6	28,4	6,1	42,2	21,9	34,0
		18°C	2,7	27,6	6,7	22,6	3,4	31,2	10,6	25,9	4,2	35,7	14,1	29,3	5,4	41,9	19,3	34,7
		20°C	2,4	28,5	6,0	24,1	3,1	32,0	9,4	26,9	3,8	36,1	12,3	29,9	4,9	41,6	17,4	35,0

Model size 3 – W - pumped warm water

Air volume flow[1] Y		m³/h	1155		5970		1055		5405		980		4950		915		4610	
Air throw[2] basic		m	3,0		11,3		2.4		8.6		2.1		7.1		1.8		6.1	
Air throw [2] SAL		m	3,5		13,5		2.9		10.4		2.6		8.7		2.3		7.6	
Max. height [2] basic		m	1,8		13,4		1.3		8.8		1.1		6.7		0.9		5.4	
Max. height [2] SAL		m	2,9		21,9		2.2		14.7		1.8		11.3		1.6		9.2	
Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
	80°/60°C	5°C	12,4	37,0	31,4	20,6	16,9	52,8	51,4	33,3	19,1	63,2	65,4	44,3	20,6	72,0	76,2	54,2
		10°C	11,4	39,4	28,8	24,4	15,5	53,9	47,2	36,0	17,7	63,6	60,1	46,2	19,1	72,1	70,4	55,5
		15°C	10,3	41,6	26,2	28,1	14,1	54,9	43,0	38,7	16,2	64,2	54,9	48,0	17,6	72,1	64,5	56,7
		18°C	9,7	43,0	24,7	30,3	13,3	55,5	40,4	40,3	15,2	64,2	51,7	49,1	16,5	71,6	61,0	57,4
		20°C	9,3	43,9	23,6	31,8	12,7	55,9	38,7	41,3	14,5	64,2	49,6	49,8	15,9	71,6	58,7	57,9
	70°/50°C	5°C	10,2	31,2	25,8	17,9	13,9	44,4	42,2	28,3	15,9	53,4	54,2	37,6	17,3	61,2	63,9	46,3
		10°C	9,2	33,6	23,0	21,5	12,5	45,4	38,0	30,9	14,4	53,7	48,9	39,4	15,9	61,8	57,7	47,3
		15°C	8,1	36,0	20,4	25,2	11,0	46,1	33,4	33,4	12,8	53,8	43,1	40,9	14,2	61,3	52,3	48,8
		18°C	7,5	37,4	18,8	27,4	10,2	46,7	30,8	35,0	11,8	53,8	39,9	42,0	13,3	61,3	49,1	49,7
		20°C	7,1	38,3	17,8	28,9	9,5	46,9	29,0	36,0	11,1	53,7	37,7	42,7	12,8	61,7	46,4	49,9
	60°/45°C	5°C	8,8	27,8	22,4	16,2	12,1	39,2	36,7	25,2	13,8	47,1	46,9	33,3	14,8	53,2	55,1	40,6
		10°C	7,8	30,2	19,9	19,9	10,7	40,2	32,5	27,9	12,2	47,0	41,7	35,1	13,3	53,3	49,2	41,8
		15°C	6,8	32,5	17,1	23,5	9,2	41,1	27,9	30,4	10,7	47,4	36,0	36,7	11,9	53,7	43,2	42,9
		18°C	6,2	34,0	15,5	25,8	8,4	41,8	25,4	32,0	9,7	47,4	32,8	37,7	10,8	53,3	40,0	43,8
		20°C	5,8	34,9	14,5	27,2	7,9	42,3	23,6	33,0	9,0	47,4	30,7	38,4	10,3	53,7	37,8	44,4
	50°/35°C	5°C	6,7	22,2	16,7	13,3	9,1	30,6	27,2	20,0	10,4	36,5	35,3	26,2	11,7	42,9	43,0	32,8
		10°C	5,6	24,5	14,1	17,0	7,5	31,3	23,0	22,7	8,6	36,2	30,0	28,0	10,2	43,1	37,0	33,9
		15°C	4,5	26,7	11,5	20,7	5,9	31,6	18,4	25,2	6,9	36,1	24,4	29,7	8,6	43,0	31,2	35,2
		18°C	3,8	27,9	9,8	22,9	4,8	31,6	15,8	26,7	6,0	36,2	21,1	30,7	7,5	42,3	27,3	35,6
		20°C	3,4	28,7	8,8	24,4	4,4	32,3	13,8	27,6	5,4	36,5	18,8	31,3	6,8	42,2	24,8	36,0

Model size 4 — **W** - pumped warm water

Fan motor - Selection			Capacity stage 1				Capacity stage 2				Capacity stage 3				Capacity stage 4			
Y > 230 V EC motor			MIN		MAX		MIN		MAX		MIN		MAX		MIN		MAX	
Air volume flow[1] Y		m³/h	1995		9680		1875		9010		1755		8430		1655		7950	
Air throw[2] basic		m	3,4		12,7		2,8		9,9		2,5		8,4		2,3		7,3	
Air throw [2] SAL		m	4,2		15,5		3,5		12,1		3,2		10,4		2,8		9,0	
Max. height [2] basic		m	2,1		15,2		1,6		10,5		1,4		8,2		1,1		6,6	
Max. height [2] SAL		m	3,7		25,8		2,8		17,9		2,4		14,1		2,0		11,5	
Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
80°/60°C	5	°C	20,4	35,5	48,9	20,0	29,3	51,5	82,1	32,2	33,7	62,2	106,4	42,6	39,0	75,2	126,5	52,4
	10	°C	18,8	38,0	44,9	23,8	26,9	52,7	75,4	34,9	30,9	62,4	96,8	44,2	34,1	71,5	116,5	53,6
	15	°C	17,1	40,5	40,4	27,4	24,4	53,8	68,6	37,7	28,0	62,5	88,2	46,1	31,1	71,0	107,4	55,2
	18	°C	16,0	42,0	38,0	29,7	23,0	54,5	63,8	39,1	26,3	62,6	83,0	47,3	29,8	71,6	102,0	56,2
	20	°C	15,4	42,9	36,3	31,2	21,8	54,6	61,1	40,2	25,4	63,1	79,5	48,1	28,7	71,6	98,3	56,8
70°/50°C	5	°C	16,8	30,1	39,7	17,2	24,0	43,1	66,7	27,1	27,5	51,7	86,8	35,7	31,3	61,3	107,0	45,1
	10	°C	15,1	32,6	35,7	21,0	21,7	44,5	59,9	29,8	25,0	52,4	78,2	37,6	28,5	61,3	97,0	46,3
	15	°C	13,4	35,0	31,6	24,7	19,4	45,8	53,1	32,5	22,1	52,5	69,5	39,6	25,5	60,9	87,3	47,7
	18	°C	12,4	36,5	29,2	27,0	17,7	46,1	48,9	34,2	20,3	52,5	64,3	40,7	24,1	61,4	81,4	48,5
	20	°C	11,6	37,3	27,5	28,5	16,7	46,5	46,2	35,3	19,1	52,4	60,7	41,5	22,9	61,3	77,5	49,0
60°/45°C	5	°C	14,6	26,8	34,5	15,6	20,7	37,9	58,6	24,4	23,9	45,6	75,4	31,6	26,5	52,7	91,5	39,3
	10	°C	12,9	29,3	30,5	19,4	18,5	39,4	51,3	27,0	21,3	46,1	66,8	33,6	24,1	53,3	82,5	40,9
	15	°C	11,2	31,8	26,5	23,2	16,1	40,6	44,5	29,7	18,5	46,3	58,1	35,5	21,1	52,9	72,5	42,2
	18	°C	10,2	33,2	24,1	25,4	14,6	41,2	40,3	31,3	16,7	46,4	52,9	36,7	19,5	53,0	66,6	43,0
	20	°C	9,5	34,2	22,4	26,9	13,6	41,6	37,6	32,4	15,5	46,3	49,4	37,5	18,5	53,4	62,7	43,5
50°/35°C	5	°C	11,0	21,4	25,8	13,0	15,7	30,0	43,3	19,3	17,9	35,4	56,9	25,1	20,9	42,7	71,7	31,9
	10	°C	9,2	23,7	21,8	16,7	13,0	30,7	36,5	22,1	14,8	35,2	47,7	26,9	18,3	42,9	62,0	33,2
	15	°C	7,3	25,9	17,5	20,4	10,2	31,1	29,2	24,7	11,8	35,1	38,9	28,8	15,3	42,6	51,6	34,3
	18	°C	6,2	27,3	15,0	22,6	8,0	30,7	24,7	26,2	9,9	34,8	33,2	29,7	13,6	42,5	45,6	35,1
	20	°C	5,4	28,1	13,2	24,1	7,1	31,2	21,8	27,2	9,0	35,2	29,5	30,4	12,3	42,1	41,5	35,6

Model size 5 — **W** - pumped warm water

Air volume flow[1] Y		m³/h	2200		11250		2005		10245		1850		9395		1730		8695	
Air throw[2] basic		m	3,1		12,0		2.6		9.3		2.3		7.8		2.0		6.7	
Air throw [2] SAL		m	4,0		15,0		3.3		11.7		2.9		9.9		2.6		8.5	
Max. height [2] basic		m	1,8		13,5		1.4		9.2		1.1		7.1		1.0		5.6	
Max. height [2] SAL		m	2,9		20,6		2.2		14.3		1.9		11.1		1.6		9.1	
Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
80°/60°C	5	°C	24,1	37,6	61,7	21,3	32,3	53,0	100,1	34,1	36,2	63,4	126,7	45,2	39,0	72,1	147,8	55,6
	10	°C	22,1	39,9	56,7	25,0	29,6	54,0	91,8	36,7	33,7	64,3	116,5	46,9	36,3	72,5	136,6	56,8
	15	°C	20,2	42,3	51,6	28,7	26,9	55,0	83,5	39,3	30,6	64,2	106,3	48,7	33,5	72,6	125,2	57,9
	18	°C	18,8	43,4	48,6	30,9	25,3	55,6	78,5	40,8	28,7	64,1	100,1	49,7	31,4	72,0	118,4	58,5
	20	°C	18,0	44,3	46,5	32,3	24,2	55,9	75,1	41,8	27,4	64,0	96,0	50,4	30,5	72,5	113,8	59,0
70°/50°C	5	°C	19,7	31,7	50,8	18,4	26,5	44,4	82,0	28,9	30,0	53,3	104,8	38,2	32,9	61,7	124,1	47,5
	10	°C	17,7	34,0	45,7	22,1	23,8	45,3	73,7	31,4	27,1	53,7	94,6	40,0	30,1	61,8	112,8	48,6
	15	°C	15,8	36,3	40,2	25,6	20,9	46,1	64,7	33,8	24,0	53,6	83,4	41,4	27,4	62,2	101,4	49,7
	18	°C	14,6	37,7	37,1	27,8	19,3	46,7	59,6	35,3	22,1	53,5	77,1	42,4	25,4	61,7	94,6	50,4
	20	°C	13,8	38,6	35,1	29,3	18,1	46,9	56,2	36,3	20,7	53,3	72,9	43,1	24,2	61,7	89,5	50,6
60°/45°C	5	°C	17,3	28,4	44,1	16,7	23,0	39,2	71,4	25,8	26,1	47,0	90,9	33,8	28,5	54,0	106,9	41,6
	10	°C	15,2	30,5	39,1	20,4	20,3	40,2	63,1	28,3	22,9	46,9	80,7	35,6	25,4	53,7	95,6	42,7
	15	°C	13,2	32,9	34,0	24,0	17,6	41,1	54,2	30,8	20,0	47,3	70,4	37,3	22,7	54,1	84,2	43,9
	18	°C	12,0	34,2	30,6	26,1	16,1	41,9	49,1	32,3	18,1	47,2	63,5	38,1	20,9	54,0	77,4	44,5
	20	°C	11,2	35,1	28,6	27,6	14,8	42,0	45,8	33,3	16,8	47,0	59,3	38,8	19,5	53,6	72,2	44,7
50°/35°C	5	°C	12,9	22,5	32,9	13,7	17,2	30,5	52,7	20,3	19,4	36,2	68,2	26,6	22,5	43,7	83,3	33,5
	10	°C	10,9	24,8	27,8	17,4	14,1	31,0	44,3	22,9	15,9	35,6	57,8	28,3	19,5	43,6	71,8	34,6
	15	°C	8,8	26,9	22,7	21,0	10,4	30,4	35,5	25,3	12,6	35,2	46,9	29,9	16,3	43,1	60,6	35,8
	18	°C	7,4	28,1	19,4	23,1	9,0	31,3	30,2	26,8	11,2	36,0	40,4	30,8	14,5	42,9	53,7	36,4
	20	°C	6,6	28,9	17,3	24,6	8,1	32,1	26,4	27,7	10,2	36,4	35,7	31,3	13,0	42,5	48,5	36,6

1 *Air volume flow: specified table data are calculated for units with fan type "Y" = EC continuously variable and outlet SAL wall. The data are valid for heat exchangers Cu/Al and Cu/Cu.*

2 *Air throw: air throw is calculated for air intake temperature 18 °C and medium temperature 70 °C/50 °C. The values are valid for air discharge temperature up to 15 K greater than air intake temperature. Pay attention to medium values!*

Order code

H	N	_	_	.	_	W	_	_	_	_	.	_	_	_
							A							
							C	HE						

Model size (1,2,3,4,5)

Capacity stages (1,2,3,4)

Y - 1x230 V EC - sickle-blade fan continuously variable

Make your designated selection on these two pages.

Model size 3

W - pumped warm water

Fan motor - Selection			Capacity stage 1				Capacity stage 2				Capacity stage 3				Capacity stage 4			
Z > 400 V EC motor			MIN		MAX		MIN		MAX		MIN		MAX		MIN		MAX	
Air volume flow[1] Z		m³/h	1810		8820		1670		8050		1570		7445		1475		6945	
Air throw[2] basic		m	4,1		15,7		3,3		11,9		2,9		9,9		2,6		8,5	
Air throw [2] SAL		m	5,0		18,8		4,1		14,5		3,6		12,2		3,2		10,5	
Max. height [2] basic		m	2,9		21,9		2,1		14,5		1,8		11,0		1,5		8,7	
Max. height [2] SAL		m	5,0		36,1		3,6		24,3		3,0		18,6		2,6		15,0	
Heating capacities /Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
80°/60°C	5	°C	16,8	32,7	36,7	17,4	24,8	49,3	62,6	28,2	28,7	59,5	82,8	38,1	#	#	#	#
	10	°C	15,5	35,4	33,7	21,4	22,6	50,3	57,4	31,2	26,4	60,0	76,1	40,5	#	#	#	#
	15	°C	14,1	38,2	30,7	25,4	20,6	51,7	52,2	34,3	24,0	60,5	69,4	42,8	26,8	69,0	84,3	51,2
	18	°C	13,3	39,8	28,9	27,7	19,4	52,6	49,1	36,2	22,5	60,8	65,4	44,1	25,6	69,7	79,7	52,2
	20	°C	12,7	40,9	27,7	29,3	18,6	53,2	47,0	37,4	21,8	61,4	62,7	45,1	24,6	69,7	76,6	52,8
70°/50°C	5	°C	13,9	27,8	30,2	15,2	20,4	41,3	51,3	24,0	23,9	50,3	68,4	32,4	26,8	59,2	83,5	40,8
	10	°C	12,5	30,6	27,2	19,2	18,2	42,4	46,1	27,1	21,5	50,8	61,1	34,4	24,4	59,3	75,8	42,5
	15	°C	11,0	33,1	24,1	23,1	16,1	43,8	40,5	30,0	19,1	51,3	54,3	36,7	21,8	59,0	68,0	44,2
	18	°C	10,2	34,7	22,3	25,5	14,9	44,5	37,3	31,8	17,7	51,5	50,2	38,1	20,4	59,2	63,4	45,2
	20	°C	9,6	35,8	20,8	27,0	14,0	45,0	35,2	33,0	16,7	51,6	47,5	39,0	19,4	59,3	60,3	45,8
60°/45°C	5	°C	12,1	24,8	26,2	13,9	17,6	36,5	44,6	21,5	20,5	43,9	59,3	28,8	#	#	#	#
	10	°C	10,7	27,6	23,2	18,6	15,7	37,9	39,5	24,6	18,3	44,8	52,7	31,1	20,6	51,7	64,3	37,6
	15	°C	9,2	30,2	20,2	21,8	13,5	39,0	34,3	27,7	16,0	45,3	45,4	33,2	18,2	51,8	56,6	39,3
	18	°C	8,4	31,8	18,4	24,2	12,2	39,8	30,8	29,4	14,5	45,6	41,3	34,5	16,6	51,6	51,9	40,3
	20	°C	7,8	32,9	17,0	25,7	11,4	40,4	28,7	30,6	13,6	45,7	38,6	35,4	15,7	51,7	48,8	40,9
50°/35°C	5	°C	9,0	19,8	19,7	11,7	13,2	28,5	33,0	17,2	15,6	34,6	44,4	22,8	17,9	41,1	55,8	29,0
	10	°C	7,6	22,5	16,5	15,6	11,0	29,6	27,8	20,3	13,1	35,0	37,7	25,1	15,5	41,4	48,1	30,6
	15	°C	6,2	25,1	13,4	19,5	8,8	30,7	22,6	23,4	10,8	35,5	30,6	27,2	13,1	41,5	39,9	32,1
	18	°C	5,3	26,7	11,6	21,9	7,3	31,1	19,1	25,1	9,2	35,4	26,4	28,6	11,5	41,2	35,1	33,1
	20	°C	4,7	27,7	10,2	23,5	6,3	31,2	17,0	26,3	8,0	35,2	23,6	29,5	10,5	41,3	31,9	33,7

Model size 4

W - pumped warm water

Air volume flow[1] Z		m³/h	2180		11150		2060		10340		1960		9660		1870		9105	
Air throw[2] basic		m	3,7		14,5		3,0		11,2		2,7		9,4		2,4		8,1	
Air throw [2] SAL		m	4,5		17,4		3,8		13,6		3,4		11,6		3,1		10,1	
Max. height [2] basic		m	2,4		18,4		1,8		12,5		1,5		9,7		1,3		7,8	
Max. height [2] SAL		m	4,1		31,0		3,1		21,2		2,7		16,7		2,3		13,5	
Heating capacities /Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
80°/60°C	5	°C	21,8	34,7	51,5	18,8	31,6	50,7	87,5	30,2	36,9	61,1	114,3	40,2	#	#	#	#
	10	°C	20,0	37,3	47,2	22,6	29,0	51,9	80,2	33,1	33,8	61,4	105,0	42,4	#	#	#	#
	15	°C	18,2	39,8	43,0	26,5	26,3	53,0	72,9	36,0	30,7	61,7	95,6	44,5	35,1	70,9	118,1	53,6
	18	°C	17,1	41,3	40,4	28,8	24,8	53,9	68,5	37,7	28,8	61,8	90,0	45,7	33,2	70,9	111,7	54,5
	20	°C	16,4	42,4	38,6	30,3	23,8	54,4	65,6	38,9	27,9	62,4	86,3	46,6	32,0	70,9	107,4	55,1
70°/50°C	5	°C	17,9	29,5	42,2	16,3	26,2	42,9	71,6	25,6	30,5	51,4	94,2	34,0	34,9	60,5	117,1	43,3
	10	°C	16,1	32,0	37,9	20,1	23,5	43,9	64,3	28,5	27,4	51,7	84,9	36,2	31,5	60,2	106,5	44,8
	15	°C	14,3	34,5	33,6	24,0	20,8	45,1	57,0	31,4	24,3	52,0	75,5	38,3	28,8	60,8	94,9	46,0
	18	°C	13,1	35,9	31,0	26,3	19,2	45,8	52,6	33,1	22,4	52,0	69,0	39,3	26,8	60,7	88,4	46,9
	20	°C	12,3	36,8	29,3	27,8	18,1	46,1	49,6	34,3	21,1	52,0	65,2	40,1	25,6	60,7	84,1	47,5
60°/45°C	5	°C	15,6	26,3	36,7	14,8	22,6	37,7	62,3	23,0	26,3	44,9	81,8	30,2	#	#	#	#
	10	°C	13,8	28,8	32,5	18,7	20,2	39,2	55,1	25,9	23,4	45,6	72,5	32,3	26,8	52,7	90,2	39,5
	15	°C	12,0	31,4	28,2	22,5	17,4	40,2	47,8	28,8	20,3	45,9	63,1	34,5	23,6	52,5	79,6	41,0
	18	°C	10,9	32,9	25,6	24,8	15,8	40,9	43,3	30,5	18,4	46,0	56,9	35,5	21,9	52,9	72,4	41,7
	20	°C	10,0	33,7	23,8	26,4	14,6	41,1	40,4	31,6	17,1	46,0	53,1	36,4	20,6	52,9	68,1	42,3
50°/35°C	5	°C	11,6	20,8	27,5	12,3	16,9	29,4	46,5	18,4	19,7	35,0	61,1	23,8	23,6	42,5	77,9	30,5
	10	°C	9,7	23,3	22,9	16,1	14,1	30,4	38,8	21,2	16,4	35,0	51,7	25,9	20,2	42,2	67,2	32,0
	15	°C	7,8	25,7	18,6	20,0	11,1	31,0	31,3	24,0	13,2	35,1	42,2	28,0	17,3	42,5	56,3	33,4
	18	°C	6,7	27,1	16,0	22,3	8,9	30,9	26,5	25,6	10,7	34,3	35,9	29,1	15,2	42,2	49,8	34,3
	20	°C	5,8	27,9	14,1	23,8	7,4	30,8	23,4	26,8	9,5	34,5	32,0	29,9	13,7	41,9	44,8	34,7

				Capacity stage 1				Capacity stage 2				Capacity stage 3				Capacity stage 4			
			Fan motor - Selection	MIN		MAX		MIN		MAX		MIN		MAX		MIN		MAX	
			Z > 400 V EC motor																
			Air volume flow[1] Z m³/h	2460		11940		2250		10890		2090		10005		1960		9295	
			Air throw[2] basic m	3,5		12,6		2,8		9,8		2,5		8,2		2,2		7,0	
			Air throw [2] SAL m	4,4		15,8		3,6		12,3		3,2		10,4		2,9		9,0	
			Max. height [2] basic m	2,1		14,6		1,6		9,9		1,3		7,6		1,1		6,0	
			Max. height [2] SAL m	3,3		22,2		2,5		15,4		2,1		12,1		1,8		9,9	
			Heating capacities /Discharge temperature	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
Model size 5	W - pumped warm water	80°/60°C	5 °C	26,2	36,7	63,4	20,8	35,7	52,2	103,5	33,3	40,5	62,7	132,0	44,3	43,6	71,3	154,8	54,6
			10 °C	24,1	39,2	58,3	24,5	32,7	53,3	95,0	36,0	37,6	63,5	121,4	46,1	40,8	72,0	143,0	55,8
			15 °C	21,7	41,3	53,1	28,2	29,7	54,4	86,4	38,6	34,1	63,5	110,7	47,9	37,3	71,6	131,1	57,0
			18 °C	20,4	42,7	49,9	30,4	27,9	55,0	81,2	40,2	32,0	63,5	104,3	49,0	35,3	71,6	124,0	57,7
			20 °C	19,6	43,7	47,8	31,9	26,7	55,4	77,7	41,2	30,5	63,5	100,0	49,7	34,0	71,6	119,2	58,2
		70°/50°C	5 °C	21,4	30,9	52,2	18,0	29,3	43,8	84,9	28,2	33,4	52,7	109,2	37,5	37,0	61,2	130,0	46,6
			10 °C	19,3	33,4	46,5	21,6	26,2	44,7	75,5	30,7	30,3	53,2	97,5	39,0	34,1	61,9	118,1	47,9
			15 °C	17,1	35,8	41,3	25,3	23,4	46,0	66,8	33,3	26,9	53,3	86,7	40,8	30,8	61,8	105,8	48,9
			18 °C	15,8	37,2	38,1	27,5	21,6	46,6	61,6	34,8	24,7	53,2	80,2	41,9	28,6	61,4	99,2	49,8
			20 °C	15,0	38,1	36,0	29,0	20,3	46,9	58,1	35,9	23,2	53,1	75,8	42,6	27,3	61,4	94,9	50,4
		60°/45°C	5 °C	18,6	27,5	45,4	16,3	25,5	38,7	73,8	25,2	29,1	46,5	94,7	33,2	31,7	53,2	111,9	40,9
			10 °C	16,5	30,0	40,2	20,0	22,3	39,6	65,3	27,9	25,6	46,5	84,1	35,0	28,5	53,3	100,1	42,1
			15 °C	14,3	32,4	34,6	23,6	19,6	41,0	56,0	30,3	22,4	46,9	72,5	36,6	25,5	53,7	88,2	43,3
			18 °C	13,1	33,8	31,4	25,8	17,7	41,4	50,8	31,9	20,3	46,9	66,0	37,7	23,2	53,3	80,8	43,9
			20 °C	12,2	34,7	29,3	27,3	16,5	41,8	47,3	32,9	18,9	46,9	61,6	38,4	22,0	53,4	76,5	44,5
		50°/35°C	5 °C	14,0	22,0	33,8	13,4	19,0	30,2	54,5	19,9	21,7	36,0	70,9	26,1	25,0	43,0	87,0	32,9
			10 °C	11,9	24,4	28,6	17,1	15,7	30,8	45,9	22,5	18,0	35,7	60,2	27,9	21,9	43,3	76,1	34,4
			15 °C	9,6	26,6	23,3	20,8	11,9	30,8	36,6	25,0	14,3	35,4	48,8	29,5	18,4	42,9	63,5	35,4
			18 °C	8,1	27,8	19,9	23,0	9,6	30,7	31,3	26,6	12,1	35,2	42,1	30,5	16,3	42,8	55,7	35,9
			20 °C	7,2	28,7	17,8	24,4	8,7	31,5	27,3	27,5	11,0	35,6	37,1	31,0	14,7	42,4	50,8	36,3

1 Air volume flow: specified table data are calculated for units with fan type „Z" = EC- continuously variable and outlet SAL wall. The data are valid for heat exchangers Cu/Al and Cu/Cu.

2 Air throw: air throw is calculated for air intake temperature 18 °C and medium temperature 70 °C / 50 °C. The values are valid for air discharge temperature up to 15 K greater than air intake temperature. Pay attention to medium values!

Order code

H	N	_	_	.	_	W	_	_	_	_	.	_	_	_
							A							
							C	HE						

Model size (3,4,5)

Capacity stages (1,2,3,4)

Z - 3x400 V EC - sickle-blade fan continuously variable

Make your designated selection on these two pages.

Model size 1

Fan motor - Selection		Capacity stage 1			Capacity stage 2			Capacity stage 3			Capacity stage 4		
C > 400 V 3-speed		1	2	3	1	2	3	1	2	3	1	2	3
B > 400 V 2-speed high		-	2	3	-	2	3	-	2	3	-	2	3
E > 230 V 1-speed high		-	-	3	-	-	3	-	-	3	-	-	3
Air volume flow [1] C	m³/h	-	1680	2040	-	1430	1780						
Air throw [2] basic	m	-	5,5	6,4	-	4,0	4,7						
Air throw [2] SAL	m	-	6,5	7,7	-	4,9	5,8						
Max. height [2] basic	m	-	4,9	6,1	-	3,0	3,8						
Max. height [2] SAL	m	-	8,1	10,2	-	5,2	6,6						

Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
W - PHW	140°/ 100°C	5°C	-	-	22,5	44,8	25,3	41,9	-	-	32,4	72,4	37,9	68,3														
		10°C	-	-	21,4	47,9	24,1	45,1	-	-	30,8	74,1	36,1	70,3														
		15°C	-	-	20,3	51,0	22,8	48,3	-	-	29,2	75,8	34,3	72,2														
		18°C	-	-	19,7	52,8	22,1	50,2	-	-	28,3	76,9	33,1	73,4														
		20°C	-	-	19,2	54,1	21,6	51,5	-	-	27,7	77,5	32,4	74,1														
	110°/ 70°C	5°C	-	-	15,2	32,0	16,9	29,7	-	-	21,9	50,6	25,6	47,8														
		10°C	-	-	14,1	35,1	15,7	32,9	-	-	20,3	52,3	23,7	49,7														
		15°C	-	-	12,9	37,9	14,5	36,2	-	-	18,7	53,9	21,9	51,6														
		18°C	-	-	12,3	39,7	13,8	38,1	-	-	17,7	54,9	20,8	52,7														
		20°C	-	-	11,8	40,9	13,3	39,4	-	-	17,1	55,5	20,0	53,4														
S - steam	3 bar	5°C	-	-	23,1	45,9	26,2	43,2																				
		10°C	-	-	22,0	48,9	24,8	46,2																				
		15°C	-	-	20,8	51,8	23,6	49,3																				
		18°C	-	-	20,1	53,6	22,8	51,2																				
		20°C	-	-	19,6	54,8	22,2	52,3																				
	0.5 bar	5°C	-	-	16,3	33,8	18,4	31,9																				
		10°C	-	-	14,9	36,5	17,1	34,9																				
		15°C	-	-	13,6	39,1	15,7	37,8																				
		18°C	-	-	12,8	40,6	14,8	39,5																				
		20°C	-	-	12,2	41,6	14,1	40,6																				

Outside Range of Application

Model size 2

Air volume flow [1] C	m³/h	1660	2790	3500	1440	2380	3070																				
Air throw [2] basic	m	4,2	6,5	7,7	3,2	4,7	5,7																				
Air throw [2] SAL	m	5,1	7,7	9,3	3,9	5,7	7,0																				
Max. height [2] basic	m	3,1	6,0	7,8	2,1	3,7	5,0																				
Max. height [2] SAL	m	5,3	9,9	13,1	3,6	6,3	8,5																				

Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
W - PHW	140°/ 100°C	5°C	26,8	53,0	37,0	44,4	42,3	41,0	36,9	81,2	53,7	72,1	64,3	67,4														
		10°C	25,5	55,8	35,2	47,6	40,3	44,3	35,1	82,6	51,2	74,0	61,3	69,4														
		15°C	24,3	58,5	33,5	50,7	38,3	47,6	33,3	83,9	48,6	75,7	58,3	71,4														
		18°C	23,5	60,1	32,4	52,6	37,1	49,5	32,3	84,6	47,1	76,8	56,4	72,6														
		20°C	23,0	61,2	31,7	53,8	36,3	50,8	31,5	85,1	46,0	77,5	55,2	73,5														
	110°/ 70°C	5°C	18,4	38,1	25,4	32,1	28,7	29,4	25,6	58,0	37,1	51,5	43,9	47,6														
		10°C	17,2	40,8	23,6	35,2	26,7	32,7	23,8	59,2	34,6	53,2	40,9	49,7														
		15°C	15,9	43,5	21,9	38,3	24,7	36,0	22,0	60,4	32,0	55,0	37,8	51,7														
		18°C	15,0	44,8	20,8	40,2	23,5	38,0	21,0	61,3	30,4	56,0	36,0	52,9														
		20°C	14,4	45,9	20,1	41,4	22,7	39,3	19,9	61,2	29,3	56,6	34,7	53,6														
S - steam	3 bar	5°C	28,7	56,4	40,2	47,9	46,1	44,2																				
		10°C	27,4	59,0	38,4	51,0	44,1	47,5																				
		15°C	26,0	61,5	36,5	53,9	42,0	50,7																				
		18°C	25,2	63,1	35,4	55,7	40,6	52,5																				
		20°C	24,6	64,1	34,7	57,0	39,8	53,8																				
	0.5 bar	5°C	20,5	41,8	29,1	36,1	33,4	33,4																				
		10°C	19,1	44,3	27,2	39,0	31,3	36,6																				
		15°C	17,6	46,6	25,3	42,0	29,2	39,8																				
		18°C	16,7	48,0	24,2	43,8	27,8	41,6																				
		20°C	16,1	48,8	23,4	45,0	27,0	42,9																				

Outside Range of Application

Model size 3

Air volume flow [1] C	m³/h	2190	3610	4530	1910	3070	3920																				
Air throw [2] basic	m	4,0	6,0	7,1	3,0	4,3	5,2																				
Air throw [2] SAL	m	4,8	7,2	8,6	3,8	5,4	6,5																				
Max. height [2] basic	m	2,8	5,1	6,7	1,9	3,2	4,2																				
Max. height [2] SAL	m	4,7	8,5	11,2	3,2	5,5	7,3																				

Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
W - PHW	140°/ 100°C	5°C	38,3	57,1	52,8	48,5	60,8	45,0	51,5	85,3	74,4	77,1	88,6	72,2														
		10°C	36,6	59,7	50,4	51,5	57,4	47,7	49,1	86,5	71,6	79,3	84,5	74,1														
		15°C	34,8	62,2	47,9	54,5	54,6	50,9	46,7	87,6	67,7	80,6	80,3	75,9														
		18°C	33,7	63,8	46,5	56,3	53,0	52,8	45,2	88,3	65,4	81,4	78,6	77,6														
		20°C	33,0	64,8	45,5	57,5	51,8	54,0	44,2	88,8	63,8	81,8	76,8	78,3														
	110°/ 70°C	5°C	26,4	40,9	36,3	35,0	41,8	32,4	35,7	60,7	51,7	55,2	61,9	52,0														
		10°C	24,6	43,5	33,9	38,0	39,0	35,6	33,5	62,2	48,2	56,8	57,7	53,8														
		15°C	22,9	46,1	31,4	40,9	36,1	38,7	30,9	63,2	45,1	58,7	53,5	55,6														
		18°C	21,8	47,6	30,0	42,7	34,4	40,6	29,3	63,7	42,9	59,5	50,9	56,6														
		20°C	21,0	48,6	29,0	43,9	33,3	41,9	28,5	64,5	41,2	60,0	49,1	57,3														
S - steam	3 bar	5°C	42,3	62,5	59,0	53,7	67,9	49,6																				
		10°C	40,5	65,0	56,6	56,6	65,1	52,8																				
		15°C	38,7	67,6	54,1	59,6	62,3	55,9																				
		18°C	37,5	68,9	52,6	61,3	60,6	57,8																				
		20°C	36,8	69,9	51,6	62,5	59,4	59,0																				
	0.5 bar	5°C	31,0	47,1	43,2	40,7	49,7	37,7																				
		10°C	29,1	49,5	40,8	43,6	46,9	40,8																				
		15°C	27,2	52,0	38,3	46,6	44,1	44,0																				
		18°C	26,0	53,3	36,7	48,2	42,4	45,8																				
		20°C	25,2	54,3	35,7	49,4	41,1	47,0																				

Outside Range of Application

				Capacity stage 1						Capacity stage 2						Capacity stage 3						Capacity stage 4					
Fan motor - Selection																											
C > 400 V 3-speed				1		2		3		1		2		3		1		2		3		1		2		3	
B > 400 V 2-speed high				-		2		3		-		2		3		-		2		3		-		2		3	
E > 230 V 1-speed high				-		-		3		-		-		3		-		-		3		-		-		3	
Air volume flow [1] C			m³/h	3440		5390		7210		3050		4610		6280													
Air throw [2] basic			m	4,3		6,4		8,0		3,4		4,6		5,9													
Air throw [2] SAL			m	5,3		7,5		9,6		4,2		5,7		7,2													
Max. height [2] basic			m	3,0		5,3		7,5		2,1		3,3		4,7													
Max. height [2] SAL			m	5,2		8,8		12,6		3,6		5,8		8,2													
Heating capacities/Discharge temperature				**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C	**Q** [kW]	**t** °C
Model size 4	**W** - PHW	140°/ 100°C	5°C	60,7	57,5	81,1	49,8	97,2	45,1	82,9	85,9	114,0	78,6	143,9	73,2												
			10°C	58,0	60,2	77,4	52,7	92,8	48,3	79,1	87,1	108,3	79,9	137,2	75,0												
			15°C	55,2	62,7	73,7	55,7	88,4	51,4	75,2	88,3	102,5	81,2	130,5	76,8												
			18°C	53,5	64,3	71,5	57,4	85,7	53,3	72,8	89,0	100,1	82,6	126,4	77,9												
			20°C	52,4	65,3	70,0	58,6	83,9	54,6	71,3	89,5	97,9	83,1	123,7	78,6												
		110°/ 70°C	5°C	42,3	41,6	56,9	36,4	67,4	32,8	58,4	62,0	80,6	57,0	100,3	52,5												
			10°C	39,5	44,2	53,1	39,3	62,9	36,0	54,4	63,1	75,2	58,5	93,7	54,4												
			15°C	36,7	46,8	49,4	42,3	58,5	39,1	50,4	64,2	69,7	60,0	87,0	56,2												
			18°C	35,0	48,3	47,1	44,0	55,8	41,0	47,9	64,7	66,5	60,9	82,9	57,3												
			20°C	33,9	49,3	45,6	45,2	54,0	42,3	46,7	65,6	63,3	60,8	80,1	57,9												
	S - steam	3 bar	5°C	69,2	64,8	93,4	56,5	111,6	51,1																		
			10°C	66,4	67,4	89,3	59,3	106,8	54,1																		
			15°C	63,6	70,0	85,6	62,2	102,4	57,2																		
			18°C	61,9	71,5	83,4	64,0	99,8	59,1																		
			20°C	60,8	72,6	81,9	65,2	98,0	60,4																		
		0.5 bar	5°C	51,1	49,3	68,9	43,1	82,3	39,0																		
			10°C	48,4	51,9	65,2	46,0	77,6	42,1																		
			15°C	45,6	54,5	61,3	48,8	73,2	45,2																		
			18°C	43,9	56,0	59,0	50,6	70,6	47,1																		
			20°C	42,6	56,8	57,5	51,8	68,8	48,4																		

Outside Range of Application

1 Air volume flow: specified table data are calculated for units with fan type „C" = 3-speed with secondary-air louvre wall outlet. The data are valid for steel heat exchangers and other fan models "B" and "E". Other fan types are available on request.

2 Air throw: air throw is calculated for air intake temperature 18 °C and medium temperature 70 °C/50 °C. The values are valid for air discharge temperature up to 15 K greater than air intake temperature. Pay attention to medium values!

Order code

H	N	_	_	.	_	_	S	_	_	_	.	_	_	_

W
S

Model size (1,2,3,4)

Capacity stages (1,2)

Medium function

B - 3x400 V 2-speed - high speed range - wide-blade fan

C - 3x400 V 3-speed - wide-blade fan (size 2,3,4)

E - 1x230 V 1-speed - high speed range wide-blade fan

Make your designated selection on these two pages.

Model size 1

Fan motor - Selection			Capacity stage 1			Capacity stage 2			Capacity stage 3			Capacity stage 4		
S > 400 V 3-speed			1	2	3	1	2	3	1	2	3	1	2	3
R > 400 V 2-sp.high size 3,4,5			-	2	3	-	2	3	-	2	3	-	2	3
Air volume flow [1] S		m³/h	930	1600	1880	830	1370	1650						
Air throw [2] basic		m	3,4	5,3	6,0	2,6	3,8	4,4						
Air throw [2] SAL		m	4,1	6,3	7,2	3,2	4,7	5,4						
Max. height [2] basic		m	2,3	4,6	5,5	1,6	2,8	3,5						
Max. height [2] SAL		m	4,0	7,6	9,3	2,8	4,9	6,1						
Heating capacities/Discharge temperature			Q [kW] / t °C											
W - PHW	140°/ 100°C	5°C	15,5 / 54,4	21,8 / 45,6	24,1 / 43,1	21,4 / 81,8	31,4 / 73,1	35,9 / 69,7						
		10°C	14,7 / 57,1	20,8 / 48,6	22,9 / 46,3	20,4 / 83,1	29,9 / 74,8	34,2 / 71,6						
		15°C	14,0 / 59,7	19,7 / 51,7	21,8 / 49,4	19,3 / 84,2	28,3 / 76,5	32,4 / 73,5						
		18°C	13,5 / 61,3	19,1 / 53,5	21,1 / 51,3	18,7 / 84,9	27,4 / 77,5	31,4 / 74,6						
		20°C	13,2 / 62,3	18,7 / 54,7	20,6 / 52,6	18,2 / 85,4	27,1 / 78,8	30,7 / 75,3						
	110°/ 70°C	5°C	10,5 / 38,6	14,8 / 32,5	16,1 / 30,6	14,7 / 57,7	21,4 / 51,6	24,2 / 48,7						
		10°C	9,6 / 40,8	13,7 / 35,5	15,0 / 33,7	13,6 / 58,8	19,7 / 52,8	22,5 / 50,6						
		15°C	8,9 / 43,4	12,5 / 38,3	13,8 / 36,9	12,5 / 59,9	18,1 / 54,4	20,7 / 52,4						
		18°C	8,4 / 44,9	11,9 / 40,1	13,1 / 38,8	11,8 / 60,4	17,2 / 55,3	19,7 / 53,5						
		20°C	8,1 / 46,0	11,5 / 41,3	12,6 / 40,0	11,3 / 60,6	16,5 / 55,9	18,9 / 54,2						
S - steam	3 bar	5°C	15,4 / 54,2	22,5 / 46,8	24,9 / 44,3									
		10°C	14,5 / 56,4	21,3 / 49,6	23,7 / 47,4									
		15°C	13,6 / 58,6	20,2 / 52,5	22,4 / 50,4									
		18°C	13,1 / 59,9	19,5 / 54,2	21,6 / 52,2									
		20°C	12,8 / 60,8	19,0 / 55,3	21,1 / 53,4									
	0.5 bar	5°C	10,2 / 37,8	15,7 / 34,3	17,5 / 32,7									
		10°C	9,3 / 39,9	14,4 / 36,8	16,2 / 35,6									
		15°C	8,9 / 43,6	13,1 / 39,4	14,8 / 38,4									
		18°C	8,7 / 45,8	12,3 / 40,9	13,9 / 40,0									
		20°C	8,6 / 47,4	11,7 / 41,8	13,3 / 41,1									

Outside Range of Application

Model size 2

Air volume flow [1] S	m³/h	1650	2420	3270	1480	2140	2940							
Air throw [2] basic	m	4,1	5,5	7,1	3,2	4,2	5,4							
Air throw [2] SAL	m	5,1	6,9	8,8	4,0	5,3	6,8							
Max. height [2] basic	m	3,0	4,8	7,0	2,1	3,2	4,6							
Max. height [2] SAL	m	5,3	8,3	12,1	3,7	5,6	8,1							
Heating capacities/Discharge temperature		Q [kW] / t °C												
W - PHW	140°/ 100°C	5°C	26,7 / 53,1	34,2 / 47,1	40,6 / 42,0	37,7 / 80,8	50,1 / 74,7	62,4 / 68,2						
		10°C	25,4 / 55,9	32,6 / 50,1	38,7 / 45,2	35,9 / 82,1	47,7 / 76,3	59,5 / 70,2						
		15°C	24,2 / 58,6	31,0 / 53,1	36,8 / 48,5	34,1 / 83,5	45,3 / 78,0	56,5 / 72,2						
		18°C	23,4 / 60,2	30,0 / 54,9	35,7 / 50,4	33,0 / 84,2	43,9 / 79,0	54,7 / 73,4						
		20°C	22,9 / 61,3	29,4 / 56,1	34,9 / 51,7	32,2 / 84,7	42,9 / 79,6	53,5 / 74,1						
	110°/ 70°C	5°C	18,4 / 38,1	23,3 / 33,6	27,9 / 30,4	26,2 / 57,7	34,3 / 52,8	42,7 / 48,2						
		10°C	17,1 / 40,8	21,6 / 36,6	26,0 / 33,6	24,3 / 59,0	32,0 / 54,5	39,7 / 50,2						
		15°C	15,8 / 43,5	20,0 / 39,6	23,8 / 36,7	22,5 / 60,2	29,6 / 56,1	36,7 / 52,2						
		18°C	14,9 / 44,9	19,1 / 41,4	22,6 / 38,6	21,3 / 60,8	28,1 / 57,0	34,9 / 53,3						
		20°C	14,4 / 45,9	18,4 / 42,6	21,8 / 39,9	20,4 / 61,1	27,1 / 57,6	33,7 / 54,1						
S - steam	3 bar	5°C	28,5 / 56,5	36,8 / 50,3	44,4 / 45,4									
		10°C	27,2 / 59,1	35,1 / 53,1	42,3 / 48,5									
		15°C	25,8 / 61,6	33,4 / 56,1	40,3 / 51,7									
		18°C	25,1 / 63,2	32,4 / 57,8	39,1 / 53,6									
		20°C	24,5 / 64,2	31,7 / 59,0	38,3 / 54,9									
	0.5 bar	5°C	20,4 / 41,9	26,5 / 37,7	32,0 / 34,1									
		10°C	19,0 / 44,3	24,8 / 40,5	30,1 / 37,4									
		15°C	17,6 / 46,7	23,1 / 43,4	28,0 / 40,5									
		18°C	16,7 / 48,0	22,0 / 45,0	26,8 / 42,4									
		20°C	16,0 / 48,9	21,3 / 46,2	25,8 / 43,5									

Outside Range of Application

Model size 3

Air volume flow [1] S	m³/h	2540	3880	4880	2250	3430	4300							
Air throw [2] basic	m	4,3	6,2	7,4	3,4	4,7	5,6							
Air throw [2] SAL	m	5,4	7,6	9,2	4,3	5,9	7,0							
Max. height [2] basic	m	3,2	5,4	7,2	2,2	3,6	4,7							
Max. height [2] SAL	m	5,6	9,3	12,3	3,9	6,2	8,1							
Heating capacities/Discharge temperature		Q [kW] / t °C												
W - PHW	140°/ 100°C	5°C	42,0 / 54,2	55,3 / 47,4	62,9 / 43,4	58,6 / 82,5	80,9 / 75,2	94,6 / 70,5						
		10°C	40,1 / 56,9	52,7 / 50,4	60,0 / 46,6	55,8 / 83,8	77,1 / 76,9	90,2 / 72,4						
		15°C	38,1 / 59,6	50,2 / 53,4	57,1 / 49,8	53,0 / 85,1	73,3 / 78,6	85,8 / 74,3						
		18°C	37,0 / 61,3	48,6 / 55,3	55,4 / 51,7	51,3 / 85,8	71,0 / 79,5	83,1 / 75,5						
		20°C	36,2 / 62,3	47,6 / 56,5	54,2 / 53,0	50,2 / 86,3	69,4 / 80,2	81,3 / 76,2						
	110°/ 70°C	5°C	29,2 / 39,2	38,0 / 34,2	43,7 / 31,6	41,3 / 59,6	56,1 / 53,7	66,1 / 50,8						
		10°C	27,2 / 41,9	35,5 / 37,2	40,7 / 34,8	38,3 / 60,7	52,4 / 55,4	61,7 / 52,7						
		15°C	25,3 / 44,6	32,9 / 40,2	37,8 / 38,0	35,1 / 61,5	48,5 / 57,1	57,2 / 54,6						
		18°C	24,1 / 46,2	31,3 / 42,0	36,0 / 40,0	33,5 / 62,3	46,2 / 58,1	54,4 / 55,7						
		20°C	23,3 / 47,3	30,3 / 43,2	34,8 / 41,2	32,2 / 62,6	45,0 / 59,0	52,5 / 56,3						
S - steam	3 bar	5°C	47,0 / 60,0	61,8 / 52,4	71,1 / 48,4									
		10°C	44,8 / 62,5	59,3 / 55,4	68,2 / 51,6									
		15°C	42,8 / 65,1	56,7 / 58,5	65,2 / 54,8									
		18°C	41,6 / 66,7	54,9 / 60,1	63,4 / 56,7									
		20°C	40,8 / 67,8	53,9 / 61,3	62,3 / 57,9									
	0.5 bar	5°C	34,3 / 45,2	45,3 / 39,7	52,0 / 36,7									
		10°C	32,3 / 47,8	42,7 / 42,8	49,1 / 39,9									
		15°C	30,3 / 50,5	40,0 / 45,7	46,1 / 43,1									
		18°C	28,9 / 51,9	38,4 / 47,5	44,2 / 44,9									
		20°C	28,1 / 52,9	37,4 / 48,7	43,0 / 46,2									

Outside Range of Application

Model size 4

Fan motor - Selection			Capacity stage 1						Capacity stage 2						Capacity stage 3						Capacity stage 4					
S > 400 V 3-speed			1		2		3		1		2		3		1		2		3		1		2		3	
R > 400 V 2-sp.high size 3,4,5			-		2		3		-		2		3		-		2		3		-		2		3	
Air volume flow [1] S		m³/h	3730		5970		7360		3310		5150		6470													
Air throw [2] basic		m	4,6		6,8		8,0		3,6		5,0		6,0													
Air throw [2] SAL		m	5,6		8,2		9,7		4,5		6,2		7,4													
Max. height [2] basic		m	3,3		6,0		7,6		2,3		3,8		4,9													
Max. height [2] SAL		m	5,7		10,0		12,9		4,0		6,5		8,5													
Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
W - PHW	140°/ 100°C	5°C	64,2	56,2	86,5	48,1	98,4	44,8	88,4	84,5	123,9	76,6	145,6	72,0												
		10°C	61,3	58,9	82,6	51,1	94,0	48,0	84,3	85,7	118,2	78,3	138,9	73,9												
		15°C	58,4	61,6	78,6	54,2	89,5	51,2	80,1	87,0	113,2	80,4	133,5	76,4												
		18°C	56,6	63,1	76,2	56,0	85,9	52,7	77,6	87,7	109,3	81,1	129,3	77,4												
		20°C	55,4	64,2	74,6	57,2	84,1	54,0	75,9	88,2	106,6	81,6	126,5	78,1												
	110°/ 70°C	5°C	44,7	40,7	60,7	35,2	68,2	32,6	62,3	61,0	87,7	55,7	102,4	52,1												
		10°C	41,7	43,3	56,1	38,0	63,7	35,8	58,1	62,2	81,9	57,3	95,7	54,0												
		15°C	38,8	45,9	52,2	41,0	59,2	38,9	53,8	63,3	75,9	58,9	88,8	55,9												
		18°C	37,0	47,5	49,7	42,8	56,5	40,8	51,1	63,9	72,2	59,7	84,7	56,9												
		20°C	35,8	48,6	48,1	44,0	54,6	42,1	49,8	64,8	70,1	60,5	81,8	57,6												
S - steam	3 bar	5°C	73,2	63,4	99,3	54,5	112,6	50,5																		
		10°C	70,3	66,0	95,3	57,5	108,2	53,7																		
		15°C	67,3	68,7	91,4	60,5	103,7	56,9																		
		18°C	65,3	70,1	89,0	62,3	101,0	58,8																		
		20°C	64,1	71,1	87,4	63,6	99,2	60,1																		
	0.5 bar	5°C	54,1	48,2	73,3	41,5	83,4	38,7																		
		10°C	51,2	50,9	69,3	44,6	78,6	41,8																		
		15°C	48,3	53,5	65,4	47,6	74,2	45,0																		
		18°C	46,3	54,9	63,0	49,4	71,5	46,9																		
		20°C	45,1	56,0	61,4	50,6	69,7	48,2																		

Outside Range of Application

Model size 5

Air volume flow [1] S		m³/h	5150		6820		10220		4530		5970		8980													
Air throw [2] basic		m	5,0		6,3		8,7		3,9		4,8		6,5													
Air throw [2] SAL		m	6,3		7,9		11,0		5,0		6,1		8,3													
Max. height [2] basic		m	3,7		5,2		8,4		2,5		3,4		5,4													
Max. height [2] SAL		m	6,3		8,8		14,4		4,4		6,0		9,5													
Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
W - PHW	140°/ 100°C	5°C	88,7	56,2	105,8	51,2	136,2	44,7	121,5	84,8	148,7	79,1	201,9	71,9												
		10°C	84,7	58,9	101,0	54,1	130,1	47,9	115,9	86,1	143,2	81,3	192,7	73,8												
		15°C	80,7	61,6	96,2	57,0	123,9	51,1	110,2	87,4	136,2	82,8	185,2	76,3												
		18°C	78,3	63,2	93,4	58,7	120,2	53,0	106,8	88,1	131,9	83,7	179,5	77,4												
		20°C	76,6	64,3	91,4	59,9	117,7	54,2	104,5	88,6	129,1	84,3	175,6	78,1												
	110°/ 70°C	5°C	62,0	40,8	74,5	37,5	94,8	32,6	85,9	61,5	106,4	58,1	142,7	52,3												
		10°C	58,0	43,5	69,7	40,4	88,7	35,8	80,2	62,7	100,2	60,0	133,4	54,2												
		15°C	53,9	46,2	64,9	43,3	82,5	39,0	74,4	63,9	92,1	60,9	124,0	56,1												
		18°C	51,5	47,7	61,9	45,0	78,7	40,9	70,7	64,5	87,7	61,7	118,2	57,2												
		20°C	49,8	48,8	59,9	46,2	76,2	42,2	69,0	65,3	84,5	62,1	114,3	57,9												
S - steam	3 bar	5°C	102	64	123	59	157	51																		
		10°C	98	67	118	62	151	54																		
		15°C	94	69	113	64	145	57																		
		18°C	92	71	111	66	142	59																		
		20°C	90	72	109	67	139	61																		
	0.5 bar	5°C	76	49	91	45	117	39																		
		10°C	72	52	87	48	111	42																		
		15°C	68	54	82	51	105	45																		
		18°C	66	56	79	52	101	47																		
		20°C	64	57	77	54	98	49																		

Outside Range of Application

1 *Air volume flow: specified table data are calculated for units with fan type „S" = 3-speed with secondary-air louvre wall outlet. The data are valid for steel heat exchangers and the other fan model "R".*

2 *Air throw: air throw is calculated for air intake temperature 18 °C and medium temperature 70 °C/50 °C. The values are valid for air discharge temperature up to 15 K greater than air intake temperature. Pay attention to medium values!*

Order code

H	N	_	_	.	_	_	S	_	_	_	.	_	_	_

W
S

Model size (1,2,3,4,5)

Capacity stages (1,2)

Medium function

R - 3x400 V 2-speed high speed range - Sickle-blade fan (size 3,4,5)

S - 3 phases 400 V 3-speed - sickle-blade fan

Make your designated selection on these two pages.

