94234E-05
2006-03

FLEXIT S3 X/TT
A3 X/TT
K3 X/TT
S3 R
S3 RK

E **Installation Instructions**
Air Handling Unit/
Kitchen Model



S3 X/TT	Air handling unit with cross heat exchangeror TT exchanger
K3 X/TT	Air handling unit **with cross heat exchanger or TT exchanger and kitchen hood**
A3 X/TT	Air handling unit **with cross heat exchanger or TT exchanger and connection for external kitchen hood**
S3 R	Air handling unit with rotating exchanger
S3 RK	Air handling unit **with rotating exchanger and kitchen hood**

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Symbols Used

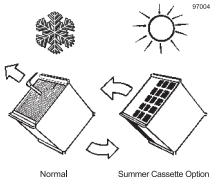
This product has a number of symbols that are used to label the product itself and in the installation and user documentation. Here is an explanation of some of the commonest symbols.



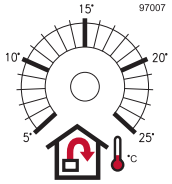
SUPPLY AIR



EXTRACT AIR



EXCHANGER/SUMMER CASSETTE



HEATING THERMOSTAT



EXHAUST AIR



OUTDOOR AIR

1 Installation of S3 X/TT

1.1 Location

The unit is designed to be installed in washrooms, storage rooms or other suitable rooms (Fig. 1) that are frost-free (such as technical rooms). The unit is suspended on the wall in mounting holes on the top using the enclosed screws.
Ensure that there is minimum 1 m space in front of the unit for access for maintenance/service.

The unit is available in left and right versions (exhaust air nipple to the left or right), depending on what is the most favourable duct location. In wet rooms the unit must be located in zone 3 (minimum 0.6 m from the edge of the bath and 1.2 m from the shower head). The unit is fixed to the wall by mounting the enclosed bracket on the wall at the bottom of the unit and then screwing the unit in place in the mounting bracket at the top. Mounting brackets and suspension devices are provided with several mounting holes so that the unit can be fixed to two studs in most cases. If this cannot be used, additional studs (transoms) must be considered.

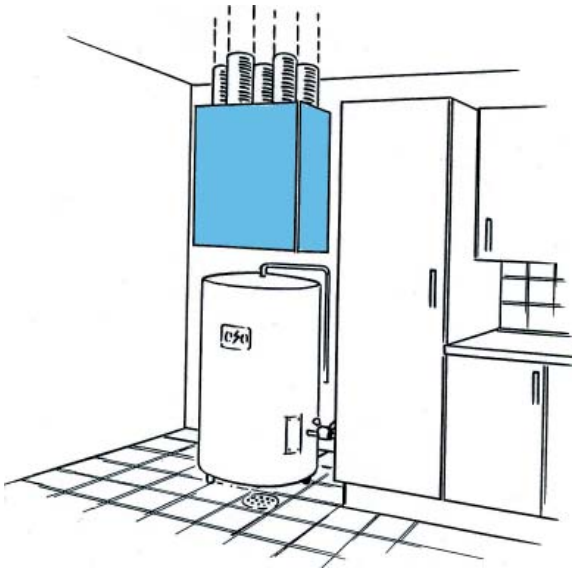


Fig. 1

1.2 Drainage

The pipes must be installed by an authorised plumber. The unit is supplied with a length (90 cm) of 15 mm plastic hose with a hose clip and a reducing sleeve that is screwed to the base of the drainage outlet that is located under the centre of the unit. If the room has no floor gully, the drainage pipe must be laid to the nearest gully, vent pipe for waste water or sink drain. The pipe must incline at least 5° from the unit (see Fig. 2). A water trap is supplied with the unit mounted on the end of the plastic hose. If the unit cannot be installed in a frost-free location, **the drainage outlet must be insulated/protected against frost.**

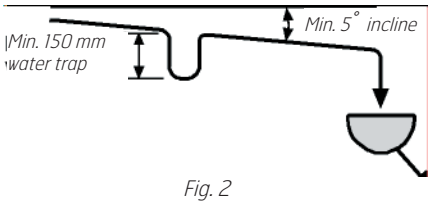
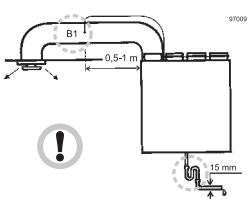


Fig. 2

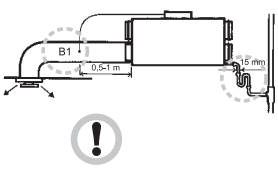
Pour a little water in the base of the unit so that the water trap is filled up. If the drainage system is not installed according to regulations, there is a risk of water leaks.

CAUTION: When a text bears this symbol, it means that personal injury or serious damage to the equipment may follow if the instructions are not followed.

NB: When a text bears this symbol, damage to equipment or a poor utilisation ratio may be the consequence of not following the instructions.



CONNECTION FOR SUPPLY AIR SENSOR AND OUTLET FOR CONDENSATION WATER (cabinet model)



CONNECTION FOR SUPPLY AIR SENSOR AND OUTLET FOR CONDENSATION WATER (loft model)



DANGER! ELECTRICITY

DANGER! DO NOT TOUCH

Symbols for units/electric heating



TRANSFORMER ADJUSTMENT SUPPLY AIR STAGE 2



TRANSFORMER ADJUSTMENT EXTRACT AIR STAGE 2

Our products are subject to continuous development and we therefore reserve the right to make changes. We also disclaim liability for any printing errors that may occur.

2 Installation of K3 X

2.1 Location

The K3 X is designed for installation in the kitchen above the cooker. The unit is available in left and right versions (exhaust air nipple to the left or right), depending on what is the most favourable duct location. The unit must be suspended on the wall in a mounting bracket on the top using the enclosed screws. It must also be screwed to the wall at the bottom inside the unit (prepunched holes). For secure mounting, it is necessary to use additional studs (transoms). The location of these is shown in Fig. 3. NB! The wall must have good sound insulation, see Fig. 5.
The distance between the bottom of the kitchen hood and the cooker must be at least 40 cm for electric cookers and 65 cm for gas cookers.

2.2 Drainage

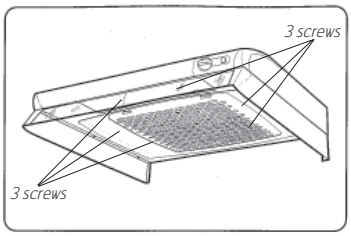
Before the drainage is connected, the kitchen hood must be installed as described in Chap. 10. The pipes must be installed by an authorised plumber.

The following procedure is used:

- Tilt out the lamp glass by pressing in the clips at the front.
- Remove the grease filter by pushing the filter holders towards the back of the hood and lifting it out.
- Unscrew and remove the 6 screws that hold the cover plate in place (see Fig. 4).
- The unit is supplied with a 15 mm drainage hose and 2 hose clips for connection between the unit and the drainage outlet. Cut the hose to the correct length. The drainage outlet should be laid concealed in the wall to the nearest sink outlet either as 15 mm copper pipe or 15 mm reinforced plastic hose threaded into a 30 mm VP pipe. The drainage pipe must extend a little from the wall in the kitchen hood part, see Fig. 5 below.

The unit is supplied with a water trap. This is placed as shown in Fig. 4. At the sink/sink unit, the drainage pipe must always be connected above the water trap.

Fig. 4



The water trap supplied with the unit must not be embedded in the wall. If the drainage system is not installed according to regulations, there is a risk of water leaks.

