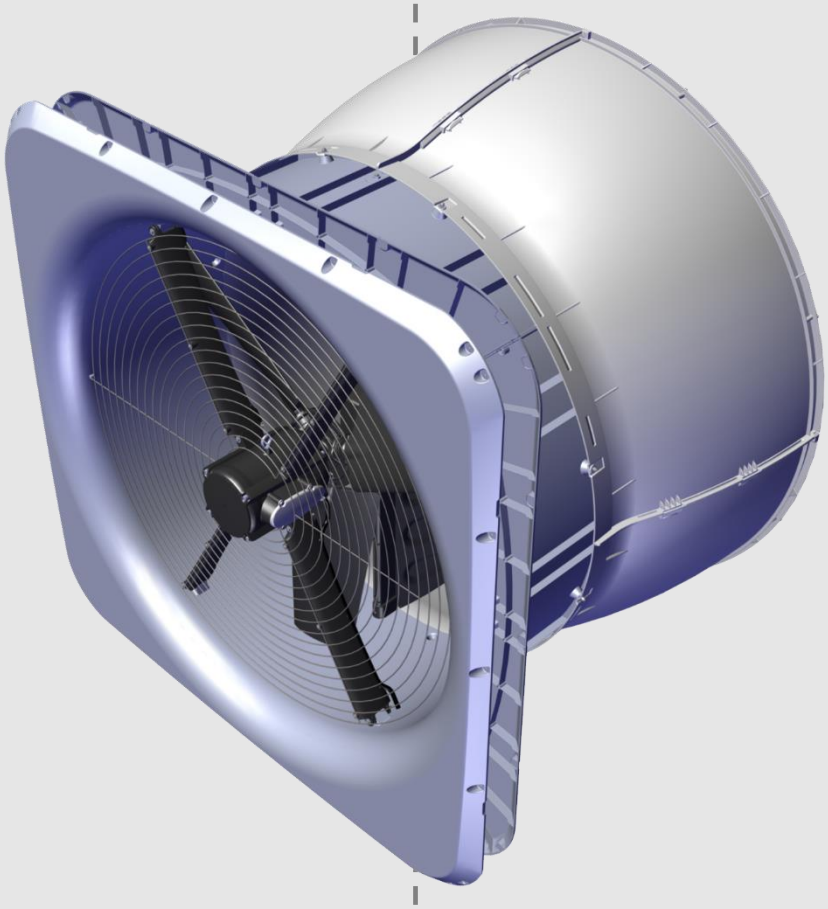
Fan BD-Blue 170C

Technical User Guide



2017.06.15 • 604252-02

Big Dutchman

Product and Documentation Changes

Big Dutchman reserves the right to change this manual and the product described herein without further notice. In case of doubt, please contact Big Dutchman.

The date of change appears on the front and back pages.

IMPORTANT: NOTE CONCERNING ALARM SYSTEMS

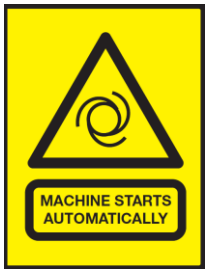
When regulating and controlling the climate in livestock buildings, breakdowns, malfunctions or faulty settings may cause substantial damage and financial losses. It is therefore essential to install a separate, independent alarm system that monitors the house climate concurrently with the climate and production computer. According to EU-directive No. 98/58/EU an alarm system must be installed in all mechanically ventilated houses.

Please note that the product liability clause of general terms and conditions of sale and delivery specifies that an alarm system must be installed.

In case of an operating error or improper use, ventilation systems can result in production losses or cause loss of lives among animals.

Big Dutchman recommends that ventilation systems be mounted, operated and serviced only by trained staff and that a separate emergency opening unit and an alarm system be installed as well as maintained and tested at regular intervals, according to Big Dutchman' terms and conditions of sale and delivery.

Rotating fan blade will cut and crush. TURN POWER OFF before removing cover.



Fan BD-Blue 170C starts automatically – therefore always TURN POWER OFF before servicing.

Do not operate BD-Blue Fan without safety guard.

If BD-Blue Fan outside safety guard is deselected - a safety distances to prevent hazard zones must be established. The demands in the International Standard for Safety of Machinery ISO 13857 must be followed.