Model size 1

Fan motor - Selection			Capacity stage 1				Capacity stage 2				Capacity stage 3				Capacity stage 4			
Y > 230 V EC motor			MIN		MAX		MIN		MAX		MIN		MAX		MIN		MAX	
Air volume flow[1] Y		m³/h	605		3000		580		2785									
Air throw [2] basic		m	2,8		10,1		2,4		8,0									
Air throw [2] SAL		m	3,5		12,2		3,0		9,7									
Max. height [2] basic		m	1,8		12,2		1,4		8,5									
Max. height [2] SAL		m	3,1		20,6		2,5		14,5									
Heating capacities/ Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
W - PHW	140°/ 100°C	5 °C	11,5	61,5	31,2	35,9	16,1	87,4	50,7	59,2								
		10 °C	10,9	63,8	29,7	39,4	15,3	88,3	48,3	61,6								
		15 °C	10,4	66,1	28,2	42,9	14,5	89,2	45,9	64,0								
		18 °C	10,1	67,4	27,3	45,0	14,0	89,7	44,4	65,4								
		20 °C	9,8	68,3	26,7	46,4	13,7	90,0	43,4	66,4								
	110°/ 70°C	5 °C	7,7	43,0	21,1	25,9	10,9	61,1	34,1	41,5								
		10 °C	7,2	45,2	19,6	29,4	10,1	61,9	31,7	43,9								
		15 °C	6,6	47,4	17,9	32,7	9,2	62,4	29,2	46,2								
		18 °C	6,2	48,7	17,0	34,8	8,7	62,4	27,7	47,6								
		20 °C	6,0	49,6	16,3	36,2	8,3	62,5	26,7	48,6								
S - steam	3 bar	5 °C	15,8	82,9	42,5	47,2												
		10 °C	15,3	85,2	41,1	50,8												
		15 °C	14,7	87,5	39,7	54,3												
		18 °C	14,4	88,9	38,8	56,5												
		20 °C	14,2	89,8	38,2	57,9												
	0.5 bar	5 °C	12,1	64,7	32,6	37,3												
		10 °C	11,6	67,0	31,1	40,9												
		15 °C	11,0	69,3	29,7	44,4												
		18 °C	10,7	70,7	28,8	46,6												
		20 °C	10,5	71,6	28,2	48,0												

Outside Range of Application

Model size 2

Air volume flow[1] Y		m³/h	780		4050		730		3810									
Air throw [2] basic		m	2,7		10,0		2,3		8,0									
Air throw [2] SAL		m	3,3		12,2		2,8		9,8									
Max. height [2] basic		m	1,7		11,6		1,3		8,2									
Max. height [2] SAL		m	2,8		19,6		2,2		14,1									
Heating capacities/ Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
W - PHW	140°/ 100°C	5 °C	15,9	65,8	46,0	38,8	21,4	92,3	73,3	62,6								
		10 °C	15,2	68,0	43,8	42,2	20,4	93,0	70,3	64,9								
		15 °C	14,4	70,1	41,7	45,6	19,3	93,8	66,8	67,1								
		18 °C	14,0	71,4	40,4	47,6	18,7	94,2	64,7	68,5								
		20 °C	13,7	72,2	39,5	49,0	18,3	94,4	63,2	69,4								
	110°/ 70°C	5 °C	10,9	46,5	31,2	27,9	14,6	64,6	50,8	44,7								
		10 °C	10,1	48,6	29,0	31,3	13,5	65,2	47,3	47,0								
		15 °C	9,3	50,7	26,9	34,7	12,4	65,6	43,3	48,8								
		18 °C	8,9	51,9	25,6	36,8	11,9	66,4	41,2	50,2								
		20 °C	8,6	52,7	24,7	38,1	11,4	66,5	39,8	51,1								
S - steam	3 bar	5 °C	21,4	86,8	61,4	50,1												
		10 °C	20,7	89,0	59,4	53,6												
		15 °C	20,0	91,1	57,3	57,1												
		18 °C	19,5	92,4	56,0	59,1												
		20 °C	19,2	93,3	55,2	60,5												
	0.5 bar	5 °C	16,4	67,7	47,0	39,6												
		10 °C	15,7	69,9	44,9	43,0												
		15 °C	14,9	72,0	42,9	46,5												
		18 °C	14,5	73,3	41,6	48,6												
		20 °C	14,2	74,2	40,8	49,9												

Outside Range of Application

Model size 3

Air volume flow[1] Y		m³/h	1065		5455		1000		5090									
Air throw [2] basic		m	2,7		9,7		2,2		7,7									
Air throw [2] SAL		m	3,3		11,7		2,8		9,4									
Max. height [2] basic		m	1,5		10,6		1,2		7,5									
Max. height [2] SAL		m	2,6		17,7		2,1		12,6									
Heating capacities/ Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
W - PHW	140°/ 100°C	5 °C	22,8	68,7	67,2	41,7	30,6	96,1	106,4	67,2								
		10 °C	21,7	70,8	64,1	45,0	29,2	96,8	101,5	69,3								
		15 °C	20,7	72,8	61,0	48,2	27,7	97,4	96,5	71,4								
		18 °C	20,0	74,0	59,1	50,2	26,8	97,8	93,5	72,7								
		20 °C	19,6	74,8	57,8	51,5	26,2	98,0	91,5	73,5								
	110°/ 70°C	5 °C	15,8	49,1	46,6	30,4	21,1	67,9	73,5	48,0								
		10 °C	14,7	51,1	43,5	33,7	19,6	68,4	68,6	50,1								
		15 °C	13,6	53,1	40,3	37,0	18,3	69,3	63,6	52,2								
		18 °C	13,0	54,3	38,4	39,0	17,4	69,6	60,5	53,4								
		20 °C	12,5	55,0	37,2	40,3	16,7	69,8	58,5	54,2								
S - steam	3 bar	5 °C	30,2	89,4	88,5	53,3												
		10 °C	29,2	91,5	85,9	56,8												
		15 °C	28,1	93,6	82,9	60,2												
		18 °C	27,5	94,8	81,1	62,2												
		20 °C	27,1	95,7	79,9	63,5												
	0.5 bar	5 °C	23,1	69,7	67,8	42,0												
		10 °C	22,1	71,8	64,8	45,3												
		15 °C	21,1	73,8	61,8	48,7												
		18 °C	20,4	75,1	59,9	50,7												
		20 °C	20,0	75,9	58,7	52,0												

Outside Range of Application

Model size 4

Fan motor - Selection			Capacity stage 1				Capacity stage 2				Capacity stage 3				Capacity stage 4			
Y > 230 V EC motor			MIN		MAX		MIN		MAX		MIN		MAX		MIN		MAX	
Air volume flow[1] Y		m³/h	1875		9050		1785		8580									
Air throw [2] basic		m	3,1		11,0		2,7		8,8									
Air throw [2] SAL		m	3,9		13,4		3,3		10,8									
Max. height [2] basic		m	1,9		12,1		1,5		8,8									
Max. height [2] SAL		m	3,3		20,7		2,6		15,1									
Heating capacities/ Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
W - PHW	140°/ 100°C	5 °C	39,5	67,6	110,0	41,2	54,1	95,3	177,2	66,4								
		10 °C	37,7	69,8	105,0	44,5	51,7	96,1	169,1	68,6								
		15 °C	35,9	71,9	100,0	47,9	49,1	96,9	160,9	70,8								
		18 °C	34,8	73,2	96,9	49,9	47,6	97,3	156,0	72,1								
		20 °C	34,0	74,0	94,9	51,2	46,6	97,6	152,7	72,9								
	110°/ 70°C	5 °C	27,6	48,8	77,0	30,3	37,9	68,2	123,3	47,8								
		10 °C	25,7	50,9	71,9	33,7	35,3	68,8	115,2	50,0								
		15 °C	23,9	53,0	66,8	37,0	32,6	69,4	107,0	52,1								
		18 °C	22,8	54,2	63,7	39,0	31,3	70,3	102,0	53,4								
		20 °C	22,3	55,3	61,7	40,3	30,3	70,5	98,7	54,2								
S - steam	3 bar	5 °C	51,7	87,0	142,9	52,0												
		10 °C	49,9	89,2	138,1	55,4												
		15 °C	48,1	91,3	133,2	58,8												
		18 °C	47,0	92,6	130,3	60,8												
		20 °C	46,3	93,5	128,4	62,2												
	0.5 bar	5 °C	39,6	67,8	109,3	41,0												
		10 °C	37,8	70,0	104,5	44,4												
		15 °C	36,0	72,1	99,6	47,8												
		18 °C	34,9	73,4	96,7	49,8												
		20 °C	34,2	74,3	94,7	51,1												

Outside Range of Application

Model size 5

Air volume flow[1] Y		m³/h	2035		10385		1925		9795									
Air throw [2] basic		m	2,8		10,2		2,4		8,2									
Air throw [2] SAL		m	3,6		12,9		3,1		10,4									
Max. height [2] basic		m	1,6		10,6		1,2		7,6									
Max. height [2] SAL		m	2,5		16,4		2,0		12,1									
Heating capacities/ Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
W - PHW	140°/ 100°C	5 °C	46,2	72,6	138,9	44,8	60,4	98,4	216,7	70,8								
		10 °C	44,1	74,5	132,7	48,0	57,7	99,1	206,9	72,8								
		15 °C	42,0	76,4	126,5	51,2	54,9	99,9	197,0	74,8								
		18 °C	40,7	77,5	122,7	53,1	53,3	100,3	191,1	76,0								
		20 °C	39,8	78,2	120,2	54,4	52,2	100,6	187,1	76,8								
	110°/ 70°C	5 °C	32,5	52,6	97,3	32,9	43,3	72,0	153,9	51,8								
		10 °C	30,5	54,5	91,1	36,1	40,5	72,7	144,0	53,7								
		15 °C	28,3	56,4	84,8	39,3	38,1	73,9	133,9	55,7								
		18 °C	27,1	57,6	81,0	41,2	36,3	74,1	127,8	56,8								
		20 °C	26,4	58,6	78,5	42,5	35,1	74,2	123,7	57,6								
S - steam	3 bar	5 °C	59,1	91,5	176,5	55,6												
		10 °C	57,1	93,5	170,5	58,8												
		15 °C	55,1	95,5	164,5	62,1												
		18 °C	53,8	96,7	160,9	64,1												
		20 °C	53,0	97,5	158,5	65,4												
	0.5 bar	5 °C	45,1	71,0	135,0	43,7												
		10 °C	43,1	73,0	129,0	47,0												
		15 °C	41,2	75,3	123,0	50,3												
		18 °C	40,0	76,5	119,4	52,2												
		20 °C	39,1	77,2	117,0	53,5												

Outside Range of Application

1 Air volume flow: specified table data are calculated for units with fan type "Y" = EC continuously variable and outlet SAL wall. The data are valid for steel heat exchangers.

2 Air throw: air throw is calculated for air intake temperature 18 °C and medium temperature 70 °C/50 °C. The values are valid for air discharge temperature up to 15 K greater than air intake temperature. Pay attention to medium values!

Order code

H	N	_	_	.	_	_	S	_	_	_	.	_	_	_

Model size (1,2,3,4,5)

Capacity stages (1,2)

Y - 1x230 V EC - sickle-blade fan continuously variable

W
S

Medium function

Make your designated selection on these two pages.

Model size 3

Fan motor - Selection			Capacity stage 1				Capacity stage 2				Capacity stage 3				Capacity stage 4			
Z > 400 V EC motor			MIN		MAX		MIN		MAX		MIN		MAX		MIN		MAX	
Air volume flow[1] Z		m³/h	1690		8140		1595		7645									
Air throw [2] basic		m	3,7		13,3		3,1		10,5									
Air throw [2] SAL		m	4,6		16,2		3,9		12,9									
Max. height [2] basic		m	2,6		17,1		2,0		12,0									
Max. height [2] SAL		m	4,4		28,8		3,4		20,4									
Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
W - PHW	140°/ 100°C	5 °C	31,9	61,2	84,1	35,8	44,7	88,4	137,8	58,6								
		10 °C	30,4	63,6	79,5	39,0	42,6	89,4	131,4	61,1								
		15 °C	29,0	66,0	75,6	42,6	40,5	90,5	124,9	63,6								
		18 °C	28,1	67,4	73,2	44,8	39,2	91,0	121,1	65,1								
		20 °C	27,5	68,3	71,7	46,2	38,3	91,4	118,5	66,1								
	110°/ 70°C	5 °C	22,2	44,2	57,6	26,1	31,1	63,1	94,9	42,0								
		10 °C	20,8	46,6	53,8	29,7	29,0	64,0	88,5	44,5								
		15 °C	19,2	48,9	49,9	33,2	26,7	64,9	82,0	46,9								
		18 °C	18,3	50,3	47,5	35,4	25,6	65,8	78,1	48,4								
		20 °C	17,7	51,2	45,9	36,8	24,7	66,1	75,5	49,4								
S - steam	3 bar	5 °C	42,4	79,6	109,6	45,1												
		10 °C	40,9	82,0	105,9	48,7												
		15 °C	39,5	84,5	102,2	52,3												
		18 °C	38,7	86,2	100,0	54,5												
		20 °C	38,2	87,1	98,5	56,0												
	0.5 bar	5 °C	32,4	62,1	83,9	35,7												
		10 °C	31,0	64,6	80,2	39,3												
		15 °C	29,5	67,0	76,5	43,0												
		18 °C	28,6	68,4	74,2	45,1												
		20 °C	28,1	69,4	72,7	46,6												

Outside Range of Application

Model size 4

Air volume flow[1] Z		m³/h	2070		10380		1980		9830									
Air throw [2] basic		m	3,4		12,3		2,9		9,8									
Air throw [2] SAL		m	4,2		15,0		3,6		12,1									
Max. height [2] basic		m	2,1		14,4		1,7		10,3									
Max. height [2] SAL		m	3,7		24,6		2,9		17,7									
Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
W - PHW	140°/ 100°C	5 °C	42,6	66,2	118,9	39,1	58,9	93,5	192,3	63,2								
		10 °C	40,6	68,4	113,5	42,5	56,2	94,4	183,4	65,5								
		15 °C	38,7	70,6	108,1	46,0	53,4	95,3	174,6	67,8								
		18 °C	37,5	71,9	104,8	48,0	51,8	95,8	169,2	69,2								
		20 °C	36,7	72,7	102,6	49,4	50,7	96,1	165,7	70,1								
	110°/ 70°C	5 °C	29,7	47,7	83,2	28,9	41,2	67,0	134,9	45,9								
		10 °C	27,7	49,9	77,7	32,3	38,4	67,8	126,0	48,2								
		15 °C	25,8	52,0	71,5	35,5	35,6	68,5	117,0	50,4								
		18 °C	24,6	53,3	68,2	37,6	34,2	69,4	11,6	51,8								
		20 °C	23,8	54,1	66,0	38,9	33,0	69,6	107,9	52,7								
S - steam	3 bar	5 °C	55,5	84,7	154,1	49,2												
		10 °C	53,6	87,0	148,9	52,7												
		15 °C	51,7	89,2	143,7	56,2												
		18 °C	50,5	90,6	140,6	58,3												
		20 °C	49,7	91,5	138,5	59,7												
	0.5 bar	5 °C	42,5	66,1	118,0	38,8												
		10 °C	40,6	68,3	112,8	42,3												
		15 °C	38,6	70,6	107,5	45,8												
		18 °C	37,5	71,9	104,4	47,9												
		20 °C	36,7	72,8	102,2	49,3												

Outside Range of Application

					Capacity stage 1				Capacity stage 2				Capacity stage 3				Capacity stage 4			
	Fan motor - Selection				MIN		MAX		MIN		MAX		MIN		MAX		MIN		MAX	
	Z > 400 V EC motor																			
Model size 5	Air volume flow[1] Z		m³/h		2280		11020		2160		10400									
	Air throw [2] basic		m		3,1		10,7		2,6		8,6									
	Air throw [2] SAL		m		3,9		13,5		3,4		10,9									
	Max. height [2] basic		m		1,8		11,4		1,4		8,2									
	Max. height [2] SAL		m		2,8		17,7		2,3		13,0									
	Heating capacities/Discharge temperature				Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
	W - PHW	140°/ 100°C	5	°C	50,0	70,2	144,0	43,9	66,9	97,1	225,9	69,6								
			10	°C	47,7	72,3	137,5	47,1	63,9	97,9	215,7	71,7								
			15	°C	45,5	74,3	131,1	50,4	60,8	98,8	205,4	73,7								
			18	°C	44,1	75,5	125,9	52,0	59,0	99,2	199,2	75,0								
			20	°C	43,2	76,3	123,3	53,3	57,8	99,6	195,1	75,8								
		110°/ 70°C	5	°C	35,5	51,4	100,7	32,2	48,2	71,4	160,4	50,9								
			10	°C	33,3	53,4	94,3	35,5	45,1	72,1	150,1	53,0								
			15	°C	31,0	55,4	87,8	38,7	41,9	72,7	139,7	55,0								
			18	°C	29,6	56,6	83,9	40,7	39,9	73,0	133,3	56,1								
			20	°C	28,6	57,3	81,3	41,9	38,5	73,1	129,0	56,9								
	S - steam	3 bar	5	°C	64,4	89,0	182,7	54,3												
			10	°C	62,1	91,1	176,5	57,6												
			15	°C	59,9	93,2	170,3	61,0												
			18	°C	58,6	94,4	166,6	63,0												
			20	°C	57,7	95,3	164,1	64,3												
		0.5 bar	5	°C	49,3	69,4	139,8	42,8												
			10	°C	47,1	71,0	133,6	46,1												
			15	°C	44,8	73,5	127,4	49,4												
			18	°C	43,5	74,8	123,6	51,4												
			20	°C	42,6	75,6	121,1	52,7												

Outside Range of Application

1 Air volume flow: specified table data are calculated for units with fan type „Z" = EC- continuously variable and outlet SAL wall. The data are valid for steel heat exchangers.

2 Air throw: air throw is calculated for air intake temperature 18 °C and medium temperature 70 °C/50 °C. The values are valid for air discharge temperature up to 15 K greater than air intake temperature. Pay attention to medium values!

Order code

H	N	_	_	.	_	_	S	_	_	_	.	_	_	_

W
S

Model size (3,4,5)

Capacity stages (1,2)

Medium function

Z - 3x400 V EC - sickle-blade fan continuously variable

Make your designated selection on these two pages.

Model size 1

Fan motor - Selection			Capacity stage 1				Capacity stage 2				Capacity stage 3				Capacity stage 4			
A > 400 V 2-speed low			1		2		1		2		1		2		1		2	
Air volume flow[1] A		m³/h	1410		1620		1180		1460		1050		1350		960		1260	
Air throw [2] basic		m	6,1		6,8		4,5		5,3		3,6		4,3		3,1		3,7	
Air throw [2] SAL		m	6,7		8,0		5,3		6,4		4,3		5,3		3,7		4,6	
Heating capacities/ Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
V/P - PCW	7/12°C	25 °C	1,9	21,0	2,1	21,3	2,8	18,1	3,2	18,5	3,7	14,5	4,5	15,1	4,6	11,4	5,6	12,2
		27 °C	2,3	22,2	2,5	22,5	3,4	18,6	3,9	19,2	4,5	14,8	5,3	15,6	5,6	11,8	6,8	12,6
		32 °C	3,2	25,4	3,4	25,8	5,1	20,5	5,7	21,3	7,0	16,3	8,2	17,4	8,7	12,9	10,0	14,4
		35 °C	4,0	27,6	4,2	28,0	6,4	22,1	7,2	23,0	8,9	17,5	10,3	18,7	10,4	14,2	12,0	15,9
	14/17°C	25 °C	1,2	22,4	1,3	22,6	1,8	20,4	2,1	20,8	2,4	18,3	2,8	18,8	2,8	16,6	3,4	17,1
		27 °C	1,6	23,7	1,7	23,9	2,4	21,1	2,7	21,5	2,9	18,7	19,2	15,8	3,3	16,8	4,1	17,3
		32 °C	2,5	26,8	2,7	27,2	3,7	22,9	4,2	23,5	4,4	19,7	5,3	20,5	5,2	17,4	6,1	18,3
		35 °C	3,0	17,0	3,2	17,0	4,6	24,1	5,1	24,8	5,9	20,6	6,9	21,5	6,8	18,4	7,9	19,4
Heating	60/40°C	5 °C	6,0	17,7	6,5	16,9	9,1	27,9	10,4	26,2	11,4	37,2	13,8	35,4	13,3	46,3	16,3	43,6
		10 °C	5,2	20,9	5,6	20,2	7,8	29,6	8,8	28,0	10,0	38,3	12,1	36,7	11,8	46,5	14,4	44,1
		15 °C	4,2	24,0	4,6	23,4	6,3	30,9	7,3	29,8	8,6	39,3	10,3	37,8	10,2	46,7	12,5	44,6
		18 °C	3,7	25,8	4,0	25,3	5,5	31,8	6,3	30,8	7,7	39,8	9,1	38,2	9,3	46,8	11,4	45,0
		20 °C	3,3	27,0	3,6	26,5	4,8	32,0	5,6	31,4	7,1	40,0	8,4	40,0	8,6	46,8	10,6	45,1
	40/30°C	5 °C	4,2	13,8	4,5	13,2	6,2	20,6	7,1	19,5	7,7	26,7	9,3	25,6	8,7	32,2	10,8	30,6
		10 °C	3,3	16,9	3,5	16,5	4,9	22,4	5,6	21,4	6,2	27,7	7,6	26,7	7,3	32,7	9,0	31,2
		15 °C	2,4	20,0	2,6	19,7	3,5	23,8	4,0	23,3	4,7	28,5	5,8	27,7	5,8	32,9	7,1	31,7
		18 °C	1,8	21,8	1,9	21,5	2,4	24,1	3,0	24,0	3,9	29,0	4,7	28,3	4,8	33,0	5,9	32,1
		20 °C	1,2	22,6	1,4	22,6	2,1	25,2	2,2	24,5	3,2	29,1	3,9	28,6	4,2	33,0	5,1	32,2

Model size 2

Air volume flow[1] A		m³/h	2260		2710		2070		2510		1750		2170		1770		2200	
Air throw [2] basic		m	6,8		7,9		5,4		6,3		4,7		5,5		4,0		4,7	
Air throw [2] SAL		m	8,1		9,6		6,6		7,8		5,7		6,7		4,9		5,8	
Heating capacities/ Discharge temperature			Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C
V/P - PCW	7/12°C	25 °C	3,4	20,6	3,7	21,0	5,0	17,9	5,6	18,4	6,2	15,5	7,1	16,1	7,9	12,2	9,1	12,9
		27 °C	3,9	21,9	4,3	22,4	5,9	18,7	6,6	19,3	7,2	15,9	8,3	16,6	9,5	12,7	10,9	13,4
		32 °C	5,4	25,3	5,8	25,8	8,6	20,9	9,5	21,6	11,3	17,5	12,6	18,4	14,7	14,0	16,4	15,2
		35 °C	6,5	27,6	6,9	28,3	10,8	22,6	11,9	23,5	14,4	18,8	16,0	19,8	17,4	15,5	19,6	16,6
	14/17°C	25 °C	2,1	22,2	2,3	22,5	3,2	20,4	3,6	20,8	3,9	18,9	4,5	19,3	4,7	17,1	5,6	17,5
		27 °C	2,6	23,6	2,9	23,8	4,0	21,2	4,6	21,7	5,0	19,3	5,7	19,8	5,8	17,3	6,8	17,9
		32 °C	4,0	26,9	4,3	27,4	6,2	23,2	6,9	23,9	7,5	20,6	8,6	21,2	8,8	18,0	10,1	18,9
		35 °C	4,6	29,0	5,0	29,6	7,6	24,5	8,4	25,3	9,7	21,5	10,9	22,3	11,4	19,2	12,8	20,1
Heating	60/40°C	5 °C	10,1	18,4	11,1	17,2	15,5	27,3	17,5	25,7	19,2	34,9	22,0	33,0	22,9	43,6	26,8	41,4
		10 °C	8,8	21,6	9,7	20,6	13,4	29,3	15,0	27,8	16,7	36,0	19,1	34,3	20,2	44,1	23,8	42,2
		15 °C	7,5	24,9	8,1	23,9	11,2	31,1	12,6	30,0	14,0	36,8	16,1	35,5	17,6	44,5	20,6	42,9
		18 °C	6,6	26,7	7,3	26,0	9,9	32,3	11,1	31,1	12,4	37,3	14,2	36,0	15,9	44,8	18,8	43,4
		20 °C	6,1	28,0	6,7	27,3	8,9	32,8	10,1	31,9	11,2	37,5	13,0	36,5	14,8	45,0	17,7	43,9
	40/30°C	5 °C	6,9	14,1	7,5	13,3	10,5	30,0	11,9	30,0	12,9	25,2	14,8	23,9	15,2	30,6	17,8	29,1
		10 °C	5,6	17,3	6,1	16,7	8,5	22,2	9,6	21,4	10,4	26,2	12,0	25,3	12,6	31,1	14,7	30,0
		15 °C	4,2	20,6	4,6	20,1	6,3	24,1	7,1	23,4	7,8	27,2	9,0	26,5	9,9	31,7	11,6	30,8
		18 °C	3,4	22,5	3,7	22,1	4,9	25,1	5,6	24,6	6,2	27,6	7,1	27,0	8,3	31,9	9,9	31,4
		20 °C	2,8	23,7	3,1	23,4	3,9	25,6	4,4	25,3	4,9	27,6	5,7	27,3	7,2	32,1	8,5	31,5

Model size 3

Air volume flow[1] A		m³/h	3210		4100		2840		3670		2570		3350		2360		3110	
Air throw [2] basic		m	6,8		8,4		5,3		6,5		4,5		5,5		3,8		4,7	
Air throw [2] SAL		m	8,0		10,0		6,4		7,9		5,4		6,7		4,7		5,9	
Heating capacities/ Discharge temperature			Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C	Q [CW]	t °C
V/P - PCW	7/12°C	25 °C	4,9	20,5	5,6	21,0	7,3	17,4	8,6	18,1	9,0	14,7	10,9	15,5	11,0	11,7	13,3	12,6
		27 °C	5,7	21,7	6,5	22,3	8,6	18,1	10,0	19,0	10,7	15,1	12,6	16,0	13,4	12,1	16,0	13,0
		32 °C	8,0	25,0	8,8	25,8	12,7	20,4	14,5	21,4	16,7	16,7	19,4	17,9	20,6	13,4	24,0	14,8
		35 °C	9,7	27,3	10,4	28,3	16,0	22,0	18,0	23,2	20,8	18,0	24,2	19,3	24,6	14,8	28,4	16,4
	14/17°C	25 °C	3,1	22,1	3,5	22,5	4,7	20,2	5,5	20,6	5,7	18,5	6,9	19,0	6,6	16,8	8,1	17,3
		27 °C	3,9	23,4	4,4	23,8	5,9	20,9	6,9	21,5	7,1	18,9	8,5	19,5	8,1	16,9	9,9	17,6
		32 °C	5,8	26,7	6,5	27,4	8,9	22,8	10,5	23,6	10,6	20,0	12,8	20,9	12,3	17,6	14,6	18,6
		35 °C	6,8	28,8	7,6	29,6	11,0	24,1	12,7	25,0	14,0	20,9	16,3	21,9	16,0	18,7	18,6	19,9
Heating	60/40°C	5 °C	14,9	18,8	16,9	17,3	22,7	28,8	26,4	26,4	27,2	36,5	33,3	34,6	31,9	45,2	39,0	42,4
		10 °C	13,0	22,0	14,7	20,7	19,5	30,5	22,9	28,6	23,6	37,4	29,0	35,8	28,2	45,5	34,5	43,1
		15 °C	11,0	25,2	12,4	24,0	16,5	32,4	19,2	30,6	20,5	38,7	24,5	36,8	24,4	45,8	30,0	43,8
		18 °C	9,8	27,1	11,1	26,0	14,5	33,2	17,1	31,9	18,3	39,2	21,9	37,5	22,2	46,0	27,3	44,1
		20 °C	9,0	28,3	10,2	27,4	13,3	33,9	15,5	32,5	16,7	39,3	20,2	37,9	20,7	46,1	25,3	44,2
	40/30°C	5 °C	10,1	14,4	11,5	13,3	15,4	21,1	17,9	19,5	18,3	26,3	22,3	24,9	21,1	31,7	25,9	29,8
		10 °C	8,2	17,6	9,3	16,8	12,3	22,9	14,5	21,7	14,9	27,3	18,1	26,1	17,5	32,1	21,4	30,5
		15 °C	6,3	20,8	7,0	20,1	9,3	24,8	10,8	23,8	11,6	28,4	13,9	27,3	13,8	32,4	16,9	31,2
		18 °C	5,0	22,7	5,7	22,1	7,4	25,7	8,6	25,0	9,3	28,7	11,1	27,9	11,5	32,5	14,1	31,5
		20 °C	4,2	23,9	4,7	23,4	5,9	26,2	7,0	25,7	7,6	28,9	9,3	28,3	10,0	32,6	12,4	31,9

				Capacity stage 1				Capacity stage 2				Capacity stage 3				Capacity stage 4			
			Fan motor - Selection	1		2		1		2		1		2		1		2	
			A > 400 V 2-speed low																
			Air volume flow[1] A	4610		6480		4130		5810		3770		5330		3490		4970	
			Air throw [2] basic	7,2		9,6		5,6		7,4		4,8		6,3		4,1		5,4	
			Air throw [2] SAL	8,5		11,2		6,8		8,9		5,9		7,6		5,0		6,6	
			Heating capacities/ Discharge temperature	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
Model size 4	V/P - PCW	7/12°C	25 °C	7,2	20,4	8,5	21,1	10,6	17,4	13,2	18,3	12,9	14,9	16,7	15,8	16,5	11,6	21,2	12,6
			27 °C	8,3	21,7	9,9	22,5	12,6	18,0	15,5	19,2	15,5	15,2	19,4	16,3	20,1	12,0	25,5	13,1
			32 °C	11,6	25,0	13,4	26,0	18,8	20,3	22,4	21,5	24,2	16,8	29,9	18,1	30,7	13,3	37,0	15,1
			35 °C	14,7	27,0	16,3	28,3	23,7	21,8	27,8	23,4	30,6	18,0	37,3	19,6	36,7	14,6	44,3	16,6
		14/17°C	25 °C	4,5	22,1	5,4	22,5	6,8	20,1	8,5	20,7	8,3	18,5	10,6	19,1	9,9	16,7	12,9	17,4
			27 °C	5,7	23,4	6,8	23,9	8,7	20,8	10,7	21,6	10,4	18,9	13,2	19,7	12,1	16,8	15,7	17,7
			32 °C	8,7	26,5	10,1	27,4	13,1	22,7	16,2	23,9	15,5	19,9	19,9	21,1	18,3	17,5	22,9	18,8
			35 °C	10,2	28,5	11,9	29,7	16,3	24,0	19,6	25,2	20,6	20,9	25,2	22,1	23,9	18,7	28,8	20,1
	Heating	60/40°C	5 °C	21,7	19,0	25,9	16,9	33,4	29,1	40,9	26,0	39,7	36,4	51,1	33,5	47,8	45,8	62,0	42,2
			10 °C	18,9	22,2	22,3	20,2	28,6	30,7	35,5	28,2	34,5	37,2	44,5	34,9	42,3	46,1	54,9	42,9
			15 °C	16,0	25,3	18,8	23,7	24,2	32,5	29,7	30,2	29,7	38,5	37,7	36,1	36,7	46,3	47,8	43,6
			18 °C	14,1	27,1	16,8	25,7	21,2	33,3	26,3	31,5	26,2	38,7	33,6	36,8	33,3	46,4	43,4	44,0
			20 °C	12,9	28,3	15,2	27,0	19,3	33,9	23,8	32,2	24,0	38,9	30,5	37,1	31,1	46,5	40,3	44,1
		40/30°C	5 °C	14,8	14,5	17,6	13,1	22,6	21,3	27,8	19,2	26,8	26,2	34,5	24,3	31,7	32,1	41,1	29,7
			10 °C	11,9	17,7	14,2	16,5	18,1	23,0	22,4	21,5	21,9	27,3	28,0	25,7	26,2	32,4	34,1	30,4
			15 °C	9,0	20,8	10,7	19,9	13,6	24,8	16,7	23,6	16,6	28,1	21,2	26,8	20,7	32,7	27,0	31,2
			18 °C	7,2	22,7	8,5	21,9	10,6	25,6	13,2	24,8	13,1	28,3	16,9	27,5	17,3	32,8	22,5	31,5
			20 °C	5,9	23,8	7,1	23,3	8,3	26,0	10,7	25,5	10,5	28,3	13,9	27,8	15,1	32,9	20,0	32,0

1 Air volume flow: specified table data are calculated for units with fan type "A" = 2-low-speed and basic outlet. The data are valid for heat exchangers Cu/Al and Cu/Cu.

2 Air throw: air throw is calculated for air intake temperature 18 °C and medium temperature 60 °C/40 °C. The values are valid for air discharge temperature up to 15 K greater than air intake temperature. Pay attention to medium values!

3 Cooling; air-intake temperatures: all cooling capacities are calculated for an air intake with 40 % r.h. Adjust air throw!

Order code

H	N	_	_	.	_	_	_	_	_	_	.	_	_	_
					V	A								
					P	C	HE							

Model size (1,2,3,4)

Capacity stages (1,2,3,4)

Medium function

A - 3x400 V 2-speed low speed range - wide-blade fan

Make your designated selection on these two pages.

Model size 1

Fan motor - Selection			Capacity stage 1				Capacity stage 2				Capacity stage 3				Capacity stage 4			
Y > 230 V EC motor			Min.		Max.		Min.		Max.		Min.		Max.		Min.		Max.	
Air volume flow[1] Y		m³/h	400		1650		400		1465		400		1330		400		1230	
Air throw [2] basic		m	2,3		6,9		1,9		5,3		1,8		4,3		1,6		3,7	
Air throw [2] SAL		m	3,0		9,0		2,5		6,9		2,3		5,5		2,1		4,8	
Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
V/P - PCW	7/12°C	25[3] °C	0,8	18,9	2,1	21,3	1,3	15,2	3,2	18,5	1,7	12,6	4,5	15,1	2,2	10,0	5,5	12,1
		27[3] °C	0,9	20,0	2,5	22,6	1,5	15,9	3,9	19,2	2,0	13,1	5,3	15,5	2,7	10,2	6,7	12,5
		32[3] °C	1,5	22,3	3,4	25,9	2,3	17,9	5,7	21,3	3,4	13,8	8,1	17,4	4,6	9,6	10,0	14,2
		35[3] °C	1,9	23,9	3,9	28,1	3,2	18,5	7,2	23,1	4,4	14,3	10,2	18,6	5,6	10,1	11,8	15,8
	14/17°C	25[3] °C	0,5	21,3	1,3	22,6	0,8	19,0	2,1	20,8	1,0	17,4	2,8	18,8	1,3	15,6	3,3	17,1
		27[3] °C	0,7	22,0	1,7	23,9	1,0	19,7	2,7	21,5	1,3	17,5	3,5	19,2	1,5	15,7	4,1	17,3
		32[3] °C	1,1	24,2	2,7	27,3	1,8	20,5	4,2	23,6	2,4	18,0	5,7	20,7	3,2	15,6	6,8	18,7
		35[3] °C	1,6	25,9	3,3	29,3	2,6	21,6	5,7	25,2	3,8	17,8	7,7	22,0	4,2	16,4	8,6	20,2
Heating	60/40°C	5 °C	2,6	24,3	6,5	16,8	3,8	33,1	10,4	26,2	5,1	43,1	13,7	35,7	6,2	51,1	16,0	43,8
		10 °C	2,2	26,0	5,6	20,1	3,3	34,6	8,8	28,0	4,4	43,0	11,9	36,7	5,6	51,4	14,2	44,3
		15 °C	1,7	27,9	4,6	23,3	2,8	36,1	7,3	29,8	3,7	42,5	10,2	37,9	4,8	50,9	12,3	44,8
		18 °C	1,6	29,6	4,0	25,2	2,6	37,1	6,3	30,8	3,3	42,8	9,1	38,3	4,4	50,9	11,2	45,1
		20 °C	1,4	30,7	3,6	26,5	2,4	37,8	5,6	31,4	3,1	43,3	8,3	38,7	4,1	50,5	10,4	45,3
	40/30°C	5 °C	1,8	18,3	4,5	13,2	2,6	24,6	7,1	19,5	3,5	30,7	9,2	25,6	4,1	35,6	10,6	30,8
		10 °C	1,4	20,2	3,6	16,4	2,1	25,6	5,6	21,4	2,8	30,5	7,5	26,8	3,4	35,3	8,8	31,3
		15 °C	1,0	22,5	2,6	19,7	1,6	27,2	4,1	23,3	2,1	30,8	5,7	27,8	2,7	35,1	7,0	31,8
		18 °C	0,8	24,2	1,9	21,5	1,4	28,2	3,0	24,0	1,8	31,3	4,6	28,4	2,3	34,8	5,8	32,1
		20 °C	0,7	25,4	1,4	22,6	1,2	28,9	2,2	24,5	1,6	31,5	3,9	28,6	1,9	34,5	5,1	32,3

Model size 2

Air volume flow[1] Y		m³/h	965		2850		840		2550		770		2270		710		2060	
Air throw [2] basic		m	3,4		8,2		2,8		6,4		2,4		5,3		2,0		4,5	
Air throw [2] SAL		m	4,0		10,1		3,4		7,9		3,0		6,5		2,6		5,5	
Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
V/P - PCW	7/12°C	25[3] °C	1,8	18,6	3,6	21,0	2,3	16,1	5,4	18,2	2,8	13,5	6,5	15,8	3,6	10,3	8,3	12,5
		27[3] °C	2,1	19,5	4,2	22,3	2,7	16,5	6,3	19,1	3,3	14,0	7,7	16,2	4,4	10,6	10,0	12,9
		32[3] °C	3,2	22,3	5,7	25,7	4,7	17,5	9,2	21,4	5,7	14,4	12,0	17,9	7,0	11,0	15,3	14,4
		35[3] °C	4,5	23,8	6,8	28,2	6,1	18,7	11,5	23,2	7,2	15,2	15,0	19,3	9,2	10,6	18,2	16,0
	14/17°C	25[3] °C	1,2	20,9	2,3	22,4	1,5	19,2	3,5	20,7	1,7	18,0	4,2	19,1	2,1	15,9	5,0	17,3
		27[3] °C	1,5	21,9	2,9	23,8	2,0	19,5	4,4	21,5	2,2	18,1	5,3	19,6	2,5	15,9	6,2	17,5
		32[3] °C	2,5	24,1	4,2	27,3	3,4	20,7	6,7	23,7	4,1	18,4	8,5	21,1	5,2	15,9	10,4	18,8
		35[3] °C	3,2	26,3	4,9	29,6	4,8	21,9	9,0	25,4	5,7	19,3	11,6	22,4	7,0	16,5	13,3	20,4
Heating	60/40°C	5 °C	5,6	25,0	11,0	17,4	7,6	34,5	16,8	26,3	8,5	40,7	20,3	33,9	10,3	50,6	24,3	42,8
		10 °C	4,9	27,2	9,6	20,8	6,5	35,3	14,5	28,4	7,3	40,5	17,7	35,1	9,0	50,1	21,5	43,4
		15 °C	4,1	29,6	8,0	24,1	5,3	35,7	12,1	30,4	6,0	40,3	14,9	36,2	7,9	50,2	18,6	44,0
		18 °C	3,7	31,0	7,2	26,1	4,5	35,3	10,6	31,5	5,5	41,2	13,1	36,7	7,1	49,6	16,9	44,3
		20 °C	3,3	31,8	6,6	27,4	4,1	36,1	9,7	32,3	5,1	41,6	12,0	37,0	6,6	49,6	15,6	44,3
	40/30°C	5 °C	3,8	18,5	7,4	13,4	5,2	25,2	11,4	19,5	5,8	29,3	13,9	24,7	6,7	34,7	16,1	30,1
		10 °C	3,1	21,0	6,0	16,8	4,1	26,0	9,2	21,6	4,5	29,1	11,1	25,8	5,6	34,9	13,3	30,7
		15 °C	2,3	23,2	4,6	20,1	2,9	26,0	6,8	23,7	3,4	29,4	8,3	26,9	4,4	34,6	10,5	31,3
		18 °C	1,8	24,5	3,7	22,2	2,4	27,2	5,3	24,8	2,9	30,3	6,6	27,4	3,7	34,3	8,7	31,6
		20 °C	1,5	25,3	3,1	23,5	2,1	27,9	4,2	25,4	2,5	30,7	5,2	27,5	3,1	33,8	7,7	31,9

Model size 3

Air volume flow[1] Y		m³/h	1350		4680		1155		4285		1055		3960		980		3690	
Air throw [2] basic		m	3,4		9,4		2,7		7,4		2,3		6,2		2,0		5,4	
Air throw [2] SAL		m	4,0		11,5		3,4		9,1		3,0		7,8		2,5		6,7	
Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
V/P - PCW	7/12°C	25[3] °C	2,6	18,4	5,7	21,1	3,3	15,9	9,0	18,3	3,9	13,2	11,6	15,7	4,6	10,1	14,2	12,9
		27[3] °C	3,0	19,3	6,7	22,4	4,0	16,0	10,5	19,2	4,8	13,3	13,4	16,3	6,2	10,3	17,2	13,4
		32[3] °C	4,6	22,1	8,9	25,9	6,7	17,1	15,1	21,6	8,2	13,9	20,5	18,2	10,5	9,6	25,2	15,4
		35[3] °C	6,5	23,5	10,6	28,4	8,7	18,2	18,7	23,5	10,5	14,5	25,5	19,7	12,9	10,1	30,1	16,9
	14/17°C	25[3] °C	1,7	20,8	3,6	22,5	2,2	19,0	5,7	20,7	2,4	17,6	7,3	19,2	2,9	15,7	8,8	17,6
		27[3] °C	2,1	21,7	4,5	23,9	2,8	19,2	7,2	21,7	3,1	17,6	9,1	19,7	3,5	15,6	10,7	17,9
		32[3] °C	3,6	23,9	6,6	27,5	4,9	20,4	10,9	24,0	5,8	18,2	14,5	21,4	7,3	15,6	17,0	19,5
		35[3] °C	4,7	26,0	7,7	29,8	7,6	21,0	14,1	25,8	9,1	18,1	18,9	23,0	9,7	16,3	21,7	21,1
Heating	60/40°C	5 °C	8,0	25,6	17,3	17,0	11,0	36,0	27,6	25,8	12,4	42,8	35,2	33,4	14,1	51,0	42,2	41,3
		10 °C	6,9	27,9	14,9	20,4	9,4	36,4	24,0	28,1	10,7	42,4	30,7	34,8	12,6	51,1	37,4	42,1
		15 °C	5,8	30,0	12,7	23,8	7,8	36,9	20,1	30,1	9,0	42,4	26,2	36,1	10,9	50,6	32,5	42,9
		18 °C	5,2	31,4	11,3	25,8	6,6	36,6	17,9	31,4	7,9	41,9	23,4	36,9	10,0	50,5	29,5	43,4
		20 °C	4,7	32,1	10,4	27,2	5,8	36,5	16,2	32,2	7,3	42,1	21,4	37,2	9,2	50,0	27,8	43,9
	40/30°C	5 °C	5,4	18,9	11,7	13,1	7,4	25,8	18,7	19,1	8,4	30,5	23,7	24,1	9,3	35,4	28,0	29,1
		10 °C	4,4	21,3	9,5	16,6	5,9	26,6	15,1	21,4	6,7	30,4	19,3	25,6	7,8	35,3	23,2	29,9
		15 °C	3,3	23,5	7,2	20,0	4,2	26,8	11,3	23,5	4,9	29,9	14,7	26,9	6,2	35,1	18,3	30,8
		18 °C	2,6	24,7	5,8	22,0	3,3	27,4	9,0	24,8	4,1	30,6	11,9	27,6	5,1	34,7	15,5	31,4
		20 °C	2,1	25,4	4,8	23,4	2,9	28,2	7,3	25,5	3,6	31,0	10,0	28,1	4,4	34,2	13,5	31,6

				Capacity stage 1				Capacity stage 2				Capacity stage 3				Capacity stage 4			
Fan motor - Selection				Min.		Max.		Min.		Max.		Min.		Max.		Min.		Max.	
Y > 230 V EC motor																			
Model size 4	**Air volume flow[1] Y**		m³/h	2125		7460		1995		6710		1875		6150		1755		5660	
	Air throw [2] basic		m	3,9		10,8		3,3		8,3		2,9		7,0		2,5		5,9	
	Air throw [2] SAL		m	4,8		13,1		4,1		10,2		3,6		8,6		3,1		7,3	
	Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
	V/P - PCW	7/12°C	25[3] °C	4,2	18,8	8,8	21,3	5,6	16,2	13,8	18,5	6,6	13,9	17,6	16,0	9,1	10,1	22,2	12,9
			27[3] °C	4,9	19,7	10,2	22,7	6,8	16,3	16,2	19,4	8,1	13,9	20,4	16,6	11,1	10,4	26,6	13,4
			32[3] °C	7,5	22,5	13,8	26,2	11,4	17,5	23,2	21,8	14,0	14,4	30,9	18,5	18,6	10,0	38,2	15,5
			35[3] °C	10,7	23,9	16,6	28,6	14,8	18,7	28,8	23,7	17,9	15,2	38,9	19,9	22,6	10,7	45,8	17,0
		14/17°C	25[3] °C	2,7	21,0	5,5	22,7	3,7	19,1	8,8	20,9	4,2	17,9	11,1	19,3	5,2	15,7	13,6	17,5
			27[3] °C	3,4	22,0	7,0	24,0	4,8	19,4	11,2	21,8	5,4	17,9	14,0	19,9	6,4	15,7	16,6	17,9
			32[3] °C	6,0	24,1	10,4	27,6	8,2	20,7	17,0	24,1	10,1	18,4	22,1	21,5	12,7	16,0	25,9	19,6
			35[3] °C	7,7	26,3	12,1	29,9	12,8	21,4	21,9	25,9	15,7	18,4	29,4	23,0	16,7	16,8	33,0	21,2
	Heating	60/40°C	5 °C	13,1	24,6	26,5	16,4	18,8	34,9	42,7	25,4	21,4	41,4	53,8	32,9	25,6	51,0	65,1	41,4
			10 °C	11,3	26,8	23,0	19,9	16,1	35,5	36,7	27,5	18,3	41,1	46,9	34,3	22,7	50,8	57,7	42,3
			15 °C	9,5	29,2	19,5	23,4	13,3	36,1	31,0	29,8	15,6	41,5	39,7	35,6	19,7	50,4	50,2	43,1
			18 °C	8,4	30,5	17,3	25,5	11,4	36,1	27,2	31,0	13,3	40,6	35,0	36,2	18,1	50,5	45,5	43,4
			20 °C	7,6	31,4	15,7	26,8	10,0	35,9	24,8	31,8	11,9	40,3	32,1	36,6	16,8	50,2	42,8	43,9
		40/30°C	5 °C	8,9	18,3	18,2	12,8	12,7	25,2	29,0	18,8	14,5	29,6	36,3	23,8	16,7	35,1	43,2	29,2
			10 °C	7,1	20,6	14,5	16,3	10,1	26,1	23,4	21,2	11,5	29,6	29,5	25,3	14,0	35,2	35,8	30,0
			15 °C	5,4	23,0	11,0	19,7	7,3	26,5	17,5	23,3	8,1	28,8	22,3	26,5	11,1	34,9	28,4	30,9
			18 °C	4,2	24,2	8,8	21,8	5,4	26,6	13,8	24,6	6,8	29,6	17,9	27,3	9,3	34,7	23,9	31,4
			20 °C	3,3	24,9	7,3	23,1	4,7	27,5	11,2	25,3	6,0	30,1	14,7	27,6	8,1	34,5	20,9	31,7
Model size 5	**Air volume flow[1] Y**		m³/h	2360		8975		2155		8555		1975		7920		1830		7495	
	Air throw [2] basic		m	3,6		10,4		3,1		8,6		2,6		7,2		2,2		6,3	
	Air throw [2] SAL		m	4,5		13,1		3,9		10,8		3,4		9,2		2,9		8,0	
	Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
	V/P - PCW	7/12°C	25[3] °C	5,0	18,3	11,4	21,0	6,1	16,1	17,8	18,4	7,3	13,3	23,1	15,8	9,7	9,9	29,6	12,8
			27[3] °C	5,8	19,2	13,3	22,3	7,1	16,5	20,9	19,3	8,6	13,8	26,7	16,4	11,9	10,1	35,4	13,3
			32[3] °C	9,0	21,9	17,9	25,8	12,7	17,1	30,0	21,7	15,2	14,1	41,0	18,2	20,1	9,5	50,6	15,5
			35[3] °C	12,8	23,3	21,1	28,3	16,5	18,2	37,4	23,5	19,8	14,5	51,1	19,7	24,6	9,9	60,7	17,0
		14/17°C	25[3] °C	3,2	20,7	7,2	22,5	4,0	19,1	11,3	20,8	4,5	17,8	14,7	19,2	5,5	15,6	18,0	17,5
			27[3] °C	4,0	21,7	9,0	23,8	5,3	19,3	14,4	21,7	5,9	17,6	18,3	19,8	6,8	15,5	22,0	17,8
			32[3] °C	7,1	23,7	13,2	27,4	9,3	20,3	22,0	23,9	11,0	18,2	29,0	21,3	13,8	15,7	34,3	19,6
			35[3] °C	9,2	25,9	15,3	29,7	14,7	20,8	28,8	25,7	17,5	17,9	38,3	22,9	18,3	16,3	43,7	21,2
	Heating	60/40°C	5 °C	15,5	25,9	34,4	17,3	20,5	35,5	55,1	25,7	23,2	42,4	70,4	33,3	26,9	51,3	86,5	41,5
			10 °C	13,4	28,2	30,3	20,7	17,4	35,9	47,3	27,7	19,9	42,1	61,4	34,7	24,2	51,7	76,6	42,4
			15 °C	11,3	30,3	25,3	24,0	14,1	36,0	39,9	29,9	16,6	41,8	52,1	36,0	20,9	51,1	66,7	43,2
			18 °C	10,0	31,6	22,5	26,1	11,8	35,5	35,0	31,1	14,6	41,5	46,6	36,7	19,3	51,2	60,2	43,5
			20 °C	9,1	32,3	20,7	27,4	10,9	36,2	31,9	32,0	13,6	41,9	42,3	37,0	17,9	50,8	56,7	44,0
		40/30°C	5 °C	10,5	19,2	23,3	13,3	14,0	25,9	37,4	19,0	15,7	30,3	47,5	24,1	17,6	35,4	57,3	29,3
			10 °C	8,5	21,5	18,9	16,8	11,0	26,4	30,2	21,3	12,4	30,0	38,6	25,6	14,7	35,4	47,5	30,1
			15 °C	6,4	23,6	14,3	20,1	7,5	26,2	22,5	23,4	9,1	29,6	29,3	26,8	11,7	35,2	37,7	30,9
			18 °C	5,0	24,8	11,6	22,2	6,2	27,3	17,7	24,6	7,7	30,5	23,6	27,5	9,8	34,9	31,7	31,4
			20 °C	4,0	25,5	9,7	23,5	5,5	28,1	14,1	25,3	6,7	30,9	19,5	27,8	8,5	34,7	27,7	31,7

1 Air volume flow: specified table data are calculated for units with fan type "A" = 2-low-speed and basic outlet. The data are valid for heat exchangers Cu/Al and Cu/Cu.