Fig. 3

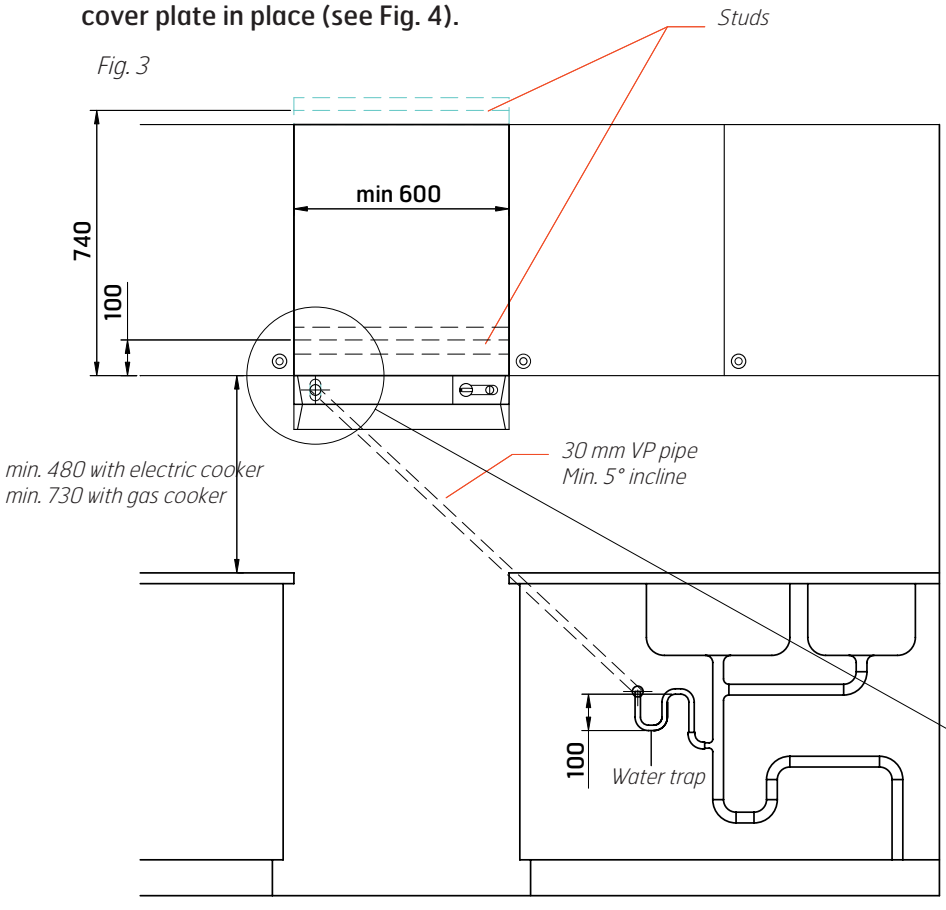
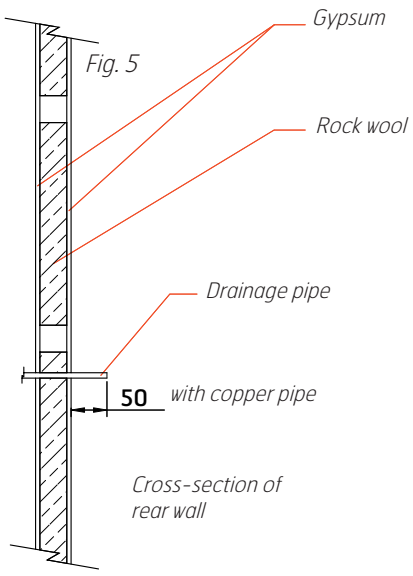
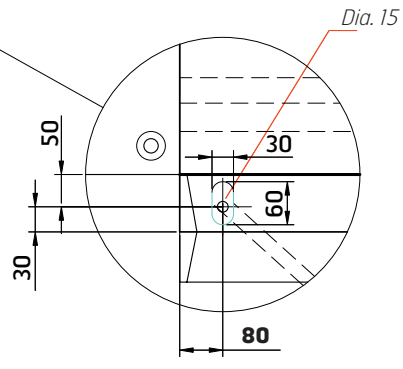


Fig. 5



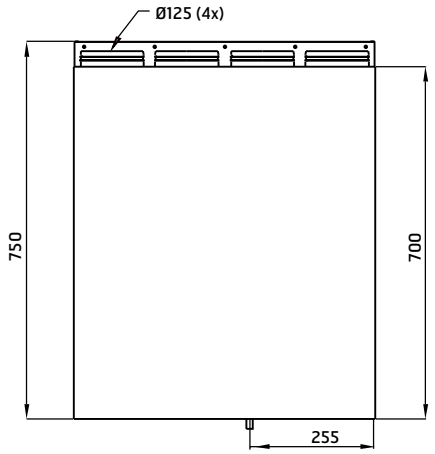


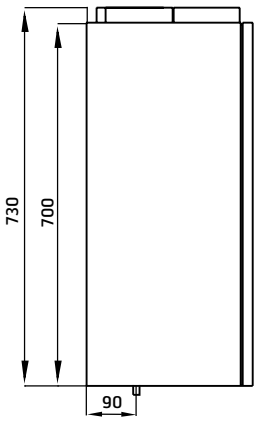
3 Dimensioned Drawings

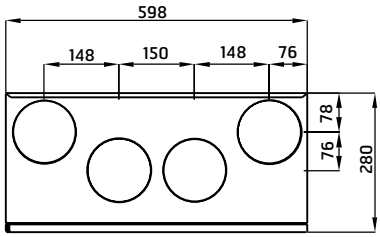
3.1 Dimensioned Drawing, S3 X

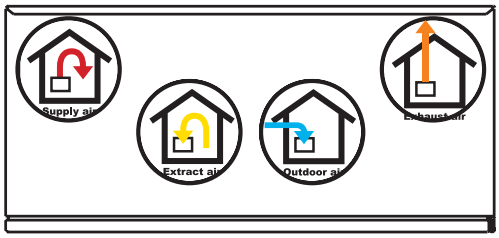
Right hand model
The left model is inverted

All measures in mm





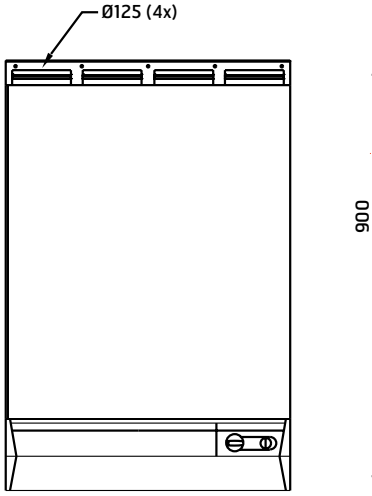


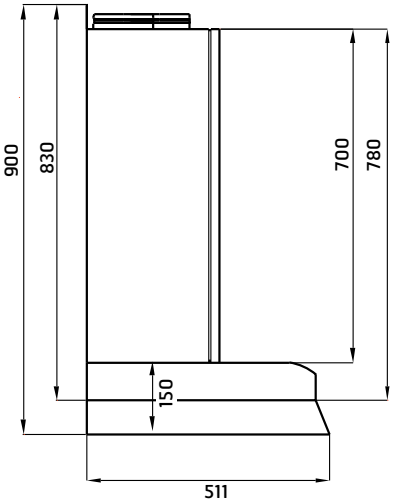


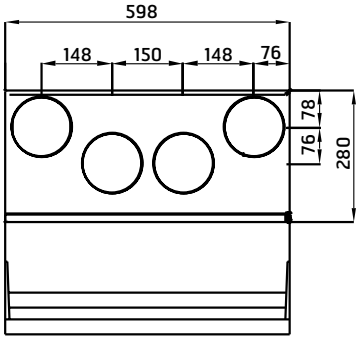
3.2 Dimensioned Drawing, K3 X

Right hand model
The left model is inverted

All measures in mm









4 Installation of S3 R

4.1 Location

The unit is designed to be installed in washrooms, storage rooms or other suitable rooms.
Installation alternatives for the unit:

- Wall mounting (Fig. 5A)
- Ceiling mounting (Fig. 6A)
- Horizontal mounting (Fig. 7A)

The unit is available in left and right versions (exhaust air nipple to the left or right), depending on what is the most favourable duct location. In wet rooms the unit must be located in zone 3 (minimum 0.6 m from the edge of the bath and 1.2 m from the shower head).

Ensure that there is minimum 1 m space in front of the unit door for access for service/ maintenance.

Mounting brackets and suspension devices are provided with several mounting holes so that the unit can be fixed to two studs. If this is not possible, additional studs (transoms) must be considered.

Wall Mounting

The enclosed wall brackets are used for wall mounting (Fig. 5B).

- The suspension rail is screwed to the wall with the enclosed screws.
- The unit is suspended from the rail.
- Fix the unit at the bottom with the enclosed mounting bracket.


Fig. 5B

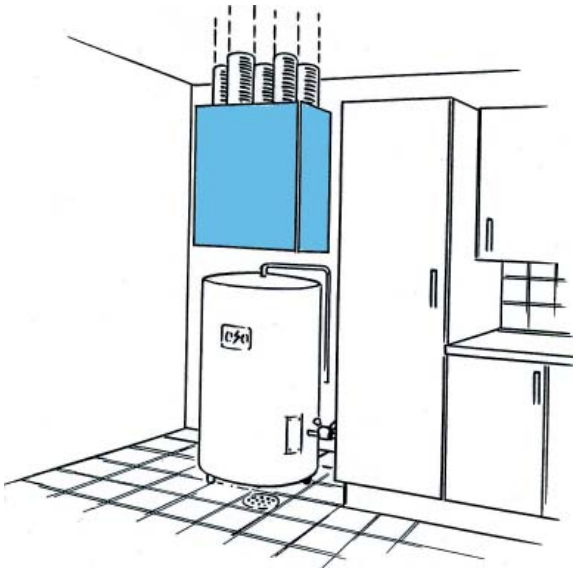
Ceiling Mounting

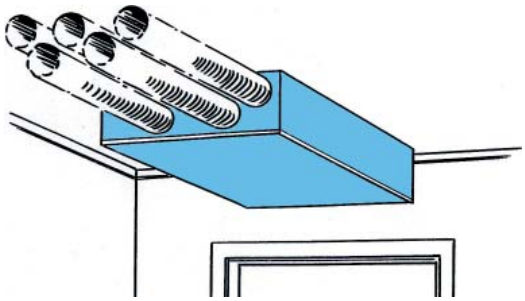
The enclosed ceiling brackets are used for ceiling mounting (Fig. 6B).

- Attach the 4 small brackets to the unit in the prefitted blind nuts with the 8 enclosed screws with countersunk heads.
- Fit the suspension rails to the ceiling with the enclosed screws.
- Lift the unit into place. The brackets on the unit must lock into the ceiling-mounted rails.

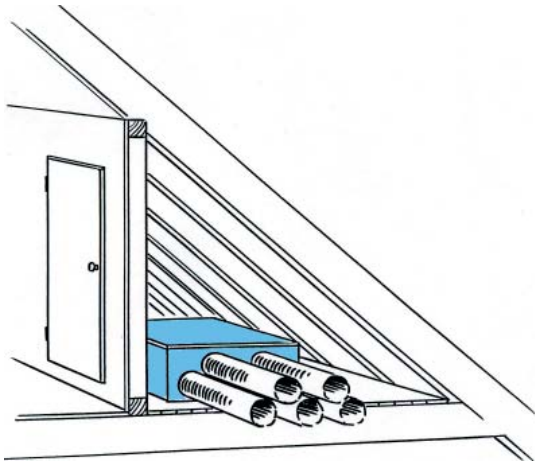

Fig. 6B

The mounting hole furthest out (2 on each side) must be fixed to joists or a concrete ceiling. Use at least 8 screws.


Fig. 5A


Fig. 6 A

FOR CEILING-MOUNTED UNITS:
Be careful with the doors when opening the unit. They open suddenly when the last screw is removed. Take care as well when removing components. Hold them when you remove the last screw to avoid objects falling down. The rotor requires extra care on account of its weight.


Fig. 7

Horizontal mounting (Fig. 7) in the loft requires no brackets. The unit should not be placed directly above bedrooms on account of noise. Install it on a firm base (gypsum/chipboard) that is level. Place the panel on a very firm panel of mineral wool if additional sound absorption is required.

5 Installation of S3 RK

The S3 RK is designed for installation in the kitchen above the cooker, see Fig. 8A. The unit is available in left and right versions (exhaust air nipple to the left or right), depending on what is the most favourable duct location (Chap. 6.2). The unit must be suspended on the wall in a mounting bracket (Fig. 8B) on the top using the enclosed screws. It must also be screwed to the wall at the bottom inside the base behind the insulation. For secure mounting, it is necessary to use additional studs (transoms). The location of these is shown in Fig. 9A. NB! The wall must have good sound insulation, see Fig. 9B.

The distance between the bottom of the kitchen hood and the cooker must be at least 40 cm for electric cookers and 65 cm for gas cookers. For the external dimensions of the unit, see the dimensioned drawing in Chap. 6.2.

Fig. 8A

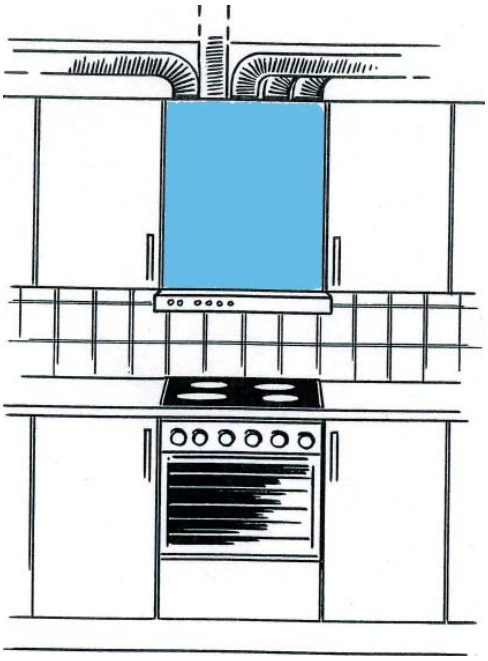
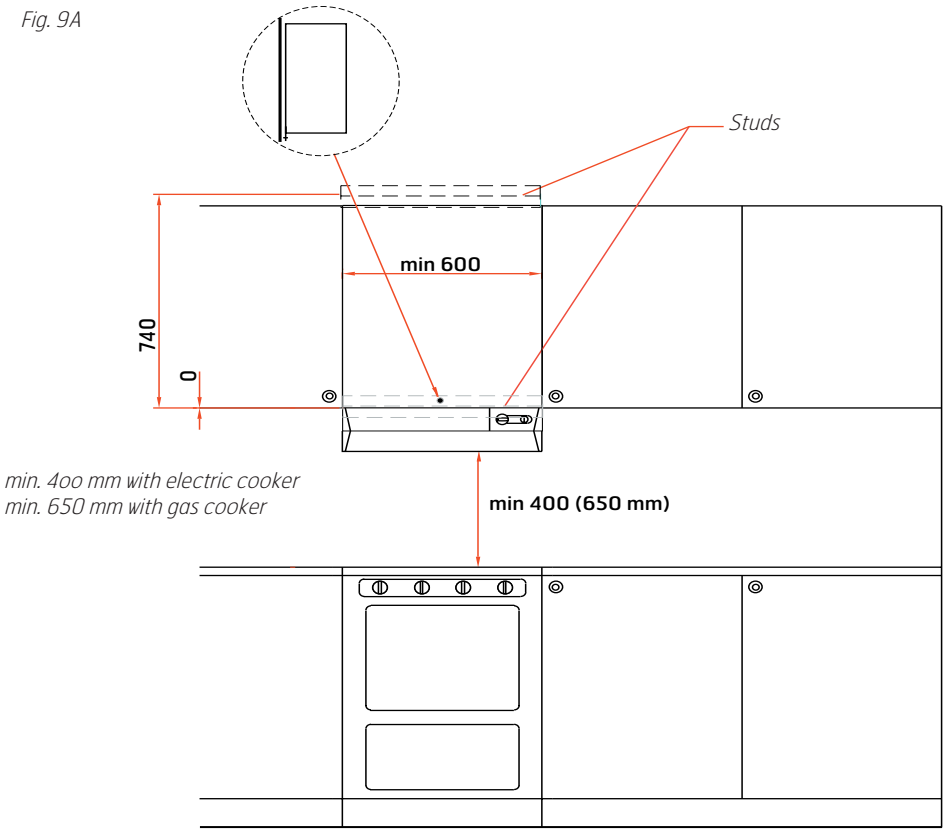