2 Air throw: air throw is calculated for air intake temperature 18 °C and medium temperature 60 °C/40 °C. The values are valid for air discharge temperature up to 15 K greater than air intake temperature. Pay attention to medium values!

3 Cooling; air-intake temperatures: all cooling capacities are calculated for an air intake with 40 % r.h. Adjust air throw!

Order code

H	N	_	_	.	_	_	_	_	_	_	.	_	_	_
					V	A								
					P	C	HE							

Model size (1,2,3,4)

Capacity stages (1,2,3,4)

Medium function

A - 3x400 V 2-speed low speed range - wide-blade fan

Make your designated selection on these two pages.

Model size 3

Fan motor - Selection			Capacity stage 1				Capacity stage 2				Capacity stage 3				Capacity stage 4			
Z > 400 V EC motor			Min.		Max.		Min.		Max.		Min.		Max.		Min.		Max.	
Air volume flow[1] Z		m³/h	1810		4075		1670		3660		1570		3395		1475		3175	
Air throw [2] basic		m	4,6		9,0		3,7		6,9		3,2		5,9		2,8		5,1	
Air throw [2] SAL		m	5,7		11,0		4,6		8,5		4,1		7,3		3,6		6,3	
Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
V/P - PCW	7/12°C	25[3] °C	3,6	19,2	5,5	21,0	5,0	16,2	8,6	18,1	6,0	13,7	11,0	15,5	7,6	10,7	13,5	12,7
		27[3] °C	4,1	20,3	6,7	22,4	5,9	16,6	10,0	19,0	7,4	13,9	12,8	16,0	9,4	10,9	16,2	13,1
		32[3] °C	6,1	23,3	8,8	25,7	9,4	18,3	14,5	21,4	12,0	15,0	19,6	17,9	#[4]	#[4]	#[4]	#[4]
		35[3] °C	#[4]	#[4]	#[4]	#[4]	11,9	19,8	18,0	23,2	15,0	16,1	24,4	19,3	#[4]	#[4]	#[4]	#[4]
	14/17°C	25[3] °C	2,2	21,3	3,5	22,5	3,2	19,3	5,5	20,6	3,8	17,9	6,9	19,0	4,4	16,1	8,2	17,4
		27[3] °C	2,8	22,4	4,4	23,8	4,1	19,8	6,9	21,5	4,8	18,1	8,6	19,5	5,5	16,1	10,1	17,7
		32[3] °C	#[4]	#[4]	#[4]	#[4]	6,2	21,2	10,5	23,6	7,4	18,6	12,9	20,9	#[4]	#[4]	#[4]	#[4]
		35[3] °C	#[4]	#[4]	#[4]	#[4]	8,0	22,3	12,6	25,0	10,2	19,3	16,4	22,0	#[4]	#[4]	#[4]	#[4]
Heating	60/40°C	5 °C	10,8	22,7	16,8	17,3	15,8	33,1	26,3	26,4	18,7	40,5	33,6	34,5	21,6	48,7	39,6	42,2
		10 °C	9,4	25,5	14,7	20,7	13,7	34,4	22,9	28,6	16,2	40,8	29,0	35,5	19,3	48,9	35,1	42,9
		15 °C	8,0	28,1	12,3	24,0	11,4	35,3	19,2	30,6	14,0	41,6	24,7	36,7	16,8	49,0	30,5	43,6
		18 °C	7,0	29,6	11,0	26,1	10,0	35,9	17,0	31,9	12,4	41,6	22,1	37,4	15,2	48,8	27,7	44,0
		20 °C	6,5	30,6	10,1	27,4	9,0	36,1	15,4	32,6	11,3	41,4	20,4	37,9	14,2	48,6	25,7	44,1
	40/30°C	5 °C	7,3	17,0	11,4	13,3	10,7	24,0	17,9	19,5	12,6	28,9	22,6	24,8	14,3	33,9	26,3	29,7
		10 °C	5,9	19,7	9,3	16,8	8,6	25,4	14,4	21,8	10,2	29,3	18,3	26,0	11,8	33,9	21,8	30,4
		15 °C	4,5	22,4	7,0	20,1	6,4	26,4	10,8	23,8	7,7	29,5	14,0	27,3	9,5	34,1	17,2	31,1
		18 °C	3,6	23,9	5,7	22,2	4,8	26,6	8,6	25,0	6,1	29,6	11,2	27,9	7,9	33,9	14,4	31,5
		20 °C	3,0	24,9	4,7	23,5	3,7	26,6	7,0	25,7	4,9	29,2	9,4	27,3	6,9	33,9	12,6	31,8

Model size 4

Air volume flow[1] Z		m³/h	2180		6735		2060		6610		1960		5650		1870		5210	
Air throw [2] basic		m	4,2		10,6		3,5		8,2		3,1		6,9		2,7		5,8	
Air throw [2] SAL		m	5,1		12,8		4,4		10,1		3,9		8,5		3,4		7,2	
Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
V/P - PCW	7/12°C	25[3] °C	4,5	19,0	8,6	21,2	6,1	16,2	13,7	18,4	7,1	14,3	17,4	15,9	10,1	10,3	21,9	12,8
		27[3] °C	5,3	19,9	10,1	22,6	7,4	16,4	16,0	19,3	9,1	13,9	20,1	16,5	12,3	10,6	26,2	13,3
		32[3] °C	7,9	22,7	13,6	26,1	12,3	17,8	23,0	21,8	15,4	14,6	30,6	18,5	#[4]	#[4]	#[4]	#[4]
		35[3] °C	#[4]	#[4]	#[4]	#[4]	15,8	19,0	28,6	23,6	19,3	15,6	38,5	19,8	#[4]	#[4]	#[4]	#[4]
	14/17°C	25[3] °C	2,9	21,1	5,5	22,6	4,1	19,2	8,7	20,8	4,7	17,9	10,9	19,3	5,8	15,8	13,3	17,5
		27[3] °C	3,6	22,1	6,9	24,0	5,2	19,6	11,0	21,7	6,0	18,0	13,8	19,8	7,0	15,9	16,3	17,8
		32[3] °C	#[4]	#[4]	#[4]	#[4]	8,0	20,7	16,7	24,0	9,5	18,3	20,7	21,3	#[4]	#[4]	#[4]	#[4]
		35[3] °C	#[4]	#[4]	#[4]	#[4]	10,6	21,7	20,2	25,4	13,1	19,0	26,1	22,3	#[4]	#[4]	#[4]	#[4]
Heating	60/40°C	5 °C	13,8	23,9	26,4	16,7	20,2	34,2	42,3	25,5	23,6	40,9	53,2	33,0	28,5	50,3	64,1	41,7
		10 °C	12,0	26,4	22,7	20,0	17,4	35,2	36,3	27,6	20,3	40,9	46,3	34,4	25,1	49,9	56,8	42,5
		15 °C	10,2	28,9	19,2	23,5	14,4	35,8	30,7	29,9	17,3	41,3	39,2	35,7	22,0	50,0	49,4	43,3
		18 °C	8,9	30,2	17,1	25,6	12,4	36,0	27,0	31,1	15,1	40,9	34,6	36,3	20,1	50,0	44,6	43,5
		20 °C	8,1	31,1	15,5	26,9	11,0	35,9	24,6	31,9	13,4	40,4	31,8	36,7	18,7	49,7	42,0	44,0
	40/30°C	5 °C	9,5	18,0	17,9	12,9	13,8	25,0	28,7	18,9	16,0	29,3	35,9	23,9	18,5	34,5	42,5	29,3
		10 °C	7,6	20,4	14,4	16,3	11,0	25,9	23,2	21,2	12,8	29,4	29,2	25,4	15,6	34,8	35,2	30,2
		15 °C	5,7	22,7	10,9	19,8	7,9	26,5	17,3	23,4	9,2	29,0	22,0	26,6	12,5	34,9	27,9	31,0
		18 °C	4,5	24,1	8,7	21,8	5,7	26,3	13,7	24,6	7,3	29,1	17,6	27,3	10,4	34,5	23,4	31,4
		20 °C	3,6	24,9	7,2	23,2	4,9	27,1	11,1	25,4	6,4	29,7	14,5	27,6	9,0	34,4	20,5	31,7

				Capacity stage 1				Capacity stage 2				Capacity stage 3				Capacity stage 4			
	Fan motor - Selection			Min.		Max.		Min.		Max.		Min.		Max.		Min.		Max.	
	Z > 400 V EC motor																		
	Air volume flow[1] Z		m³/h	2460		8440		2250		7935		2090		7525		1960		7075	
	Air throw [2] basic		m	3,9		10,6		3,3		8,6		2,8		7,3		2,4		6,3	
	Air throw [2] SAL		m	4,9		13,3		4,2		10,8		3,7		9,3		3,1		8,1	
	Heating capacities/Discharge temperature			Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C	Q [kW]	t °C
Model size 5	V/P - PCW	7/12°C	25[3] °C	5,5	18,5	11,4	21,0	6,5	16,4	17,8	18,4	8,0	13,7	23,4	15,8	10,9	10,0	29,6	12,8
			27[3] °C	6,4	19,4	13,4	22,3	8,1	16,4	20,8	19,3	10,0	13,6	27,0	16,4	13,4	10,2	35,5	13,3
			32[3] °C	9,7	22,2	18,0	25,8	13,9	17,3	30,0	21,7	17,0	14,2	41,4	18,3	#[4]	#[4]	#[4]	#[4]
			35[3] °C	#[4]	#[4]	#[4]	#[4]	18,1	18,5	37,3	23,5	21,9	14,8	51,6	19,8	#[4]	#[4]	#[4]	#[4]
		14/17°C	25[3] °C	3,5	20,8	7,2	22,5	4,5	19,1	11,3	20,8	5,1	17,8	14,8	19,2	6,3	15,6	18,0	17,5
			27[3] °C	4,4	21,8	9,1	23,8	5,8	19,4	14,4	21,7	6,6	17,7	18,4	19,8	7,5	15,7	22,0	17,8
			32[3] °C	#[4]	#[4]	#[4]	#[4]	9,0	20,3	21,8	24,0	10,6	17,9	27,7	21,2	#[4]	#[4]	#[4]	#[4]
			35[3] °C	#[4]	#[4]	#[4]	#[4]	12,2	21,2	26,4	25,3	14,6	18,7	34,9	22,3	#[4]	#[4]	#[4]	#[4]
	Heating	60/40°C	5 °C	16,8	25,4	34,7	17,2	22,8	35,2	55,0	25,7	26,1	42,2	71,2	33,2	30,3	51,0	86,7	41,5
			10 °C	14,6	27,7	30,2	20,7	19,4	35,7	47,2	27,7	22,5	42,1	62,1	34,6	27,2	51,3	76,8	42,3
			15 °C	12,3	29,9	25,4	24,0	15,8	36,0	39,8	30,0	18,9	41,9	52,7	35,9	23,6	50,8	66,9	43,1
			18 °C	11,0	31,3	22,7	26,0	13,3	35,6	35,0	31,1	16,2	41,0	47,1	36,6	21,7	51,0	60,4	43,4
			20 °C	9,9	32,0	20,8	27,4	11,6	35,4	31,9	32,0	14,7	41,0	42,8	36,9	20,1	50,6	56,9	44,0
		40/30°C	5 °C	11,4	18,8	23,5	13,3	15,4	25,4	37,4	19,0	17,6	30,1	48,0	24,0	20,0	35,5	57,5	29,2
			10 °C	9,2	21,2	19,1	16,7	12,2	26,2	30,1	21,3	14,0	30,0	39,1	25,5	16,6	35,2	47,6	30,1
			15 °C	6,9	23,4	14,4	20,1	8,5	26,2	22,4	23,4	9,9	29,1	29,6	26,7	13,2	35,1	37,8	30,9
			18 °C	5,5	24,7	11,7	22,1	6,7	26,9	17,7	24,6	8,4	29,9	23,8	27,4	11,1	34,9	31,8	31,4
			20 °C	4,5	25,4	9,7	23,4	5,8	27,7	14,1	25,3	7,3	30,4	19,7	27,8	9,6	34,7	31,7	31,7

1 Air volume flow: specified table data are calculated for units with fan type "Z" = EC - continuously variable and outlet SAL wall. The data are valid for the heat exchangers Cu/Al and Cu/Cu and fan switch. The values are reduced due to the condensate situation caused by the EC control voltage.

2 Air throw: air throw is calculated for air intake temperature 18 °C and medium temperature 60 °C/40 °C. The values are valid for air discharge temperature up to 15 K greater than air intake temperature. Pay attention to medium values!

3 Cooling; air-intake temperatures: all cooling capacities are calculated for an air intake with 40 % r.h. Adjust air throw!

4 The speed in the pipes is too high.

Order code

H	N	_	_	.	_	_	_	_	_	_	.	_	_	_
					V	A								
					P	C	HE							

Model size (1,2,3,4)

Capacity stages (1,2,3,4)

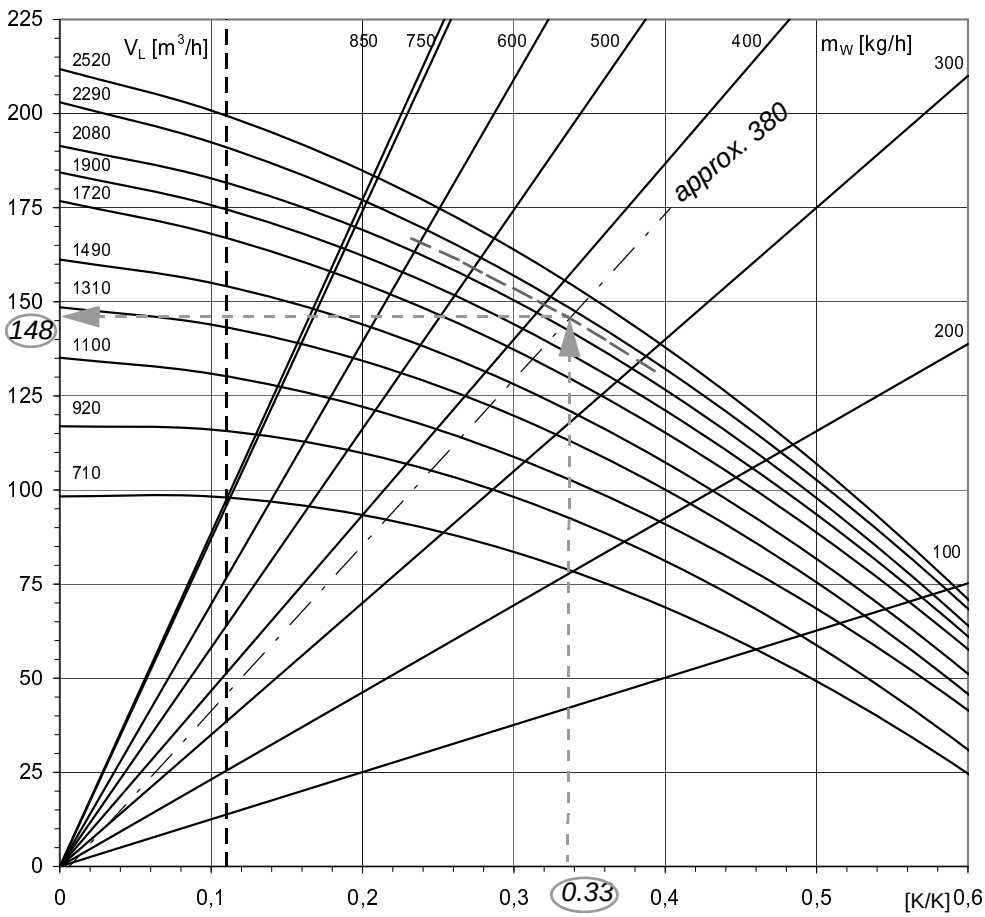
Medium function

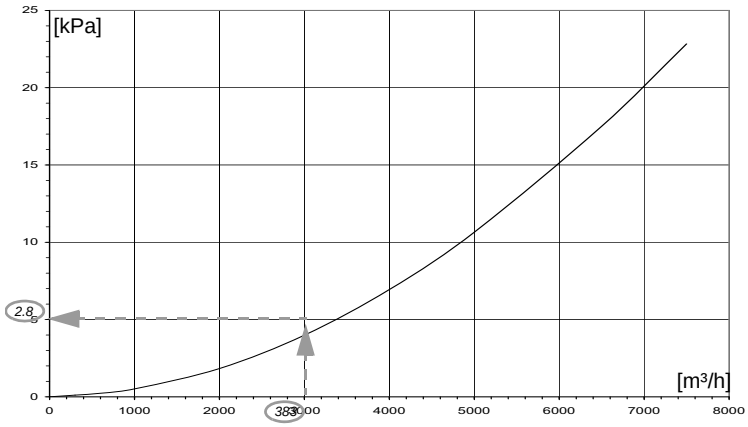
Z - 3x400 V EC - sickle-blade fan continuously variable

Make your designated selection on these two pages.

In order to explain how to use the following diagrams, individual steps with calculations and final results are presented in the following example. This example is based on size 1 and capacity stage 1.

EXAMPLE

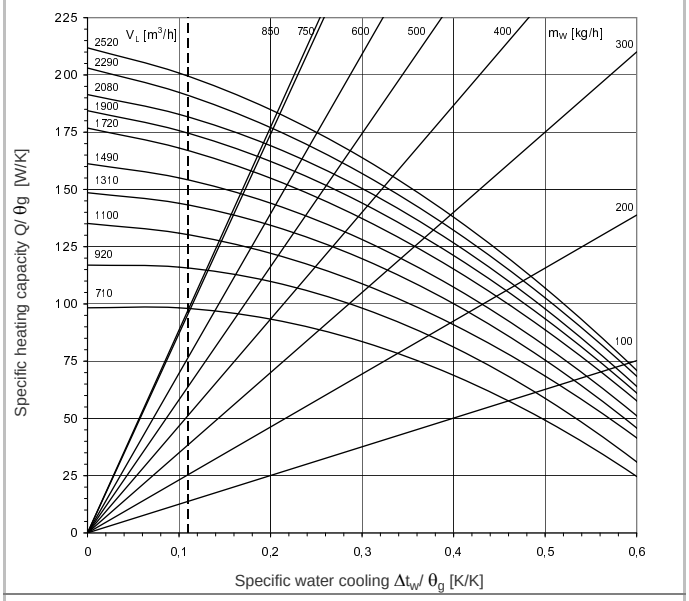
	Input data		**Result**
Input The following input values are assumed for this example (based on diagram "Model size 1 – Capacity stage 1" on page 52).	Air flow rate V_L	->	V_L = 2140 m³/h (from table page 28)
	Air temperature	->	t_{L1} = 20 °C
	Water supply line	->	t_{w1} = 80 °C
	Water return line	->	t_{w2} = 60 °C
1nd Step Using the formula for Δt_w and θ_g you can calculate the specific water cooling as a ratio of Δt_w to θ_g.	Temperature difference: Δt_w [K] = t_{w1} - t_{w2} 80 °C - 60 °C = 20 K	->	Δt_w = 20 K
	Maximum temperature difference: θg [K] = t_{w1} - t_{L1} 80 °C - 20 °C = 60 K	->	θg = 60 K
	$\frac{\Delta tw}{\theta_g}$ $\frac{20}{60} = 0,\overline{3}$	->	**0.33 [K/K]**
2nd Step Extend a vertical line from the result in the first diagram on “Model size 1 – Capacity stage 1” (from page 52) on the x-axis upwards to the intersection point of the specified (existing) air volume flow V_L and read off the specific heating capacity Q/θ_g on the y-axis.			
	Read off specific heating capacity Q/θ_g	->	**148 W/K**
3nd Step The specific heating capacity $Q/\theta g$ multiplied by θg returns the heating capacity Q [W].	Specific Heating capacity	->	Q/θ_g =148 W/K
	Maximum temperature difference	->	θ_g = 60 K
	Heating capacity: $Q = Q/\theta_g \times \theta_g$ 148 W/K° 60 K = 8880 W	->	**8.9 kW** See table value page 28

4nd Step You can also read off the water mass flow rate m_w [kg/h] from the first diagram on “Model size 1 – Capacity stage 1” (from page 52), or you can calculate it.	Water mass flow rate: (diagram) Draw another curve from the zero point through the intersection point (see diagram on page 50) and interpolate the value -> approx. 380 kg/h Water mass flow rate: (calculation) -> **383 kg/h** $m_w = 860 * Q\ [kW]/\Delta t_w$ 860 * 8.9 kW/20 K = 382.7 kg/h
5nd Step Now you can read off the water-side pressure drop/water resistance p_w [kPa] from the second diagram “Model size 1 – Capacity stage 1” (from page 52).	 Read off water-side pressure drop p_w [kPa] -> **2.8 kPa**

Both diagrams (in the example diagrams on "Model size 1 – Capacity stage 1" on page 52) apply for Cu/Al and Cu/Cu heat exchangers; for steel HX use the relevant diagrams from page 57.

Notice!
There are no diagrams available for **heating with steam and cooling**.
Should you require these data, contact our sales staff.
You can read off **air-side pressure drops** of accessories on the intake and discharge sides using the diagrams from page 44. In such a way you can calculate the corrected volume flow.
A sample application is provided. See “Using the performance data diagrams ‘Air-side pressure drops’” on page 60.
Sound data for all fan types are summarized in tables from page 69.

Fig. 27: Model size 1 – Capacity stage 1



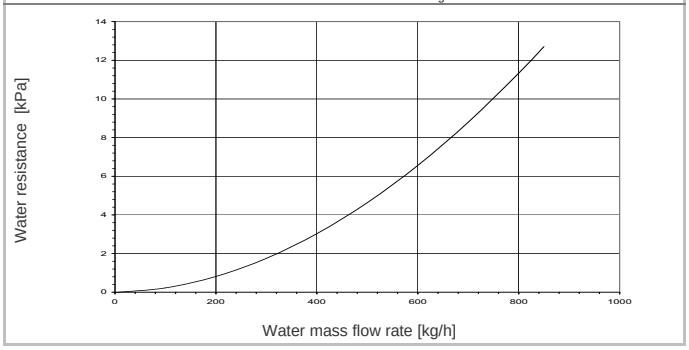
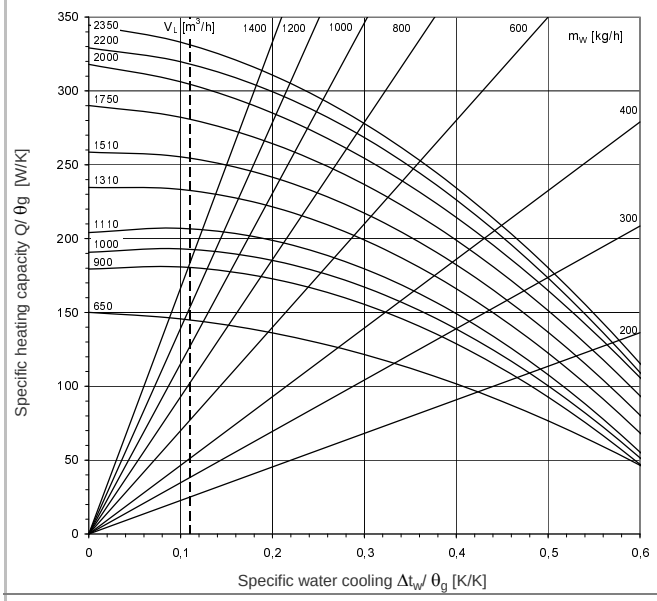


Fig. 28: Model size 1 – Capacity stage 2



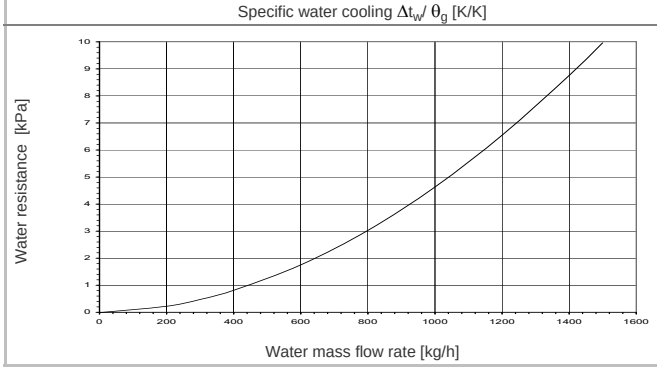
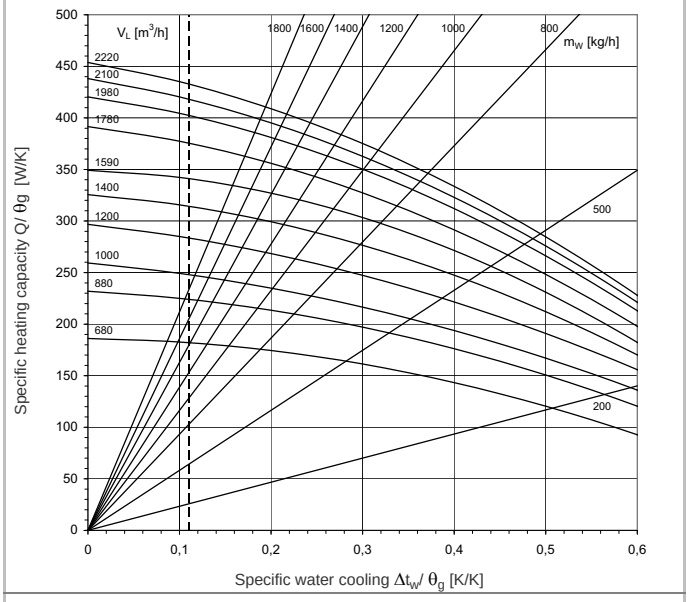


Fig. 29: Model size 1 – Capacity stage 3



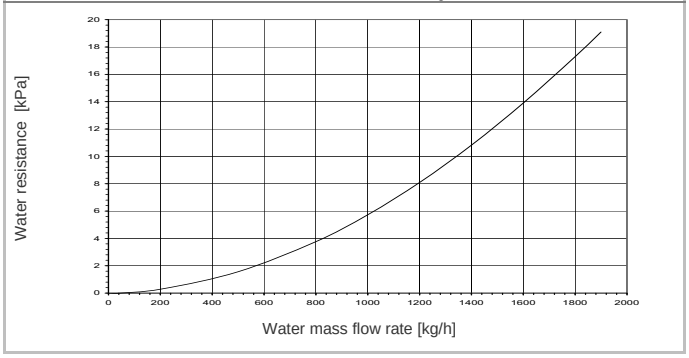
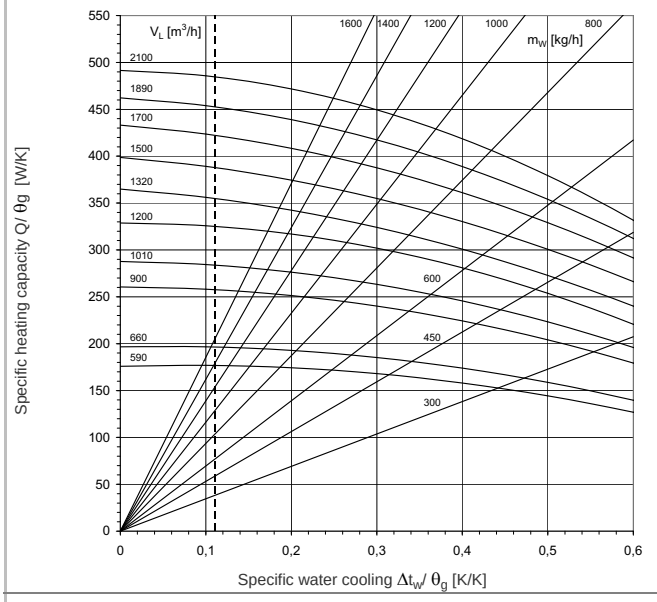


Fig. 30: Model size 1 – Capacity stage 4



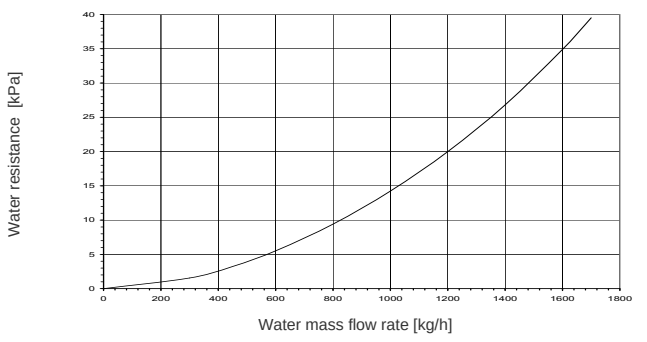


Fig. 31: Model size 2 – Capacity stage 1

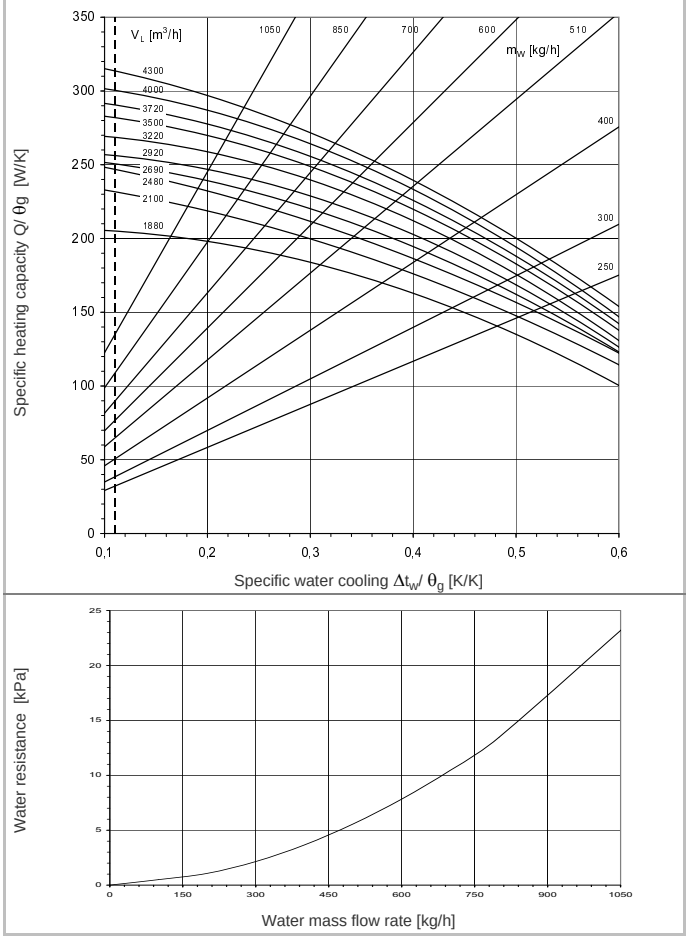


Fig. 32: Model size 2 – Capacity stage 2

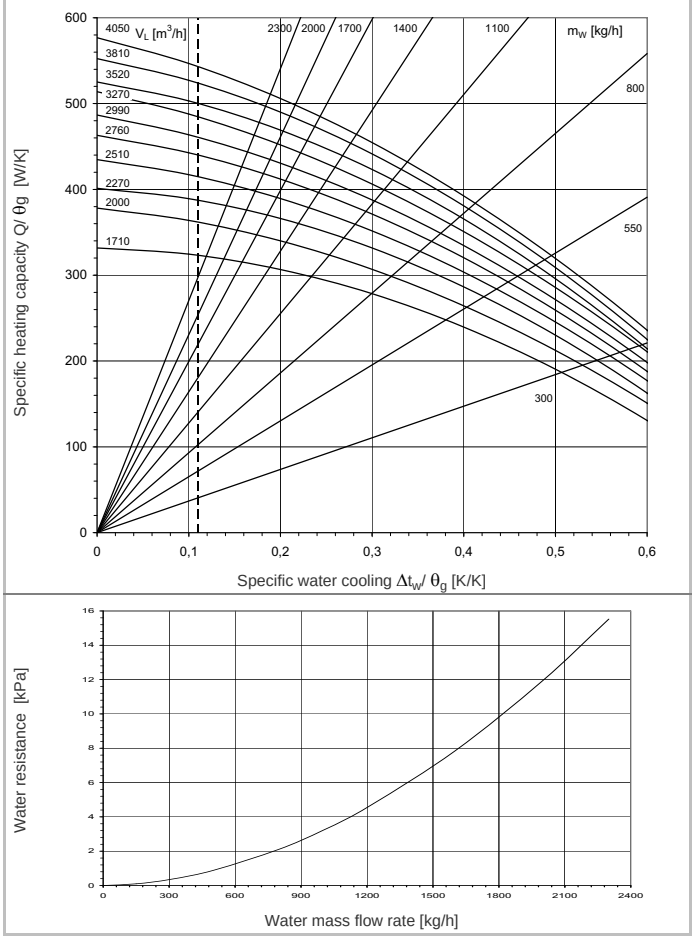
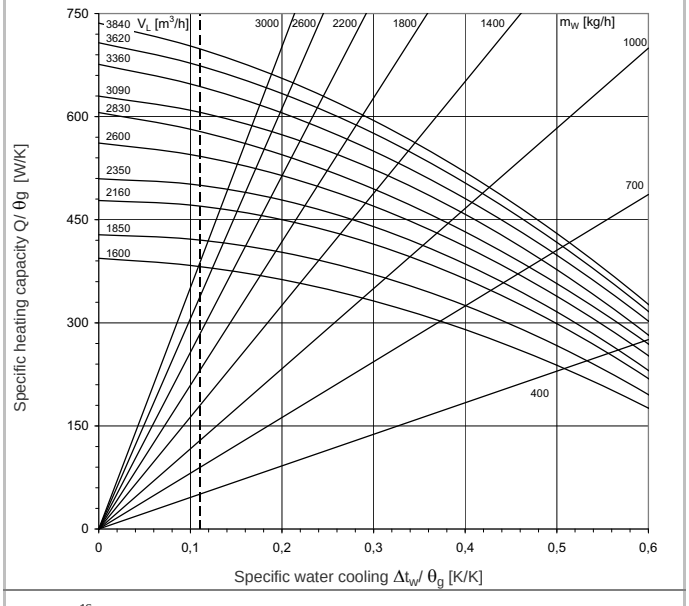


Fig. 33: Model size 2 – Capacity stage 3



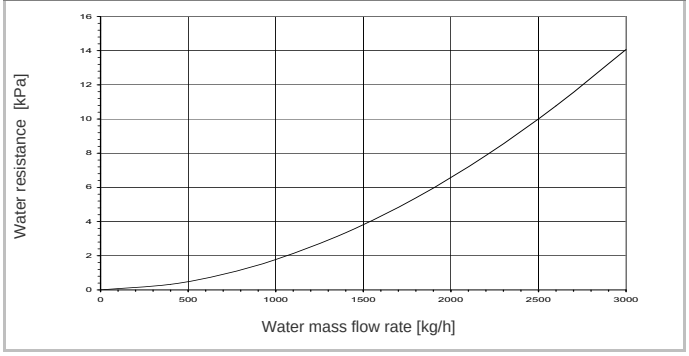
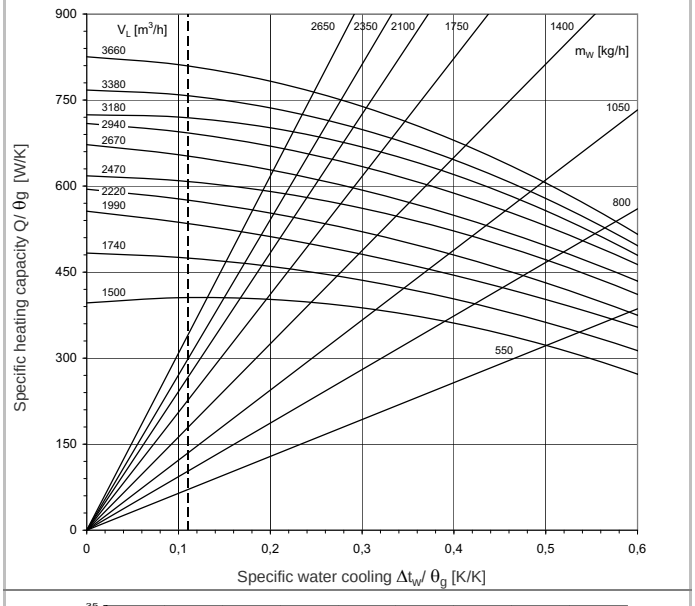


Fig. 34: Model size 2 – Capacity stage 4



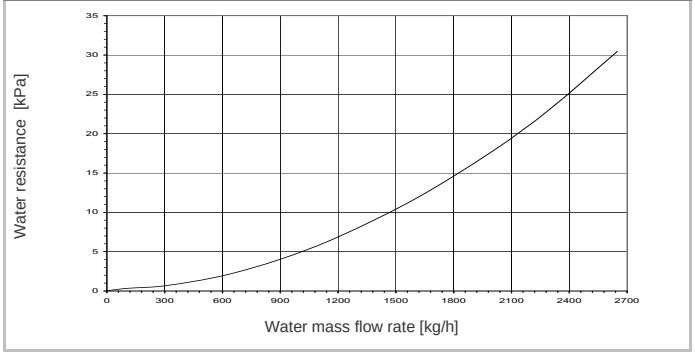


Fig. 35: Model size 3 – Capacity stage 1

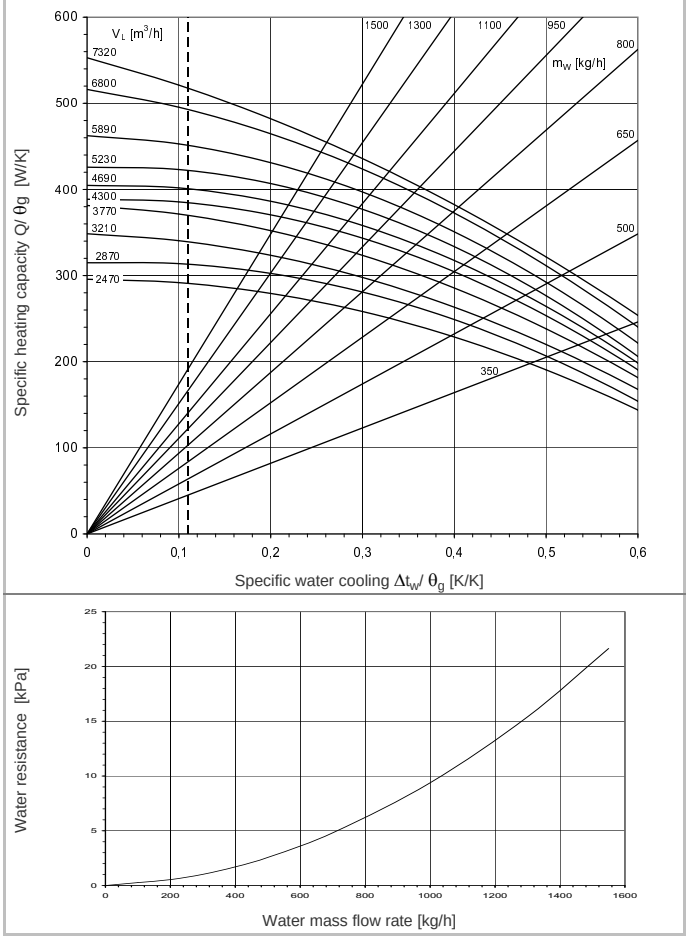


Fig. 36: Model size 3 – Capacity stage 2

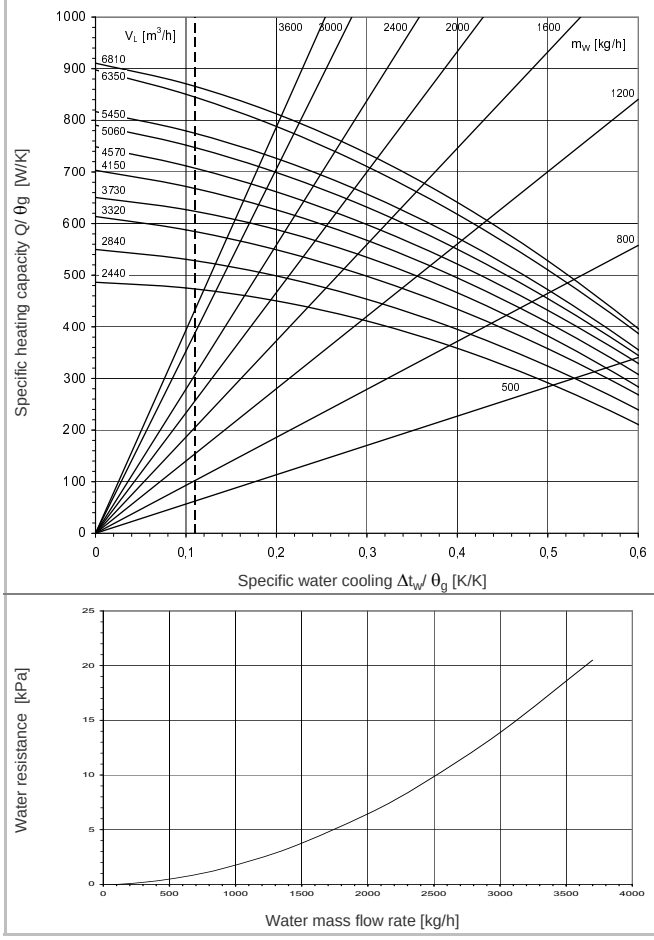


Fig. 37: Model size 3 – Capacity stage 3

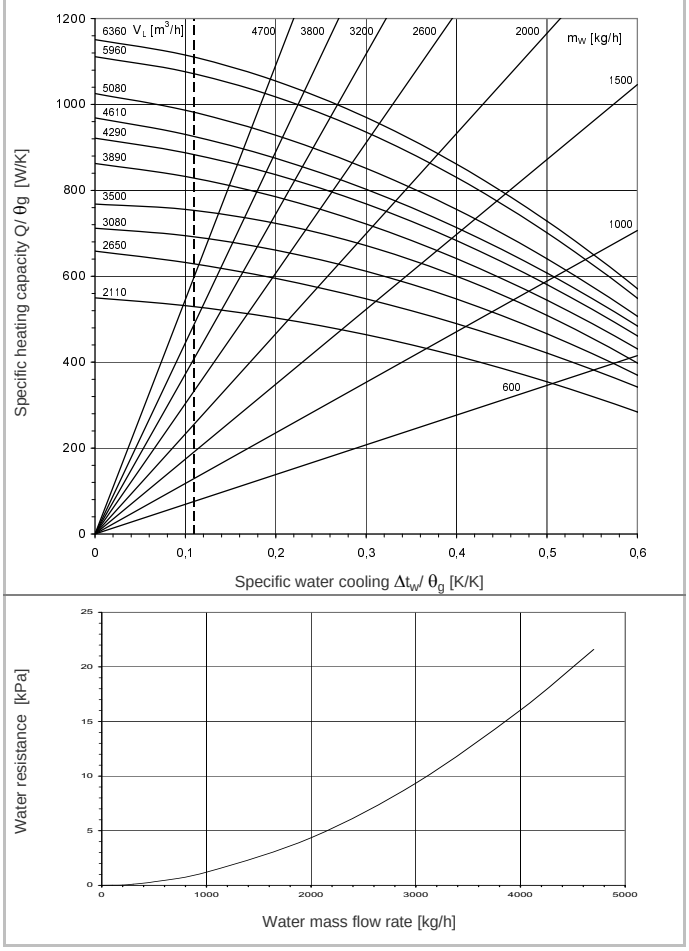


Fig. 38: Model size 3 – Capacity stage 4

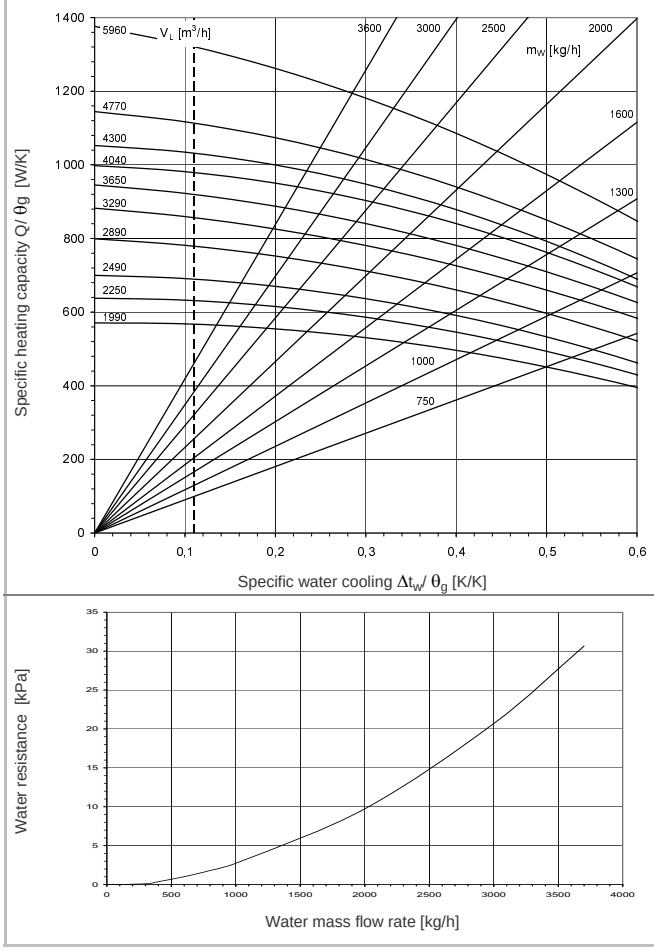
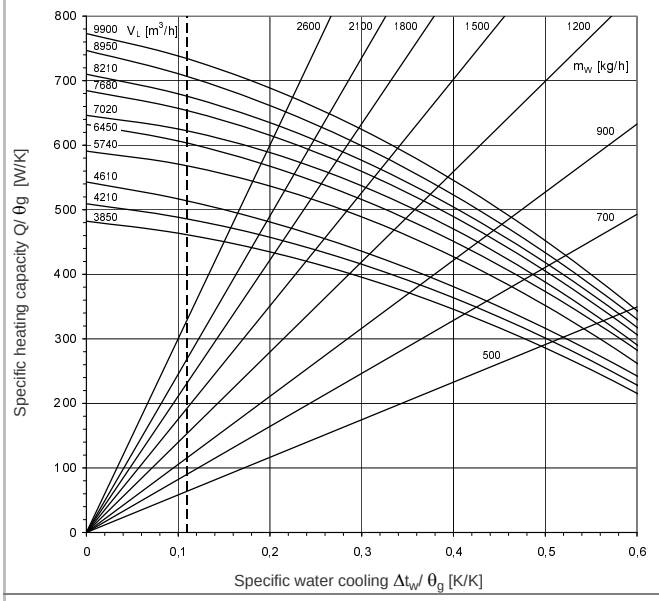