Fig. 8B



Fig. 9A



min. 400 mm with electric cooker
min. 650 mm with gas cooker

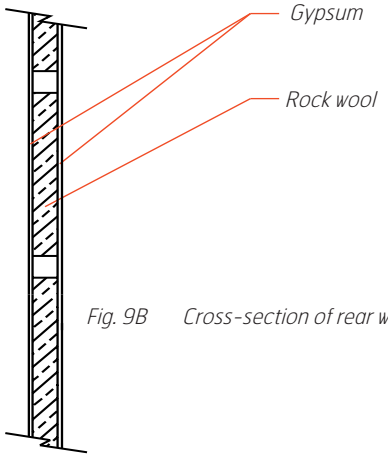


Fig. 9B Cross-section of rear wall

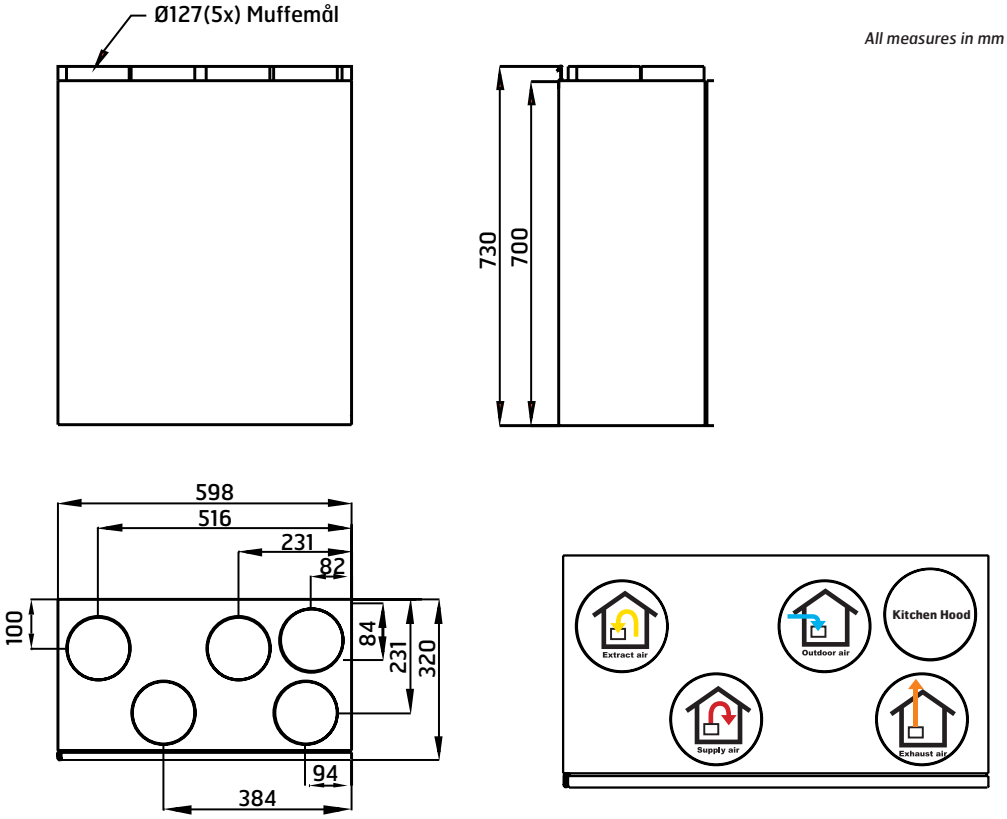
6 Dimensioned Drawings

6.1 Dimensioned Drawing, S3 R

Right hand model

The left model is inverted

All measures in mm

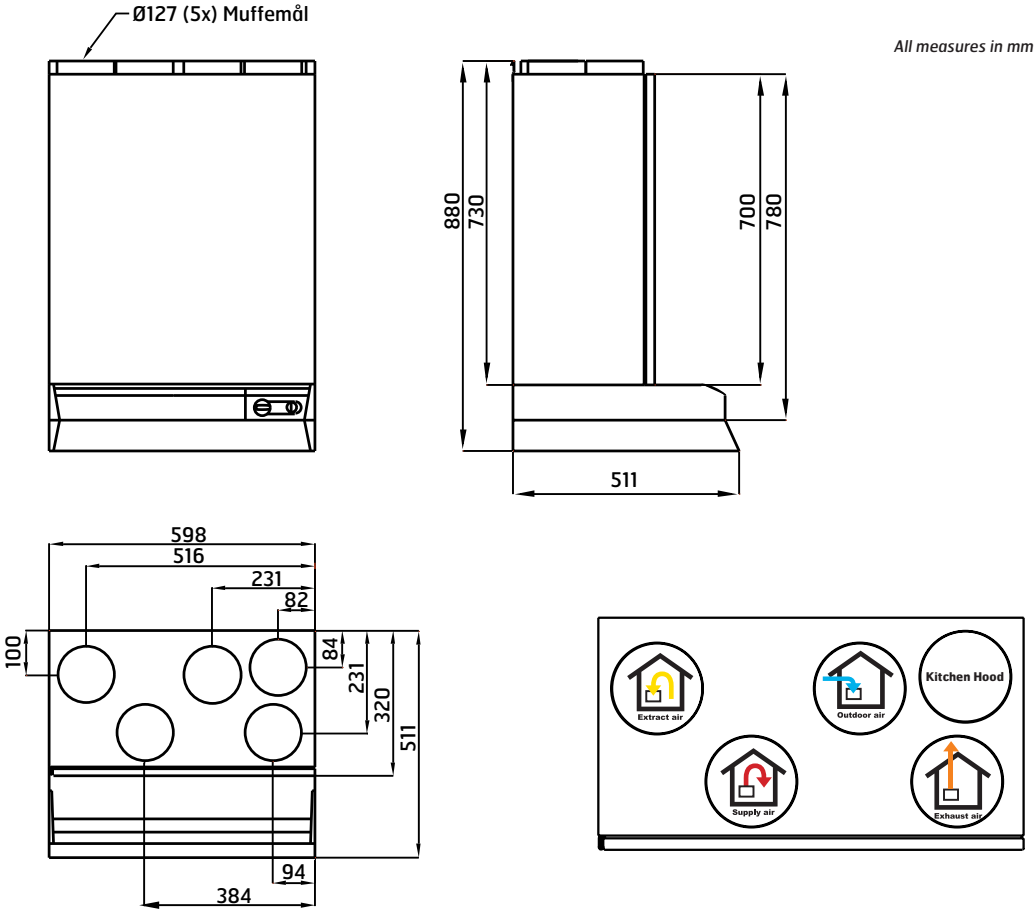


6.2 Dimensioned Drawing, S3 RK

Right hand model

The left model is inverted

All measures in mm



7 Connections, S3/A3 X/R, K3 X/R

- The ducts usually come from joists and are connected to the nipples on the top of the unit.
- Ensure that the ducts are connected to the right nipple. See the labelling on the unit (S3/A3/K3 X rear door/S3/S3 RK on sleeves for duct connection). The symbols are explained on page 2.
- Pull the duct insulation well up to the unit.
- To avoid condensation, it is very important for the outdoor air duct to have insulation and a plastic sleeve pulled right down to the unit. Seal the plastic sleeve to the unit with tape. The outdoor air duct is normally designed with 25 mm insulation.
- Lay the outdoor air duct with a slight incline towards the outdoor air cap so that any water that enters drains out again.
- The exhaust air duct must have an incline towards the unit so that any condensation water can run back to the unit.
- With a short distance between the unit and the exhaust point, sound insulation must be installed to meet the requirements for the outdoor sound level.
- Ducts must have good sound insulation, particularly above the unit.

Heating sensor: This is a marked coil of cable on the top of the unit that must be placed inside the supply air duct. The sensor (B1 marked on the cable) is located at the end of the cable and this must be placed inside the duct as far away as possible, up to 1 m from the unit. Drill a dia. 7 hole in the duct where the sensor can be inserted. Tape the cable in place on the outside of the duct so that it stays in place.

8 Electrical Connection

The unit is supplied with a 1.8 m cable and plug (which also functions as the service switch). The cable emerges on the top of the unit (front) on the left side of a right model and the right side of a left model. This is connected to a 230 V 50 Hz single-phase earthed power point that is located in an easily accessible position close by.
All unit versions are connected to a 10 A circuit.

Low-voltage cable

The control consists of a switch unit and a 12 m low-voltage cable. The control package is supplied with the unit.
The low-voltage cable must be laid between the unit and the switch unit. It is recommended that it be laid in a 20 mm conduit pipe.

The low-voltage cable must be laid at least 30 cm away from the 230 V cable.

9 Mounting a Cabinet Door

If the white-lacquered door on the unit is to be covered by a cabinet door in the same style as the kitchen, this is mounted as follows. 4 plate rails are supplied with the unit. 2 of these are screwed onto the unit door and 2 onto the rear of the cabinet door, see Fig. 10. The cabinet door can then easily be hooked onto and off the unit door as required.

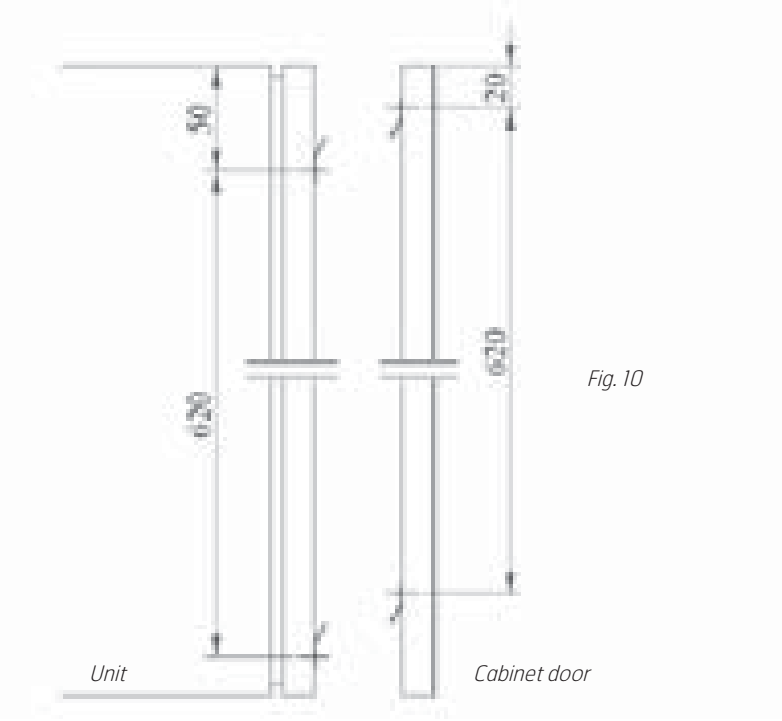


Fig. 10

10 Installing the Kitchen Hood

10.1 Technical Data

Width:	60 cm
Electrical connection:	230 V earthed
Light:	Fluorescent tube, base G23, 11 W

10.2 Installation of Kitchen Hood on K3

Installing the sleeve and damper

The sleeve is inside the volume hood on delivery. The damper shaft A is placed in the hoop under the damper lid, see Fig. 11. Ensure that the grips B are under the edge of the plate. The sleeve snaps into place.

Installing the volume hood

The volume hood is placed under the K3 unit and fixed with the 4 M4 screws with countersunk heads supplied, see Fig. 12. The vertical distance between the cooker and the volume hood must be at least 40 cm. For a gas cooker, the distance must be 65 cm.

Electrical installation

The kitchen hood is supplied with a cable and plug that are plugged in together with the K3 unit.

10.3 Installation of External Kitchen Hood

Installing the sleeve and damper

The sleeve is inside the volume hood on delivery. The damper shaft A is placed in the hoop under the damper lid, see Fig. 11. Ensure that the grips B are under the edge of the plate. The sleeve snaps into place.

Installing the volume hood

The volume hood must be placed under or recessed in the row of cabinets, see Fig. 13. The distance between the cooker and the volume hood must be at least 40 cm. For a gas cooker, the distance must be 65 cm.
The volume hood can also be installed using wall mountings that can be purchased as accessories, Fig. 14. Instructions for installing the accessories are enclosed with them.

Electrical installation

The kitchen hood is supplied with a cable and earthed plug for connection to an earthed socket.
The cable between the kitchen hood and the unit is spliced and connected to the control card terminal blocks in the unit.
The cables are connected to terminals VK and UR2, see Fig. 15. The colour of the cables connected to the terminals is of no significance. The cable between the kitchen hood and the unit must be at least of type 2 x 0.75 mm^2. The voltage between the units is 24 V DC.

The installation must be carried out by an qualified personnel.

Adjustment

For adjustment of the kitchen hood, see Chap. 11, and for the unit see Chap. 12 Adjustment Curves.

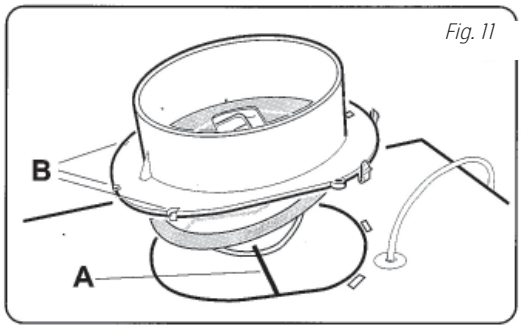
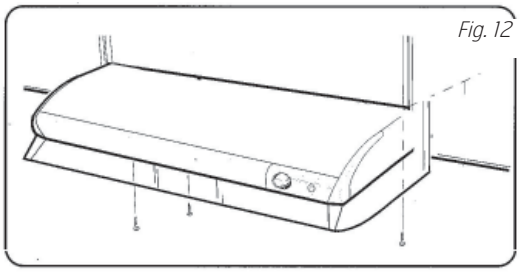
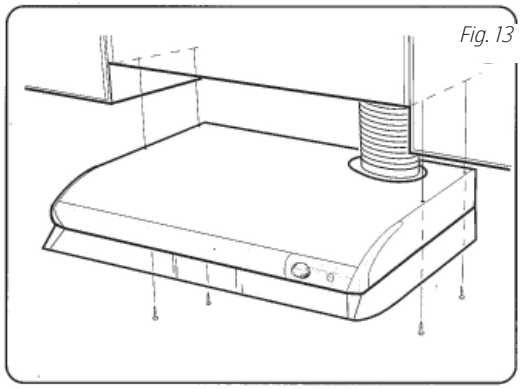
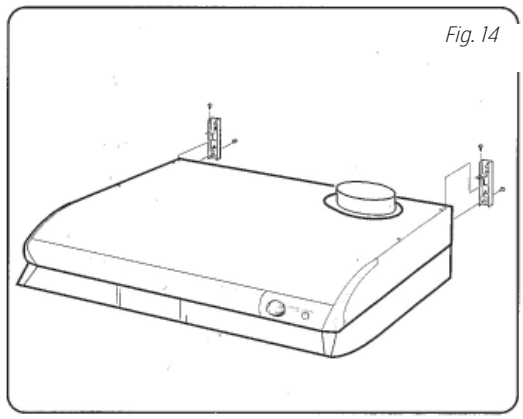


Fig. 11


Fig. 12


Fig. 13


Fig. 14

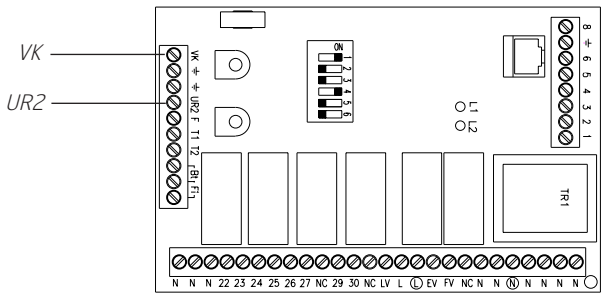


Fig. 15

11 Adjustment of Kitchen Hood (A and K Models)

11.1 Basic Ventilation

The basic ventilation is adjusted by setting the sliding damper A to the desired position as shown in detail B in Figure 16 (see diagrams 12.1 K3 X/TT, 13.1 A3 X/TT and 14.1 S3 RK).

11.2 Forced Ventilation

Open the damper and remove the throttle piece **C**, Fig. 17. Adjust the forced ventilation by cutting out a suitable number of rings in the throttle piece, Fig. 18 (see diagrams 12.2 K3 X/TT, 13.2 A3 X/TT and 14.2 S3 RK). Ensure that the guide slot **D** is in position when the piece is in place.

11.3 Pressure Drop Measurement

The pressure drop is measured by the hose being fitted to the measuring outlet at the front of the damper, Fig. 19. The pressure drop corresponds to the axis in the adjustment diagram (left side), see Chap. 12.