Fig. 39: Model size 4 – Capacity stage 1



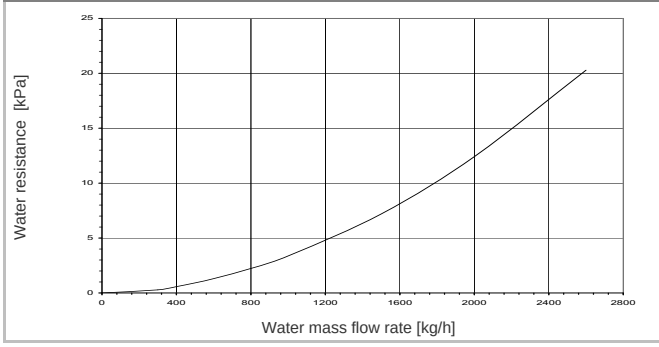
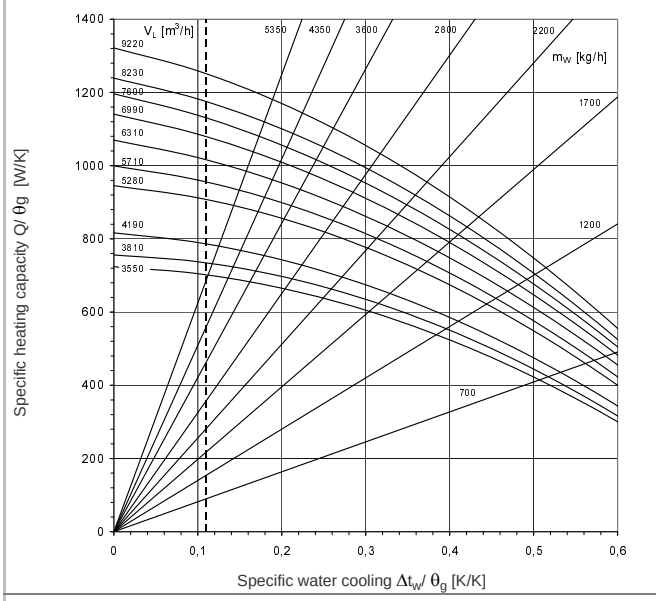


Fig. 40: Model size 4 – Capacity stage 2



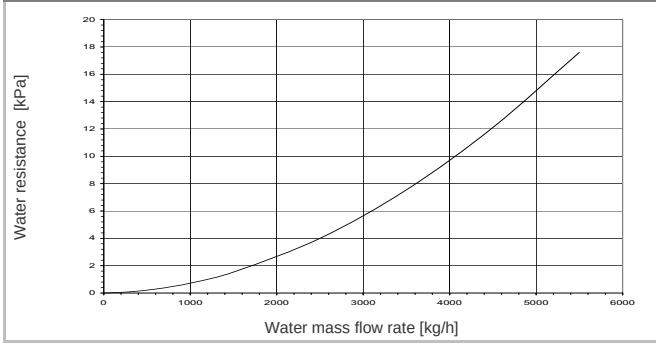
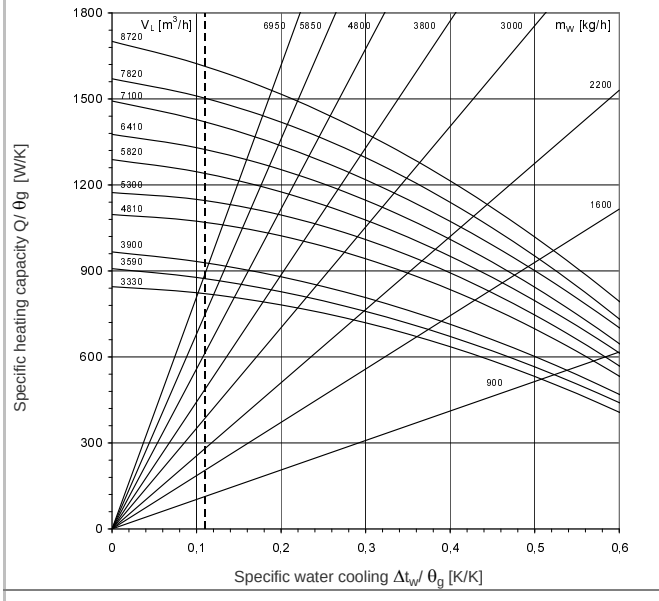


Fig. 41: Model size 4 – Capacity stage 3



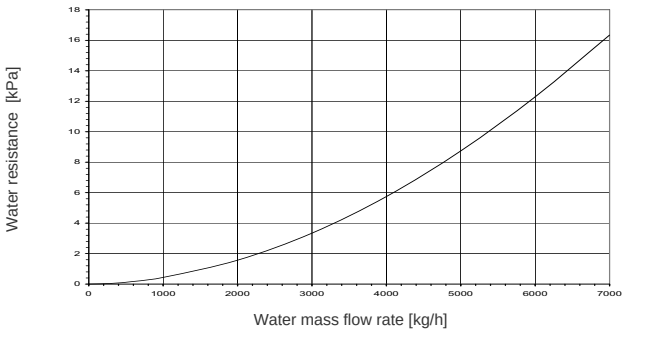
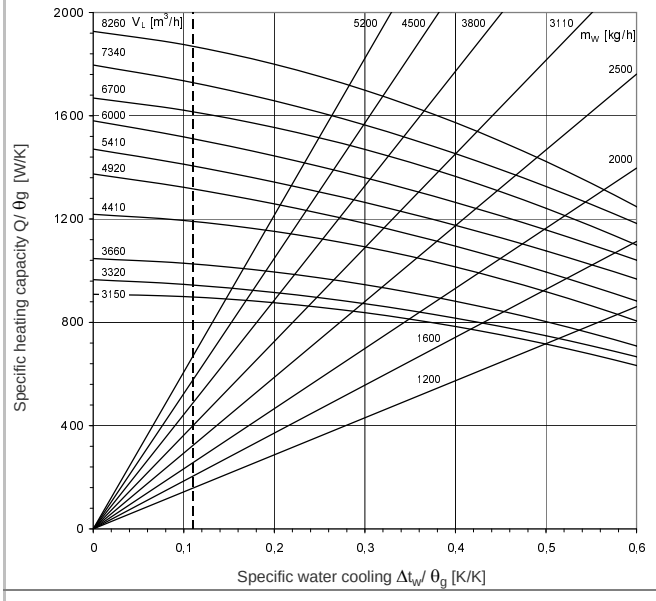


Fig. 42: Model size 4 – Capacity stage 4



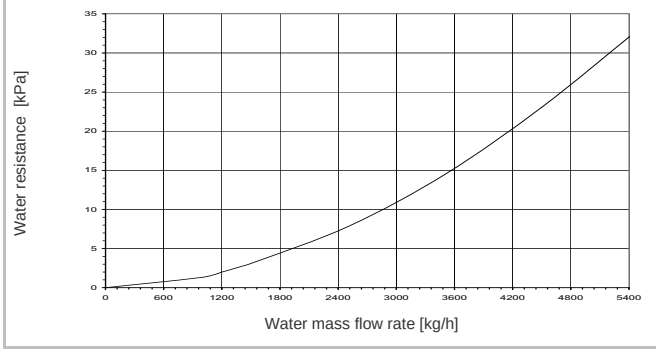


Fig. 43: Model size 5 – Capacity stage 1

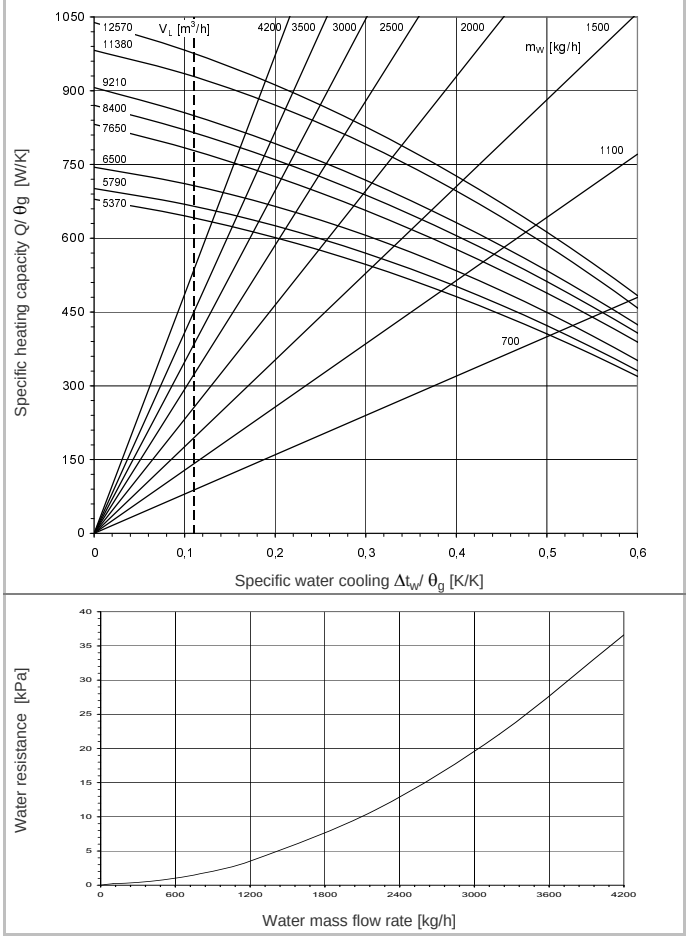


Fig. 44: Model size 5 – Capacity stage 2

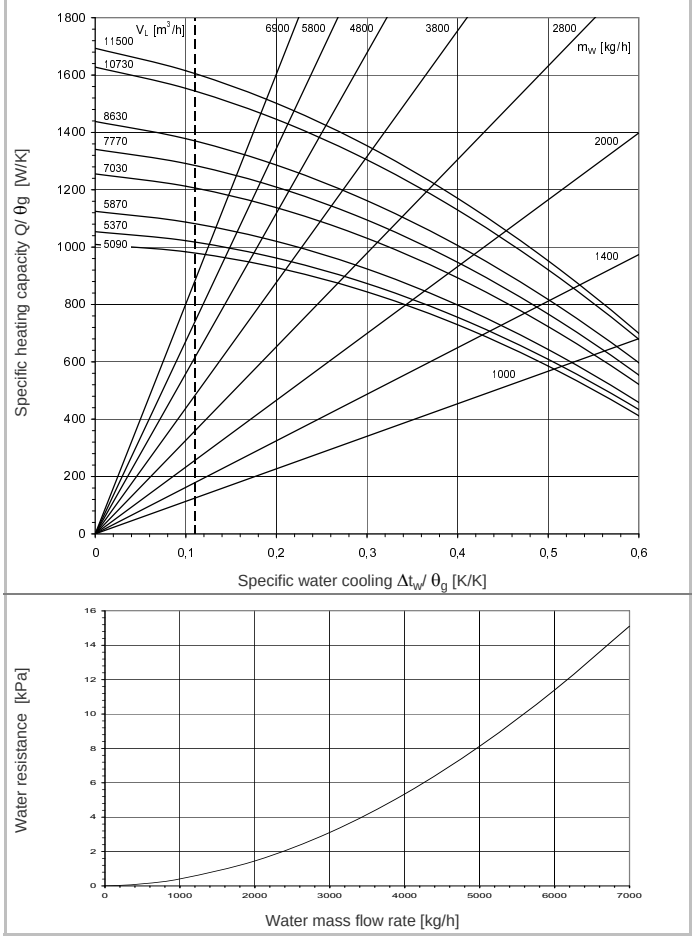


Fig. 45: Model size 5 – Capacity stage 3

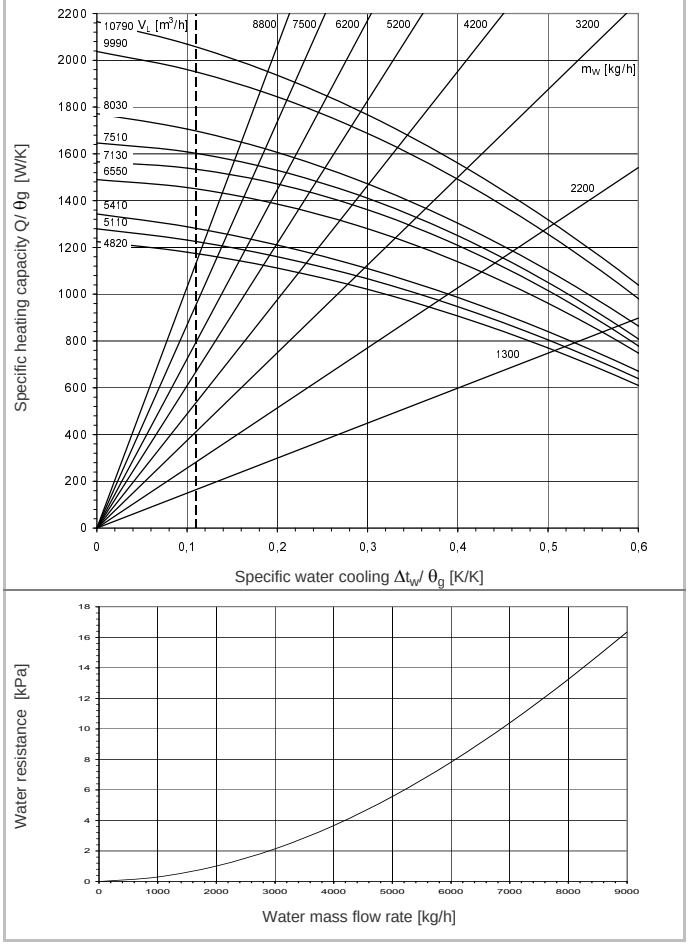


Fig. 46: Model size 5 – Capacity stage 4

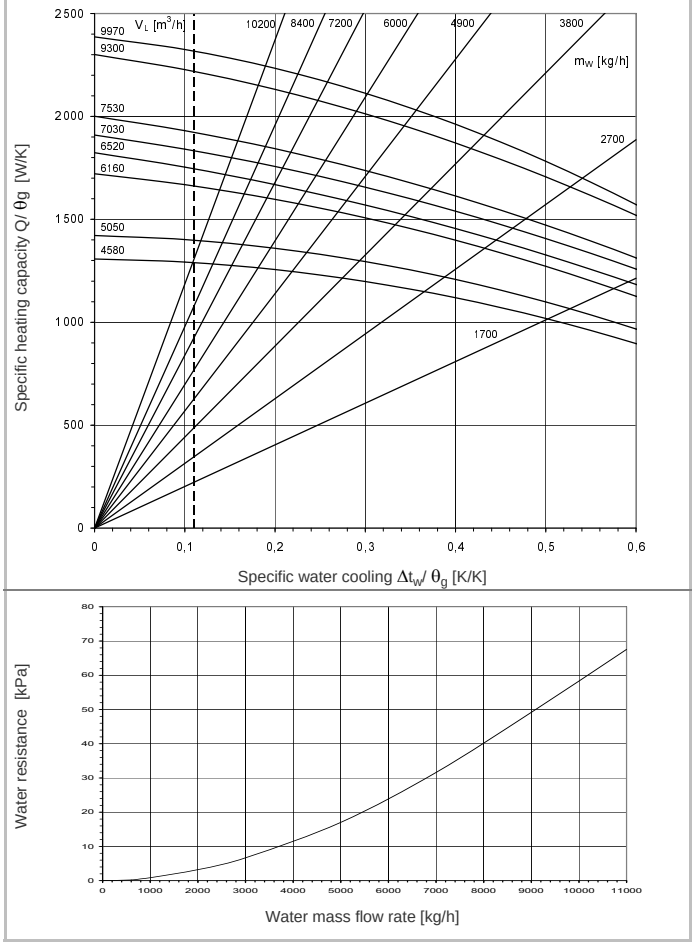
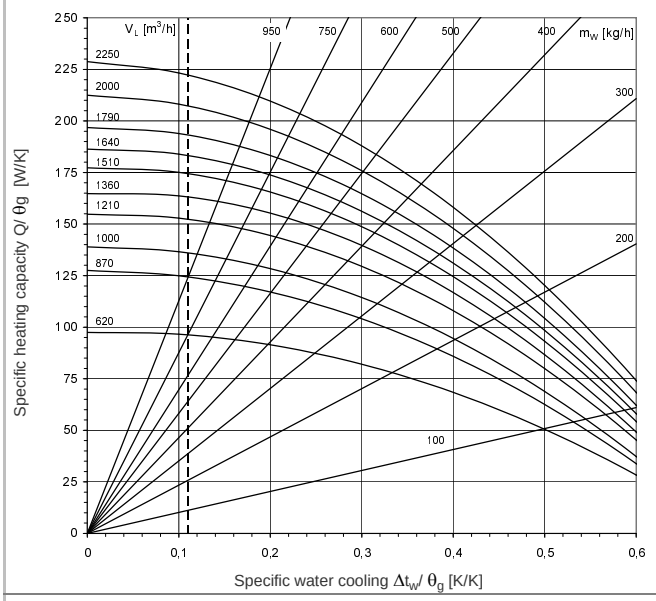


Fig. 47: Model size 1 – Capacity stage 1



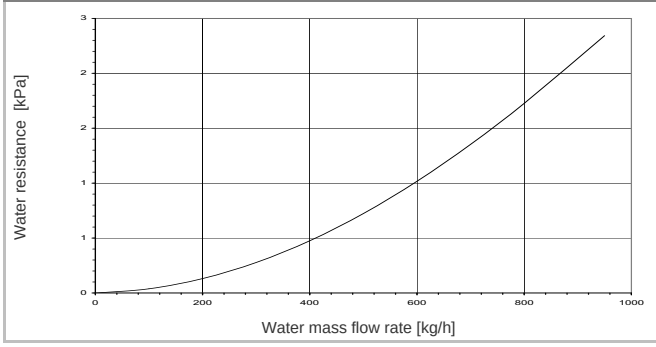
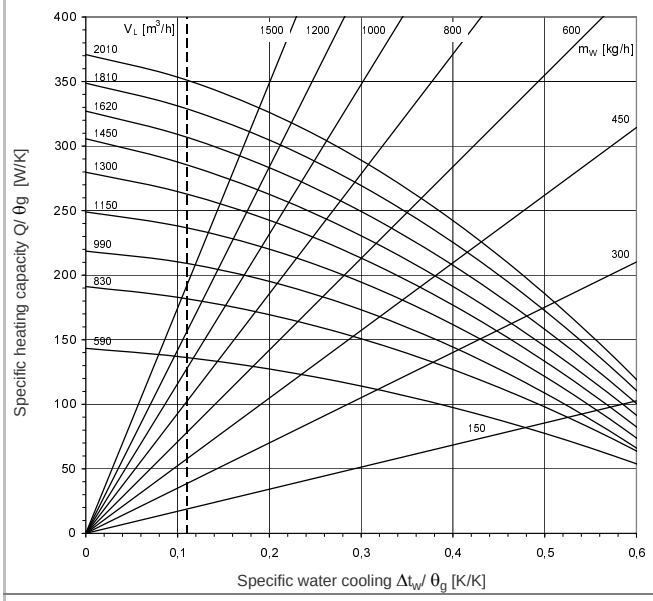


Fig. 48: Model size 1 – Capacity stage 2



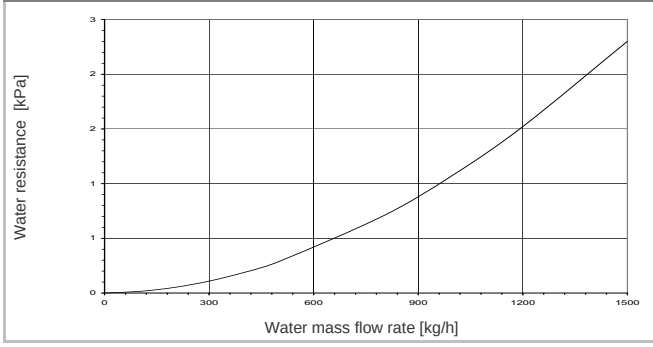
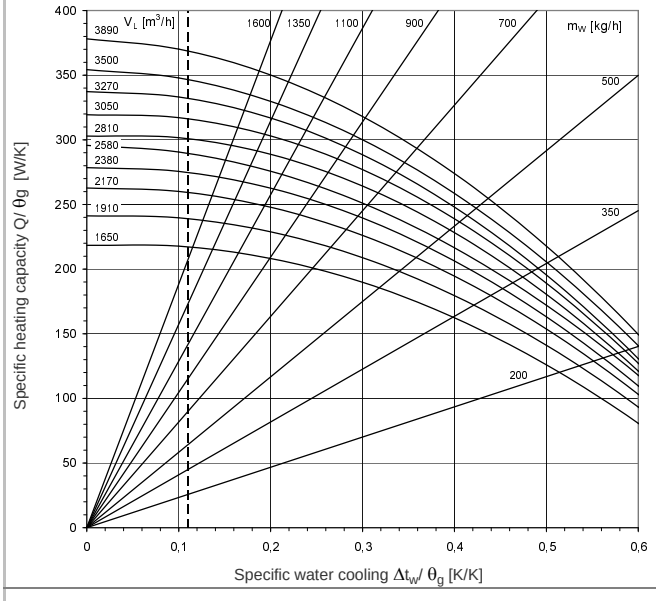


Fig. 49: Model size 2 – Capacity stage 1



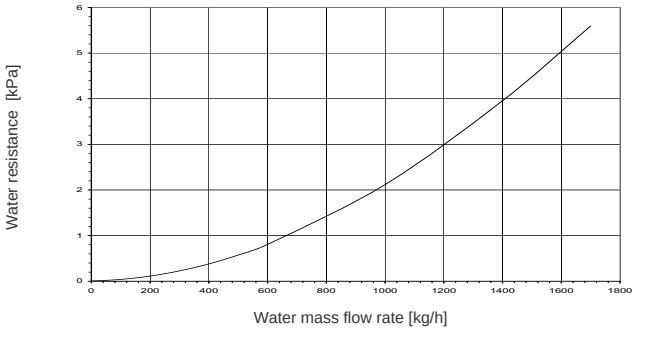
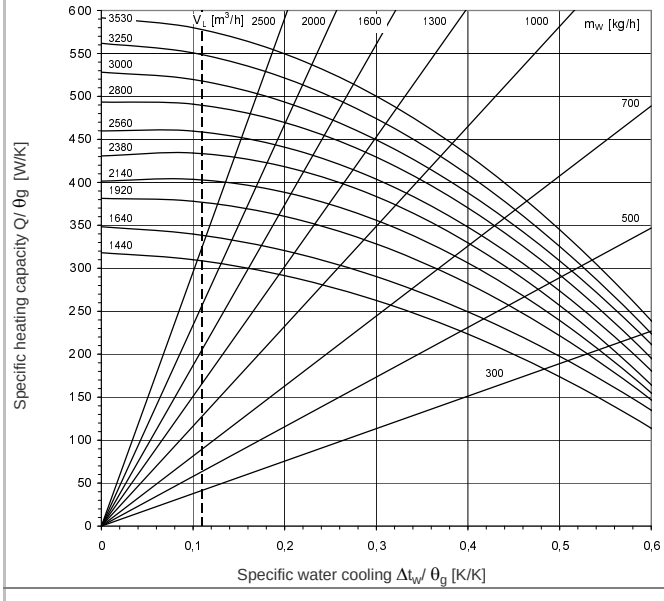


Fig. 50: Model size 2 – Capacity stage 2



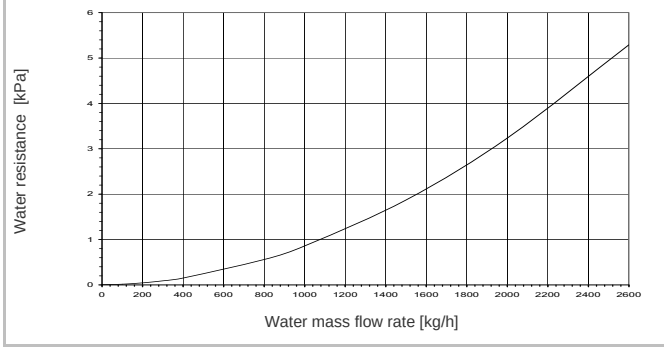
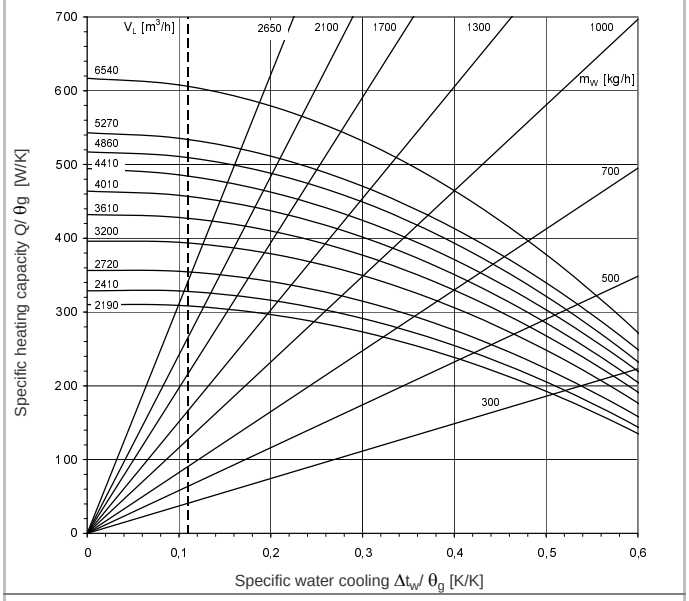


Fig. 51: Model size 3 – Capacity stage 1



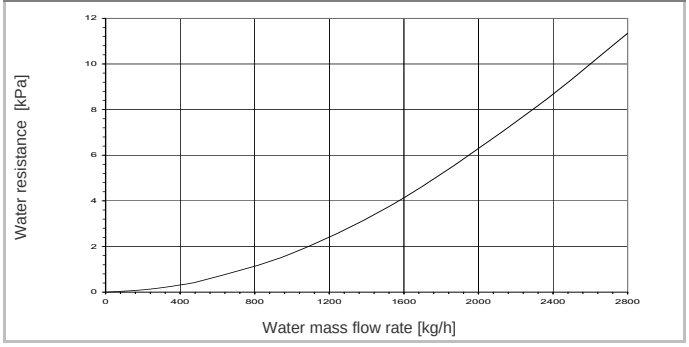
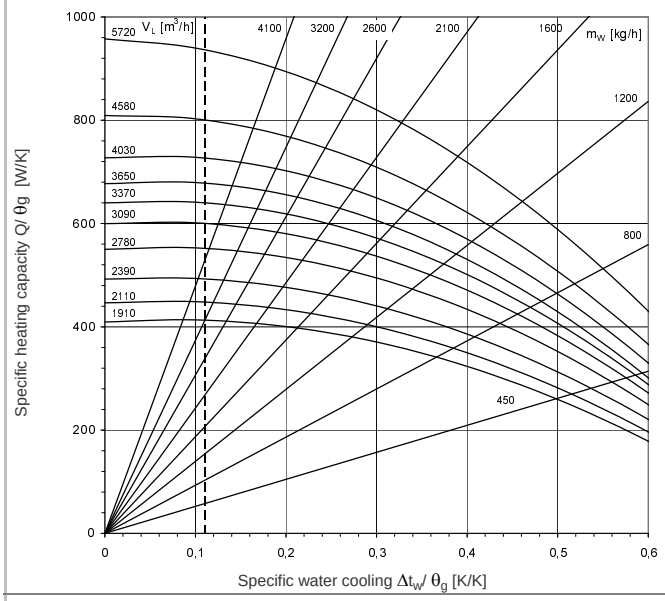


Fig. 52: Model size 3 – Capacity stage 2



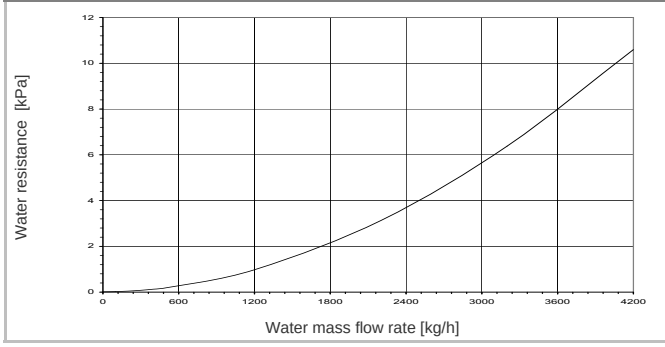
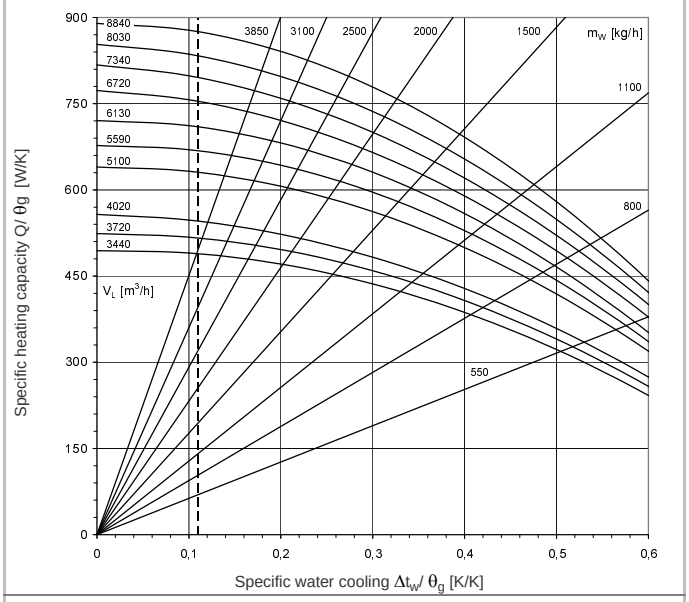


Fig. 53: Model size 4 – Capacity stage 1



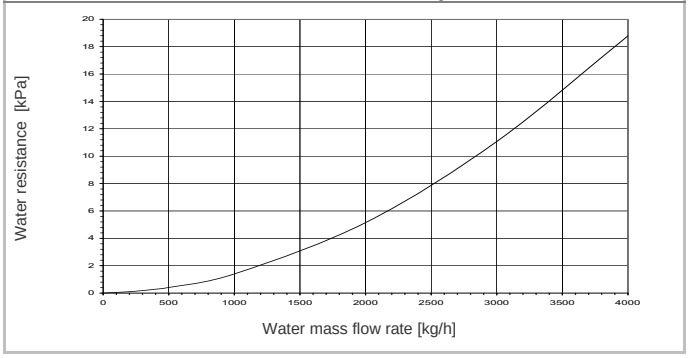
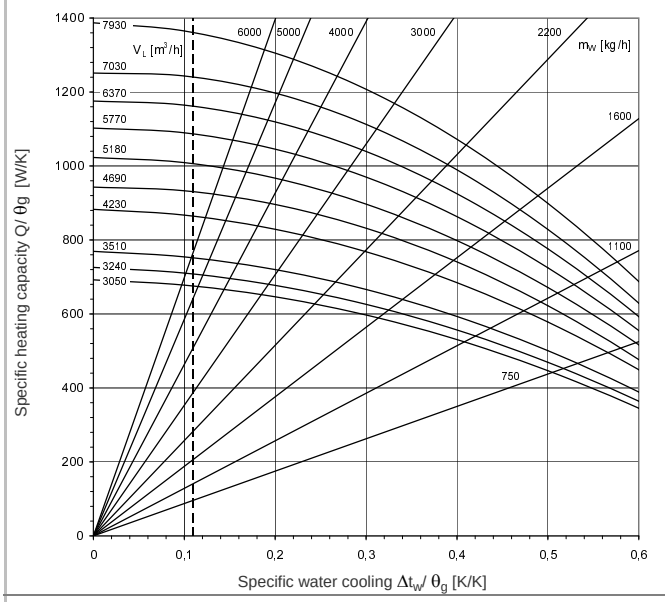


Fig. 54: Model size 4 – Capacity stage 2



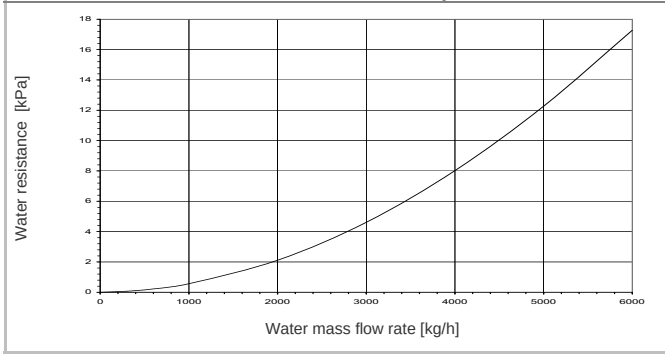


Fig. 55: Model size 5 – Capacity stage 1

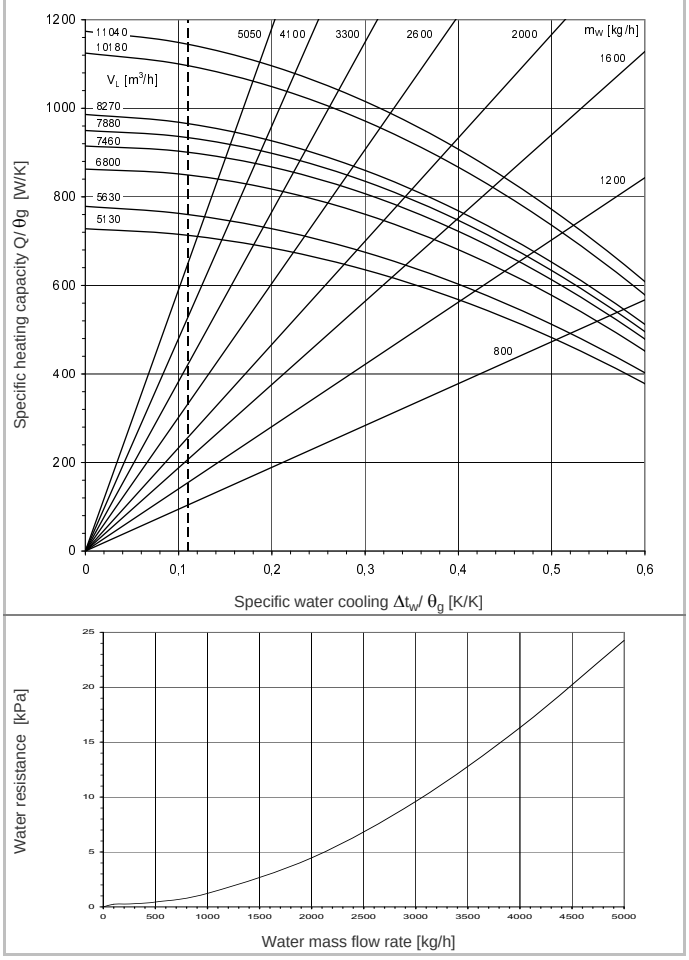
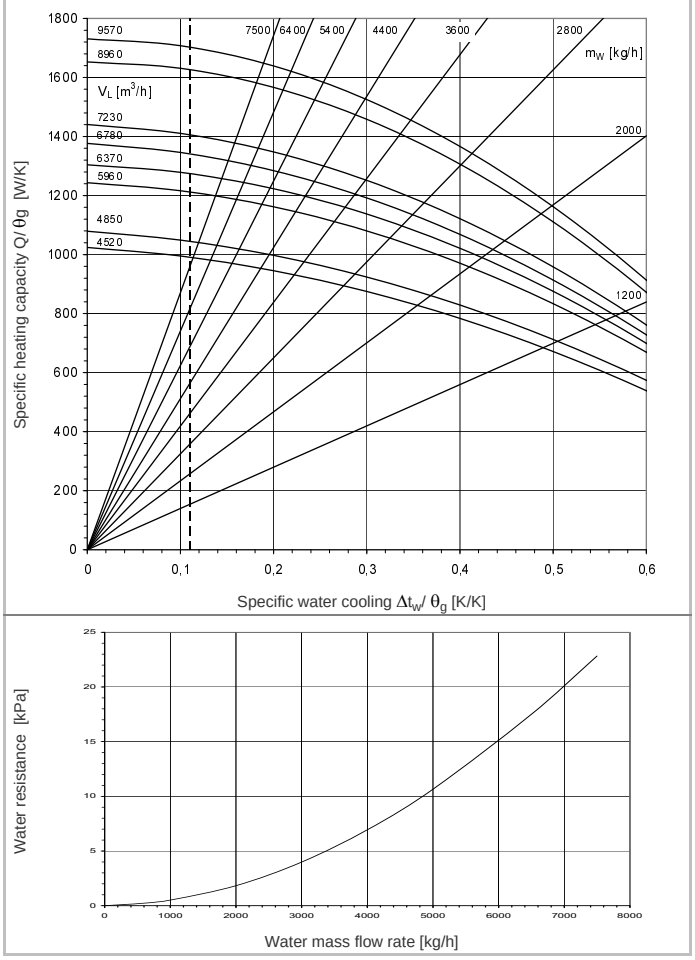


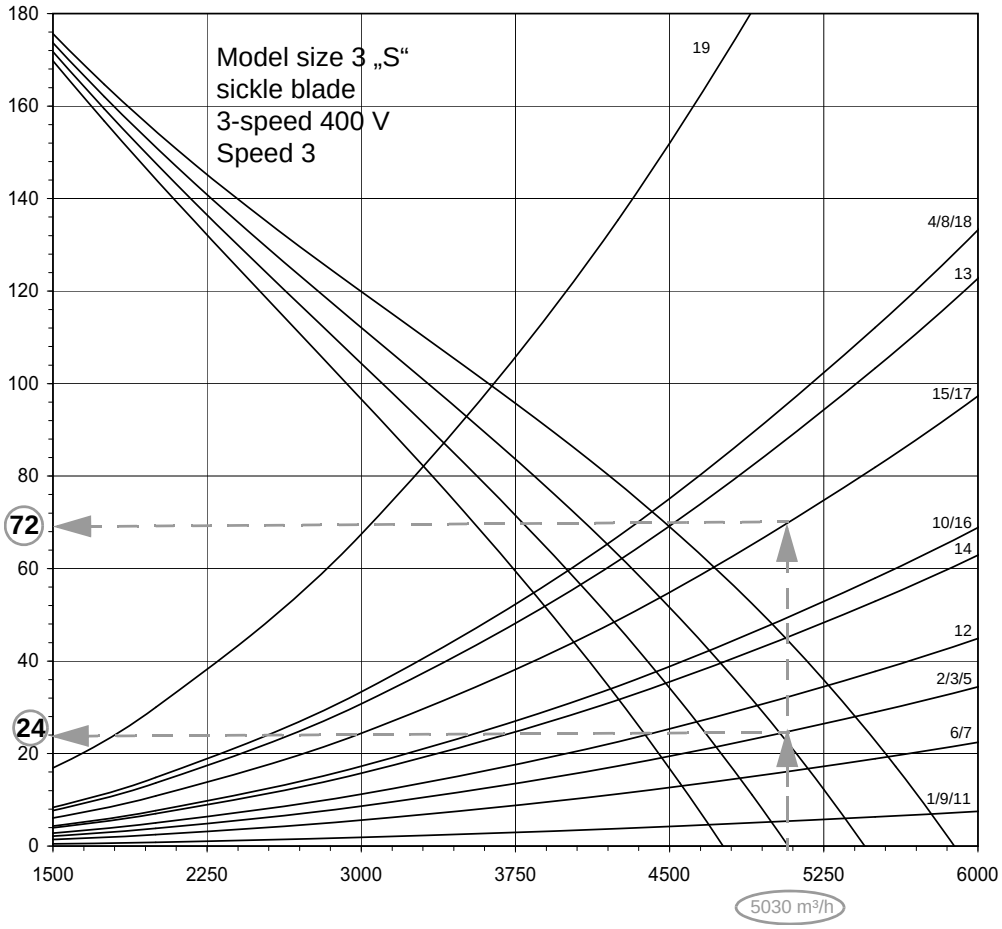
Fig. 56: Model size 5 – Capacity stage 2



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.

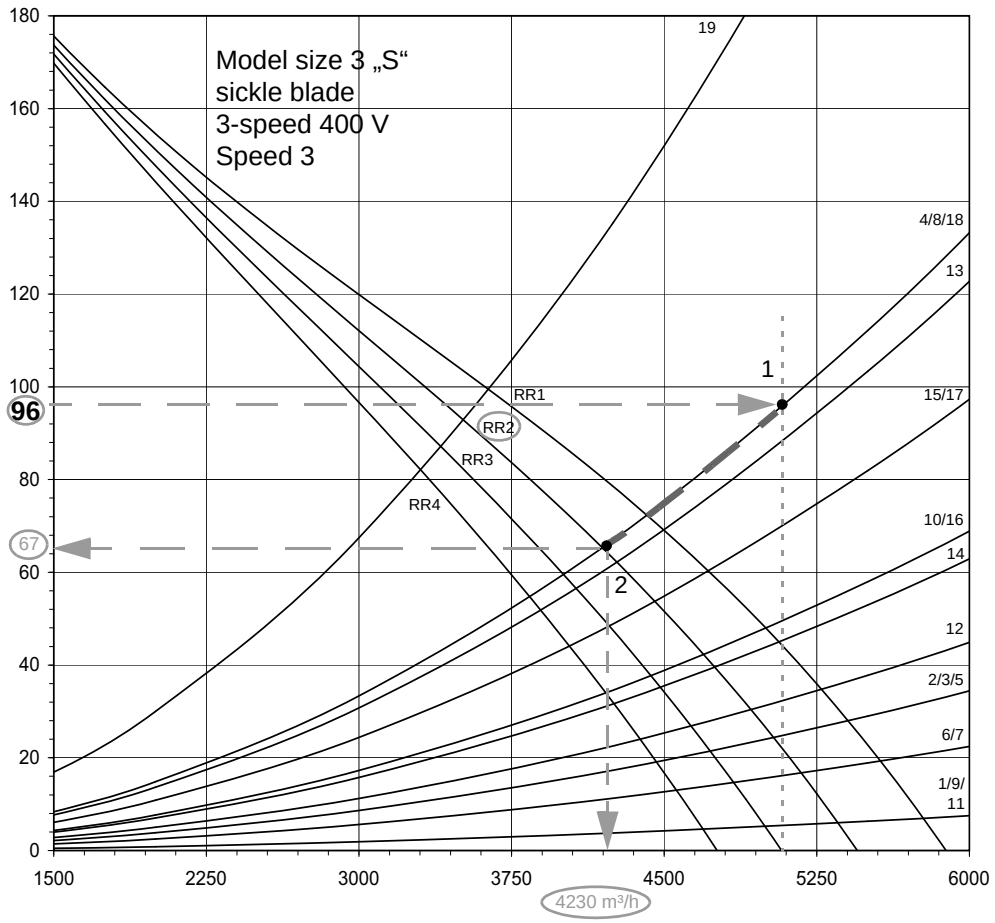
EXAMPLE

	Input data	->	**Result**
Input This example is based on a size 3 unit with a heating ceiling SAL and a bag filter module (class G4).	Air flow rate V_{L1}	->	V_{L1} = 5030 m³/h
	Model size 3 / Capacity stage 2 (2 rows) sickle blade		
	SAL ceiling (heating) (marked 3 in diagram legend)		
	Bag filter module (G4) (marked 17 in diagram legend)		
1nd Step Using the specified air volume flow V_{L1} from the performance data tables from page 27 an on, go to the relevant diagram – in this case “Model size 3 „S“ sickle blade” (from page 65). (Consider model size and fan type!) 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 accessory. Then extend a horizontal line across to the y-axis and read off the relevant pressure drops p_1 and p_2.			
	Pressure drop SAL ceiling (p_1)	->	**24 Pa**
	Pressure drop bag filter module (p_2)	->	**72 Pa**
2nd Step Sum up individual pressure drops.	$p_1 + p_2 = p_G$ 24 Pa + 72 Pa = 96 Pa	->	**96 Pa**

3rd Step

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

The intersection point with the air volume flow V_{L1} returns a $point_1$ on the total characteristic curve that can now be continued in line with 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]	->	**3970 m³/h**
Read off total pressure drop P_{GK} [Pa]	->	**67 Pa**

Diagram legend

1 Basic
2 Profile
3 SAL, heating
4 Ceiling SAL, cooling
5 Wall SAL, cooling
6 Outlet nozzle
7 Four sides, heating
8 Four sides, cooling
9 Type 1, version with 1 fresh air damper and 2 recirculating-air louvers, FA-RA
10 angled at 90°
Type 2, version with 1 fresh air damper/recirculating-air louver, FR-RA opposite facing
11 Fresh air blocking damper/end grille for accessories
12 Wall air-intake hood / Suction grille
13 Weather protection grilles
14 Roof air-intake hood G2
15 Roof air-intake hood G4
16 Bag filter module G2
17 Bag filter module G4
18 Mat filter module G2
19 Mat filter module G4

Fig. 57: Model size 1 „A“ and „D“ wide blade

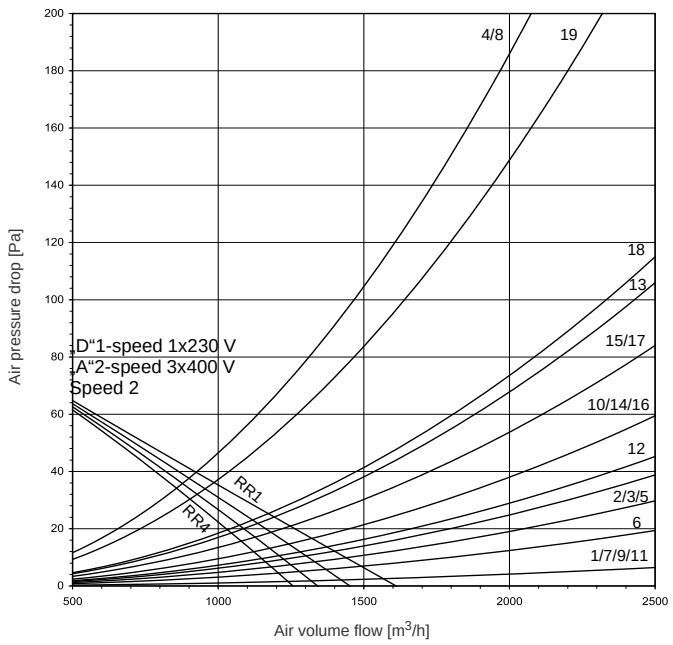


Fig. 58: Model size 3 „A“ and „C“ wide blade

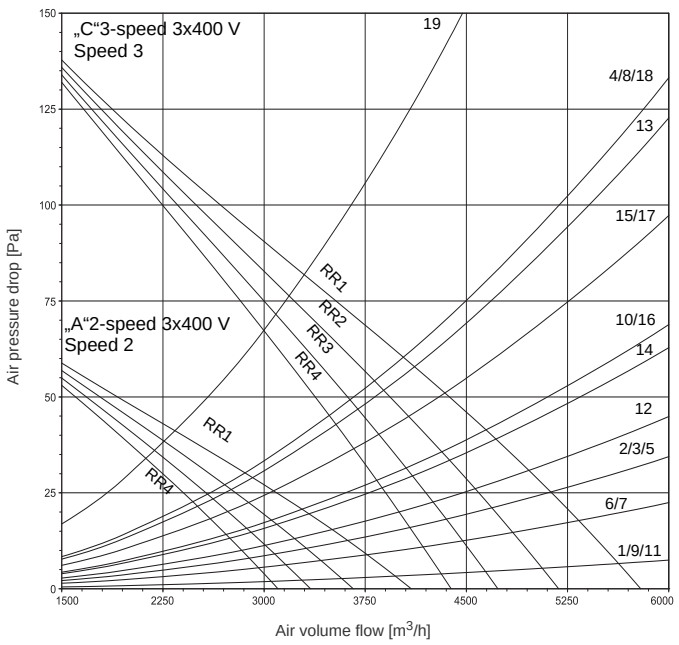


Fig. 59: Model size 2 „A“, „C“ and „D“ wide blade

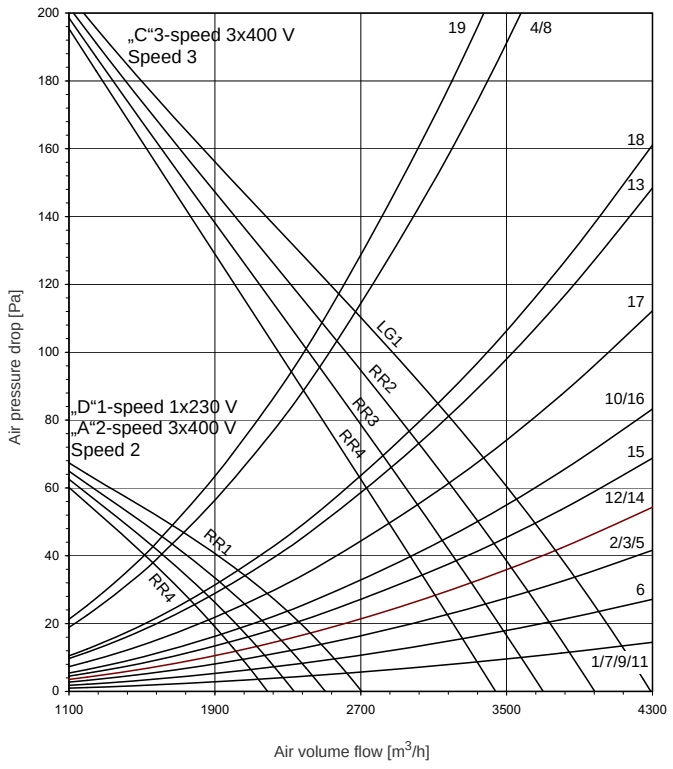


Fig. 60: Model size 4 „A” and „C“ wide blade

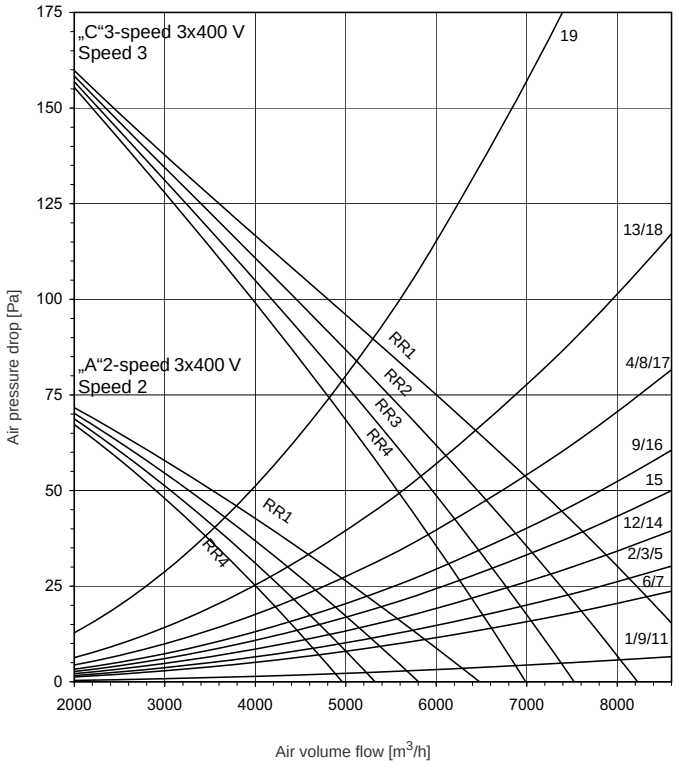


Diagram legend

1 Basic
2 Profile
3 SAL, heating
4 Ceiling SAL, cooling
5 Wall SAL, cooling
6 Outlet nozzle
7 Four sides, heating
8 Four sides, cooling
9 Type 1 with 1 fresh air damper and 2 circulating-air louvres, FA-RA, angled at 90°
10 Type 2 with one 1 fresh air damper and one recirculating-air louvre, FA-RA opposite facing
11 Fresh air blocking damper/end grille for accessories
12 Wall air-intake hood
13 Weather protection grilles
14 Roof air-intake hood G2
15 Roof air-intake hood G4
16 Bag filter module G2
17 Bag filter module G4
18 Mat filter module G2
19 Mat filter module G4