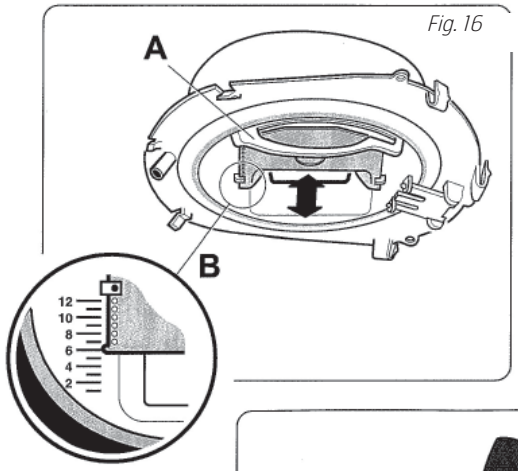


Fig. 16

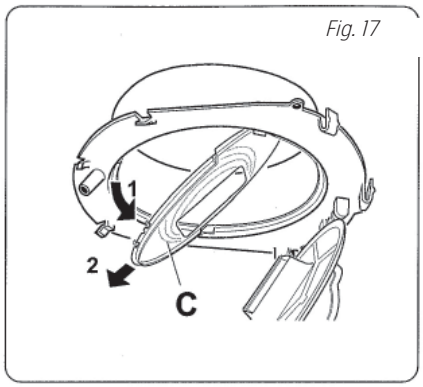


Fig. 17

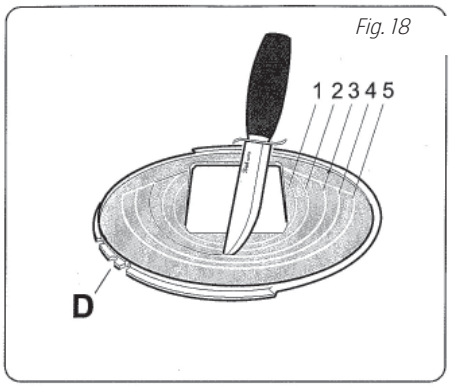


Fig. 18

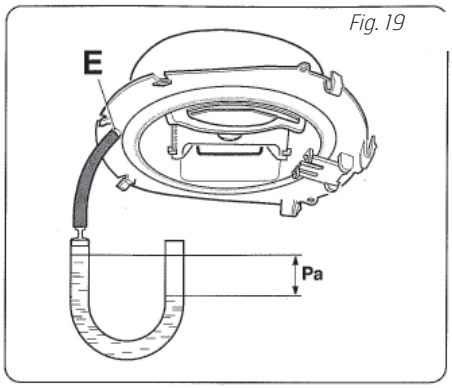


Fig. 19

If basic ventilation is not required, the enclosed piece can be installed, see Fig. 20 for the procedure.

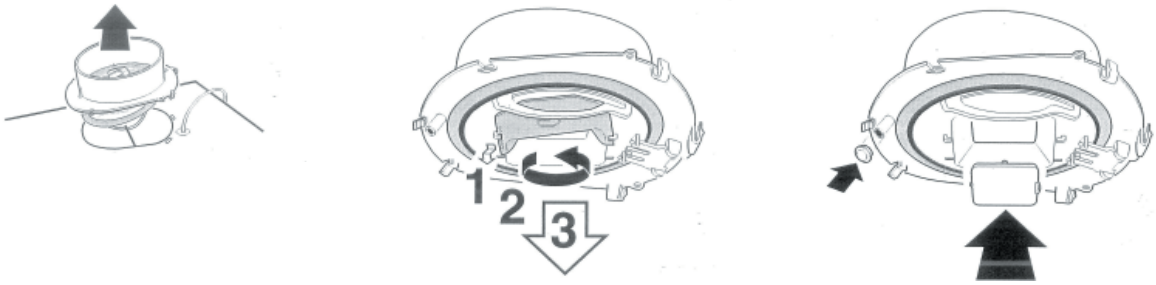
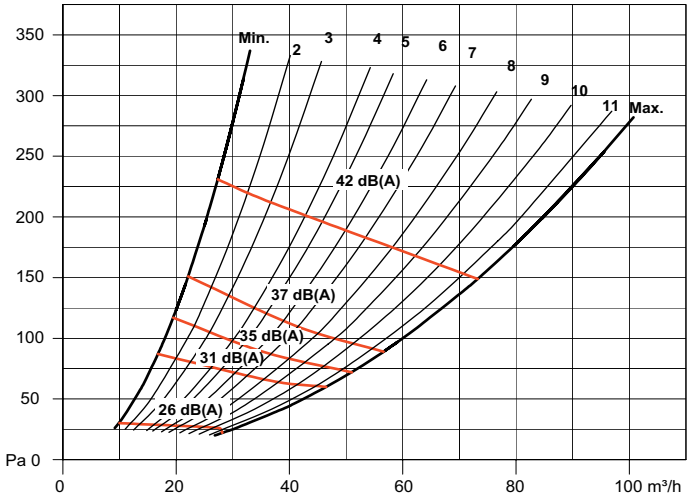


Fig. 20

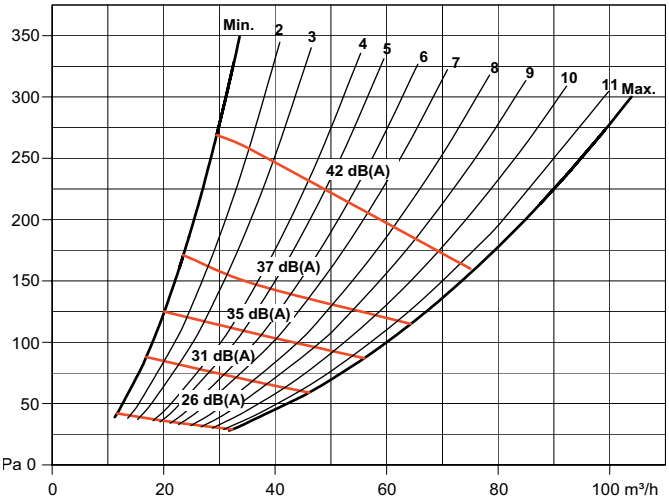
12 Adjustment Curves, K3 X/TT

12.1 Basic Ventilation, K3 X/K3 TT



K3

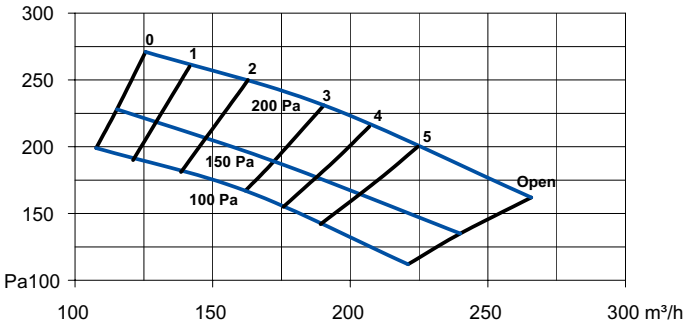
Min. - Max. = Damper position
dB = Lp(A) measured 1 m from the K3 X in the kitchen landscape.



K3 TT

Min. - Max. = Damper position
dB = Lp(A) measured 1 m from the K3 TT in the kitchen landscape.

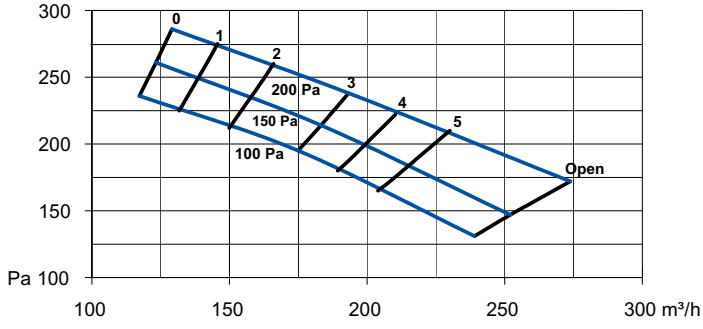
12.2 Forced Ventilation, K3 X/K3 TT



K3

0 - Open = Number of rings removed
100/150/200 Pa = Total duct resistance for the extract air and exhaust air side

Lw (A) measured 1 m from the K3 X varies between 46 and 47 dB(A) throughout the measuring area