Fig. 61: Model size 1 „B“ and „E“ wide blade

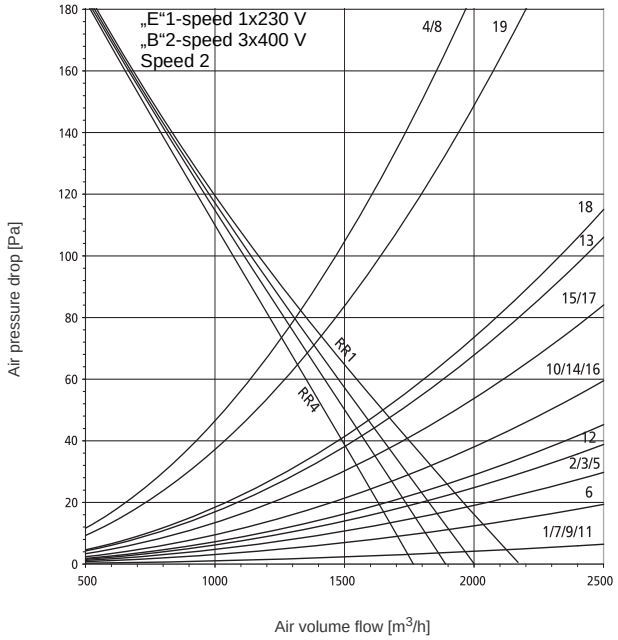


Fig. 62: Model size 3 „B“ and „E“ wide blade

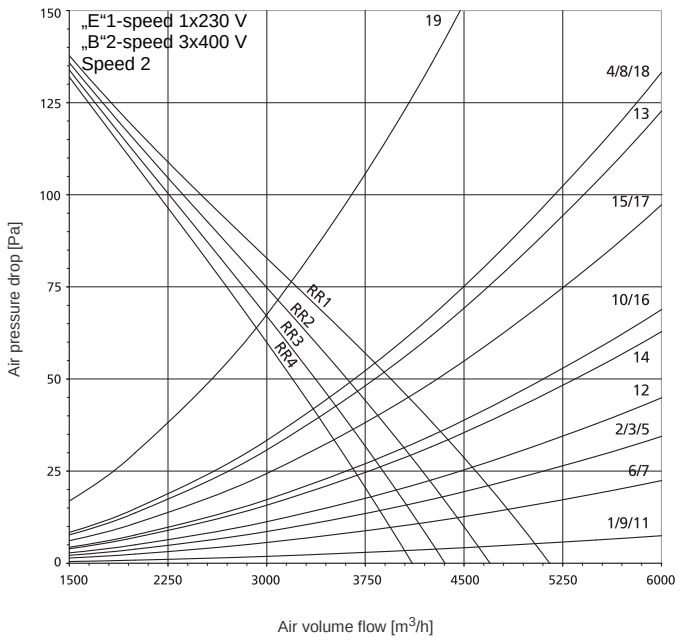


Fig. 63: Model size 2 „B“ and „E“ wide blade

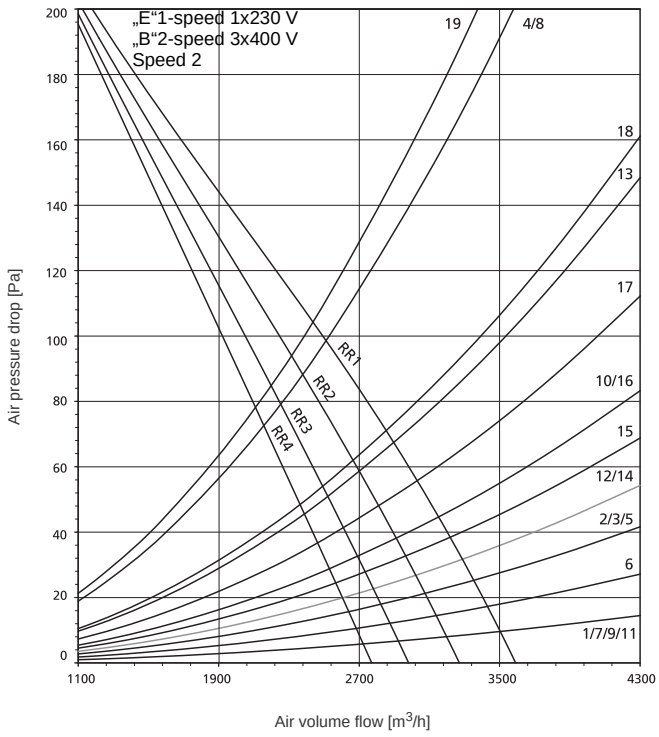


Fig. 64: Model size 4 „B“ and „E“ wide blade

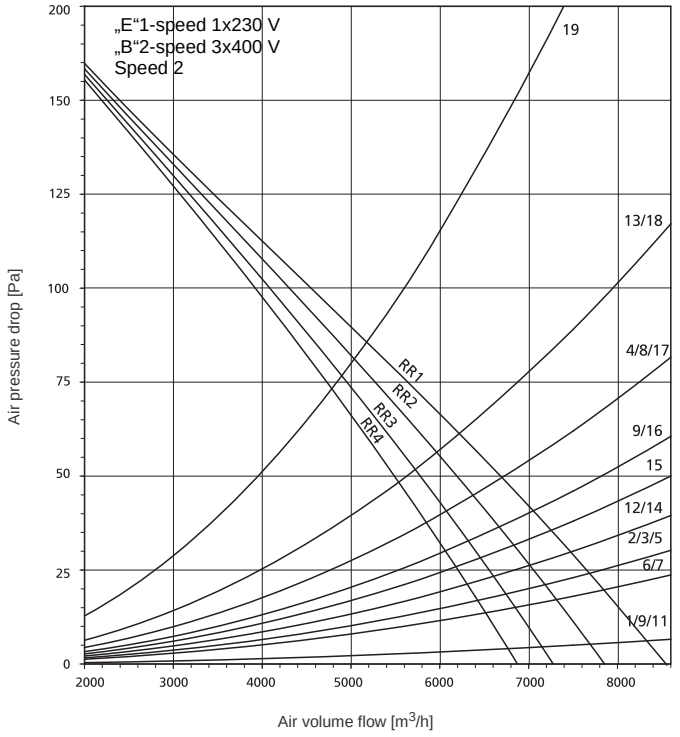


Diagram legend

1 Basic
2 Profile
3 SAL, heating
4 Ceiling SAL, cooling
5 Wall SAL, cooling
6 Outlet nozzle
7 Four sides, heating
8 Four sides, cooling
9 Type 1, version 1 fresh air damper and 2 recirculating-air louvers, FA-RA angled at 90°
10 Type 2, version 1 fresh air damper/recirculating-air louver, FR-RA opposite facing
11 Fresh air blocking damper/end grille for accessories
12 Wall air-intake hood
13 Weather protection grilles
14 Roof air-intake hood G2
15 Roof air-intake hood G4
16 Bag filter module G2
17 Bag filter module G4
18 Mat filter module G2
19 Mat filter module G4

Fig. 65: Model size 3 „R“ sickle blade

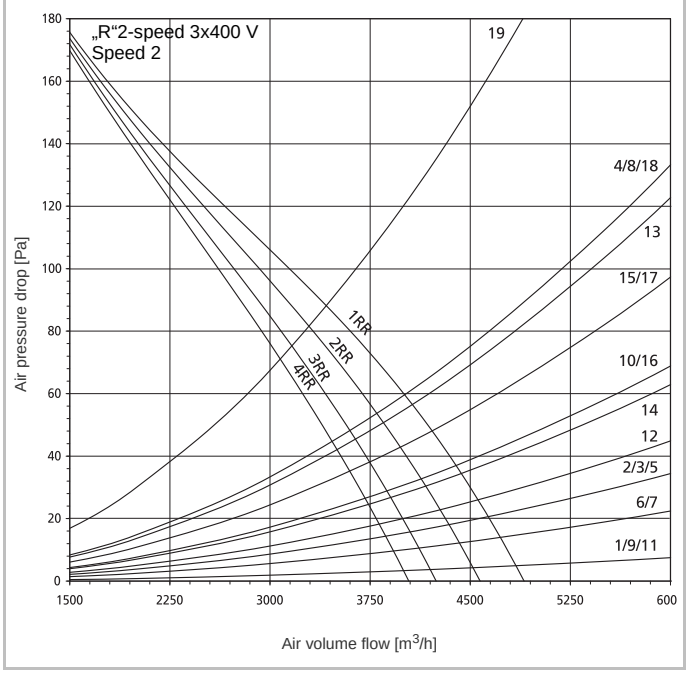


Fig. 66: Model size 5 „R“ sickle blade

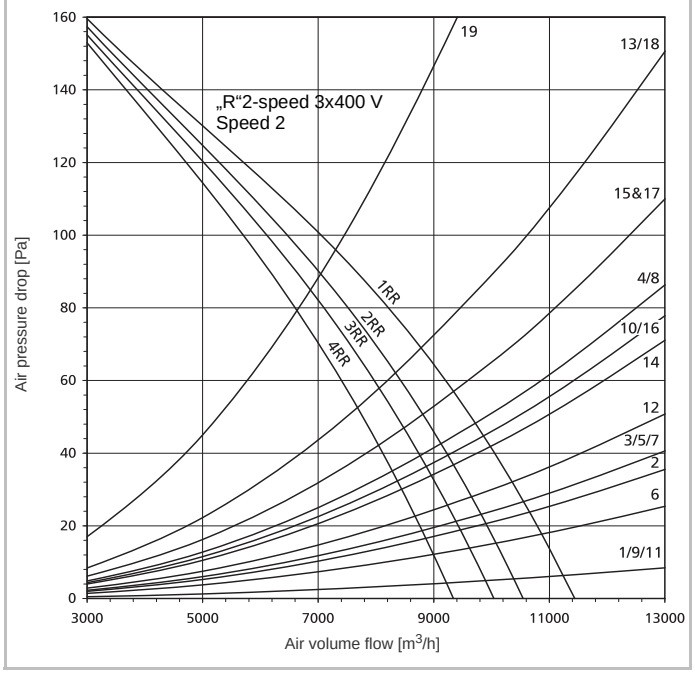


Fig. 67: Model size 4 „R“ sickle blade

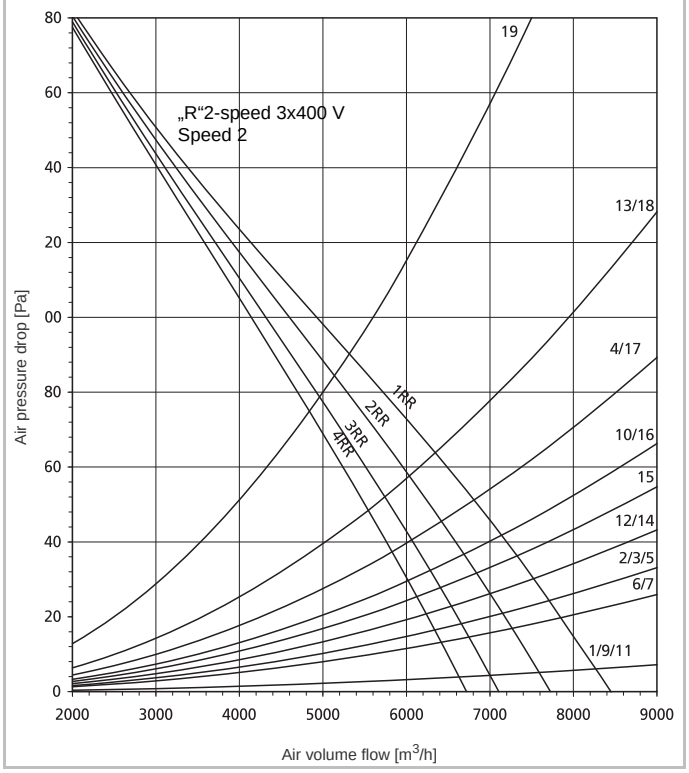


Diagram legend

1 Basic
2 Profile
3 SAL, heating
4 Ceiling SAL, cooling
5 Wall SAL, cooling
6 Outlet nozzle
7 Four sides, heating
8 Four sides, cooling
9 Type 1 with 1 fresh air damper and 2 recirculating-air louvres, FA-RA, angled at 90°
10 Type 2, version with one 1 fresh air damper and one recirculating-air louvre, FA-RA opposite facing
11 Fresh air blocking damper/end grille for accessories
12 Wall air-intake hood
13 Weather protection grilles
14 Roof air-intake hood G2
15 Roof air-intake hood G4
16 Bag filter module G2
17 Bag filter module G4
18 Mat filter module G2
19 Mat filter module G4

Fig. 68: Model size 1 „S“ sickle blade

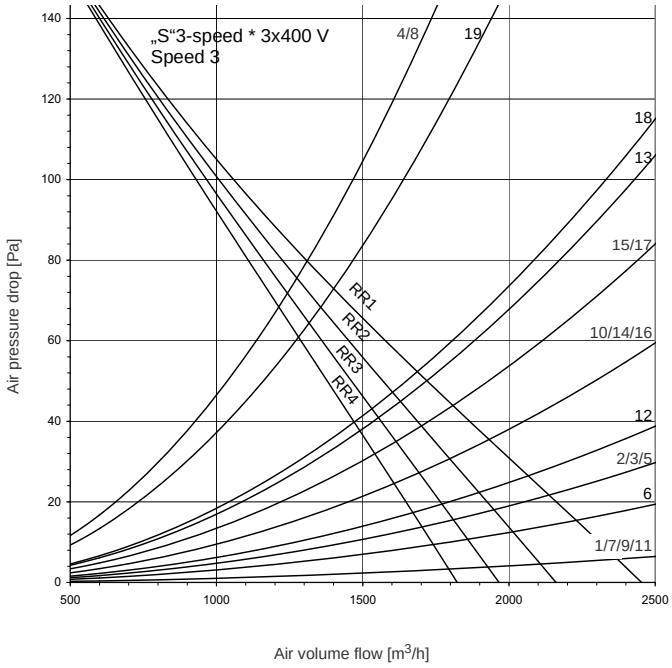


Fig. 69: Model size 3 „S“ sickle blade

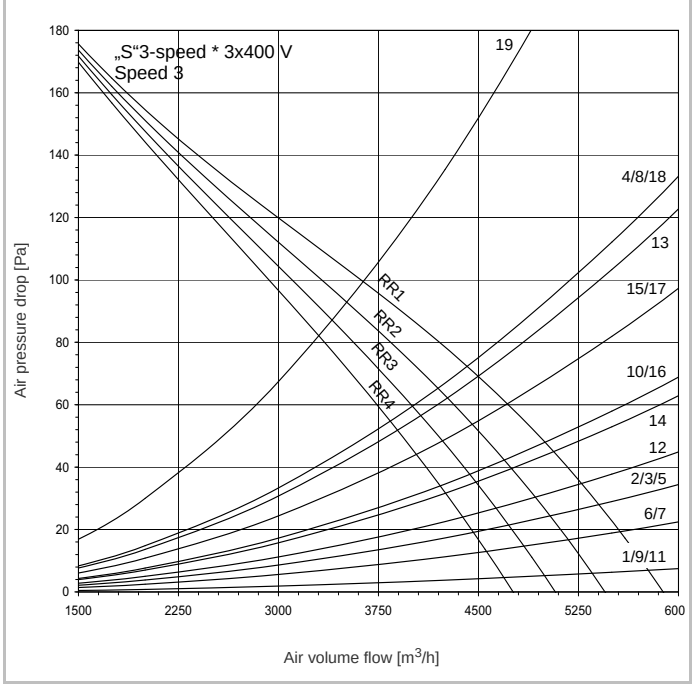


Fig. 70: Model size 2 „S“ sickle blade

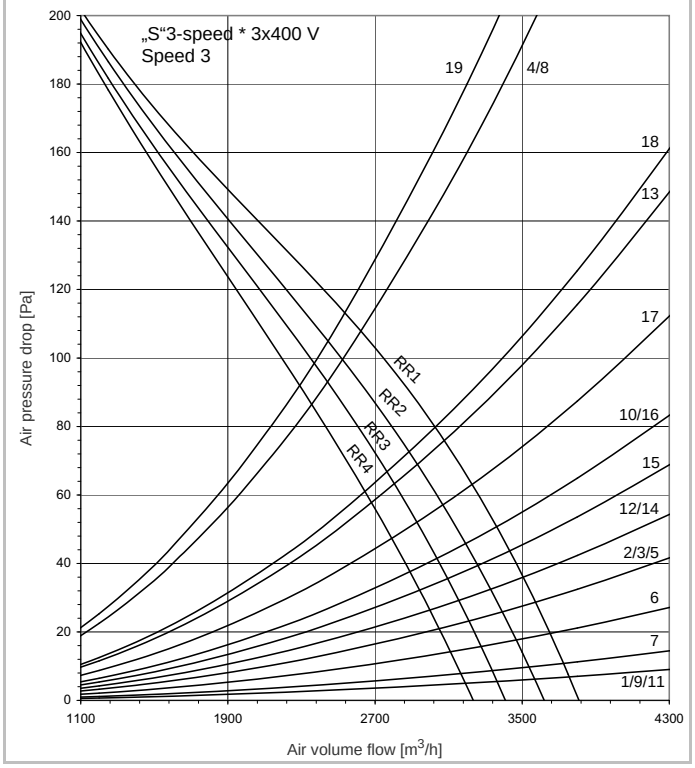


Fig. 71: Model size 4 „S“ sickle blade

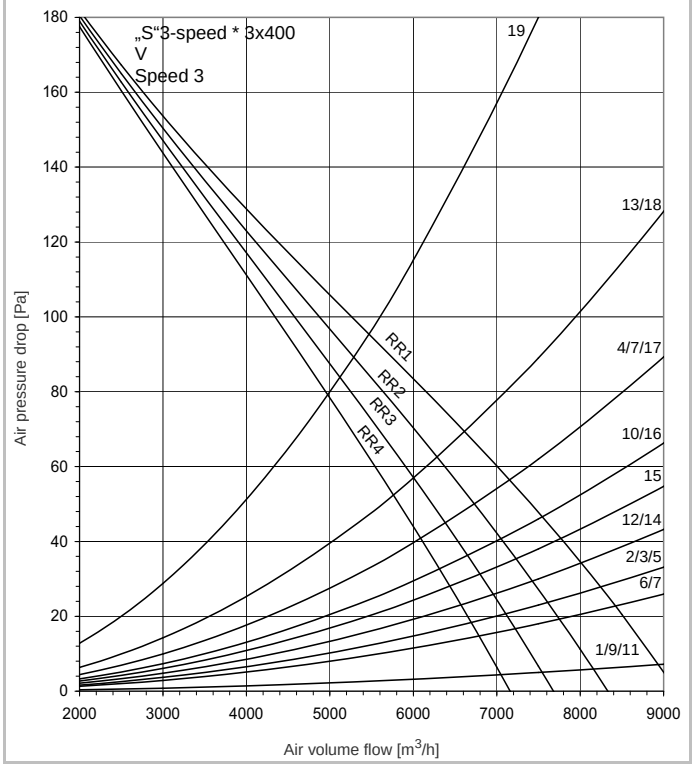


Diagram legend

1 Basic
2 Profile
3 SAL, heating
4 Ceiling SAL, cooling
5 Wall SAL, cooling
6 Outlet nozzle
7 Four sides, heating
8 Four sides, cooling
9 Type 1 with 1 fresh air damper and 2 recirculating-air louvers, FA-RA angled at 90°
10 Type 2 with 1 fresh air damper/recirculating-air louver, FR-RA opposite facing
11 Fresh air blocking damper/end grille for accessories
12 Wall air-intake hood
13 Weather protection grilles
14 Roof air-intake hood G2
15 Roof air-intake hood G4
16 Bag filter module G2
17 Bag filter module G4
18 Mat filter module G2
19 Mat filter module G4

Fig. 72: Model size 5 „S“ sickle blade

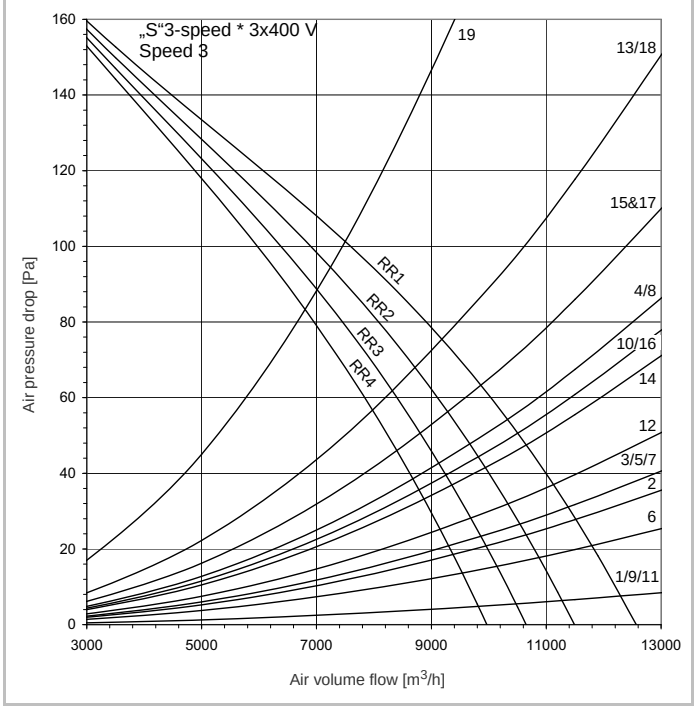


Diagram legend

1 Basic
2 Profile
3 SAL, heating
4 Ceiling SAL, cooling
5 Wall SAL, cooling
6 Outlet nozzle
7 Four sides, heating
8 Four sides, cooling
9 Type 1, version with 1 fresh air damper and 2 recirculating-air louvres, FA-RA, angled at 90°
10 Type 2, version with one 1 fresh air damper and one recirculating-air louvre, FA-RA opposite facing
11 Fresh air blocking damper/end grille for accessories
12 Wall air-intake hood
13 Weather protection grilles
14 Roof air-intake hood G2
15 Roof air-intake hood G4
16 Bag filter module G2
17 Bag filter module G4
18 Mat filter module G2
19 Mat filter module G4

Fig. 73: Model size 1 "Y" sickle blade

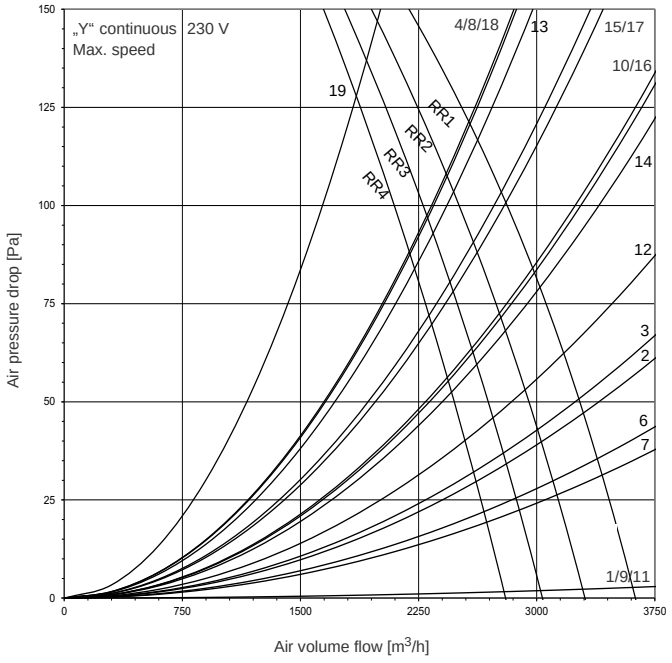


Fig. 74: Model size 3 "Y" and "Z" sickle blade

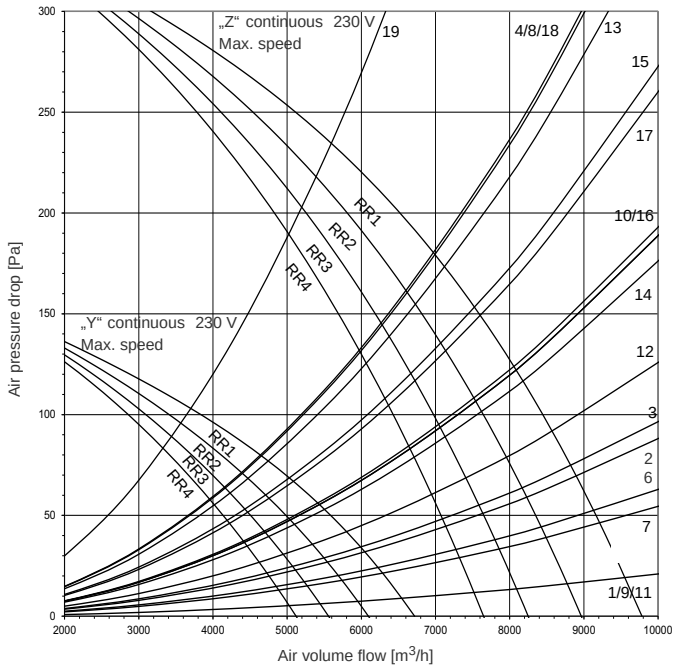


Fig. 75: Model size 2 "Y" sickle blade

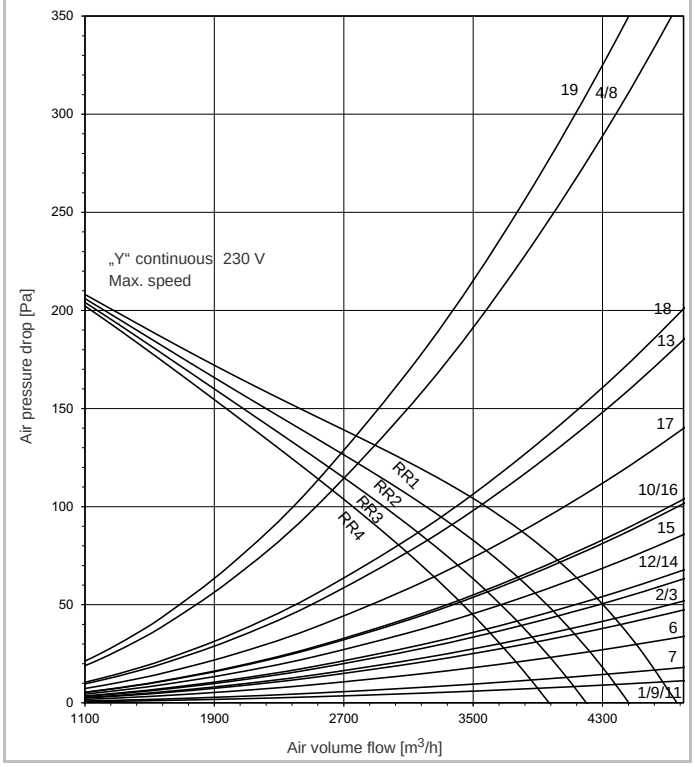


Fig. 76: Model size 4 "Y" and "Z" sickle blade

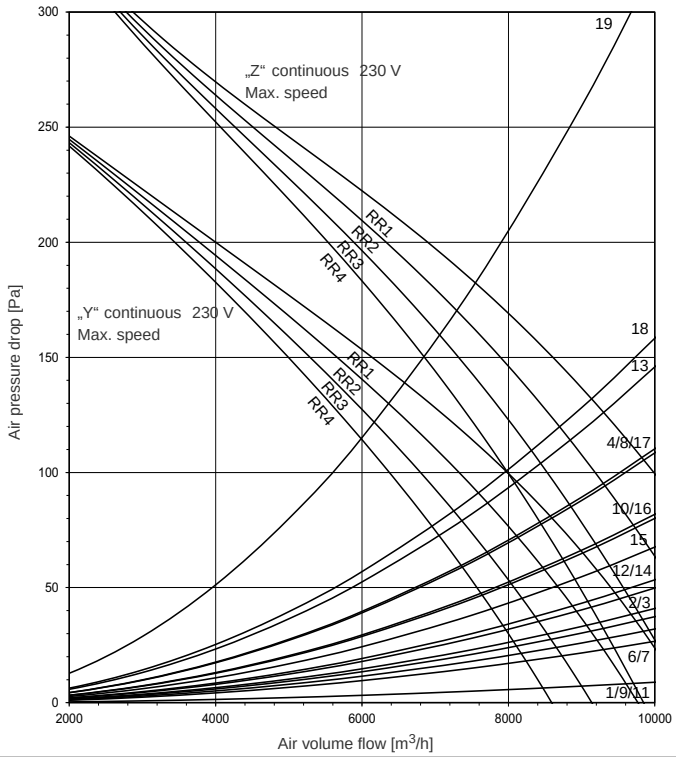


Diagram legend

1 Basic
2 Profile
3 SAL, heating
4 Ceiling SAL, cooling
5 Wall SAL, cooling
6 Outlet nozzle
7 Four sides, heating
8 Four sides, cooling
9 Type 1, version 1 fresh air damper and 2 recirculating-air louvers, FA-RA angled at 90°
10 Type 2, version with 1 fresh air damper/recirculating-air louver, FR-RA opposite facing
11 Fresh air blocking damper/end grille for accessories
12 Wall air-intake hood
13 Weather protection grilles
14 Roof air-intake hood G2
15 Roof air-intake hood G4
16 Bag filter module G2
17 Bag filter module G4
18 Mat filter module G2
19 Mat filter module G4

Fig. 77: Model size 5 "Y" and "Z" sickle blade

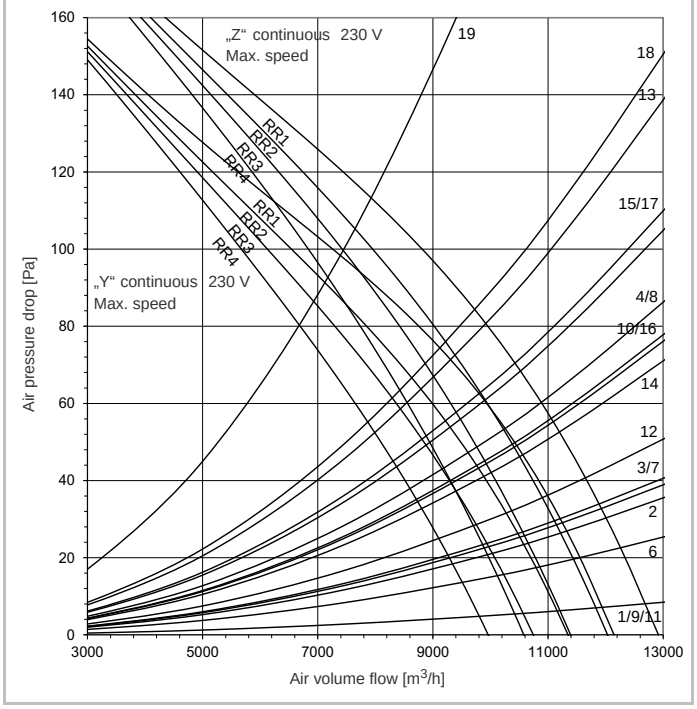


Diagram legend

1 Basic
2 Profile
3 SAL, heating
4 Ceiling SAL, cooling
5 Wall SAL, cooling
6 Outlet nozzle
7 Four sides, heating
8 Four sides, cooling
9 Type 1, version 1 fresh air damper and 2 recirculating-air louvres, FA-RA, angled at 90°
10 Type 2, version with one 1 fresh air damper and one recirculating-air louvre, FA-RA opposite facing
11 Fresh air blocking damper/end grille for accessories
12 Wall air-intake hood
13 Weather protection grilles
14 Roof air-intake hood G2
15 Roof air-intake hood G4
16 Bag filter module G2
17 Bag filter module G4
18 Mat filter module G2
19 Mat filter module G4

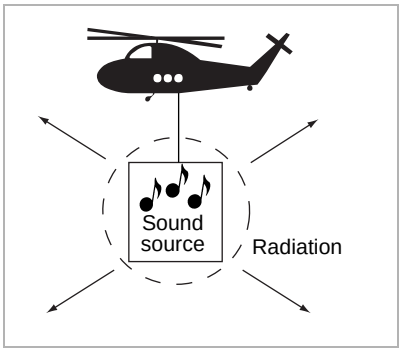
Unit weight and water charge of heat exchanger

Model size	Weight including heat exchanger			Water charge of heat exchanger		
	Cu/Al	Cu/Cu	Fe/FeZn	Cu/Al a Cu/Cu (A, C)	Fe/FeZn (S, T)	Fe/FeZn (R)
	kg	kg	kg	l	l	l
HN11	21	24	46	1.0	3.8	2.5
HN12	22	27	67	1.7	7.2	3.2
HN13	24	29	–	2.5	–	-
HN14	25	32	–	3.2	–	-
HN21	29	29	63	1.3	5.2	3.2
HN22	31	33	90	2.4	10.1	4.3
HN23	33	37	–	3.4	–	-
HN24	36	41	–	4.3	–	-
HN31	38	41	80	1.8	7.4	4.3
HN32	42	48	127	3.5	14.4	6.0
HN33	45	54	–	5.3	–	-
HN34	49	61	–	6.3	–	-
HN41	54	63	123	3.0	10.7	5.8
HN42	59	73	177	5.6	20.9	8.3
HN43	64	82	–	8.4	–	-
HN44	70	92	–	9.9	–	-
HN51	81	87	179	3.9	13.8	7.2
HN52	88	100	255	8.1	26.9	10.7
HN53	95	113	–	11.1	–	-
HN54	102	126	–	14.0	–	-

Weight including basic outlet and 3-speed Motor fan

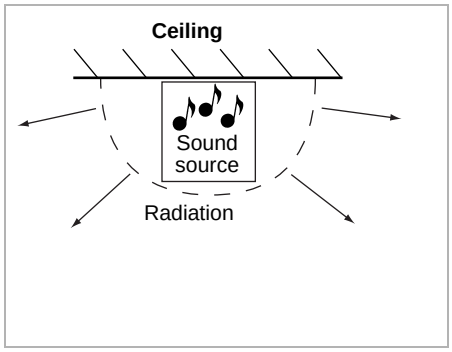
Radiation of sound source without reflections

Spherical
Only theoretical dimension



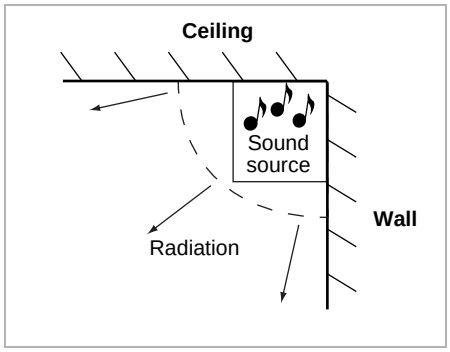
Direction coefficient 1

Hemispherical
Practical application



Direction coefficient 2

Quarter-spherical



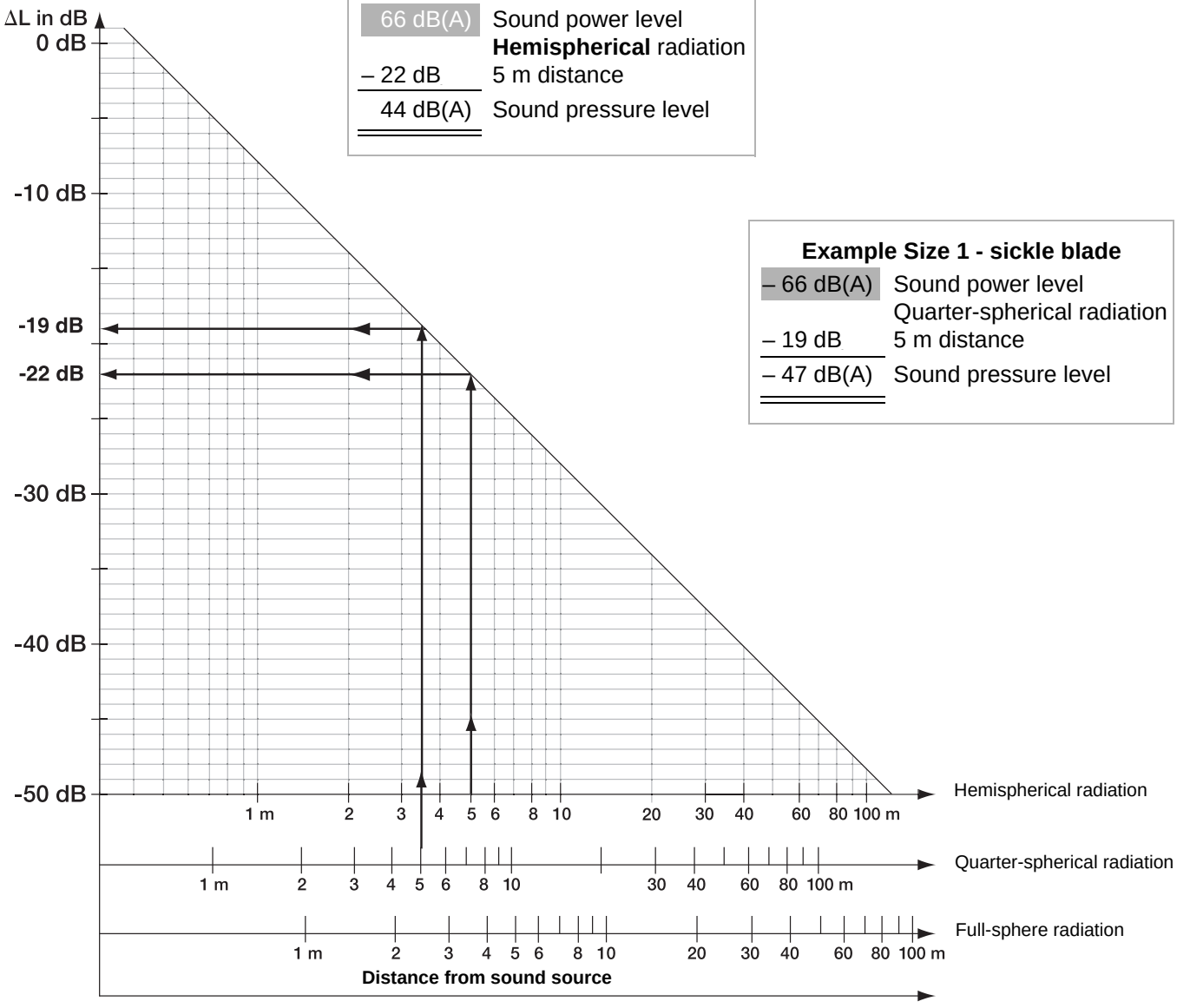
Direction coefficient 4

Example Size 1 - sickle blade

66 dB(A)	Sound power level
	Hemispherical radiation
– 22 dB	5 m distance
44 dB(A)	Sound pressure level

Example Size 1 - sickle blade

– 66 dB(A)	Sound power level
	Quarter-spherical radiation
– 19 dB	5 m distance
– 47 dB(A)	Sound pressure level



Sound power level:measurable, but not perceptible. Like the heat output of a radiator.
Sound pressure level:can be measured and perceived. Like the increase in room temperature by a radiator.

Model size	Speed		Sound power level (dB) Octave centre frequency (Hz)								A-rated sum level		Max. power	Max. current
											Sound power	Sound pressure*		
	Speed	RPM	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)	kW	A
R - 3 ~ 400 V 2-speed high speed range - heating														
3	3	900	59	72	72	68	69	66	61	54	73	58	0.34	1.01
	2	720	56	67	68	63	64	60	55	47	68	53	0.23	0.59
4	3	870	66	78	77	74	73	71	67	62	78	63	0.76	1.84
	2	650	64	73	73	69	67	65	61	58	73	58	0.47	1.06
5	3	900	78	82	82	77	75	71	69	60	80	65	0.85	1.45
	2	680	72	72	74	68	66	62	57	47	71	56	0.47	0.83
S – 3 phases 400 V 3-speed – heating														
1	3	1370	53	65	71	67	66	66	60	53	72	57	0.17	0.55
	2	1070	50	60	65	62	60	59	54	49	66	51	0.12	0.32
	1	700	43	53	56	53	51	47	43	34	56	41	0.04	0.28
2	3	1370	60	70	72	70	69	69	63	57	75	60	0.34	0.87
	2	1030	57	64	65	63	62	61	56	51	67	52	0.26	0.50
	1	700	52	57	57	55	53	50	47	44	58	43	0.07	0.43
3	3	900	59	72	72	68	69	66	61	54	73	58	0.38	0.98
	2	680	56	67	68	63	64	60	55	47	68	53	0.27	0.57
	1	450	51	58	62	54	53	48	45	34	58	43	0.09	0.49
4	3	870	66	78	77	74	73	71	67	62	78	63	0.68	1.78
	2	660	64	73	73	69	67	65	61	58	73	58	0.41	1.03
	1	420	59	65	66	61	57	54	51	52	64	49	0.12	0.89
5	3	920	78	82	82	77	75	71	69	60	80	65	0.92	2.20
	2	770	72	72	74	68	66	62	57	47	71	56	0.66	1.20
	1	460	64	68	68	63	61	57	55	46	66	51	0.19	0.88
Y – 1 ~ 230 V continuous – cooling**														
1	max	1630	41	57	66	69	73	73	69	63	77	63	0.24	1.80
2	max	980	30	51	57	59	61	60	55	46	66	51	0.08	1.95
3	max	910	40	50	59	58	60	59	54	44	65	51	0.15	2.10
4	max	750	41	54	59	61	63	62	57	51	68	54	0.26	4.30
5	max	660	41	54	59	60	62	62	57	49	67	53	0.28	3.40
Z – 3 ~ 400 V continuous – cooling**														
3	max	675	35	49	57	58	59	57	52	43	64	50	0.13	2.10
4	max	720	39	52	59	61	63	61	56	50	67	53	0.26	2.00
5	max	670	44	54	60	61	63	62	58	51	68	54	0.28	1.40
Y – 1 ~ 230 V continuous – heating														
1	max	1830	46	56	70	72	75	75	71	66	80	66	0.33	1.80
2	max	1605	38	63	69	71	74	74	71	64	78	64	0.33	1.95
3	max	1000	45	63	70	68	69	68	65	58	75	60	0.37	2.10
4	max	1050	44	67	68	71	73	71	68	63	77	63	0.69	4.30
5	max	890	47	62	67	68	70	69	68	61	75	61	0.63	3.40
Z – 3 ~ 400 V continuous – heating														
3	max	1450	49	66	76	83	80	78	76	70	84	70	1.18	2.10
4	max	1200	47	67	70	73	76	75	71	67	80	65	1.07	2.00
5	max	960	49	61	69	71	72	71	70	64	77	63	0.75	1.40

*** Values are valid for the relevant EC control-circuit voltage:*

Model size	1	2	3	4	5
Max. control voltage for EC-motor Y (V)	4.9	5.8	6.2	6.1	7.7
Max. control voltage for EC-motor Z (V)	-	-	4.4	5.3	7.1

Model size	Speed		Sound power level (dB) Octave centre frequency (Hz)								A-rated sum level		Max. power consump-tion	Max. current consump-tion
											Sound power	Sound pressure*		
	Speed	RPM	63	125	250	500	1000	2000	4000	8000	dB(A)	dB(A)	kW	A
A - 3 phases 400 V 2-speed low speed range - cooling or heating														
1	2	860	73	64	57	57	57	53	48	38	61	46	0.05	0.28
	1	670	63	54	53	53	51	46	38	28	55	40	0.03	0.16
2	2	910	69	66	63	63	60	57	53	44	65	50	0.12	0.45
	1	710	63	60	58	58	57	53	47	38	61	46	0.07	0.26
3	2	640	68	65	62	62	63	59	52	44	66	51	0.12	0.49
	1	500	64	60	56	56	57	51	44	34	60	45	0.07	0.28
4	2	650	71	73	65	65	64	60	53	46	68	53	0.24	0.72
	1	500	65	63	56	56	56	49	41	32	59	44	0.15	0.41
B - 3 phases 400 V 2-speed high speed range - heating														
1	3	1320	60	70	67	65	65	65	61	53	71	56	0.14	0.49
	2	1050	54	65	65	60	62	61	57	47	67	52	0.09	0.28
2	3	1270	73	80	79	67	70	69	65	58	76	61	0.29	0.61
	2	890	70	73	63	64	64	62	58	49	69	54	0.19	0.35
3	3	900	83	75	81	70	69	68	62	55	76	61	0.31	0.86
	2	660	70	72	75	63	64	62	56	47	70	55	0.20	0.50
4	3	910	80	81	85	77	73	72	69	62	81	66	0.51	1.31
	2	740	69	69	80	72	69	68	64	56	76	61	0.37	0.76
C – 3 phases 400 V 3-speed – heating														
2	3	1380	62	74	76	69	69	69	66	59	75	60	0.34	1.01
	2	1060	64	65	67	64	65	65	61	54	70	55	0.25	0.58
	1	690	55	54	57	53	54	52	45	33	58	43	0.07	0.50
3	3	910	79	67	73	68	67	67	64	56	73	58	0.28	0.92
	2	730	62	70	65	62	63	63	59	50	69	54	0.20	0.53
	1	460	49	57	56	50	53	50	41	30	57	42	0.07	0.46
4	3	920	78	75	85	74	73	70	67	60	80	65	0.58	1.47
	2	740	67	84	73	73	68	66	62	55	75	60	0.43	0.85
	1	460	55	68	71	56	55	53	45	34	64	49	0.14	0.73
D - 1 phase 230 V 1-speed low speed range - cooling or heating														
1	max	920	73	64	57	57	57	53	48	38	61	46	0.09	0.52
2	max	890	63	60	63	63	60	57	53	44	65	50	0.14	0.88
E – 1 phase 230 V 1-speed high speed range – heating														
1	max	1330	60	70	67	65	65	65	61	53	71	56	0.15	1.00
2	max	1210	70	80	79	67	70	69	65	58	76	61	0.33	1.60
3	max	890	83	75	81	70	69	68	63	55	76	61	0.33	1.90
4	max	910	80	81	85	77	73	72	69	62	81	66	0.55	2.80

** Sound pressure: Standard values at 5 m distance to the unit side, at maximum air volume flow and **low-reflection** room. Industrial hall volume 1,500 m^3/h, absorption surface 200 m^2 Sabin, hemispherical radiation = direction coefficient 2. These values can be significantly influenced by the indoor characteristics in a positive or negative way. See next example for reflection-free room, sickle blade R model size 1, speed 1050 U/min. sound power = 66 dB(A) – 22 dB sound pressure conversion at a distance of 5 m, reflection-free, = 44 dB(A) + reflections 7dB = 51 dB(A).*

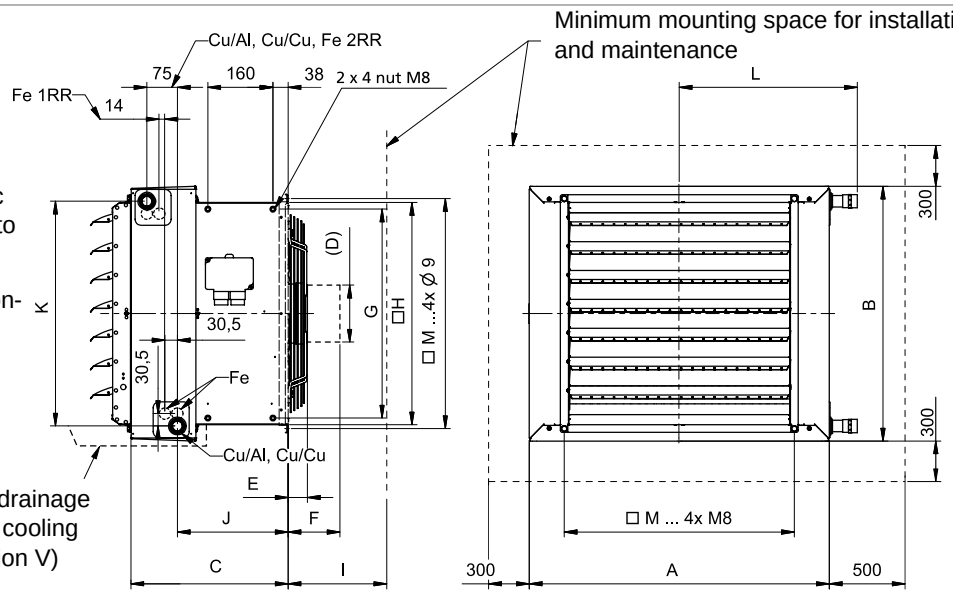
Unit dimensions Multi*MAXX* HN, heat exchangers Cu/Al, Cu/Cu, Fe/Fe Zn (water as medium)

Industrial casing

External diameter of plastic drain connection amounts to 18 mm.