K3 TT

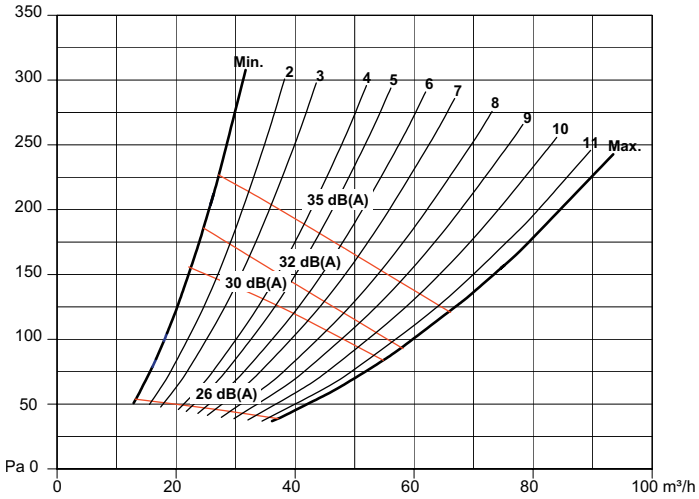
0 - Open = Number of rings removed
100/150/200 Pa = Total duct resistance for the extract air and exhaust air side

Lw (A) measured 1 m from the K3 TT varies between 45 and 46 dB(A) throughout the measuring area

** For tips on the adjustment method, see Chapter 15 for the unit and Chapter 11 for the kitchen hood.*

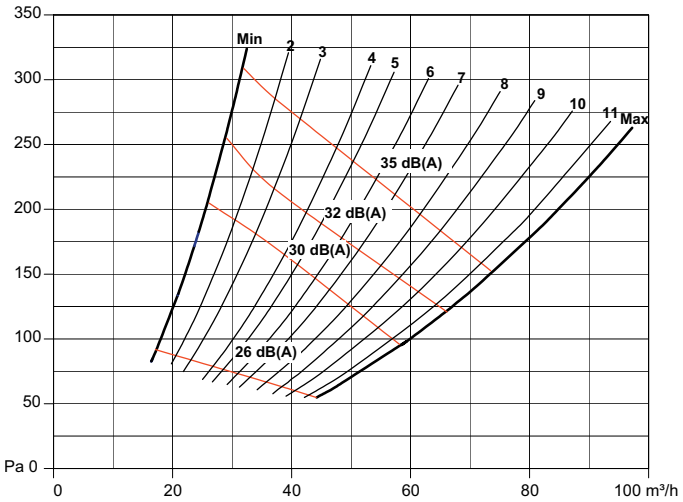
13 Adjustment Curves, A3 X/TT

13.1 Basic Ventilation, A3 X/A3 TT



A3 X

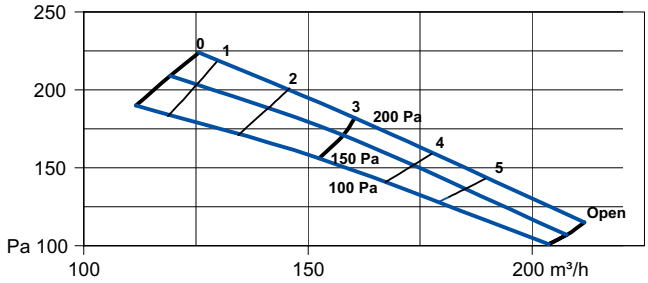
Min. - Max. = Damper position
dB = Lp(A) measured 1 m from the kitchen hood in the kitchen landscape.



A3 TT

Min. - Max. = Damper position
dB = Lp(A) measured 1 m from the kitchen hood in the kitchen landscape.

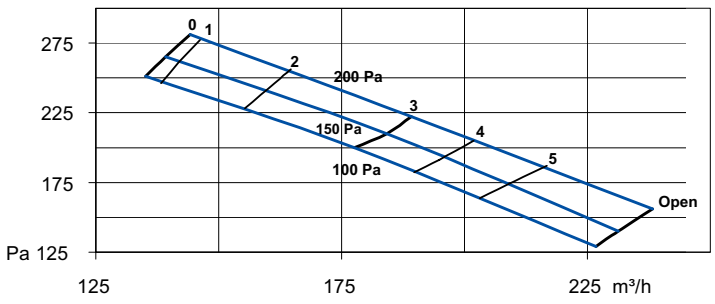
13.2 Forced Ventilation, A3 X/A3 TT



A3 X

0 - Open = Number of rings removed
100/150/200 Pa = Total duct resistance for the extract air and exhaust air side

Lw (A) measured 1 m from the kitchen hood varies between 46 and 47 dB(A) throughout the measuring area



A3 TT

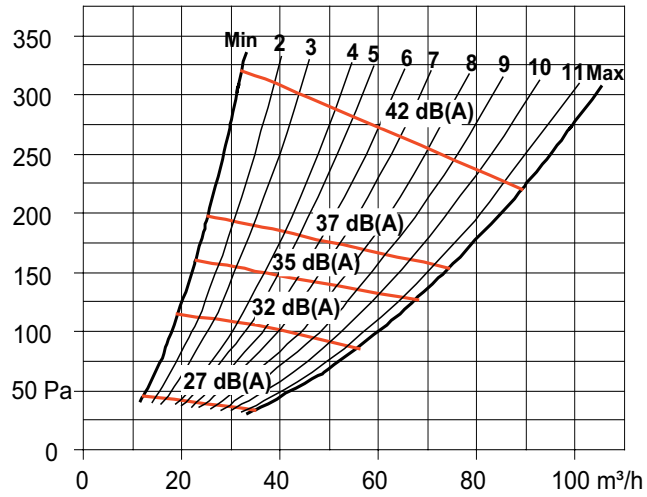
0 - Open = Number of rings removed
100/150/200 Pa = Total duct resistance for the extract air and exhaust air side

Lw (A) measured 1 m from the kitchen hood varies between 45 and 46 dB(A) throughout the measuring area

** For tips on the adjustment method, see Chapter 5 Adjustment.*

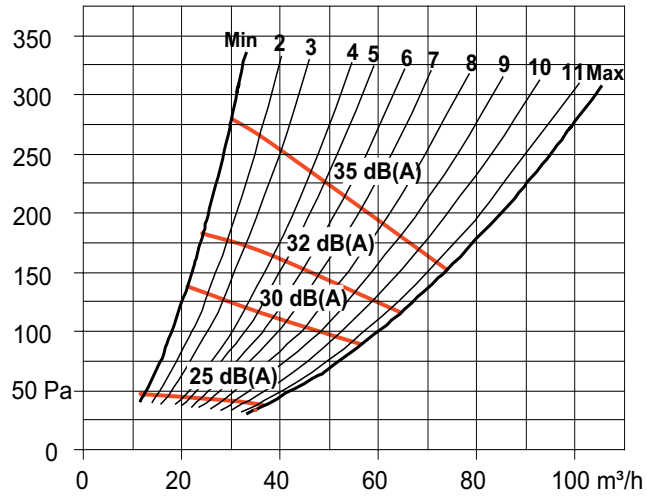
14 Adjustment Curves, S3 RK/S3 R

14.1 Basic Ventilation, S3 RK/S3 R



S3 RK

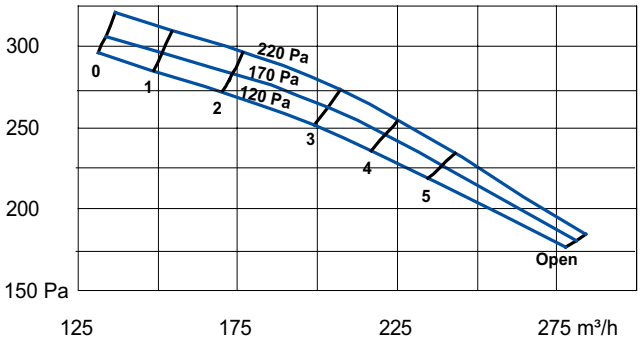
Min. - Max. = Damper position
dB = Lp(A) measured 1 m from the S3 RK in the kitchen landscape.



S3 R

Min. - Max. = Damper position
dB = Lp(A) measured 1 m from the kitchen hood in the kitchen landscape.

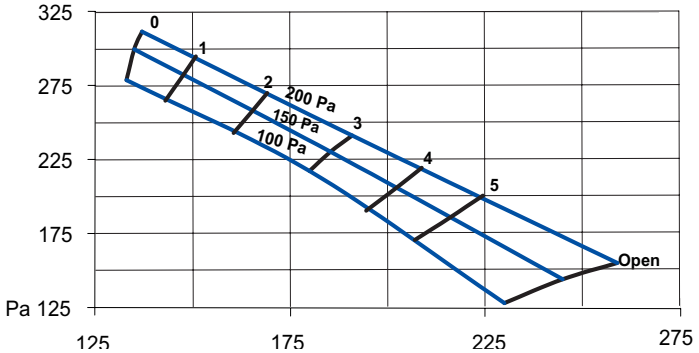
14.2 Forced Ventilation, S3 RK/S3 R



S3 RK

0 - Open = Number of rings removed
120/170/220 Pa = Total duct resistance for the extract air and exhaust air side

Lw (A) measured 1 m from the S3 RK varies between 49 and 51 dB(A) throughout the measuring area



S3 R

0 - Open = Number of rings removed
100/150/200 Pa = Total duct resistance for the extract air and exhaust air side

Lw (A) measured 1 m from the kitchen hood varies between 46 and 48 dB(A) throughout the measuring area

15 Adjusting the Unit

Before opening the door of the heat recovery system or carrying out maintenance on the kitchen hood: switch off the heat, let the fans continue for three minutes to remove hot air, remove the power from the unit and wait 2 minutes before opening the doors.

15.1 Adjustment

The speed of the unit at the normal stage must be set to the voltage specified in the "Documentation of Ventilation Data" form that is enclosed with the ventilation drawings from the company responsible for project planning. Open the door and unscrew and remove the cover of the automatic control compartment. The transformer is then visible and the cables marked 1 **2** 3 (as shown on page 2) can be switched over to the specified voltage level.

			Extract air	Supply air
S3/A3/K3X-S/A3TT:	The automatic control compartment is up on the side on which the thermostat is located.	Factory setting	120 V	120 V
S3/A3K3R:	The automatic control compartment is located on the side of the rotor motor.	Factory setting	120 V	120 V

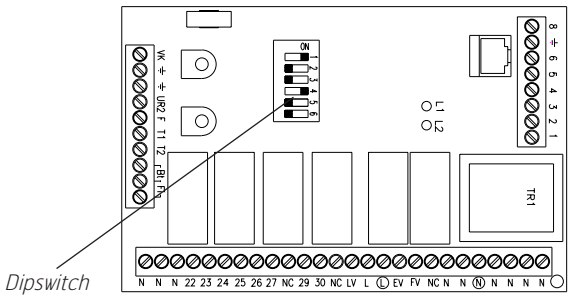


Fig. 18 Cross unit control card

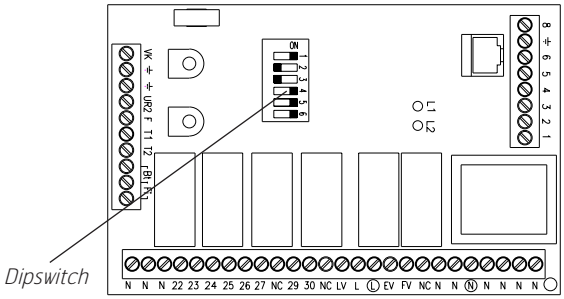


Fig. 19 Rotor unit control card

15.2 Control Card Adjustment Options

TYPES X and TT			TYPE R	
Dipswitch no.	**OFF**	**ON**	**OFF**	**ON**
1	Heating is not affected with frost protection	**Heating is switched off with frost protection**	Not used	Not used
2	**Heating and preheating function normally**	Heating and preheating are switched off at the min. stage	**Must be in this position**	Not used
3	**Not affected with nighttime temperature reduction**	Temperature is reduced by 3°C with nighttime temperature reduction	**Not affected with nighttime temperature reduction**	Temperature is reduced by 3°C with night-time temperature reduction
4	Not affected with nighttime temperature reduction	**Fan speed is reduced to low with nighttime temperature reduction**	Not affected with nighttime temperature reduction	**Fan speed is reduced to low with nighttime temperature reduction**
5	Preheating element is used **only for frost protection**	Preheating element is also used for heating	Heating not available	**Heating available**
6	**Must be in this position**	Not used	Not used	**Must be in this position**

***Bold type** shows the standard factory setting. All settings can be combined.*

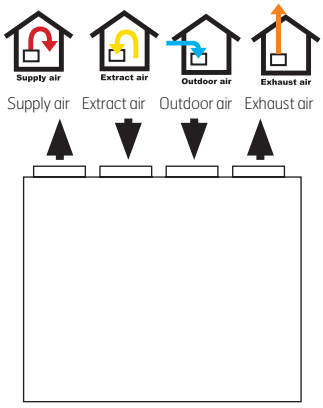
With the standard setting, the unit operates so that heating is available if required in normal mode, while heating is switched off in frost protection mode, when the preheating element takes over.
If both elements are required to provide heat in cold areas in frost protection mode, switch 1 must be OFF. In this case, please note that the unit's rated power will increase with the power of the preheating element.
See alternative labelling on the unit's rating plate.

16 Final Checks

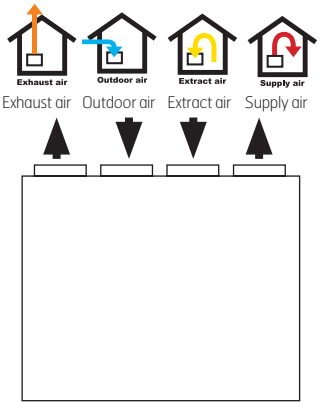
Check that:

- The duct insulation is in accordance with the manual and the technical documents
- Ducts are connected to the right nipples – check against the unit drawings below
- The temperature sensor is in place in the supply air duct
- Drainage is connected and works (only cross units)
- Adjustment has been carried out in accordance with the manual and ventilation data documentation
- The unit operates normally at all stages
- Heating switches in

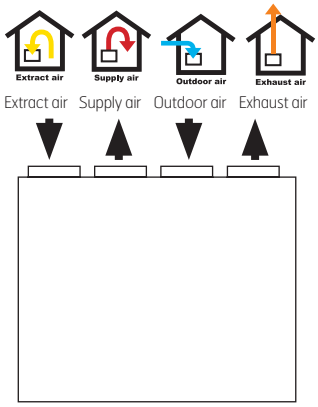
S3/K3 X right hand model



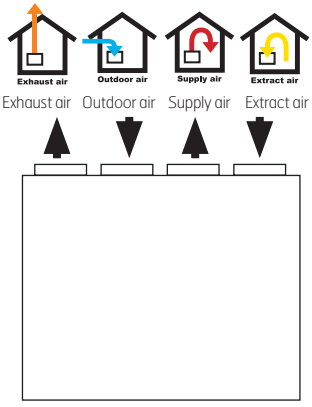
S3/K3 X left hand model



S3/S3 RK right hand model



S3/S3 RK left hand model



16.1 Technical Data

	S3/K3 X	S3/K3 TT	S3/S3 RK
Rated voltage	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Fuse	10 A	10 A	10 A
Rated current, total	6.7 A	6.7 A	5.4 A
Rated power, total	1530 W	1530 W	1236 W
Rated power, electric batteries	1200 W	700 W	900 W
Rated power, fans	2 x 165 W	2 x 165 W	2 x 165 W
Rated preheating power	700 W	1200 W	-
Fan type	F-wheel	F-wheel	F-wheel
Fan motor control	Transformer	Transformer	Transformer
Max. fan speed	2230 RPM	2230 RPM	2230 RPM
Automatic control standard	SP30	SP30	SP30
Filter type (SUP/EXTR)	F7/G3	F7/G3	F7/F7
SUP filter dimensions (WxHxD)	225x130x70 mm	225x130x70 mm	285x130x50 mm
EXTR filter dimensions (WxHxD)	225x130x20 mm	225x130x20 mm	285x130x50 mm
Weight	40 kg	44 kg	38.5 kg
Duct connection	Dia. 125 mm	Dia. 125 mm	Dia. 125 mm (127 mm sleeve)
Height	700 mm	700 mm	700 mm
Width	598 mm	598 mm	598 mm
Depth	280 mm	280 mm	320 mm

The installer may be held liable for any incorrect or defective installation.

Flexit AS, Televeien 15, N-1870 Ørje **www.flexit.com**