For draining condensate connect a hose with a 16 mm internal diameter.

Drip tray with a free drainage ∅ 18 mm (only with cooling units, medium function V)



Design casing

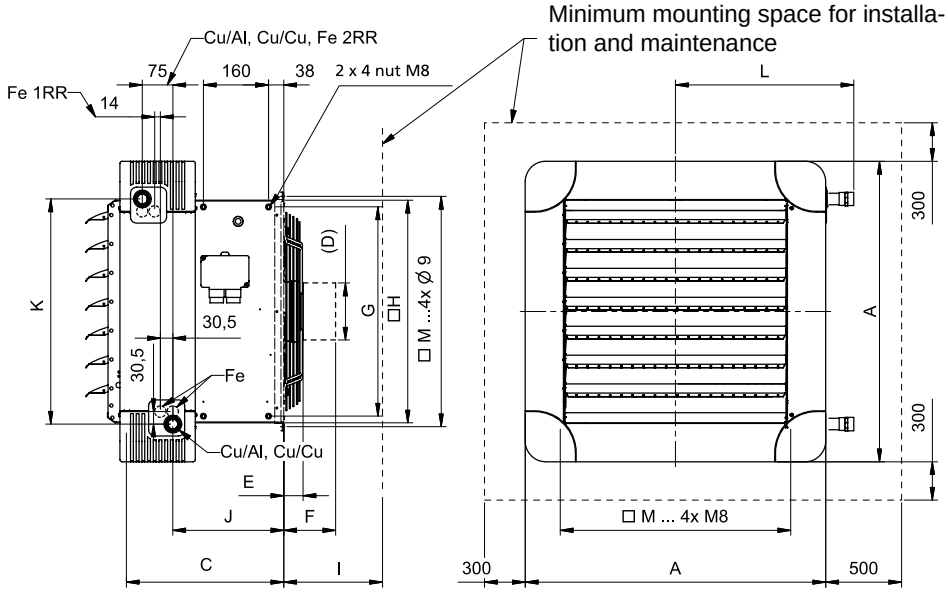


Fig. 78: Dimension of unit heater and arrangement of heat exchanger connection fittings

Table with unit dimensions

Dimensions / unit size	1	2	3	4	5
A	642	738	866	1026	1154
B	520	616	744	904	1032
C	387	387	387	452	434
D (for EC-motor)	150	150	175	175	–
E (for sickle-blade fan)	35	50	51	66	15
E (for wide-blade fan))	60	81	100	112	–
F (for EC-motor)	150	150	170	150	–
G	418	514	642	802	930
H	451	547	675	835	963
I	300	300	400	400	500
J	273	273	273	348	330
K	457	553	681	841	969
L (for Cu/Al, Cu/Cu)	399	447	511	591	655
L (for Fe/Fe Zn)	361	409	473	553	617
M	470	566	694	854	982

Unit dimensions Multi*MAXX* HN, heat exchangers Fe/Fe Zn (steam as medium)

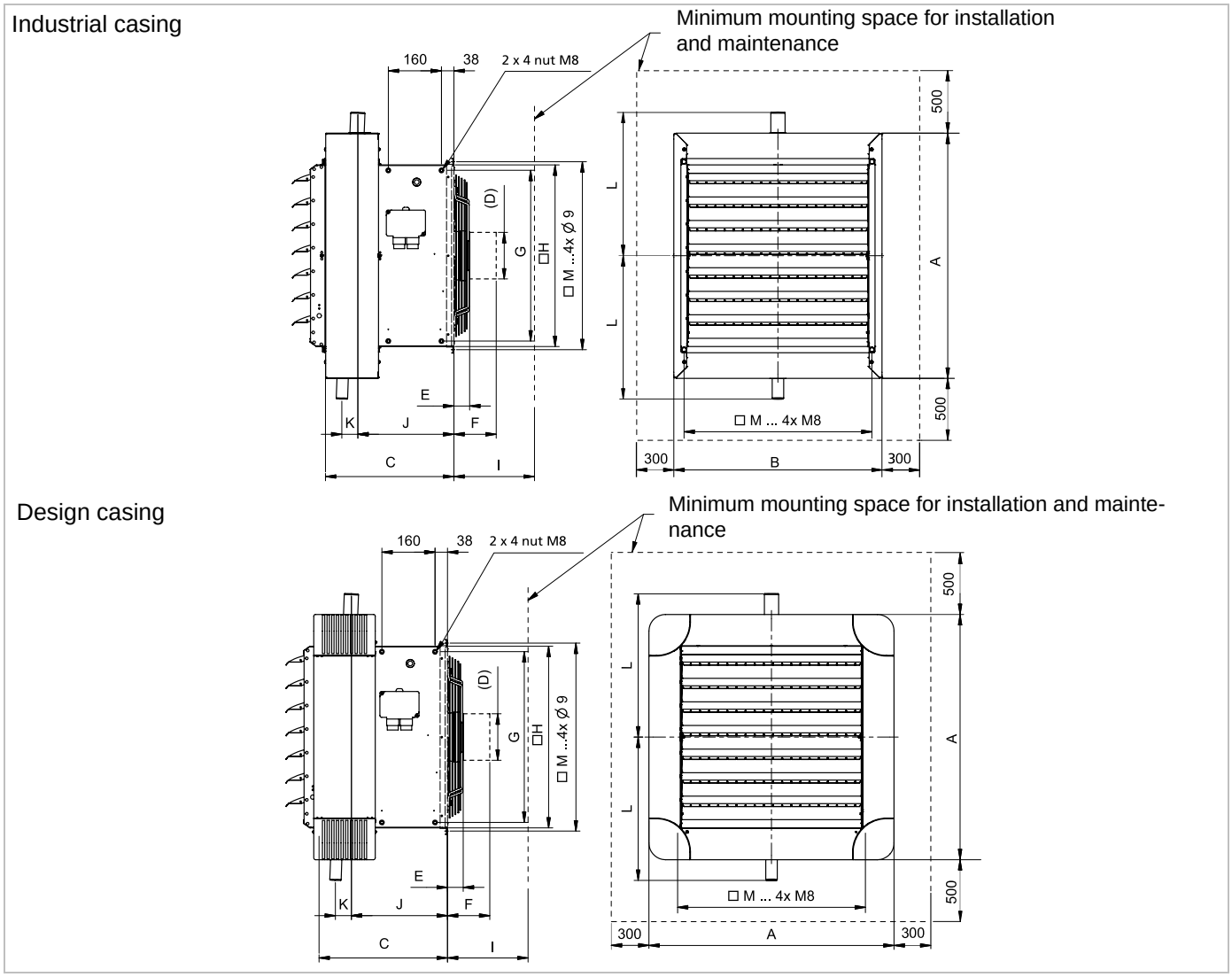


Fig. 79: Dimension of unit heater and arrangement of heat exchanger connection fittings

Table with unit dimensions

Dimensions / unit size	1	2	3	4	5
A	642	738	866	1026	1154
B	520	616	744	904	1032
C	387	387	387	452	434
D (for EC-motor)	150	150	175	175	-
E (for stickle-blade fan))	35	50	51	66	15
E (for wide-blade fan)	60	81	100	112	-
F (for EC-motor)	150	150	170	150	-
G	418	514	642	802	930
H	451	547	675	835	963
I	300	300	400	400	500
J	291	290	288	350	329
K	41	45	49	55	59
L	361	409	473	553	617
M	470	566	694	854	982

Heat exchanger (HE)

HE Cu/Al or Cu/Cu
Serial heat exchanger for heating with pumped warm water and cooling with pumped chilled water for slightly-polluted air;

Model size	1	2	3	4	5
Dimensions/empty weight					
A (mm)	470	566	694	854	982
H (mm)	457	553	681	841	969
L (mm)	399	447	511	591	655
Cu/Al max. weight (kg)	10.8	14.40	19.80	28.80	36.00
Cu/Cu max. weight (kg)	15.30	22.10	31.45	45.90	59.90

Performed with copper pipes with profiled aluminium fins with 2.5 mm fin spacing and 1, 2, 3 or 4 rows.

or

As heavy-duty industrial design performed with **Cu** pipes with profiled copper fins, fin spacing 3.0 mm with 1, 2, 3 or 4 rows.

Two variants are available for **pipe connections**:

– External screw thread connection (fig. 80, Position. 80-1)
– Smooth-bore pipe connection (fig. 80, Position. 80-2).

Cu/Al or Cu/Cu heat exchangers are performed for medium connections **on the right or left side**.

Model size	1				2				3				4				5			
Rows	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Pipe connections																				
Threaded pipe ∅ D (external screw thread)	R 1"								R 1 ¼"											
Smooth-bore pipe ∅ d	22				22	28			22	28	35	28	28	35	42	35	28	42		

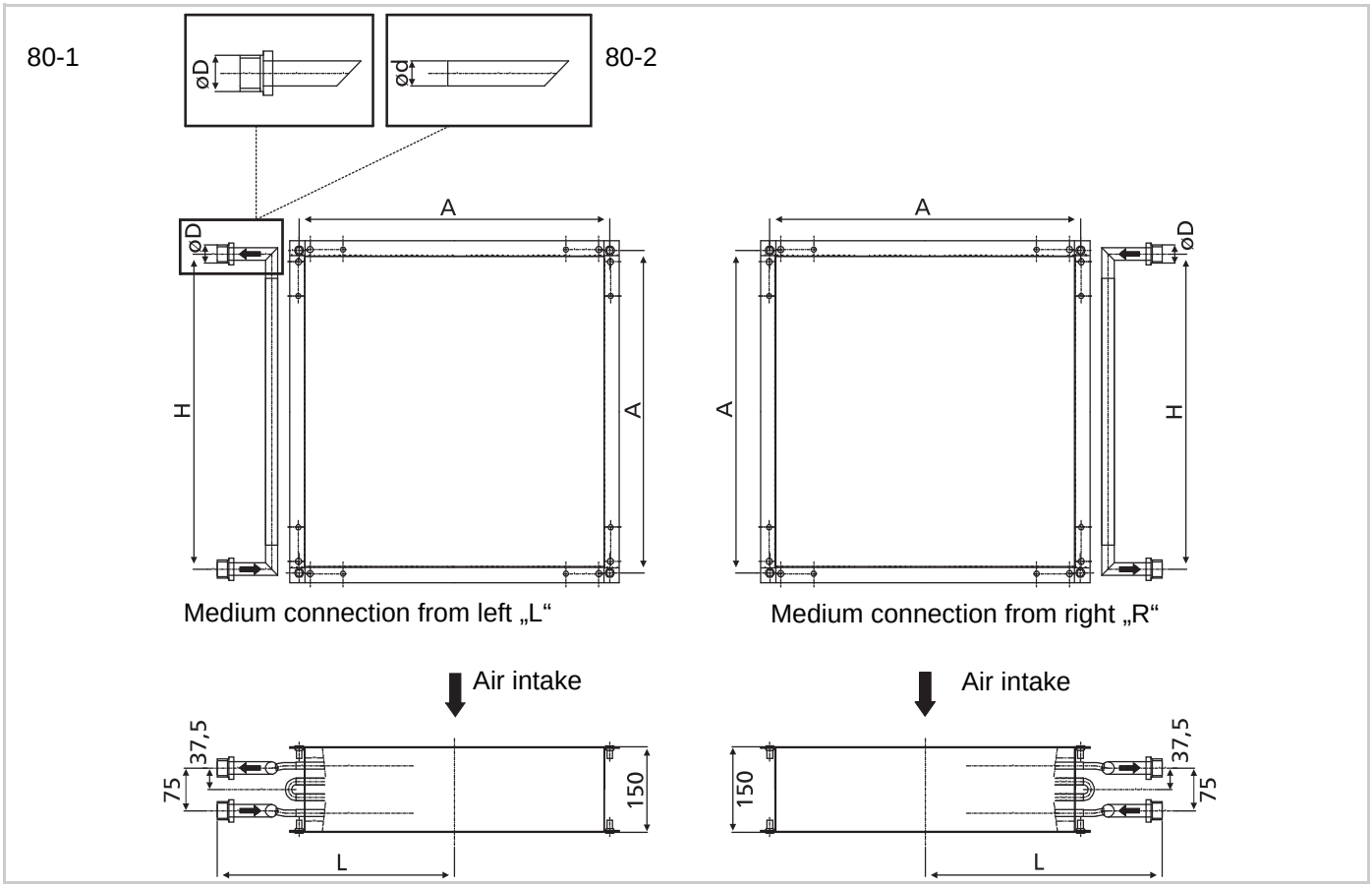


Fig. 80: HE Cu/Al or Cu/Cu with different pipe connections

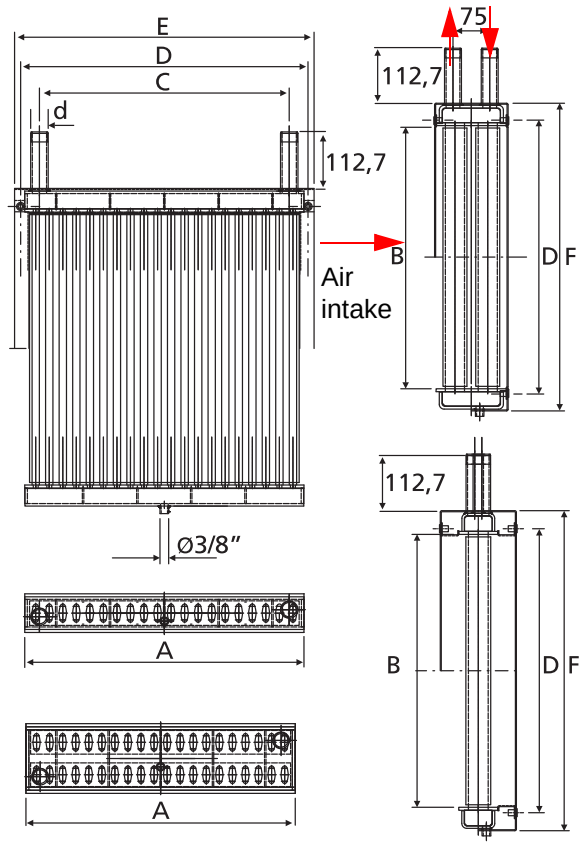


Fig. 81: Steel HE pumped warm/hot water

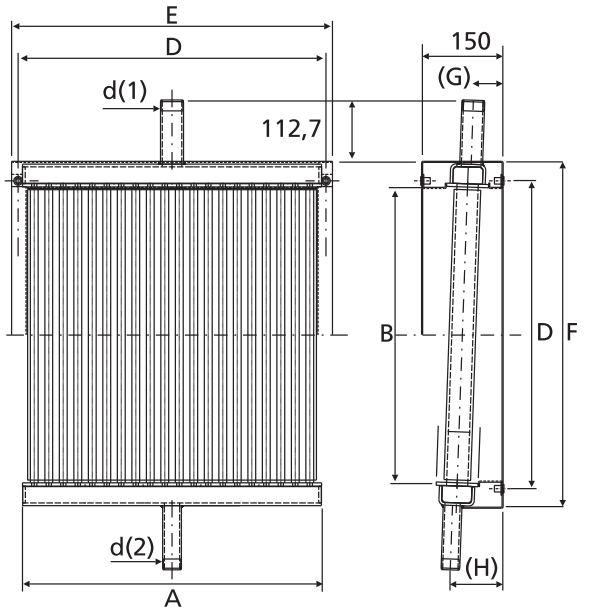


Fig. 82: Steel HE steam

Steel HE

High-performance industrial heat exchanger for heating with **hot water** (pumped warm/hot water with 1-2 rows) or **steam** for heavily contaminated air; performed as elliptical Fläkt-Group steel finned pipes, fin spacing 3.0 mm hot-dip galvanized.

Pumped warm/hot water variants

Model size	1		2		3		4		5	
Rows	1	2	1	2	1	2	1	2	1	2
Dimensions/empty weight										
A (mm)	454		550		678		838		966	
B (mm)	448		544		672		832		960	
C (mm)	396		492		620		780		908	
D (mm)	470		566		694		854		982	
E (mm)	490		586		714		874		1002	
F (mm)	536		632		760		920		1048	
Max. weight (kg)	26	49	37	69	55	105	80	150	112	188
Pipe connections (weld-on end/screw thread connection)										
∅ d	R 1"				R 1 ¼"					

The heat exchanger variants PWW/PHW are suitable for **connecting the coil** from the top, right and left.

Steam variant

Model size	1	2	3	4	5
Dimensions/empty weight					
A (mm)	454	550	678	838	966
B (mm)	448	544	672	832	960
D (mm)	470	566	694	854	982
E (mm)	490	586	714	874	1002
F (mm)	538	634	762	922	1050
G (mm)	54.4	52.7	50.5	47.5	45.4
H (mm)	95.5	97.3	99.5	102.5	104.6
Max. weight (kg)	26	37	55	80	112
Pipe connections (weld-on end)					
Steam inlet ∅ d (1)	R 1 ¼"				
Condensate outlet ∅ d(2)	R 1"				

For heat exchangers designed for steam operation **the coil can only be connected from the top!**

Heat exchanger connections (* external ∅ d [mm])

Model size		1				2				3				4				5			
Rows		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Pipe connections																					
Heat exchanger Cu/Cu Cu/Al	Threaded pipe/A (external thread)	R 1"								R 1¼"											
	Smooth pipe/O *	22				22	28			22	28	35	28	28	35	42	35	28	42		
Heat exchanger Fe/Fe Zn PWW/PHW	Threaded pipe/A (external thread)	R 1"		-		R 1"		-		R 1¼"		-		R 1¼"		-		R 1¼"		-	
	Smooth-bore pipe/ O *	33.8								42.4											
Heat exchanger Fe/Fe Zn (steam)	Smooth-bore pipe/ O *	42.4 (supply line) 33.8 (return line)																			

Outlets (wall)

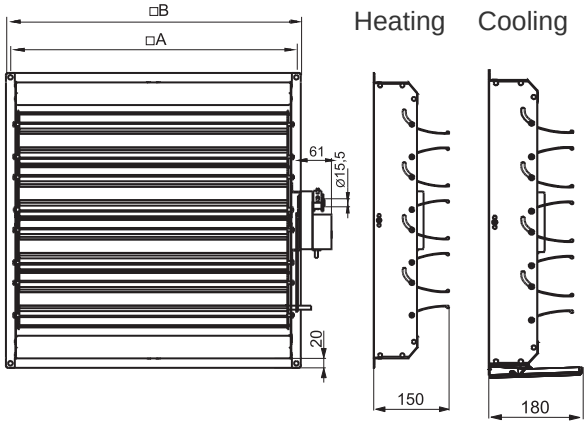


Fig. 83: Secondary-air louvre wall – in heating and cooling version

Secondary-air louvre

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

H	N			.						U	.			

– Manual adjustment

H	N			.						W	.			

– Motorized and adjustable (actuator 230 V up/down) for Fläkt-Group MATRIX

–Model for customized motor by others is possible on request
–Shaft diameter = 15.5 mm

Model size	**1**	**2**	**3**	**4**	**5**
A (mm)	470	566	694	854	982
B (mm)	489	585	713	873	1001
Weight (kg)	6.7	8.9	12.5	17.7	22.5

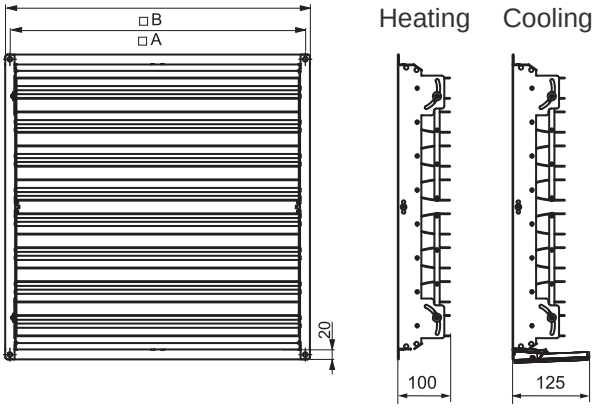


Fig. 84: Profile outlet - in heating and cooling version

Profile outlet

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

H	N			.						P	.			

– manually adjustable, self-locking

Model size	**1**	**2**	**3**	**4**	**5**
A (mm)	470	566	694	854	982
B (mm)	489	585	713	873	1001
Weight (kg)	5.6	7.8	11.3	16.4	21

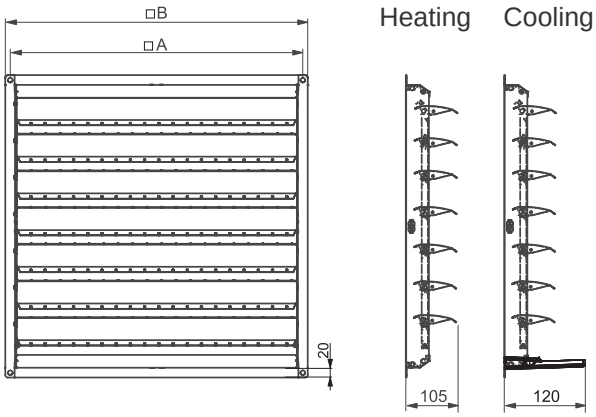


Fig. 85: Basic wall outlet
– in heating and cooling version

Basic wall outlet

outward-curved louvres;

adjustable, self-locking to adjust air-flow direction

H	N			.						B	.				– manually adjustable, self-locking

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	489	585	713	873	1001
Weight (kg)	2.5	3.6	5.4	8	10.8

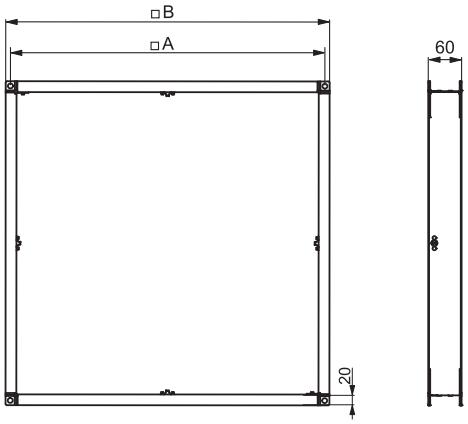
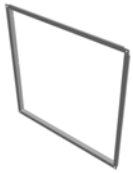


Fig. 86: Terminating flange, pressure side

Terminating flange, pressure side

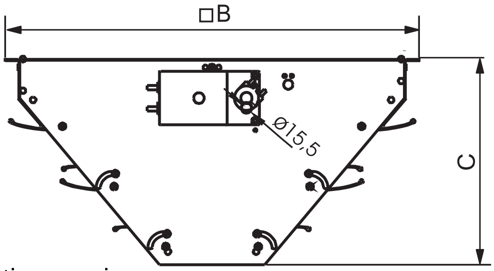
for use **without outlet** for **wall and ceiling**; can also be used as connection for **short** duct on pressure side



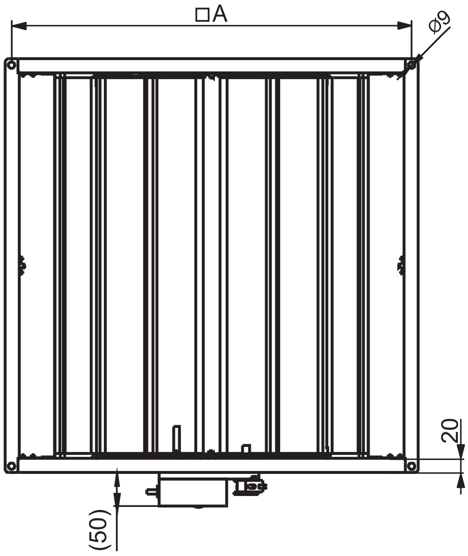
H	N			.						K	.				– for use without outlet

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	489	585	713	873	1001
Weight (kg)	2.1	2.5	3.1	3.8	4.4

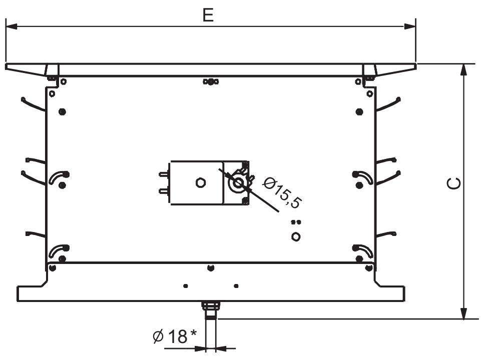
Outlets (ceiling)



Heating version



Cooling version



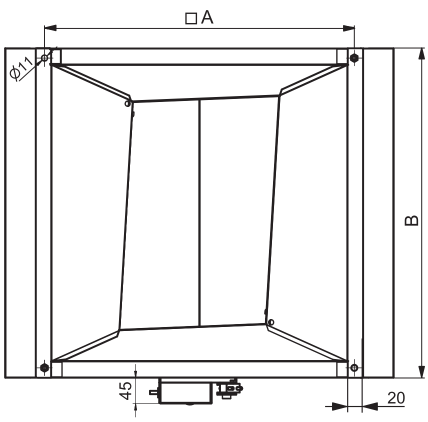


Fig. 87: Secondary-air louvre ceiling – in heating and cooling version

Secondary-air louvre

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

HN__.____C.___ – Manual adjustment

HN__.____D.___ – Motorized and adjustable (actuator 230 V up/down) for FläktGroup MATRIX

Model for customized motor by others is possible on request

Shaft diameter = 15.5 mm

Heating version

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	489	585	713	873	1001
C (mm)	291	291	351	376	376
Weight (kg) without actuator	4.4	5.9	8.3	11.5	14.2

Cooling version

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	499	595	723	883	1011
C (mm)	454	454	454	585	585
E (mm)	614	710	838	998	1126
Weight (kg) without actuator	10.5	17	22.5	35.5	42

* *External diameter of plastic drain connection amounts to 18 mm.*
For draining condensate connect a hose with an internal diameter of 16 mm.

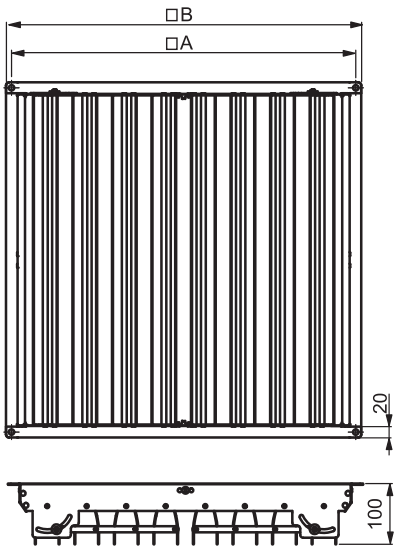


Fig. 88: Profile outlet

Profile outlet

for increasing air-discharge speed and air throw (heating only)

H N . P . – manually adjustable, self-locking

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	489	585	713	873	1001
Weight (kg)	5.6	7.8	11.3	16.4	21

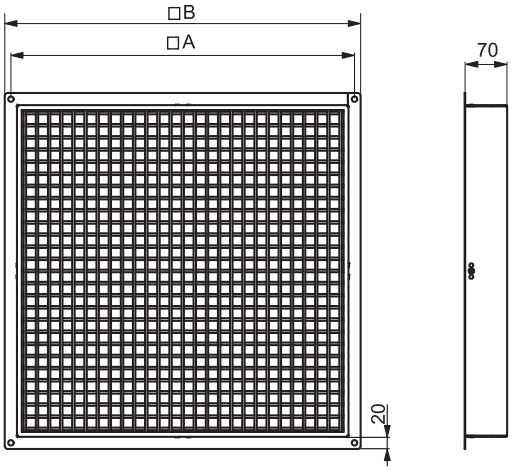
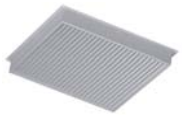


Fig. 89: Air deflection louvre

Air deflection louvre

air-deflection unit for distributing supply-air flow in 4 directions (heating only)



H N . L . – manually adjustable, self-locking

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	489	585	713	873	1001
Weight (kg)	4.7	6.8	10.3	15.6	20.6

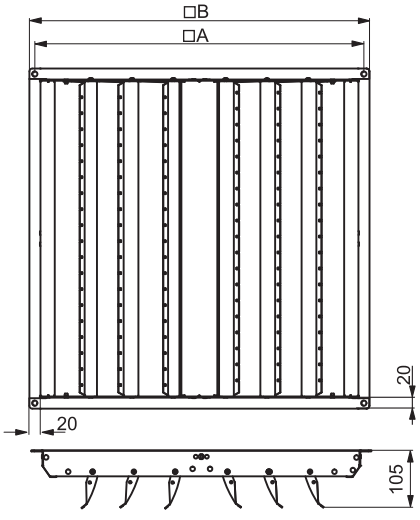


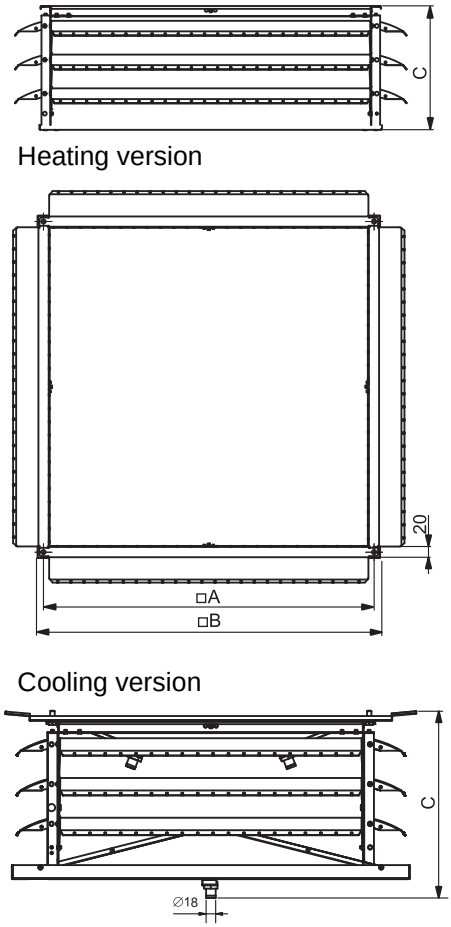
Fig. 90: Basic ceiling outlet

Two-side basic ceiling outlet

air-deflection unit for distributing supply-air flow in 2 directions (heating only)

H N . Z . – manually adjustable, self-locking

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	489	585	713	873	1001
Weight (kg)	2.5	3.6	5.4	8	10.8



Heating version

Cooling version

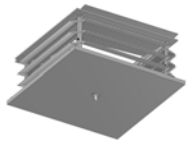
Fig. 91: Four-side outlet

Four-side outlet

Air-deflection unit for low mounting height (2.5 - 3.5 m);

Prevents air from being blown directly towards people;

Cooling version without condensate pump available



H	N			.						V	.				– for air discharge on 4 sides

Heating version

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	489	585	713	873	1001
C (mm)	190	260	260	260	260
Weight (kg)	6.4	8.5	11.9	16.6	20.4

Cooling version

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	499	595	723	883	1011
C (mm)	454	454	454	585	585
Weight (kg)	12.5	19.6	26.1	40.6	48.2

* External diameter of plastic drain connection amounts to 18 mm.
For draining condensate connect a hose with an internal diameter of 16 mm.

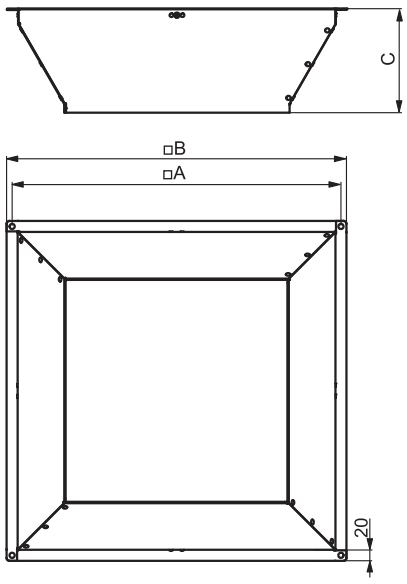


Fig. 92: Outlet nozzle

Outlet nozzle

square, cone-shaped, air speed and air throw increase due to reduced outlet surface (heating only)

H	N			.						A	.				– for large mounting heights

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	489	585	713	873	1001
C (mm)	154	178	211	253	285
Weight (kg)	3.6	5	7.2	10.5	13.5

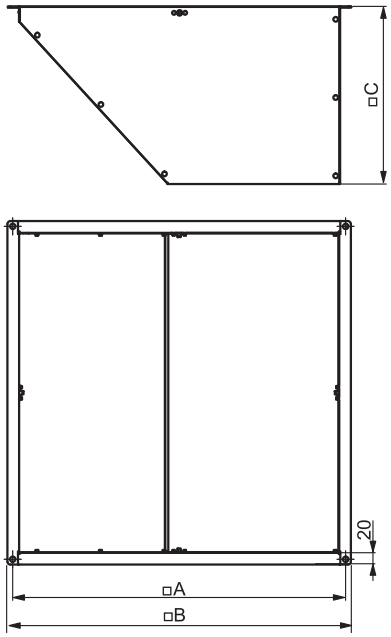


Fig. 93: Gate nozzle

Gate nozzle

Increase of discharge speed for precise air-flow diffusion. **(heating only)**

H N . T . – for gate curtains

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	489	585	713	873	1001
C (mm)	286	302	417	525	586
Weight (kg)	4.4	5.6	9.1	14	18

Heat exchanger casing

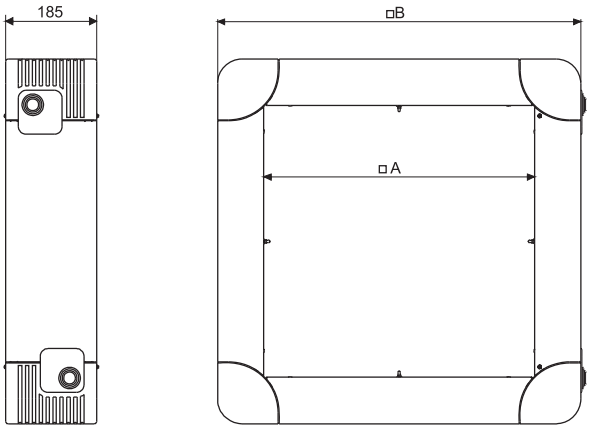


Fig. 94: Heat exchanger casing, design variant

Heat exchanger casing in the following variants:

H N . . A

– **Design variant**
made of stove-enamelled metal sheet
in RAL 9002 with rounded-off design plastic corners in RAL 7000 (not mounted)

H N . . B

– **Design variant**
as above but stove-enamelled metal sheet, design plastic corners and outlet in RAL colour of customer choice (not illustrated).

Variants A and B	1	2	3	4	5
A (mm)	454	550	678	838	966
B (mm)	642	738	866	1026	1154
Weight (kg)	6.1	7.3	8.8	10.7	12.2

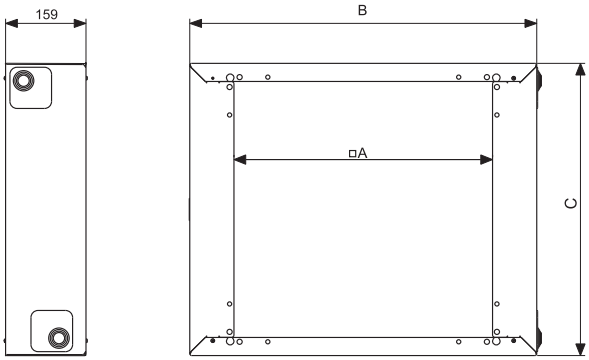


Fig. 95: Heat exchanger industrial casing

H N . . D

– **Industrial variant** made of galvanized and painted metal sheet in RAL 7000 (D), mounted by the factory

Variant D	1	2	3	4	5
A (mm)	454	550	678	838	966
B (mm)	642	738	866	1026	1154
C (mm)	520	616	744	904	1032
Weight (kg)	5.1	6.2	7.6	9.4	10.8

If **connection side is on top**, B is height and C is width.

Air-intake modules

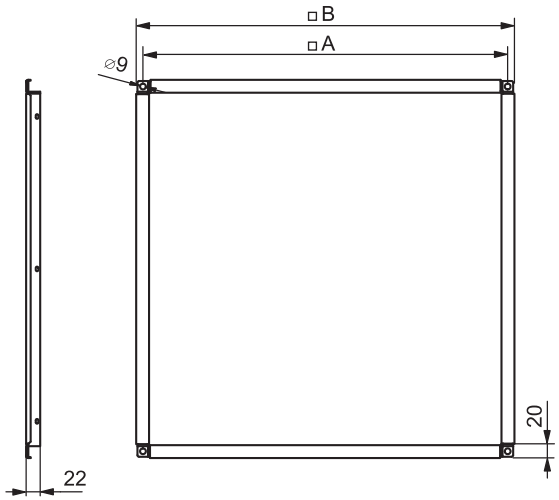


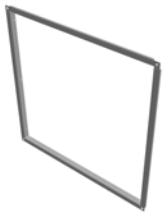
Fig. 96: Flange

Flange

(only necessary for recirculating-air units)

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

(Standard for mixed-air units!)



Z H _ . 5 2 0 0 – Galvanized metal sheet

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	491	587	715	875	1003
Weight (kg)	2.6	3.1	3.9	4.8	5.6

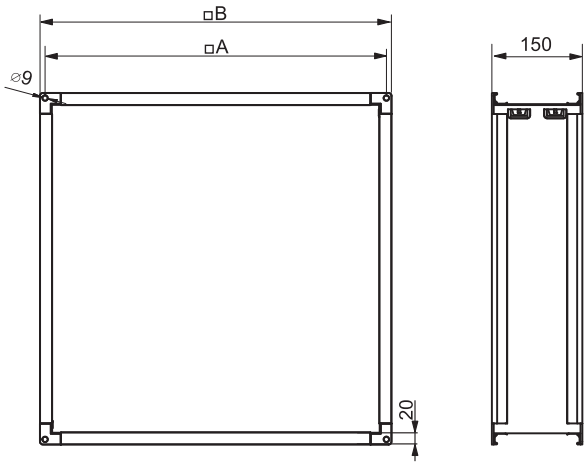


Fig. 97: Rectangular duct 150 mm

Rectangular duct 150

Spacer made of metal sheet with run-around mounting frame; to be used if mat-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	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	487	583	711	871	999
Weight (kg)	1.8	2.2	2.7	3.3	3.8

Flange width = 20 mm

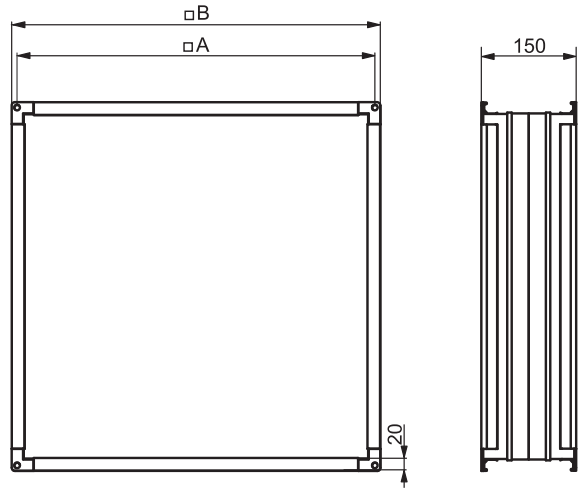


Fig. 98: Flexible connection

Flexible connection

Elastic fitting with run-around mounting frame

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

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	487	583	711	871	999
Weight (kg)	2.6	3.2	3.9	4.8	5.5

Flange width = 20 mm

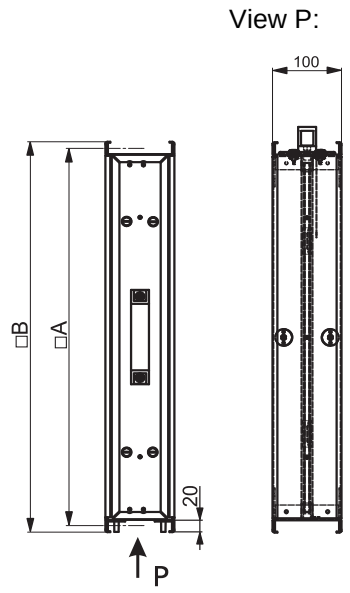


Fig. 99: Mat-filter module

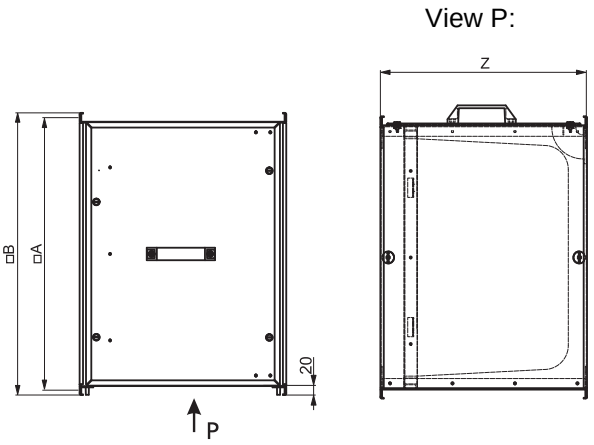


Fig. 100: Bag-filter module

Mat-filter module

In frame, with filter mat, quality class G2, G3 or G4 in as per EN 779; casing made of galvanized metal sheet steel, side service opening, with 20 mm run-around connection frame; removable;

Differential pressure switch - option

ZH#.3701#	– Depending on equipment - update the following table as required
ZH#.4002	– Spare mat filter G2
ZH#.4003	– Spare mat filter G3
ZH#.4004	– Spare mat filter G4

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	491	587	715	875	1003
Weight (kg)	5	6.2	8	10	11.5

Flange width = 20 mm

Bag-filter module

Bag filter cassette, quality class G2, G4 and F7 as per EN 779;

Casing made from galvanized metal sheet, side servicing opening with 20 mm run-around connection frame;

Differential pressure switch - option

ZH#.36##	– Depending on equipment - update the following table as required
ZH#.3902	– Spare bag filter G2
ZH#.3904	– Spare bag filter G4
ZH#.3908	– Spare bag filter F7

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	491	587	715	875	1003
Z (mm)	430	430	430	430	430
Z (mm) - Ecodesign	-	680	-	680	-
Weight (kg)	13	16	20	25	28.2

Flange width = 20 mm

Table: type code designations for mat filter modules, bag filter modules and roof air-intake hood depend on used filter and electrical equipment:

ZH#.3#00	– without filter insert and differential pressure switch (only for roof air-intake hood)
ZH#.3#02	– with G2 filter and without differential pressure switch
ZH#.3#03	– with G3 filter and without differential pressure switch (only for mat filter)
ZH#.3#04	– with G4 filter and without differential pressure switch
ZH#.3#05	– with G2 filter and with differential pressure switch
ZH#.3#06	– with G3 filter and with differential pressure switch (only for mat filter)
ZH#.3#07	– with G4 filter and with differential pressure switch
ZH#.3#89	– with F7 filter and with differential pressure switch (not for mat-filter) - only for size 2 and 4

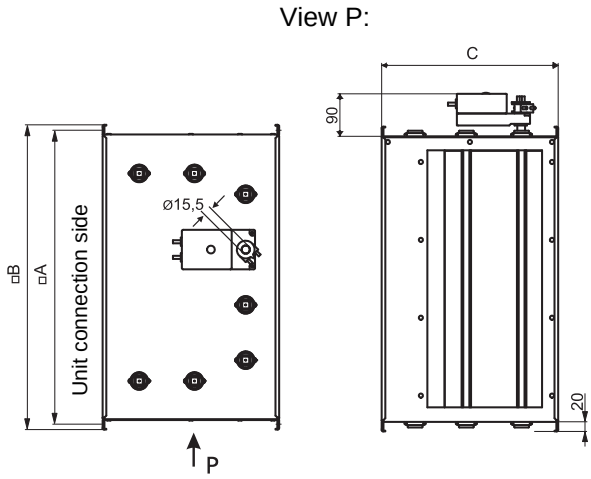
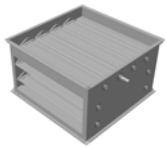


Fig. 101: Mixed-air module, type 1

Mixed-air module type 1 - direct



1 fresh air damper (FA) and 2 recirculating-air louvers (RA); outdoor air and recirculating-air angled at 90°; shaft diameter = 15.5°mm

Z H . 2 0 – Depending on equipment - update the following table as required

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	491	587	715	875	1003
C (mm)	340	340	450	450	450
Weight (kg)	13	16	24	31	37.5

Flange width = 20 mm

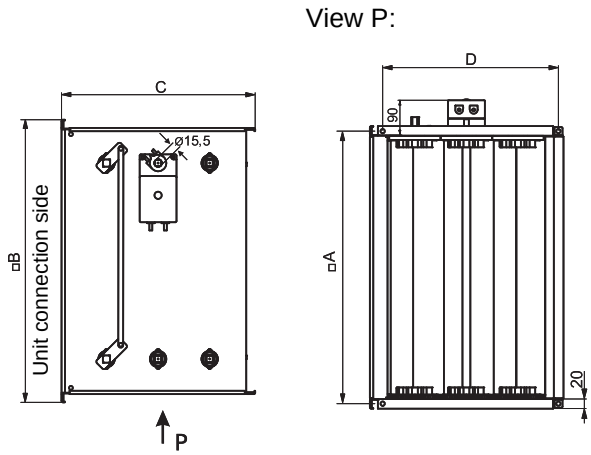
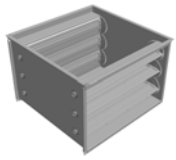


Fig. 102: Mixed-air module, type 2

Mixed-air module type 2 - lateral



Each model with 1 fresh air damper (FA) and 1°recirculating air louvre (RA); outdoor air and recirculating air at opposing 180°; shaft diameter = 15.5 mm

Z H . 2 1 – Depending on equipment - update the following table as required

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	491	587	715	875	1003
C (mm)	400	400	510	510	620
D (mm)	363	363	473	473	583
Weight (kg)	12.8	15.4	24.4	31.5	42.8

Flange width = 20 mm

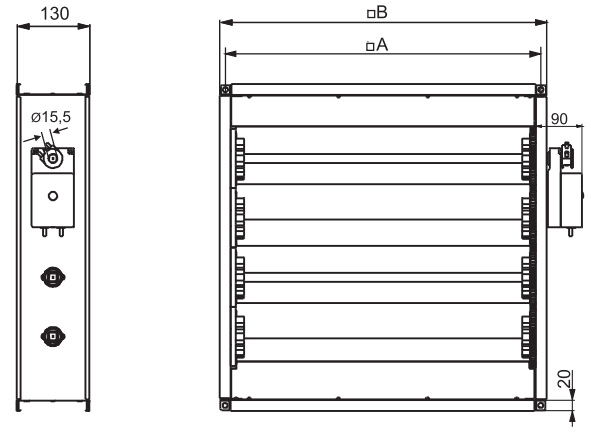
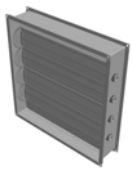


Fig. 103: Outside air blocking damper

Outside air blocking damper



Fins made of galvanized metal sheet; shaft diameter = 15.5 mm

Z H . 2 3 – Depending on equipment - complete data according to the table below

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	491	587	715	875	1003
Weight (kg)	6.5	8.2	11.5	15.1	19.2

Flange width = 20 mm

Table: Product type code for mixed-air modules and fresh air blocking damper depends on the actuator

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

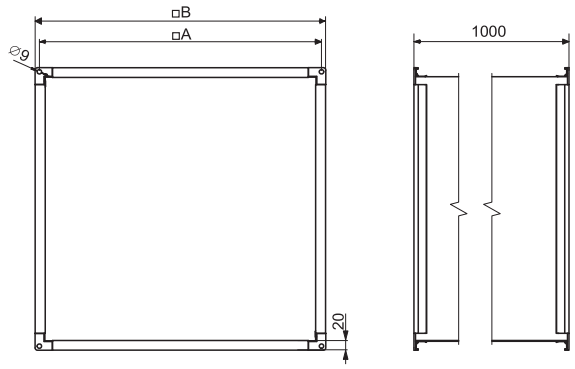
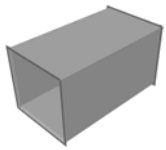


Fig. 104: Rectangular duct 1000 mm

Rectangular duct 1000



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

Flange width = 20 mm

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

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	487	583	711	871	999
Weight (kg)	12.5	15	18.3	22.4	25.8

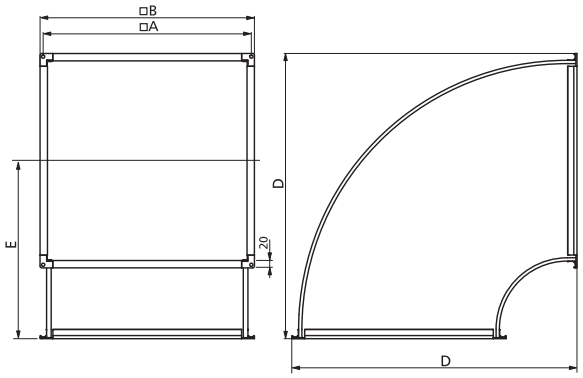
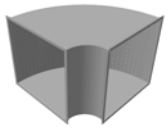


Fig. 105: Duct bend 90°, symmetrical

Duct bend 90°, symmetrical

made of galvanized metal sheet with run-around mounting frame



Z H . 2 8 0 0 – 90° symmetrically tapered

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	487	583	711	871	999
D (mm)	646	742	871	1030	1158
E (mm)	403	451	515	595	659
Weight (kg)	7.3	11.5	19.3	33	47.5

Flange width = 20 mm

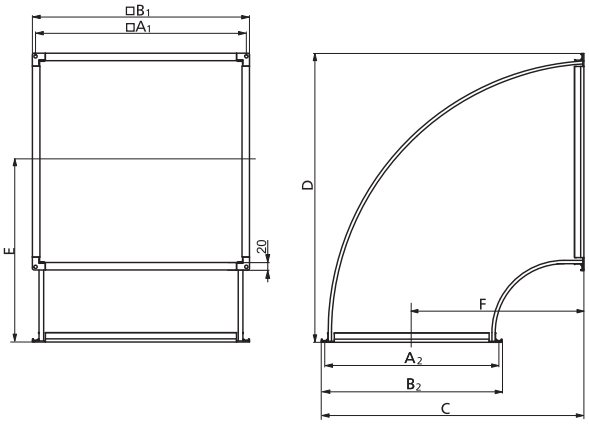
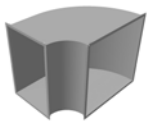


Fig. 106: Duct bend 90°, asymmetrical

Duct bend 90°, asymmetrical



made of galvanized metal sheet with run-around mounting frame

Z H . 2 9 0 0 – 90° asymmetrically tapered

Model size	1	2	3	4	5
A1 (mm)	470	566	694	854	982
A2 (mm)	363	363	473	473	583
B1 (mm)	487	583	711	871	999
B2 (mm)	380	380	490	490	600
C (mm)	540	540	650	650	760
D (mm)	646	742	871	1030	1158
E (mm)	403	451	515	595	659
F (mm)	350	350	405	405	460
Weight (kg)	7.3	11.5	19.3	33	47.5

Flange width = 20 mm

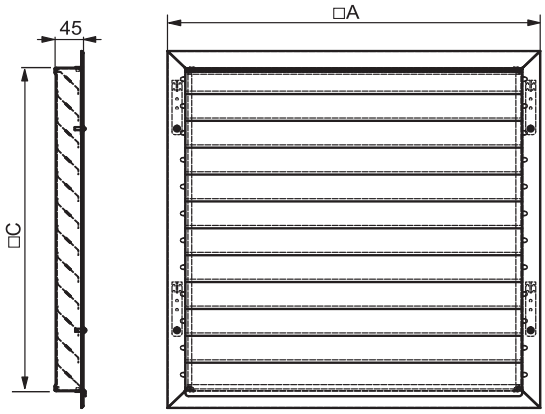
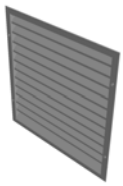


Fig. 107: Weather protection grilles

External weather grille

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



ZH . 3200 – Overall depth 45 mm

Model size	1	2	3	4	5
A (mm)	496	592	720	880	1008
C (mm)	438	534	662	822	950
Weight (kg)	3.7	5.2	7.7	11.5	15.1

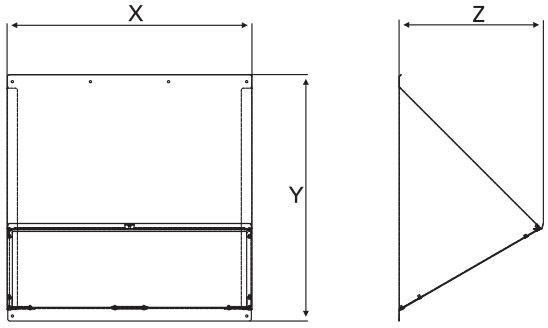
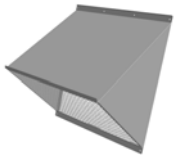


Fig. 108: Wall air-intake hood

Wall air-intake hood

External weather grille made of galvanized metal sheet with bird protection



ZH . 3100 – low pressure drop

Model size	1	2	3	4	5
X (mm)	496	592	720	880	1008
y (mm)	500	596	724	884	1012
Z (mm)	288	350	430	532	612
Weight (kg)	2.8	3.9	5.8	8.6	12.9

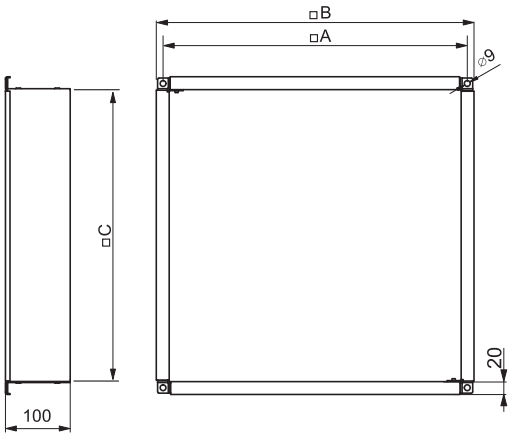


Fig. 109: Frame for wall connection

Frame for wall connection

As spacer for wall opening

ZH . 5100 – Galvanized metal sheet

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	491	587	715	875	1003
C (mm)	451	547	675	835	963
Weight (kg)	2.6	3.1	3.9	4.8	5.6

Flange width = 20 mm

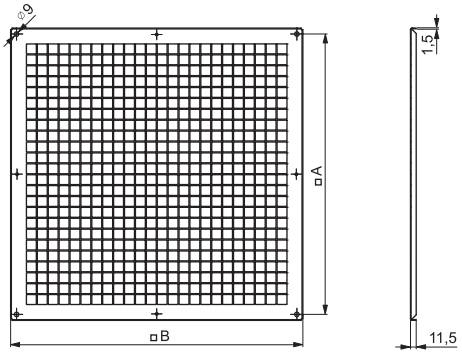
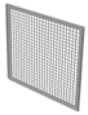


Fig. 110: End grille for accessories

Contact protection grille

End grille for accessories made of galvanized metal sheet



ZH . 3300 – For termination of accessories on suction side

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	494	590	718	878	1006
Weight (kg)	3.5	3.3	4.2	5.1	5.9

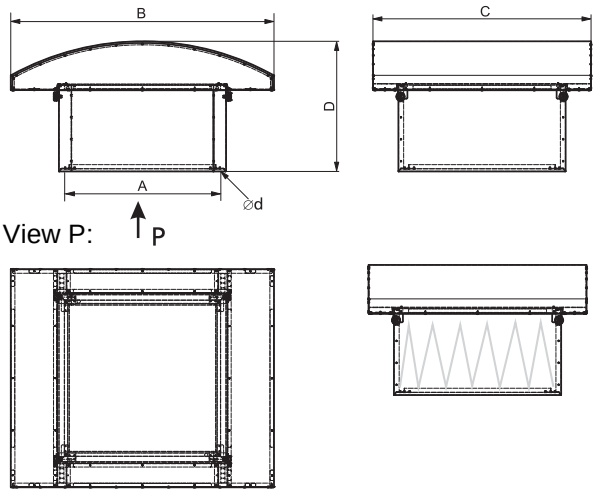


Fig. 111: Roof air-intake hood optionally with bag filter module

Roof air-intake hood

made from metal sheet in RAL 9002 with bird protection grille, other colours available on request;

optionally available with **bag filter** (quality class°G2-G4 as per DIN EN 779); then the hood can be tilted 90° for easy filter replacement

Z	H		.	3	5		

– Depending on equipment - update table: "**Type code designations for mat filter modules, bag filter modules and roof air-intake hood**" on page 83.

Z	H		.	3	8		

– Spare bag filter

Model size	1	2	3	4	5
A (mm)	490	730	730	1050	1050
B (mm)	970	1260	1260	1700	1700
C (mm)	800	1044	1044	1500	1500
D (mm)	569	623	623	712	712
Weight (kg)	24.5	39.5	41.5	78	78

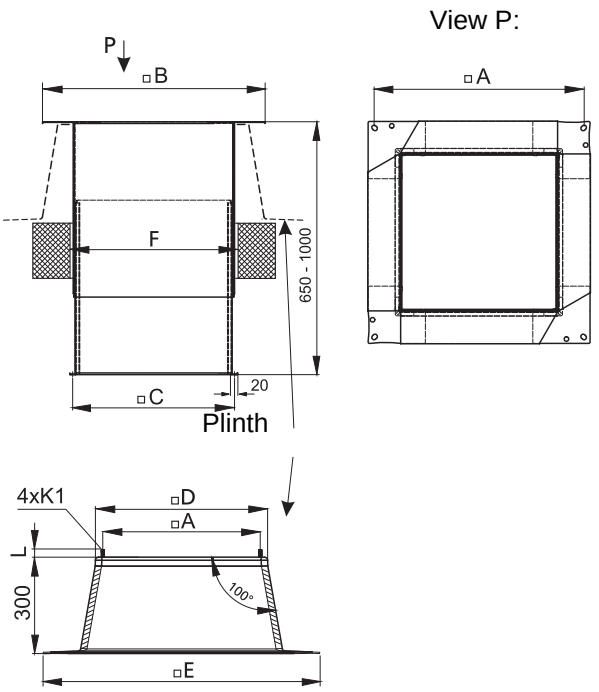
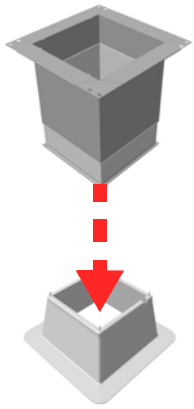


Fig. 112: Roof duct with flat roof-duct base

Roof duct with flat roof-duct base



Roof duct performed in galvanized metal sheet

including mounting brackets with run-around mounting frame, including°flat roof-duct base, plastic

Z	H		.	4	9	0	0

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	487	583	711	871	999
C (mm)min	476	570	700	860	990
max	536	775	775	1095	1095
D (mm)	860	1100	1100	1420	1420
E (mm)	490	730	730	1050	1050
F (mm)	528	768	768	1088	1088
Weight (kg) roof opening	15,6	19,2	23,7	29,4	33,9
Weight (kg) flat roof-duct base	8	10	10	13	13
K x L (mm)	M10x22	M12x27	M12x27	M12x27	M12x27

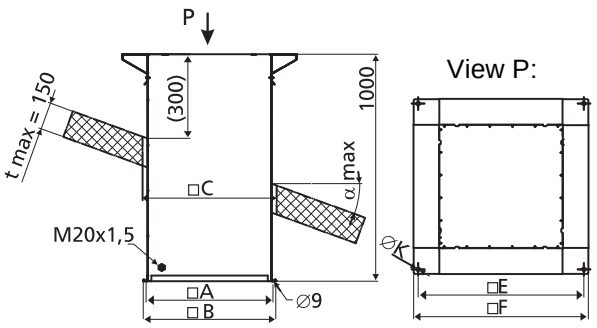


Fig. 113: Duct through slanted roof

Duct through slanted roof

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

Z H . 3 4 0 0

Model size	1	2	3	4	5
A (mm)	470	566	694	854	982
B (mm)	487	583	711	871	999
min. C (mm) max. C (mm)	476 536	570 775	700 775	860 1095	990 1095
E (mm)	490	730	730	1050	1050
F (mm)	528	768	768	1088	1088
d (mm)	12	16	16	16	16
α max	50°	45°	40°	35°	30°
Weights (kg)	17	21	25	31	35

Flange width = 20 mm

Suspensions

In different configurations:

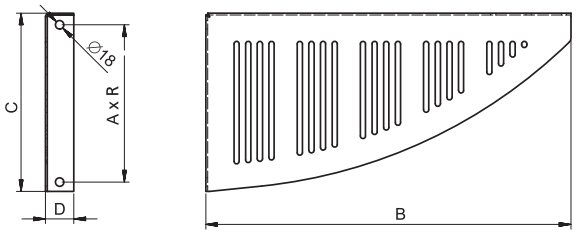
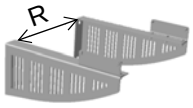


Fig. 114: Suspension type studio

Suspension type Studio

for recirculating-air unit as design model; painted in RAL 7000;
other colours on request



Z H . 5 4 0 0 – Wall mounting

Model size	1	2	3	4	5
A (mm)	138	175	218	282	334
B (mm)	496	544	656	728	776
C (mm)	183	220	263	327	379
D (mm)	60	60	60	60	60
Weight (kg)	6.8	8.1	10.6	13.5	15.9
R (mm)	400	496	624	784	912

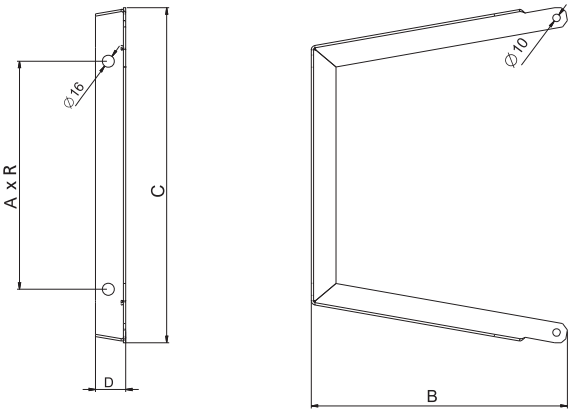


Fig. 115: Suspension type compact C

Suspension type compact C

for recirculating-air units for wall and ceiling mounting of units with **Cu/Al** and **Cu/Cu** heat exchangers; performed in galvanized metal sheet

Z H . 5 3 0 0 – Wall/ceiling mounting

Model size	1	2	3	4	5
A (mm)	303	389	484	628	742
B (mm)	340	392	504	578	627
C (mm)	445	544	680	845	976
D (mm)	40	40	50	62	72
R (mm)	414	510	628	776	894
Weight (kg)	2.9	3.9	8.2	12.2	16.0

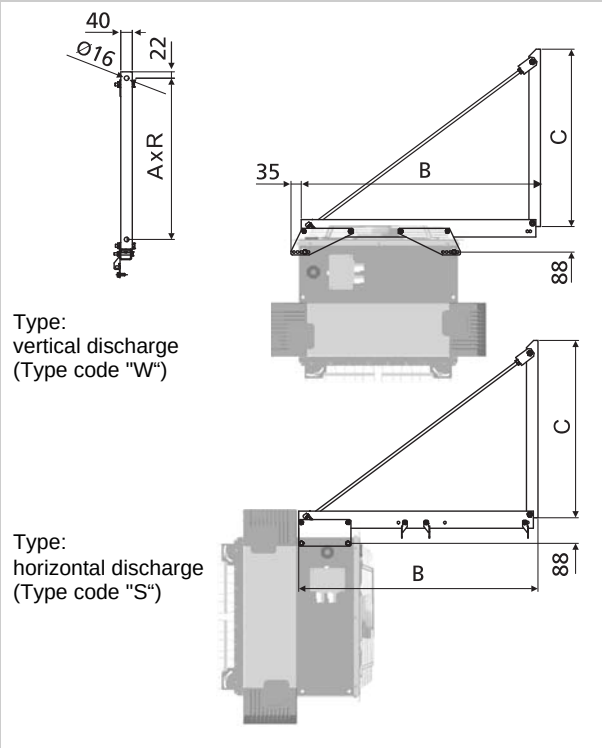
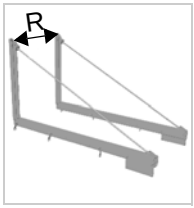


Fig. 116: Modular type suspension

Modular type suspension



comprising brackets performed in galvanized metal sheet; mounting rails with threaded rods and tensioning locks; attached to wall with steel bracket; suitable for all HX versions

Fixation sheet for vertical outlet (type code "W") and horizontal outlet (type code "S") of the unit

Z H . 5 5 0 – Wall mounting

Model size	1	2	3	4	5
R (mm)	414	510	638	798	926

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 discharge	Ecodesign
	Modular Type 55 type code														
1	5S	7S	11S	8S	9S	13S	10S	5S	9S	6S	10S	7S	10S	7W	
2	6S	7S	11S	8S	9S	13S	10S	5S	9S	6S	11S	8S	11S	8W	16S
3	7S	8S	12S	9S	10S	14S	11S	5S	9S	6S	12S	9S	12S	9W	
4	8S	8S	12S	9S	10S	14S	11S	5S	9S	6S	12S	9S	14S	11W	17S
5	8S	8S	12S	9S	11S	15S	12S	5S	9S	6S	13S	10S	15S	12W	

Insert number or letter in the last position in the accessory code.

Type code	5S	6S	7S/7W	8S/8W	9S/9W	10S	11S/11W	12S/12W	13S	14S	15S	16S	17S
A (mm)	386	386	386	556	556	556	556	556	656	656	656	656	656
B (mm)	505	605	715	825	935	1045	1155	1265	1375	1485	1595	1405	1515
C (mm)	442	442	442	612	612	612	612	612	712	712	712	712	712
Weight (kg)	7.5	8.3	9.3	11.2	12.1	12.9	13.9	15	16.1	17	18	16.7	17,4

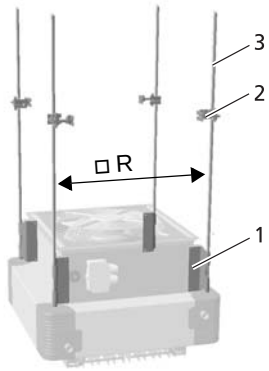


Fig. 117: Ceiling suspension

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 M10 are available in different lengths:

ZH . 5600	– Mounting kit or threaded rod, 3.3 kg
ZH . 5601	– Mounting kit threaded rod 1 m, 5.7 kg
ZH . 5602	– Mounting kit threaded rod 2 m, 8.1 kg
ZH . 5603	– Mounting kit threaded rod 3 m, 10.5 kg

Model size	1	2	3	4	5
R (mm)	531	627	755	915	1043

Notice!
Depending on mounting type the unit can be subjected to twisting when the fan motor is activated.

Control unit MC4 for units with AC-Motor

– Plastic casing for wall mounting, light grey
– Protection class IP65
– Max. switching capacity 3,8 kW
– Max. current 9 A
– Full electronic protection for fan motor
– Frost protection for mixed-air operation
– Unit control in stand-alone or group mode (max. 4 unit heaters)
– Dimensions (W x H x D): 170 x 223 x 85 mm
  170 x 223 x 107 mm for MC4##AC.#K#
– Connections:
  - Room/contact thermostat or external ON/OFF contact
  - Shut-off valve with actuator 230 V
  - Secondary-air louver motorized actuator 230 V (MC4##AC.Z##)
  - Mixed-air box motorized actuator 230 V (MC4##AC.#K#)
  - Differential pressure switch (MC4##AC.##F)

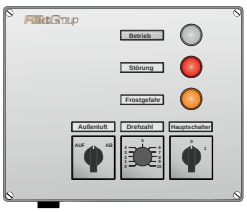
			Motor design	Control unit type	Thermostats
Recirculation air	Heating only Cooling only		1-speed, 1 x 230 V	MC4U1AC	Room thermostat 902.113 Room thermostat 902.110
			2-speed, 3 x 400 V	MC4U2AC	
			3-speed, 3 x 400 V	MC4U3AC	
	Cooling or Heating		1-speed, 1 x 230 V	MC4U1AC	Room thermostat 902.113 Room thermostat 902.110 Cont. thermostat 902.135
			2-speed, 3 x 400 V	MC4U2AC	
			3-speed, 3 x 400 V	MC4U3AC	
Mixed air	Heating only Cooling only		2-speed, 3 x 400 V	MC4M2AC	Room thermostat 902.113 Room thermostat 902.110
			3-speed, 3 x 400 V	MC4M3AC	
	Cooling or Heating		2-speed, 3 x 400 V	MC4M2AC	Room thermostat 902.113 Room thermostat 902.110 Cont. thermostat 902.135
			3-speed, 3 x 400 V	MC4M3AC	

	Control unit type	AC-Motor	Functional description (MC4U#AC.000)	Additional functions	Description of additional functions
Recirculation air	MC4U1AC	1-speed, 1 x 230	– On/Off with signalling – Fan motor fault with signalling – Output: heating valve contact 230 V AC, open/close – Output: signalling for thermal contact OK/Error/Off (NO/NC) – Output: ISYteq controls 1-2-3-OFF (normally open/close contact) – On/Off – fan motor with operating status signal – Input: door contact 230 V AC or On/Off contact 230 V AC or room thermostat 230 V AC	MC4U#AC.Z00	Regulation of air-discharge louver – motorized actuator 230 V, open/close
	MC4U2AC	2-speed, 3 x 400 V		MC4U#AC.00F	Signalling of filter contamination
	MC4U3AC	3-speed, 3 x 400 V		MC4U#AC.Z0F	Regulation of air-discharge louver – motorized actuator 230 V, open/close Signalling of filter contamination

	Control unit type	AC-Motor	Functional description (MC4M#AC.0KF)	Additional functions	Description of additional functions
Mixed air	MC4M2AC	2-speed, 3 x 400 V	– On/Off with signalling – On/Off fan motor with operating status signal – Fan motor fault with signalling – Output: heating valve contact 230 V AC, open/close – Output: signalling for thermal contact OK/Error/Off (NO/NC) – Output: ISYteq controls 1-2-3-OFF (normally open/close contact) – On/Off – fan motor with operating status signal – Signalling of filter contamination – Regulation of mixed-air box, motorized actuator 230 V, open/close	MC4M#AC.ZKF	Regulation of air-discharge louver – motorized actuator 230 V, open/close
	MC4M3AC	3-speed, 3 x 400 V			

Control units for units with EC-Motor

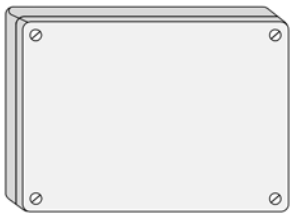
– Plastic casing for wall mounting, light grey with a separate section for wiring terminals
– Protection class IP54
– Contactor, 4 kW switching capacity according to AC3, max. current 9 A
– Fully protected motor electronics with automatic restart after power outage and interlocking disconnection
– Standby indicator and malfunction control lights
– Connection terminals for room thermostat or external ON/OFF contact

Control unit type	Function		Control unit type	Additional function
MC301EC 	Selector switch 0-1, potentiometer 0-100%		MC3x1EC K	– Secondary-air louvre up/down
			MC3x1EC S	– Connection for shut off valve
MC331EC 	Selector switch 0-1 potentiometer 0-100%	– Control switch Heating – Ventil. – Frost warning – Connection for frost monitoring – Connection for outside air damper actuator	MC3x1EC W	– Status and alarm message volt free, shut-off valve connection 230V
			MC3x1EC R	– Floating operating and fault message

Notice!
For other control unit models contact our FläktGroup sales staff!

			Motor design	Control unit type	Thermostats
Recirculation air	Heating only Cooling only		230 V/400 V continuous	MC301EC/MC301EC x	Room thermostat 902.113
	Cooling or Heating		230 V/400 V continuous	MC301EC/MC301EC x	Room thermostat 902.113 Cont. thermostat 902.135
Mixed air	Heating only Cooling only		230 V/400 V continuous	MC331EC/MC331EC x	Room thermostat 902.113
	Cooling or Heating		230 V/400 V continuous	MC331EC/MC331EC x	Room thermostat 902.113 Cont. thermostat 902.135

Intermediate terminal box



Intermediate terminal box for connecting a maximum of 4 unit heaters:

- Plastic casing for on-wall mounting with sufficient space for loop-in wiring
- Protection class:IP 54
- Row terminals:2.5 mm^2
- Dimensions:W x H x D 270 x 220 x 105 mm

Operating mode	Terminal box type	Motor design/motor mode	Control unit type
Recirculation air	**981 840**	AC-Motor, 1 speed 1 x 230 V AC 50 HZ	**MC4U1AC.000, MC4U1AC.Z00, MC4U1AC.00F, MC4U1AC.Z0F**
	981 860	AC-Motor, 2 speed 3 x 400 V AC 50 HZ	**MC4U2AC.000, MC4U2AC.Z00 MC4U2AC.00F, MC4U2AC.Z0F**
	981 870	AC-Motor, 3 speed 3 x 400 V AC 50 HZ	**MC4U3AC.000, MC4U3AC.Z00 MC4U3AC.00F, MC4U3AC.Z0F**
	981 880	EC-motor, stufig, 1x230V / 3x400V	**MC3#1EC**
Mixed air	**981 865**	AC-Motor, 2 speed 3 x 400 V AC 50 HZ	**MC4M2AC.0KF, MC4M2AC.ZKF**
	981 875	AC-Motor, 3 speed 3 x 400 V AC 50 HZ	**MC4M3AC.0KF, MC4M3AC.ZKF**
	981 885	EC-motor, stufig, 1x230V / 3x400V	**MC3#1EC**

Thermostat models

FläktGroup industrial thermostat

Measurement of room temperature, with plastic casing and closed capillary system:

- Setpoint range:0 ... 60 °C
- Sensor coil:copper nickel-plated
- Protection class:IP 54
- Switching difference +/- 0.8 K:1,5 +/- 1K
- Output:change-over contact - NC: 16 (6) A 250 V
  NO: 6 (4) A 250 V
- Dimension (H x W x D): 135 x 96 x 87 mm

Type: 902113

FläktGroup contact temperature thermostat

For changing between “heating” and “cooling”; supplied in an enclosed casing with adjustable switching point:

- Adjustment range:10 ... 40 °C
- Protection class:IP 54
- Switching difference:10 K
- Output:change-over contact 4 A ohm. 2 A ind. 250 V
- Dimension (H x W x D): 79 x 50 x 55 mm

Type: 902135

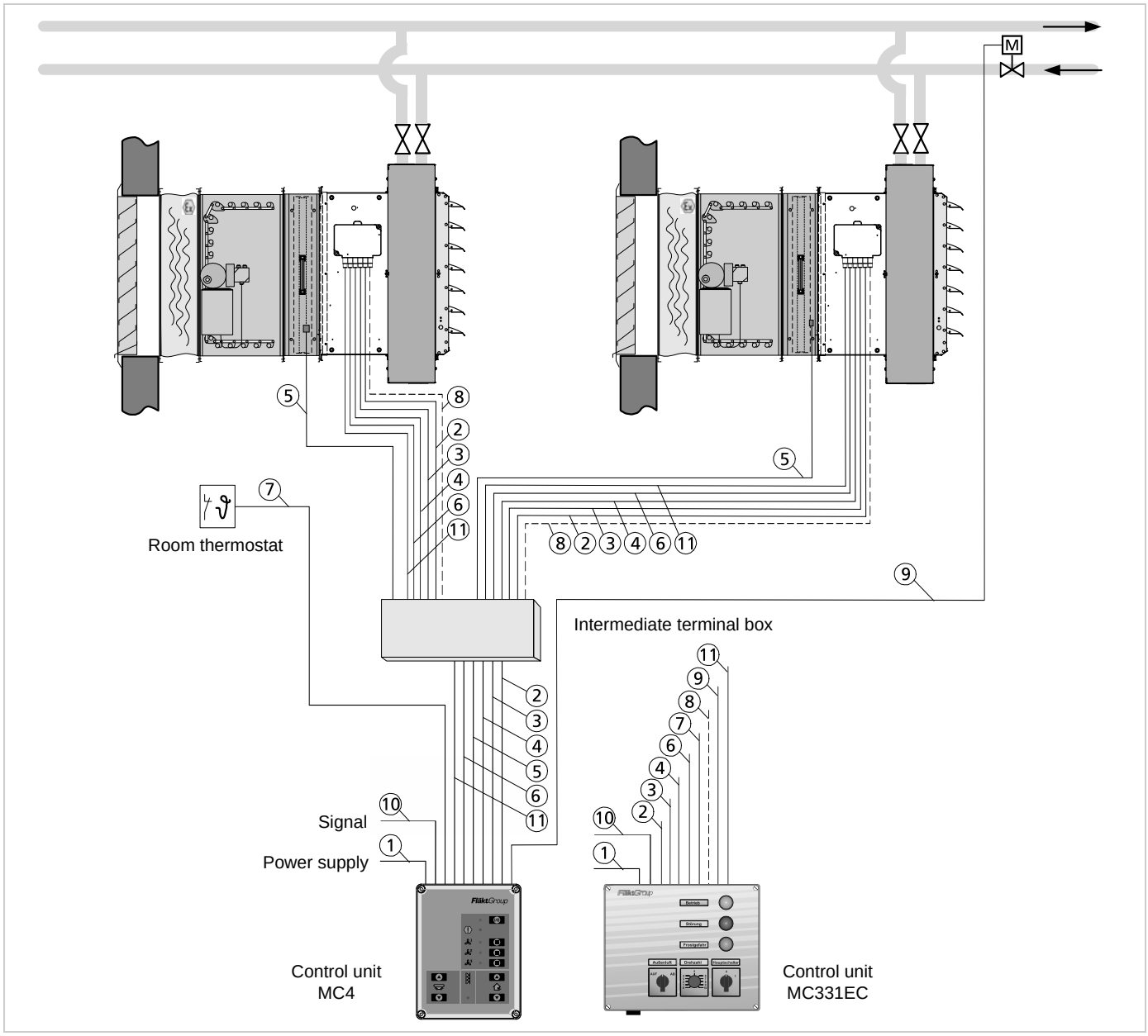
Thermostat with quarz clock Order No. 902110

For regulating the unit due to the measured room temperature

Day/Night mode, week program, 2x battery AA

- Setpoint range: +5 ... 35 °C
- Ambient temperature: 0 ... 45°C
- Protection class: IP 30
- Outlet: 230 V AC: 0.5 - 5 A ohmic, 0.5 - 3 A inductive, 24 V AC: 0.5 - 5 A ohmic, 0,5 - 3 A inductive
- Dimension (W x H x D):136 x 97 x 26 mm

Unit group with FläktGroup Multi*MAXX* HN mixed-air units with MC 331EC/MC4 control unit



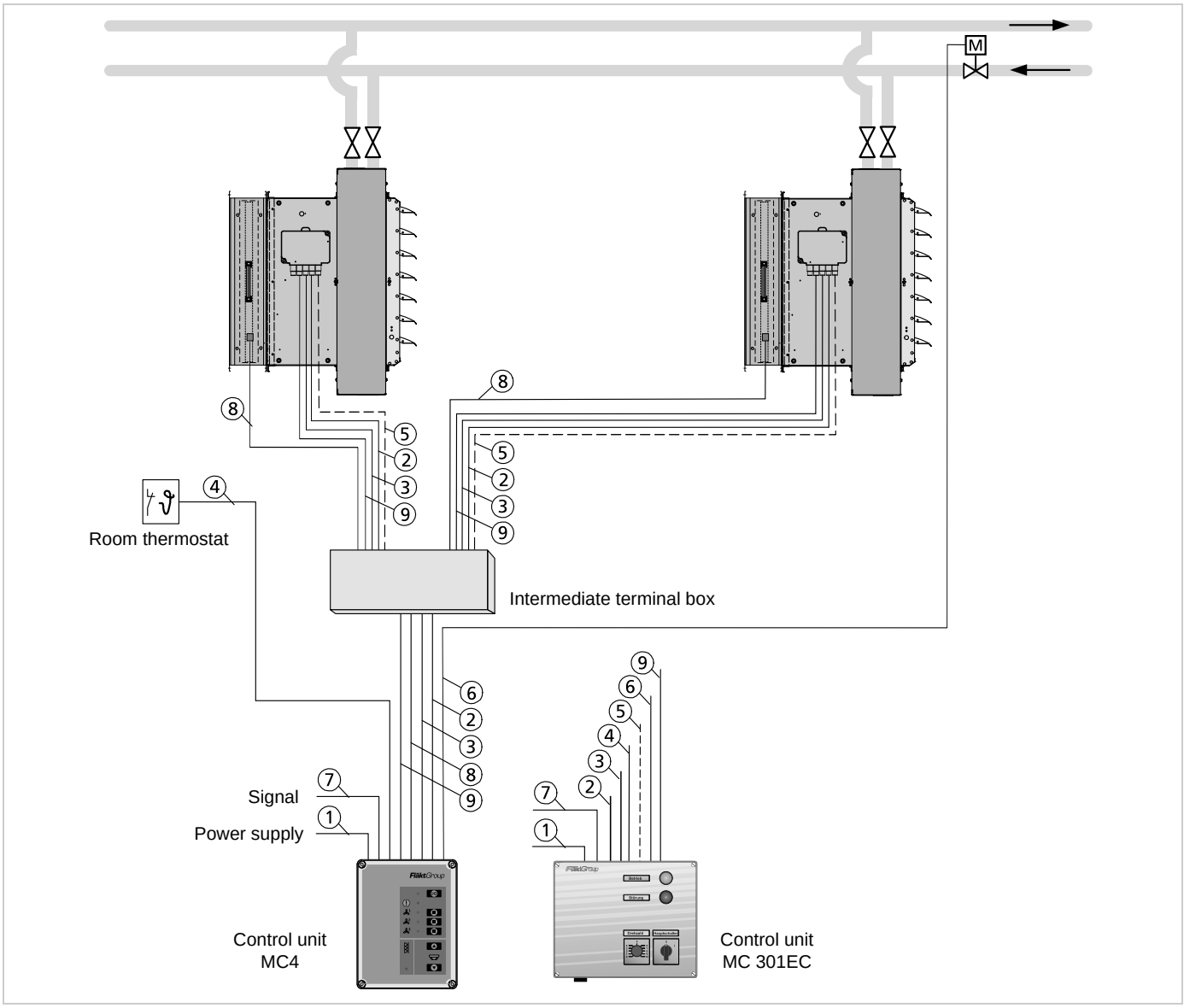
Required number of wires:

Control unit	**MC331EC** 1 x 230 V	**MC331EC** 3 x 400 V	**MC4M2AC** 3 x 400V	**MC4M3AC** 3 x 400V
Cable 1 (Power supply)	3	5	5	5
Cable 2 (Louvre regulation)	3	3	3	3
Cable 3 (Frost protection)	5	5	5	5
Cable 4 (Fan motor)	3	7	10	7
Cable 5 (Filter)	-	-	2	2
Cable 6 (Mixed-air module)	3	3	3	3
Cable 7 (Room thermostat)	3	3	3	3
Cable 8 (EC-motor controls)	3	3	–	–
Cable 9 (Valve)	2	2	2	2
Cable 10 (Signal)	–	–	3 (6) *	3 (6) *
Cable 11** (Thermal contact for AC-motor) (Error output for EC-motor)	2	2	2	2

***** *The number in brackets shows quantity of cables needed for function F (00F, Z0F for MC4)*
****** *Shielded cable*

Cables 2, 5 and 6 are only necessary for additional functions (Z00, 00F, Z0F for MC4).

Unit group with FläktGroup Multi*MAXX* HN recirculating air units with MC 301EC/MC4 control unit



Required number of wires

Control unit	**MC301EC** 1 x 230 V	**MC301EC** 3 x 400 V	**MC4U1AC** 1 x 230 V	**MC4U2AC** 3 x 400 V	**MC4U3AC** 3 x 400 V
Cable 1 (Power supply)	3	5	3	5	3
Cable 2 (Louvre regulation)	3	3	3	3	3
Cable 3 (Fan motor)	3	10	3	7	10
Cable 4 (Room thermostat)	3	3	3	3	3
Cable 5 (EC-motor controls)	2	2	–	-	-
Cable 6 (Louvre regulation)	2	2	2	2	2
Cable 7 (Signal)	–	–	3 (6) *	3 (6) *	3 (6) *
Cable 8 (Filter)	-	-	2	2	2
Cable 9** (Thermal contact for AC-motor) (Error output for EC-motor)	2	2	2	2	2

***** *The number in brackets shows quantity of cables needed for function F (00F, Z0F for MC4)*
****** *Shielded cable*

Cables 2 and 8 are only necessary for additional functions (Z00, 00F, Z0F for MC4).

Notice!
When using MC3#1EC control units the wiring diagram is enclosed with the relevant control unit.

Fan motors of the FläktGroup MultiMAXX HN unit heaters are standard fitted with thermal contacts (error output on the EC fan).
The fusing of the fan motor is performed by connecting thermal contact to a FläktGroup switch box and using fan motor internal temperature with unit disconnection in fault case. If the FläktGroup unit is operated by an external regulation system the thermal contact must be incorporated in the safety circuit.

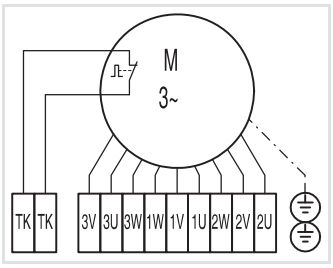
In this case FläktGroup can not assume any warranty obligations for such unit.

Notice!
If the 400 V fan motor is rotating in the wrong direction, two phases must be reversed.

Motor terminal diagram for 3-speed three-phase external rotor motor 3 x 400 V 50 Hz

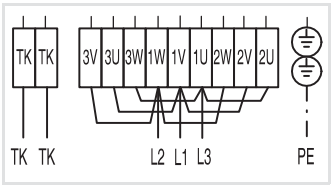
- With thermal contacts
- With pole-changing capability
- Winding ΔΔ/YY/Δ
- Without voltage change-over!
- Operating voltage: refer to unit identification plate

3-speed operating mode



- with FläktGroup three-speed control unit (MC4)
- Connection cable: 9 + PE = 10 wires
- Electrically screened cable: 2 TC connecting wires
- with FläktGroup one-speed control unit (MC4)

1-speed operating mode

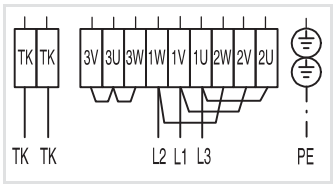


- Connection cable: 3 + PE = 4 wires
- Electrically screened cable: 2 TC connecting wires

High speed

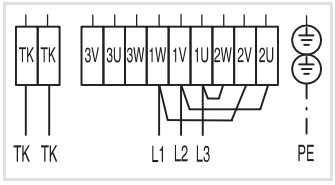
or

Medium speed



or

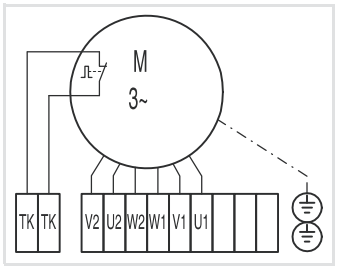
Low speed



Motor terminal diagram for 2-speed three-phase external rotor motor 3 x 400 V 50 Hz

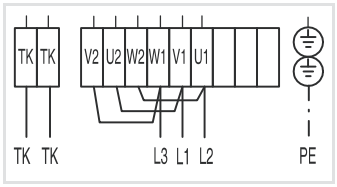
- With thermal contacts
- Slip regulator
- Winding D/Y
- Without voltage change-over!
- For operating voltage refer to the unit identification plate.

2-speed operating mode



- with FläktGroup two-speed control unit (MC4)
- Connection cable: 6 + PE = 7 wires
- Electrically screened cable: 2 TC connecting wires

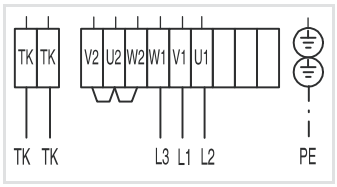
1-speed operating mode



- with FläktGroup one-speed control unit (MC4)
- Connection cable: 3 + PE = 4 wires
- Electrically screened cable: 2 TC connecting wires

High speed

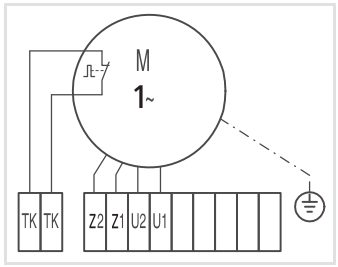
or

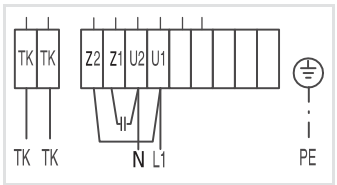


Low speed

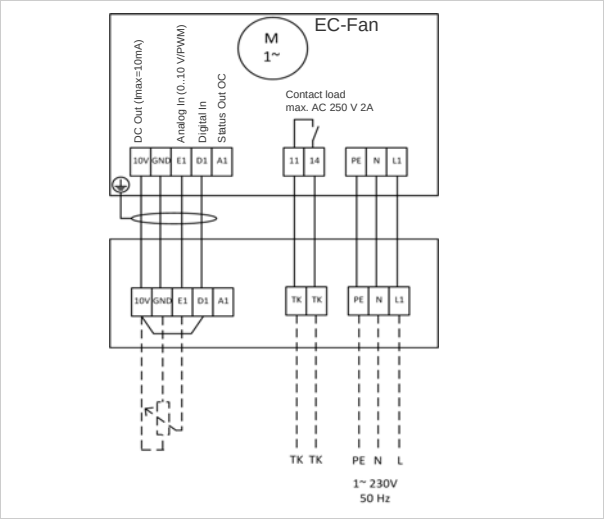
Motor terminal diagram for 1-speed single-phase motor 1 x 230 V, 50 Hz

- With thermal contacts
- For operating voltage refer to the unit identification plate.
- with FläktGroup one-speed control unit (MC4)
- Connection cable: 2 + PE = 3 wires
- Electrically screened cable: 2 TC connecting wires



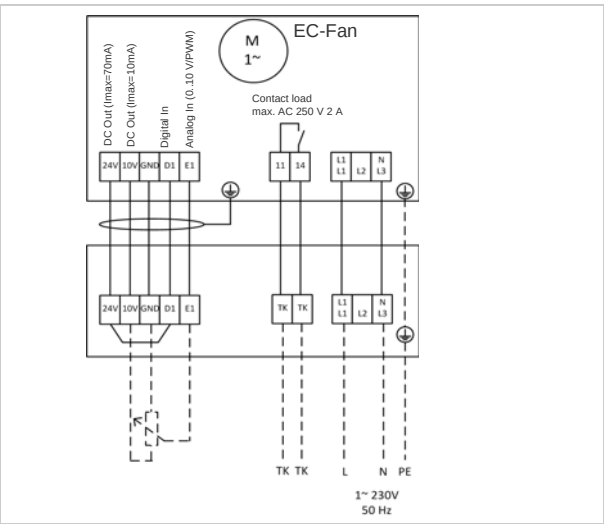


Motor terminal diagram for continuously variable EC fan motor 1 x 230 V, 50 Hz model size 1,2,3 (recirculating-air unit)



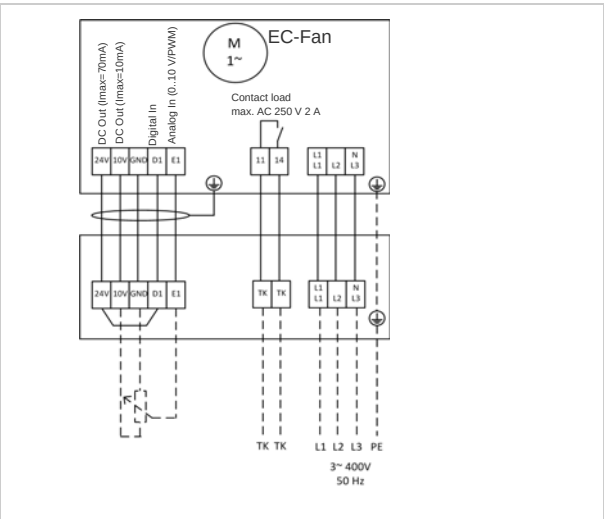
- with error output
- Operating voltage: 1 x 230 V
- with FläktGroup one-speed control unit (MC3#1EC)
- Connection cable: 2 + PE = 3 wires
- Electrically screened cable: 5 connecting wires

Motor terminal diagram for continuously variable EC fan motor 1 x 230 V, 50 Hz model size 4,5 (recirculating-air unit)



- with error output
- Operating voltage: 1 x 230 V
- with FläktGroup one-speed control unit (MC3#1EC)
- Connection cable: 2 + PE = 3 wires
- Electrically screened cable: 5 connecting wires

Motor terminal diagram for continuously variable EC fan motor 1 x 230 V, 50 Hz model size 3,4,5, (recirculating-air unit)



- with error output
- Operating voltage: 3 x 400 V
- with FläktGroup one-speed control unit (MC3#1EC)
- Connection cable: 3 + PE = 4 wires
- Electrically screened cable: 5 connecting wires

Recommended connection for frost protection combined with MC4

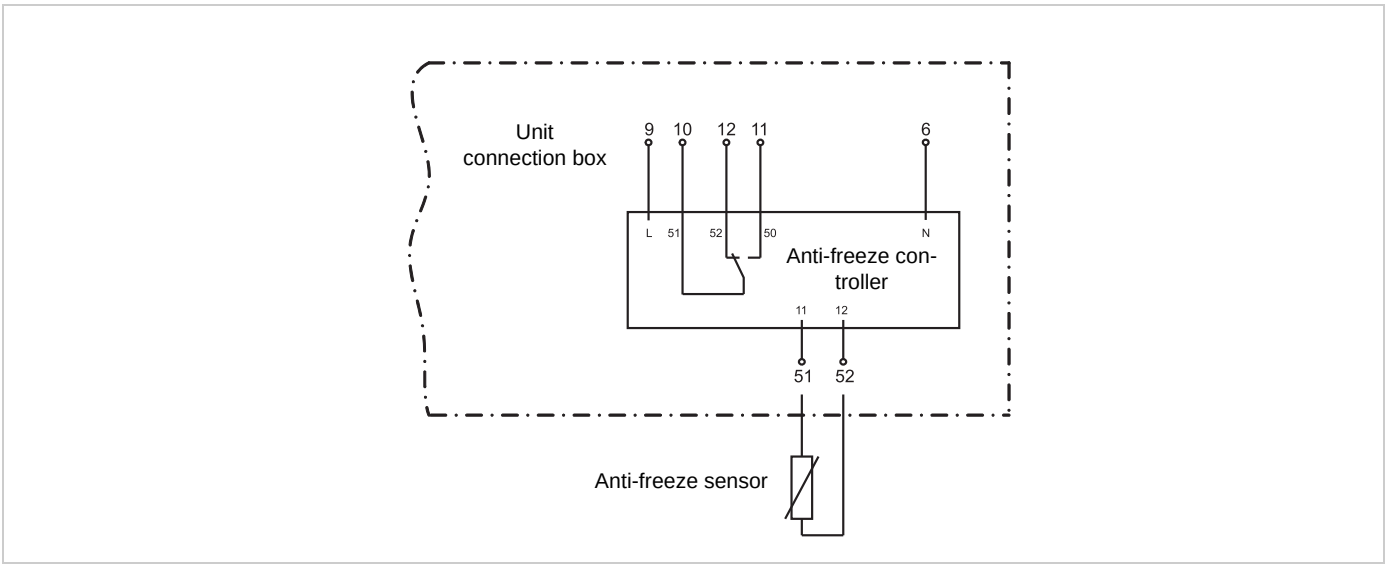
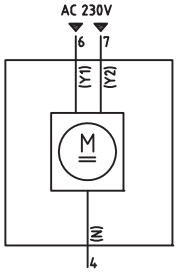


Fig. 118: Connection for anti-freeze controller

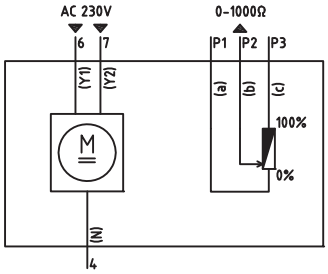
Connecting actuators for mixed-air module and blocking damper

The relevant connection diagram is printed on identification plates of actuators.

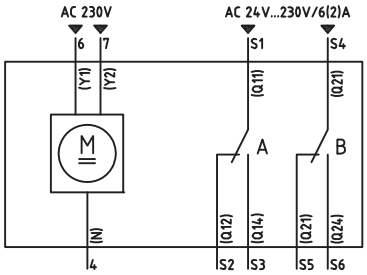
Actuator 230 V, open/close
(ZH#.2#02)



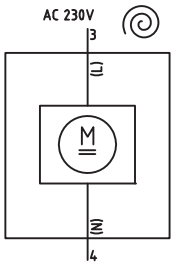
Actuator 230 V, open/close
+ potentiometer (ZH#.2#03)



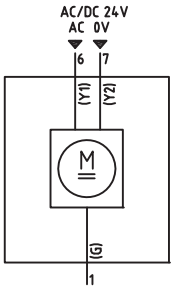
Actuator 230 V, open/close
+ final position switch (ZH#.2#04)



Actuator 230 V+ spring return
(ZH#.2#05)



Actuator 24 V, open/close (ZH#.2#06)



Actuator 24 V (0 ... 10 V) (ZH#.2#07)

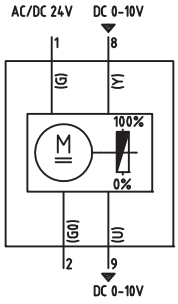
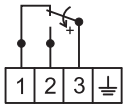


Fig. 119: Connection for actuator

Connection differential-pressure switch



2: Final pressure drop
1: Initial pressure drop

Fig. 120: Connection for differential pressure switch

Connection for louvre actuator (D, W)

For connection details refer to the unit connection diagram.

Actuator 230 V, open/close

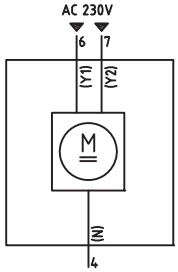


Fig. 121: Connection for actuator

Connecting condensate pump

Detailed connection diagram for the condensate pump is included in the installation manual for SI1805 condensate pump.

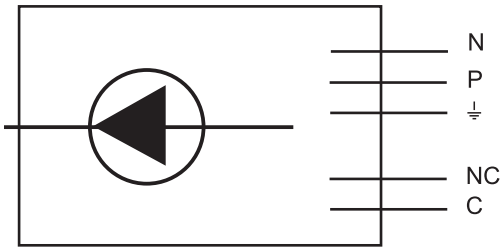


Fig. 122: Connecting condensate pump

Please refer to the following pages for unit data:

			Motor design	Pages
Recirculation air 	**Heating**		230 V 1-speed 400 V 2-speed 400 V 3-speed 230/400 V continuous	**page 102 – page 103**
	Cooling or **Heating**		230 V 1-speed 400 V 2-speed 400 V 3-speed 230/400 V continuous	**page 104 – page 105**
Mixed air 	**Heating**		230 V 1-speed 400 V 2-speed 400 V 3-speed 230/400 V continuous	**page 106 – page 107**
	Cooling or **Heating**		230 V 1-speed 400 V 2-speed 400 V 3-speed 230/400 V continuous	**page 108 – page 109**

FläktGroup MATRIX 2000

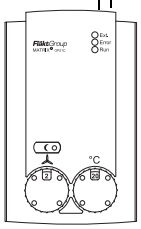
System features:

- Temperature assignment.: 7...40 °C (default 10..30 °C)
- Assignment of fan speed
- Adjustable regulating range
- Change-over between normal/economy mode on control panel
- Room temperature measurement using room sensor
- Valve control (2 or 3 point)
- Temperature control via fan and/or valve
- Room frost protection
- Status messages using LED
- Group control
- Group switch-off switch-off in case of fault
- Temperature monitoring of motor (TC required)
- Network-enabled

MATRIX OP21I

Control panel for MATRIX 2000

- Casing in light grey, IP54 protection
- Setpoint temperature setting
- Fan speed selection switch 0 - A (auto) - 1 - 2 - 3
- Economy mode button
- LEDs for operation/fault/ext.control
- Connection for external room sensor



G

FläktGroup MATRIX 3000/4000

System features MATRIX 3000

- Temperature assignment.: 7...40 °C (default 10..30 °C)
- Assignment of fan speed
- Adjustable regulating range
- Change-over between normal/economy mode on control panel
- Input for change-over between normal/economy mode or unit OFF with frost protection
- Room temperature measurement using room sensor
- Valve control (2 or 3 point) or secondary-air louvre control
- Temperature control via fan and/or valve
- Room frost protection
- Status messages using LED
- Status and alarm signal via volt free change-over contacts
- Unit individual and group control
- Isolation of individual units in case of fault
- Motor temperature monitoring (TC required)
- Network-enabled

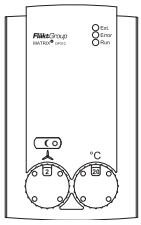
Additional features MATRIX 4000:

- Summer and winter compensation
- Valve control/secondary-air louvre control
- Cool and/or heat request via volt-free contacts (related to water circuit)
- Stand alone unit control
- Inputs for operating mode:
  - Normal mode
  - Economy mode
  - Autonomous mode
  - Unit OFF

MATRIX OP31I

Control panel for MATRIX 3000/4000

- Casing in light grey, IP54 protection
- Setpoint temperature setting
- Fan speed selection switch 0 - A (auto) - 1 - 2 - 3
- LEDs for operation/fault/ext.control
- Connection for external room sensor
- Normal/economy mode buttons

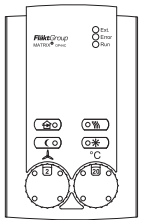


I

MATRIX OP44I

As for control panel OP31C, but also with button for:

- Changeover between recirculating-air?/?mixed-air operation
- Secondary-air louvre up/down



K

MATRIX OP50I

Control panel for MATRIX 3000/4000

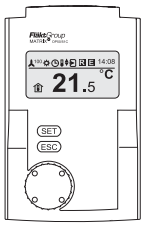
- Casing in light grey, IP54 protection
- Menu-guided controls using rotation navigator
- LCD display with plain-text display
- Status messages using pictograms
- Connection for external room sensor

L

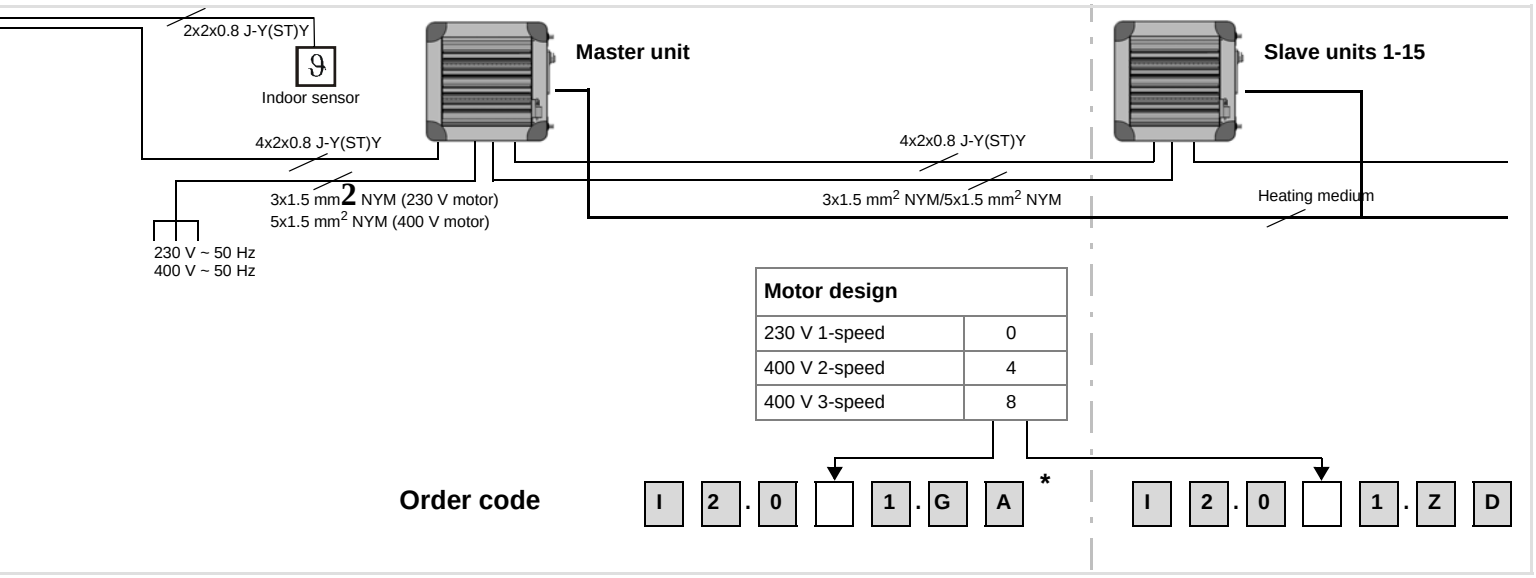
MATRIX OP51I

As for control panel OP50I, but also with:

- Integrated weekly clock timer with a holiday and special days programme



M

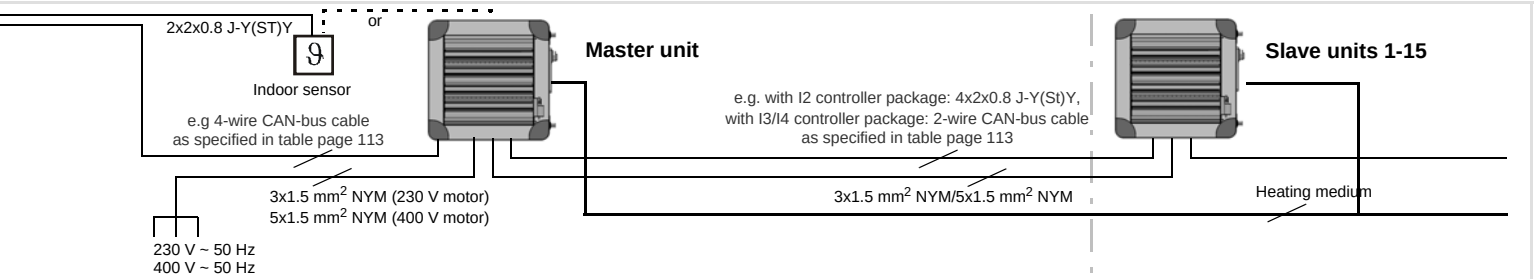


Motor design	
230 V 1-speed	0
400 V 2-speed	4
400 V 3-speed	8

Order code

I 2 . 0 ☐ 1 . G A *

I 2 . 0 ☐ 1 . Z D



Motor design				
0	0	230 V 1-speed	0	0
0	4	400 V 2-speed	0	4
0	8	400 V 3-speed	0	8
0	0	230/400 V continuous	0	0

Stand-alone unit regulation with status and error messages	Group regulation with status and error messages	Input for gate contact	Input for economy contact	Input for unit switch off without frost protection monitoring	Output for heat request	Adjustable secondary louvre	Controllable secondary louvre	Filter monitoring			not for EC motors
	•	•							3	1	2 1
	•		•						3	2	2 1
•		•							3	1	3 1
•			•						3	2	3 2
•		•				•			3	3	3 3
•			•			•			3	4	3 4
•		•					•		3	5	3 5
•			•				•		3	6	3 6
•		•						•	4	1	4 1
•			•					•	4	2	4 2
•		•	•	•	•			•	4	3	4 3
•		•				•		•	4	4	4 4
•			•			•		•	4	5	4 5
•		•	•	•	•	•		•	4	6	4 6
•		•					•	•	4	7	4 7
•			•				•	•	4	8	4 8
•		•	•	•	•		•	•	4	9	4 9

Control panel

Order code

I ☐ . ☐ ☐ ☐ . ☐ A *

I ☐ . ☐ ☐ ☐ . Z D

* Controller package comprises a room sensor 903.454

FläktGroup MATRIX 2000

Can only be used under certain conditions
To be requested separately

FläktGroup MATRIX 3000/4000

System features MATRIX 3000

- Temperature assignment.: 7...40 °C (default 10..30 °C)
- Assignment of fan speed
- Adjustable regulating range
- Change-over between normal/economy mode on control panel
- Input for change-over between normal/economy mode or unit OFF with frost protection
- Room temperature measurement using room sensor
- Valve control (2 or 3 point) or secondary-air louvre control
- Temperature control via fan and/or valve
- Room frost protection
- Status messages using LED
- Status and alarm signal via volt free change-over contacts
- Unit individual and group control
- Isolation of individual units in case of fault
- Motor temperature monitoring (TC required)
- Network-enabled

Additional features MATRIX 4000:

- Summer and winter compensation
- Valve control/secondary-air louvre control
- Cool and/or heat request via volt-free contacts (related to water circuit)
- Stand alone unit control
- Inputs for operating mode:
  - Normal mode
  - Economy mode
  - Autonomous mode
  - Unit OFF

MATRIX OP31I

Control panel for MATRIX 3000/4000
- Casing in light grey, IP54 protection
- Setpoint temperature setting
- Fan speed selection switch 0 - A (auto) - 1 - 2 - 3
- LEDs for operation/fault/ext.control
- Connection for external room sensor
- Normal/economy mode buttons

MATRIX OP44I

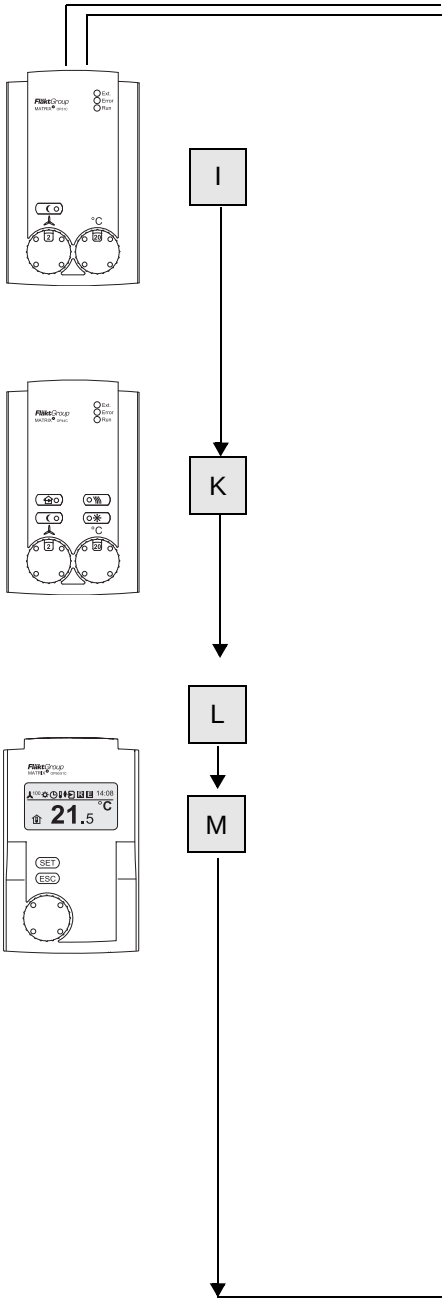
As for control panel OP31C, but also with button for:
- Changeover between recirculating-air/mixed-air operation
- Secondary-air louvre up/down

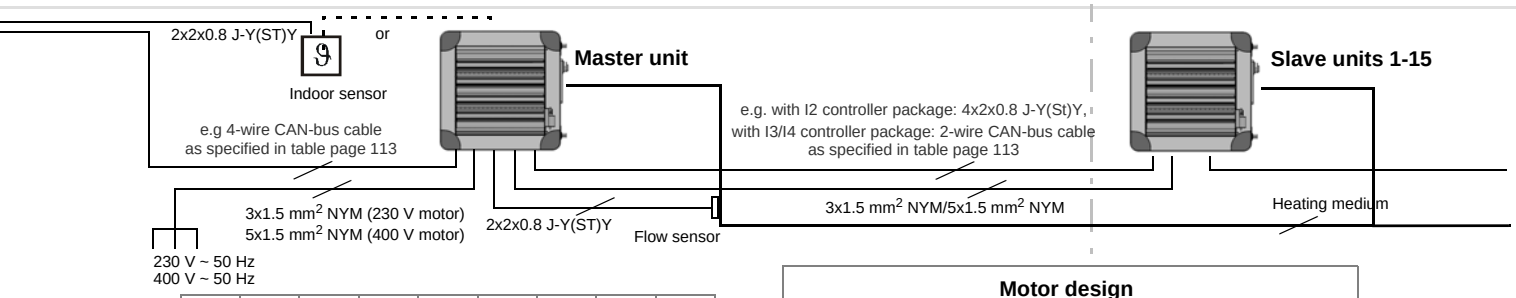
MATRIX OP50I

Control panel for MATRIX 3000/4000
- Casing in light grey, IP54 protection
- Menu-guided controls using rotation navigator
- LCD display with plain-text display
- Status messages using pictograms
- Connection for external room sensor

MATRIX OP51I

As for control panel OP50I, but also with:
- Integrated weekly clock timer with a holiday and special days programme





Motor design				
1	6	230 V 1-speed	1	6
2	0	400 V 2-speed	2	0
2	4	400 V 3-speed	2	4
1	6	230/400 V continuous	1	6

Stand-alone unit regulation with status and error messages	Group regulation with status and error messages	Input for gate contact	Input for economy contact	Input for unit switch off without frost protection monitoring	Output for heat request cool request	Adjustable secondary louvre	Controllable secondary louvre	Filter monitoring				
	•	•							3	1	2	not for EC motors 1
	•		•						3	2	2	1
	•	•				•			3	3	2	1
	•		•			•			3	4	2	1
•		•							3	1	3	1
•			•						3	2	3	2
•		•				•			3	3	3	3
•			•			•			3	4	3	4
•		•					•		3	5	3	5
•			•				•		3	6	3	6
•		•						•	4	1	4	1
•			•					•	4	2	4	2
•		•	•	•	•			•	4	3	4	3
•		•				•		•	4	4	4	4
•			•			•		•	4	5	4	5
•		•	•	•	•	•		•	4	6	4	6
•		•					•	•	4	7	4	7
•			•				•	•	4	8	4	8
•		•	•	•	•		•	•	4	9	4	9

Control panel

Order code

I [ ] . [ ] [ ] . [ ] A *

I [ ] . [ ] [ ] . Z D

* Controller package comprises a room sensor 903.454

FläktGroup MATRIX 2000/3000

not applicable

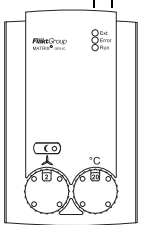
FläktGroup MATRIX 4000

System features MATRIX 4000

- Temperature assignment.: 7...40 °C (default 10..30 °C)
- Assignment of fan speed
- Adjustable regulating range
- Change-over between normal/economy mode on control panel
- Input for change-over between normal/economy mode or unit OFF with frost protection
- Room temperature measurement using room sensor
- Valve control (2 or 3 point)
- Temperature control via fan and/or valve or control of secondary-air louvre
- Room frost protection
- Status messages using LED
- Status and alarm signal via volt free change-over contacts
- Unit individual and group control
- Isolation of individual units in case of fault
- Motor temperature monitoring (TC required)
- Network-enabled
- Summer and winter compensation
- Valve control/secondary-air louvre control
- Heat request via volt-free contact (related to water circuit)
- Stand alone unit control
- Inputs for operating mode:
  - Normal mode
  - Economy mode
  - Autonomous mode
  - Unit OFF

MATRIX OP31I

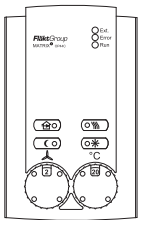
Control panel for MATRIX 4000
- Casing in light grey, IP54 protection
- Setpoint temperature setting
- Fan speed selection switch 0 - A (auto) - 1 - 2 - 3
- LEDs for operation/fault/ext.control
- Connection for external room sensor
- Normal/economy mode buttons



I

MATRIX OP44I

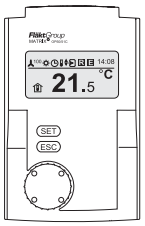
As for control panel OP31C, but also with button for:
- Changeover between recirculating-air/mixed-air operation
- Secondary-air louvre up/down



K

MATRIX OP50I

Control panel for MATRIX 4000
- Casing in light grey, IP54 protection
- Menu-guided controls using rotation navigator
- LCD display with plain-text display
- Status messages using pictograms
- Connection for external room sensor

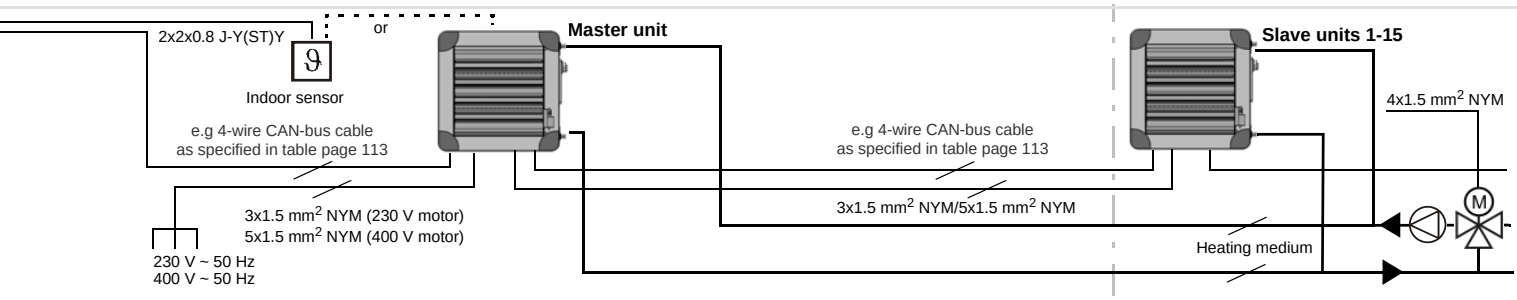


L

M

MATRIX OP51I

As for control panel OP50I, but also with:
- Integrated weekly clock timer with a holiday and special days programme



Stand-alone unit regulation with status and error messages	Damper control open/close	Continuous damper control	Control of external group valve	Min/Max limitation	Input for gate contact	Input for economy contact	Input for unit switch off without frost protection monitoring	Output for heat request	Adjustable secondary louvre	Controllable secondary louvre	Filter monitoring
•		•			•						•
•		•				•					•
•		•			•	•	•	•			•
•		•			•				•		•
•		•				•			•		•
•		•			•	•	•	•	•		•
•		•			•					•	•
•		•				•				•	•
•		•			•	•	•	•		•	•

Motor design				
3	3	230 V 1-speed	3	3
4	0	400 V 2-speed	4	0
4	7	400 V 3-speed	4	7
3	3	230/400 V continuous	3	3

•		•	•		•	•	•	•			•
•		•	•		•	•	•	•	•		•
•		•	•		•	•	•	•		•	•
•		•	•	•	•	•	•	•			•
•		•	•	•	•	•	•	•	•		•
•		•	•	•	•	•	•	•		•	•

Motor design				
3	5	230 V 1-speed	3	3
4	2	400 V 2-speed	4	0
4	9	400 V 3-speed	4	7
3	5	230/400 V continuous	3	3

Control panel

Order code

I	4	.				.		A	*	I	4	.				.	Z	D

* Controller package comprises a room sensor 903.454

FläktGroup MATRIX 2000 /3000

not applicable

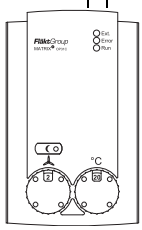
FläktGroup MATRIX 4000

System features MATRIX 4000

- Temperature assignment.: 7...40 °C (default 10..30 °C)
- Assignment of fan speed
- Adjustable regulating range
- Change-over between normal/economy mode on control panel
- Input for change-over between normal/economy mode or unit OFF with frost protection
- Room temperature measurement using room sensor
- Valve control (2 or 3 point)
- Temperature control via fan and/or valve or control of secondary-air louvre
- Room frost protection
- Status messages using LED
- Status and alarm signal via volt free change-over contacts
- Unit individual and group control
- Isolation of individual units in case of fault
- Motor temperature monitoring (TC required)
- Network-enabled
- Summer and winter compensation
- Valve control/secondary-air louvre control
- Cool and/or heat request via volt-free contacts (related to water circuit)
- Stand alone unit control
- Inputs for operating mode:
  - Normal mode
  - Economy mode
  - Autonomous mode
  - Unit OFF

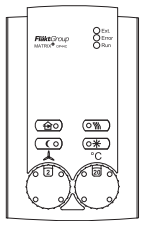
MATRIX OP31I

Control panel for MATRIX 4000
- Casing in light grey, IP54 protection
- Setpoint temperature setting
- Fan speed selection switch 0 - A (auto) - 1 - 2 - 3
- LEDs for operation/fault/ext.control
- Connection for external room sensor
- Normal/economy mode



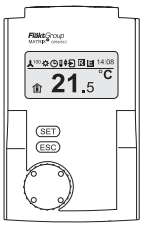
MATRIX OP44I

As for control panel OP31C, but also with button for:
- Changeover between recirculating-air/mixed-air operation
- Secondary-air louvre up/down



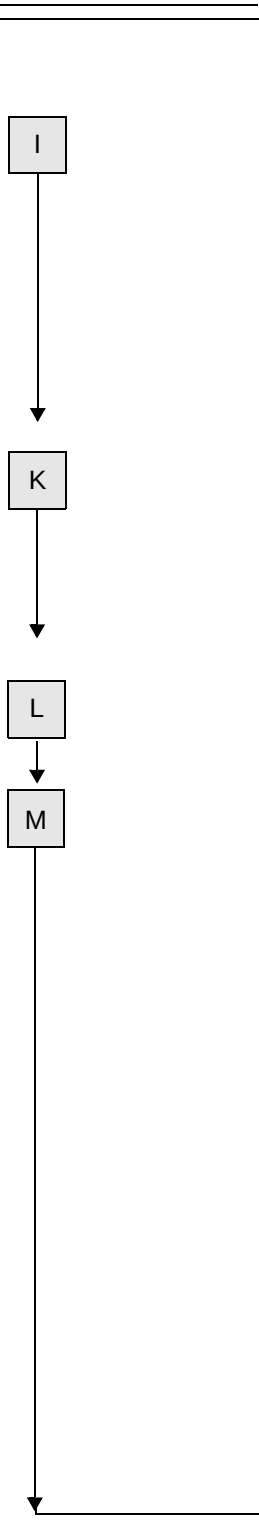
MATRIX OP50I

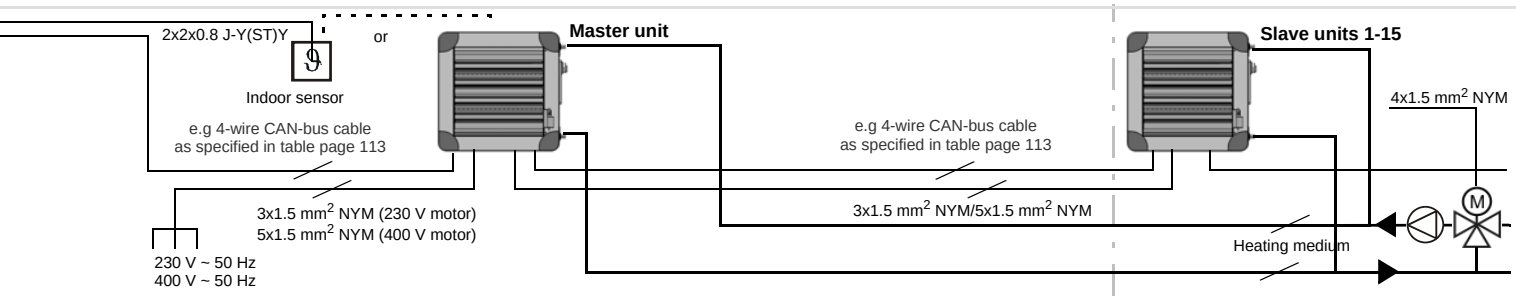
Control panel for MATRIX 4000
- Casing in light grey, IP54 protection
- Menu-guided controls using rotation navigator
- LCD display with plain-text display
- Status messages using pictograms
- Connection for external room sensor



MATRIX OP51I

As for control panel OP50I, but also with:
- Integrated weekly clock timer with a holiday and special days programme





Stand-alone unit regulation with status and error messages	Damper control open/close	Continuous damper control	Control of external group valve	Min/Max limitation	Input for gate contact	Input for economy contact	Input for unit switch off without frost protection monitoring	Output for heat request/ cool request	Adjustable secondary louvre	Controllable secondary louvre	Filter monitoring			
•		•			•						•	1		1
•		•				•					•	2		2
•		•			•	•	•	•			•	3		3
•		•			•				•		•	4		4
•		•				•			•		•	5		5
•		•			•	•	•	•	•		•	6		6
•		•			•					•	•	7		7
•		•				•				•	•	8		8
•		•			•	•	•	•		•	•	9		9

Motor design

6	1	230 V 1-speed	6	1
6	8	400 V 2-speed	6	8
7	5	400 V 3-speed	7	5
6	1	230/400 V continuous	6	1

Stand-alone unit regulation with status and error messag-	Damper control open/close	Continuous damper control	Control of external group valve	Min/Max limitation	Input for gate contact	Input for economy contact	Input for unit switch off without frost protection monitoring	Output for heat request	Adjustable secondary louvre	Controllable secondary louvre	Filter monitoring			
•		•	•		•	•	•	•			•	1		3
•		•	•		•	•	•	•	•		•	2		6
•		•	•		•	•	•	•		•	•	3		9
•		•	•	•	•	•	•	•			•	4		3
•		•	•	•	•	•	•	•	•		•	5		6
•		•	•	•	•	•	•	•		•	•	6		9

Motor design

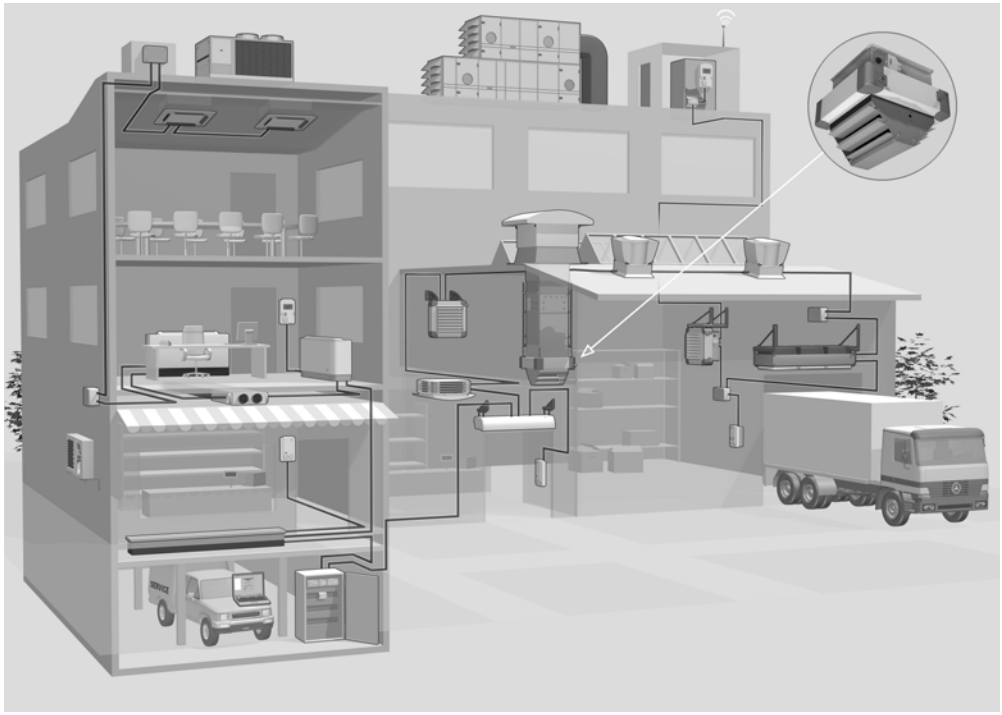
6	3	230 V 1-speed	6	1
7	0	400 V 2-speed	7	0
7	7	400 V 3-speed	7	7
6	3	230/400 V continuous	6	1

Control panel

Order code

I	4	.				.		A	*	I	4	.				.	Z	D

* Controller package comprises a room sensor 903.454



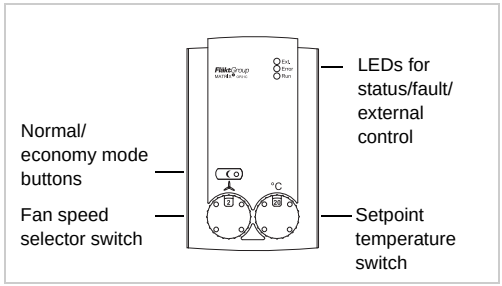
MATRIX 2000

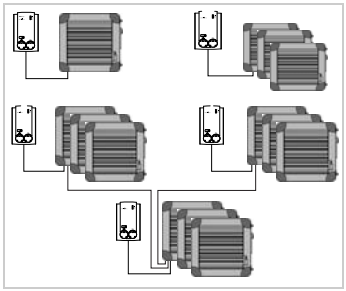
MATRIX 2000 control system supports all basic functions (heating/cooling) of recirculating-air unit heaters.
The controller can be used in the following unit types:

– 2-pipe units „only heating“
– 2-pipe units „only cooling“
– 2-pipe units „cooing or heating“ (only for slave units).

Fan control is performed automatically depending on the difference between actual temperature reading and the setpoint. The speed can be set manually and the unit (with frost protection) switched off via the control panel. Additionally, the MATRIX 2000 enables monitoring of the fan motor via thermal contacts with external leads as well as the condensate water level for cooling units with a condensate pump.

The OP21 control panel enables the setpoint values to be set quickly and easily without extensive prior experience. Mechanical limiters can be used to confine the setting range for the setpoint temperature and fan speed. Room temperature is measured via an external sensor (can be connected directly to the control panel). System faults are signaled centrally via the red “malfunction” LED. If economy mode is activated, it is displayed via the yellow LED integrated into the button.





For control of industrial unit heaters an IP54 control panel (OP21 I) is used.

The connection in the unit is made via plug-in cage clamps. Electronic components, fans and valves (230 V) are fused separately via two micro-fuses at the power unit. A pre-fuse B 10 A must be provided for circuit protection.

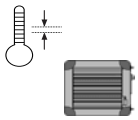
The MATRIX 2000 can be used for controlling individual recirculating-air units and recirculating-air unit groups as well. The integrated bus system MATRIX.Net enables integration of up to 16 several groups in one Network. The combination with MATRIX 3000 controllers and connection of Global Modules and communication interfaces is also possible.

MATRIX 3000

The MATRIX 3000 control system is based on the MATRIX 2000 system and provides the following additional functions.

Use in master units with 2-pipe systems „heating or cooling“ is possible.

Status and alarm signals are relayed via two change-over contacts on the unit. The maximum load on the contacts at 230 V AC is 4 A ohmic / 2 A inductive.

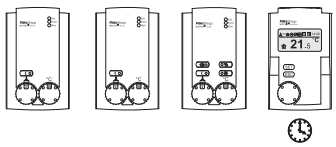


The supply air temperature can be limited for heating and cooling. Fixed and sliding limits can be defined. In order to provide enhanced selection within heating/cooling duty range, continuous (EC) fan motor control is enabled.

An external temperature sensor or return air sensor can be connected to all system types (directly connected to controller).

An additional control input enables the following operating modes that can be set externally:

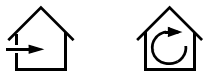
– Normal/economy operation or
– Unit OFF with frost protection or
– Input for gate contact (unit with pre-set fan speed, time delay with closing gate)



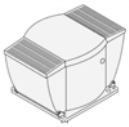
Various types of control panels are available. The range varies from a simple variant with setpoint temperature and fan operating mode selection using infrared remote control to a control panel with display. The display unit can also be supplied with an integrated weekly timer.

MATRIX 4000

The MATRIX 4000 control system is based on the MATRIX 2000/3000 systems and provides the following additional functions. These features are described as follows:



Regulation of mixing-air damper is enabled with mixed-air units. At the same time, a sensor above the coil monitors frost protection. In addition to the mixing-air damper function, a relay output reports the mixed-air operating status. The relay output can be used to control an extract fan.

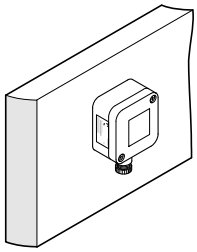


A modulating valve at a supply voltage of 24 V or 230 V AC can be used to control the heating or cooling capacity.

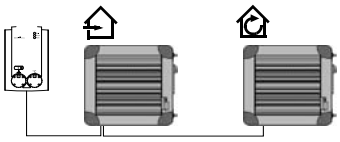
In order to provide enhanced selection within heating/cooling duty range, continuous (EC) fan motor control is enabled.
For applications with highest comfort requirements electronic control elements provide absolutely silent control of the secondary-air louvre.

Four additional control inputs enable external assignment of the following operating modes:

– Normal operation
– Economy mode
– Free mode
– Unit OFF with frost protection.



It is also possible to connect the outdoor sensor for activation of summer compensation. Outdoor air temperature reading is automatically transmitted to all units connected within the MATRIX.Net.



The MATRIX 4000 can be used for controlling individual recirculating-air and mixed-air units and also recirculating-air unit groups. It is permitted to use recirculating and mixed-air units together within one group.

Performance characteristics		MATRIX 2000	MATRIX 3000	MATRIX 4000
Unit type	2-pipe systems „only heating“	✓	✓	✓
	2-pipe systems „only cooling“	✓	✓	✓
	2-pipe systems "heating or cooling"	✍*	✓	✓
Fan	up to 3 speeds (3 phases 400 V)	✓	✓	✓
	1 speed (1 phase 230 V)	✓	✓	✓
	continuous (1 ~ 230 V, 3 ~ 400 V)		✓	✓
	Temperature-dependent fan control	✓	✓	✓
	Motor monitoring with external thermal contact	✓	✓	✓
Valve control	1 x 3-point			✓
Frost protection	Indoor Anti-Freeze Protection	✓	✓	✓
	Unit Anti-Freeze Protection			✓
Summer / winter compensation		✓	✓	✓
Supply temperature limitation	Min/Max limitation for heating		✓	✓
	Min limitation for cooling		✓	✓
Control inputs	Economy mode or gate/window contact	✍**	✓	✓
	Economy mode, gate/window contact, unit OFF, autonomous operating mode	✍**	✍**	✓
Measuring outside temperature	via local sensor connection			✓
	using MATRIX.AI	✓	✓	✓
Measuring inlet temperature	via local sensor connection	✍**	✓	✓
Measuring return air temperature	via local sensor connection	✓	✓	✓
Measuring supply air temperature	via local sensor connection		✓	✓
Connection for filter monitoring	via local sensor connection			✓
Messages	Alarm condensate level with unit disconnection	✓	✓	✓
	Heating and/or cooling request			✓
	Status signal via change-over contact		✓	✓
	Fault signal via change-over contact		✓	✓
Mixing-air damper control	Open/close or continuous 0-100 %			✓
Exhaust fan control	1 speed via relay output			✓
	via power unit / extract fan controller	✓	✓	✓
Control modes	Room temperature control	✓	✓	✓
	Supply Air Temperature Control		✓	✓
	Cascade room-supply air temperature control/displacement ventilation		✓	✓
MATRIX.Net bus system		✓	✓	✓
can be extended by:	MATRIX.DI	✓	✓	✓
	MATRIX.AI	✓	✓	✓
	MATRIX.DO	✓	✓	✓
	MATRIX.V	✓	✓	✓
	MATRIX.EM		✓	✓
	MATRIX.LON	✓	✓	✓
	MATRIX.WEB	✓	✓	✓
Service tools	MATRIX.PC	✓	✓	✓
Control panels	MATRIX OP21x	✍		
	MATRIX OP30x		✍	✍
	MATRIX OP31x		✍	✍
	MATRIX OP44x		✍	✍
	MATRIX OP50x/51x		✍	✍
	MATRIX OP71x	✍	✍	✍

** only for slave units*
*** only with add-on module*

Data transfer cable

For setting up the MATRIX.Net use only data transfer cable certified according to DIN 19245 T3 and EN 50170 as twisted-pair wire with braided shield. For the bus system MATRIX.NET we recommend the following data transfer cable:

Total max. line length [m]	Max. line length with branch feeders [m]	Manufacturer	Cable type	Only MATRIX.Net	MATRIX.Net + supply voltage
50	50	LAPP cable	UNITRONIC® BUS CAN	1x2x0.22	2x2x0.22
300	150	LAPP cable	UNITRONIC® BUS CAN	1x2x0.34	2x2x0.34
600	150	LAPP cable	UNITRONIC® BUS CAN	1x2x0.5	2x2x0.5
30	30	LAPP cable	UNITRONIC® BUS LD	1x2x0.22	2x2x0.22
30	30	LAPP cable	UNITRONIC® Li2YCY (TP)		2x2x0.22
150	60	LAPP cable	UNITRONIC® Li2YCY (TP)	1x2x0.34	2x2x0.34
150	60	LAPP cable	UNITRONIC® Li2YCY (TP)	1x2x0.5	2x2x0.5
30	30	LAPP cable	UNITRONIC® Li2YCY PiMF		2x2x0.22
300	150	LAPP cable	UNITRONIC® Li2YCY PiMF		2x2x0.34
600	150	LAPP cable	UNITRONIC® Li2YCY PiMF		2x2x0.5
50	50	HELUKABEL	CAN BUS	1x2x0.22	4x1x0.22
300	150	HELUKABEL	CAN BUS	1x2x0.34	4x1x0.34
600	150	HELUKABEL	CAN BUS	1x2x0.5	4x1x0.5
30	30	HELUKABEL	PAAR-TRONIC-Li-2YCYV 2X2X		2x2x0.22
30	30	BELDEN	9841	1x2xAWG24	
30	30	BELDEN	9842		2x2xAWG24
150	60	BELDEN	3105A	1x2xAWG22	
150	60	BELDEN	3107A		2x2xAWG22

Line lengths

Regardless of the cross-section and the number of users, the maximum line length including branch feeders must not exceed 600 m.

The branch feeder must not exceed 25 m. The total length of all branch feeders may not exceed a maximum 150 m.

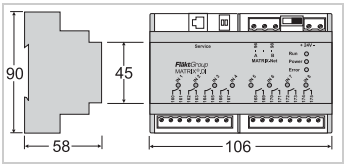
RECOMMENDATION

Use bridges in the network if there are more than 110 users. To extend the line length, use special jumpers to decouple running times of telegrams between the network participants.

Change the cross-section of the bus cable depending on the MATRIX.net cable length!

Line length	Line Type
up to 50 m	2 x 2 x 0.22 mm² * 1 x 2 x 0.22 mm²
up to 600 m	2 x 2 x 0.5 mm² * 1 x 2 x 0.5 mm²
Contains 2 wires for power supply to control panels or modules.	

MATRIX.DI digital input module



The MATRIX.DI digital input module is one of the global modules of the FläktGroup MATRIX control system and is used as input for digital control signals. Thus, the control system can be regulated by external systems. The module can be integrated at any point within the MATRIX network. A maximum of 2 MATRIX.DI modules may be operated in one network at the same time.

The module is fitted with 8 independent digital inputs regulated by volt free contacts. LEDs indicate the current input state. Settings made via the DI module have priority over the settings of the local control panel. The module can be used to specify the following functions and operating modes:

– HVAC mode (heating/cooling/automatic)
– Normal/economy mode
– Fan speed (1/2/3/Auto)
– Activate mixed-air operation
– Unit OFF with frost protection
– Activate controller parameters

The module is supplied with the default factory configuration. Configurations with other settings can be performed using the MATRIX.PC service software. In such a way assignment of input functions and their free allocation to group(s) can be carried out.

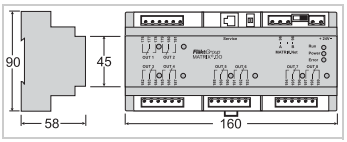
Technical Specifications

Power supply	24 V DC ± 15 %
Protection class	IP 20
max. current consumption	0.1 A
Dimensions	106 mm x 90 mm x 58 mm
Operating temperature	0 to +45 °C
Fusing	10 AT
Fixation	Mounting rail

Factory-made configuration

Input	valid for	Closed contact results in:
1	All groups	HVAC Mode Heating
2	All groups	HVAC Mode Cooling
3	All groups	Normal operation
4	All groups	Economy mode
5	Group 0	Fan in speed 3
6	–	–
7	–	–
8	Group 0	Active mixed-air operation

Digital output module MATRIX.DO



The MATRIX.DO digital output module is one of the global modules of the FläktGroup MATRIX control system and is used for signal output from the MATRIX system. Thus the module enables to send messages and operating states to external systems. The module can be integrated anywhere within the MATRIX network. A maximum of 2 MATRIX.DO modules may be operated in one network simultaneously.

The module is fitted with 8 separate digital outputs with volt-free change-over contacts. LEDs indicate the current output status. System component messages and operating states from one or more groups can be sent directly or in conjunction with other operating states. Comparison functions, including arithmetic and timing functions are enabled.

Output of the following messages/operating states comprise:

– Error messages (e.g., motor overheat, frost hazard, sensor error, condensate level too high)
– Current fan speed
– Normal operation/economy operation

– Bypass mode
– Current HVAC mode (heating/cooling/automatic)
– Mixed air/recirculating-air operation
– Active electric heating
– An x number of units are operating in heating or cooling mode

The module is supplied with the default factory configuration. Configurations with other settings can be performed using the MATRIX.PC software. Thus assignment of outputs and their free allocation to group(s) can be carried out.

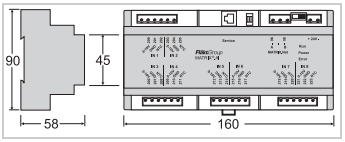
Technical Specifications

Power supply	24 V DC ± 15 %
Protection class	IP 20
max. rated current consumption	0.14 A
Dimensions	160 mm x 90 mm x 58 mm
Operating temperature	0 to +45 °C
Fusing	10 AT
Fixation	Mounting rail
Contact load	250 V/5 A (ohmic); 2 A (inductive)

Factory-made configuration

Input	valid for	Relay on signals:
1	All groups	Operating principle
2	All groups	Fault signal
3	All groups	Frost alarm
4	Group 0	Fault signal
5	Group 1	Fault signal
6	Group 2	Fault signal
7	Group 3	Fault signal
8	Group 4	Fault signal

Analog input module MATRIX.AI



The MATRIX.AI analog input module is one of the global modules of the FläktGroup MATRIX control system and is used as input for analog actual readings and setpoints. Thus it enables the MATRIX control system to be connected to external systems. The module can be integrated at any point within the MATRIX network. A maximum of 2 MATRIX.AI modules may be operated in one network simultaneously.

The module is equipped with 8 independent analog inputs that are controlled using 0…10 V/2...10 V signals or can be fitted with NTC sensors (10 k Ohm/25 °C). Settings made via the AI module have priority over the settings of the local control panel. The following setpoints and actual readings can be set / received using the module.

Actual readings:

– Room, outdoor and inlet temperature
– Fresh air humidity
– Indoor CO_2 concentration
– Supply duct pressure and volume flow
– Extract duct pressure and volume flow

Setpoints:

– Room temperature, supply air temperature
– Outside air rate

The module is supplied with the default factory configuration. Configurations with other settings can be performed using the MATRIX.PC software. Thus assignment of inputs and their free allocation to group(s) can be carried out. Input voltage range can be selected as well as measuring range of the sensor and a filter value for signal stabilisation specified.

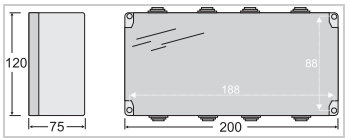
Technical Specifications

Power supply	24 V DC ± 15 %
Protection class	IP 20
Nominal current consumption	0.03 A
Dimensions	160 mm x 90 mm x 58 mm
Operating temperature	0 to +45 °C
Fusing	10 AT
Fixation	Mounting rail

Factory-made configuration

Input	valid for	Parameter	Type	Filter value	Measuring range
1	All groups	Outdoor temperature	NTC	20	–
2	All groups	Inlet temperature	NTC	20	–
3	Group 0	Room air setpoint	0 ... 10 V	20	10 – 35 °C
4	Group 1	Room air setpoint	0 ... 10 V	20	10 – 35 °C
5	Group 2	Room air setpoint	0 ... 10 V	20	10 – 35 °C
6	Group 0	Outside air rate	0 ... 10 V	20	0 ... 100 %
7	Group 1	Outside air rate	0 ... 10 V	20	0 ... 100 %
8	Group 2	Outside air rate	0 ... 10 V	20	0 ... 100 %

MATRIX.V valve module



The MATRIX.V valve module is one of the global modules of the FläktGroup MATRIX control system and is used to control group valves, e.g., of unit heaters. The module can be integrated at any point within the MATRIX network. A maximum of 1 module MATRIX.LON can be used for each group. Different drive types of the valves (2-point/ modulating/continuous) and the use in 2- and 4-pipe units are supported, change over systems included.

The module is fitted with the following inputs and outputs:

– analog input to measure supply temperature (NTC sensor 10 k Ohm/25 °C)
– 2 analog outputs (0/2...10 V) for controlling continuous valves
– 4 relay outputs for regulating open/close and modulating (2/3-point) valves
– 2 relay outputs for chilled/warm water demand

The module is supplied with the default factory configuration. Configurations with other settings can be performed using the MATRIX.PC software.

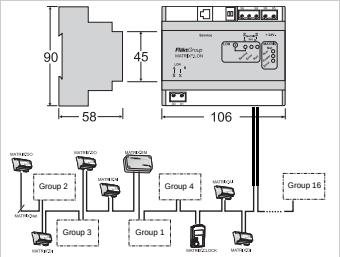
Technical Specifications

Power supply	230 V AC ± 15 %
Protection class	IP 54
Nominal current consumption	0.02 A
Dimensions	200 mm x 120 mm x 75 mm
Operating temperature	0 to +45 °C
Fusing	B 10 A
Fixation	4 drill holes 4 mm
Contact load	250 V/5 A (ohmic); 2 A (inductive)

Factory-made configuration

Unit type	2-pipe heating or cooling
Control type	Room temperature control
Valve Type	Modulating (3-point) valve
Pump run-on time, pumped chilled water	1 min
Pump run-on time, pumped warm water	1 min
Maximum valve runtime	150 sec

MATRIX.LON module



The MATRIX.LON communication module is part of the global modules of the FläktGroup MATRIX control system and is used for connecting the MATRIX control system to a network structure in accordance with the LON WORKS standard. It enables to connect HVAC equipment to a building management system or other building service systems. The modules also enables external systems such as louvres or lighting systems to be regulated via the MATRIX OP50/51 control panel. The module can be integrated at any point within the MATRIX network. A maximum of 16 MATRIX.LON modules can be used within one FläktGroup MATRIX network.

Technical Specifications

Power supply	24 V DC ± 15 %
Protection class	IP 20
Nominal current consumption	0.03 A
Dimensions	106 mm x 90 mm x 58 mm
Operating temperature	0 to +45 °C
Fusing	10 AT
Fixation	Mounting rail

MATRIX.OP71 control panel for all groups

The MATRIX.OP71 control panel for all groups is designed for operation from one central point. This control panel can be integrated at any location within the MATRIX network and can be simultaneously operated in 16 groups.

Up to 16 unit groups can be assigned to one cluster:
– One unit group per each cluster
– Each cluster to include up to 16 unit groups.

Clear text menus and "push&turn" function enable easy handling during operation or configuration. A maximum of 16 unit groups can be individually grouped to clusters. Using a control panel the desired setpoints for temperature, fan speed, etc. can be assigned for each cluster. Thanks to comprehensive features of the control panel, the necessary room or return air sensors are located in the respective groups (group locations).

Local control panels (OP2xx, OP3xx, OP4xx, OP5x) can be additionally integrated in individual groups. Their functional scope can be defined and adjusted using the control panel for all groups. Thus, a relative daily setpoint can be entered via a local control panel, with the standard setpoint assigned via the OP71l.

The integrated clock timer enables to assign 8 weekly programmes to clusters at any sequence. Each weekly programme enables to enter four switching times per day (2 x On/2 x Off), that can also be set to be valid for the whole day. In addition, it is possible to set 8 special switching days with up to four switching times (2 x On/2 x Off) per designated switching day.
Holiday periods can be taken into consideration by programming for the entire year. On holidays the unit can be set to operate in "unit off" or economy mode.

The summer / winter time changeover is performed automatically.

The control unit is currently supplied with 7 selectable languages:
– German
– English
– French
– Polish
– Czech
– Hungarian.

The following model is available:

– MATRIX.OP71l in IP54 protection type; colour – light gray (similar to RAL 7035).

MATRIX.PC service software

MATRIX.PC service software provides further comprehensive functions for settings, commissioning and data recording of the FläktGroup MATRIX controller system.

The service software can be connected via the service interface which is integrated in all control panels, controllers, global modules, clock timer and communication modules. Your PC must have a USB port; the enclosed adapter establishes the connection between the PC and the service interface.

The following main functions are available:

– Online display of module, status and network data
– Recording and saving of temperature curves and switch states of actuators with adjustable sample rate
– Offline settings
– Programming of designated inputs and outputs (controllers, global modules)
– Activation of messaging and network data
– Configuration of controller and control panel functions
– Input of sensor correction factors

PC system requirements:

– PC with 233 MHz processor frequency or higher
– 20 MB available disk space
– Minimum monitor resolution of 800 x 600 pixels
– USB interface for CAN adaptor

The software can run on the following operating systems: Windows 98 Second Edition; Windows 2000; Windows XP; Windows Vista; Windows 7+8.

Besides the software stick, the shipment also includes operation manual and the interface module for connecting to the PC's USB port.

FläktGroup

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