Note

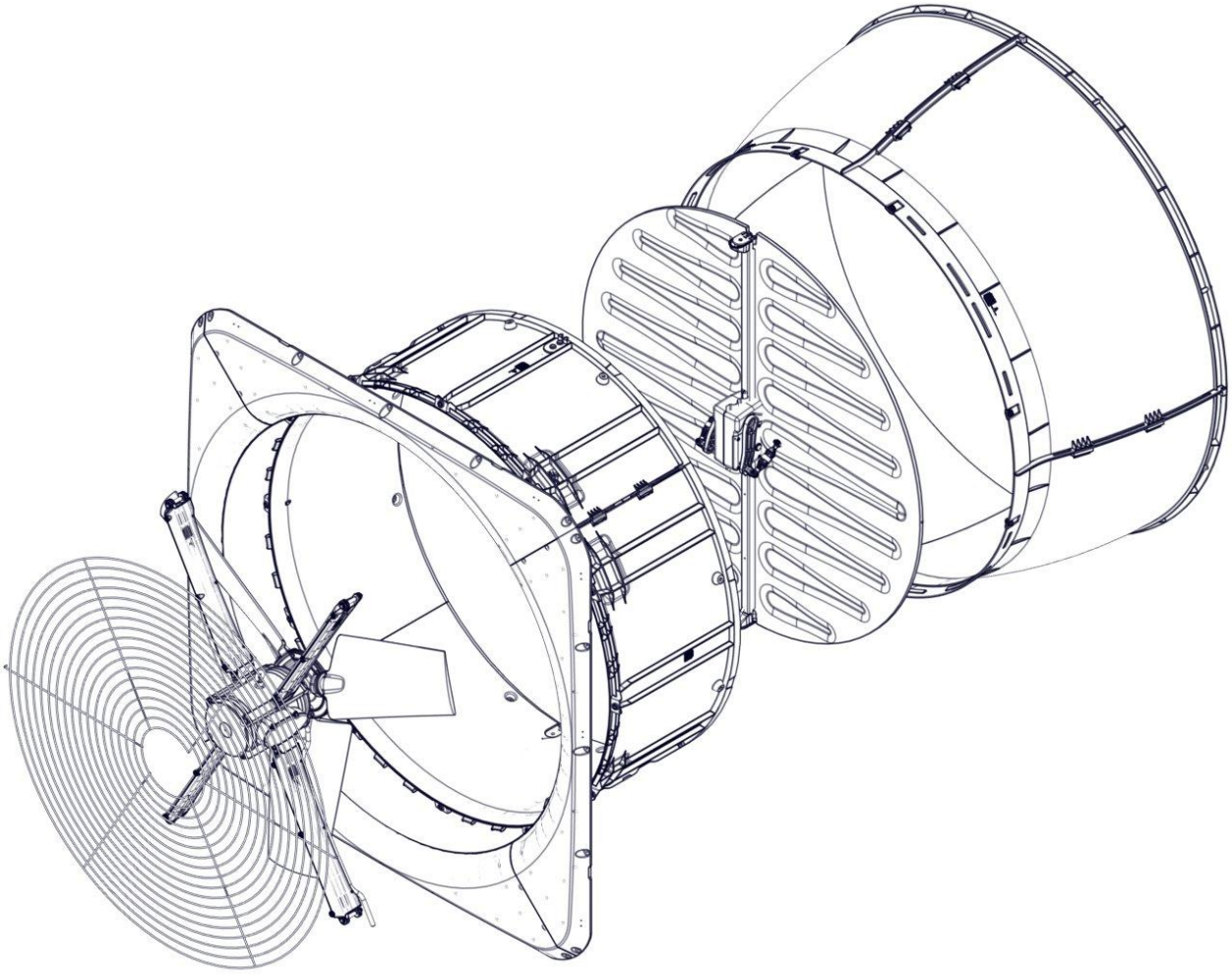
1 Product Description

The Fan BD-Blue 170C is a flange-mounted corrosion-free fan with cone and motor-controlled shutter. The fan is supplied in one version focused on low energy consumption and one version focused on maximizing air output. Both versions are available in several variants.

Fan BD-Blue 170C is characterised by having a particularly tightly closed motorized shutter, which prevents unwanted air movement when the fan is not in operation, and a direct-driven motor to reduce motor maintenance.

Fan BD-Blue 170C is designed especially for the demanding house environment both when it comes to climatic and electrical impacts.

2 Product Survey



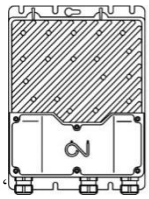
Link to assembly of Fan BD-Blue 170C:

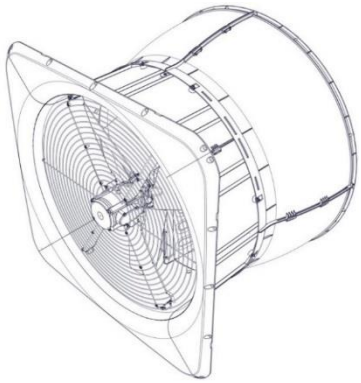
mailto:http://academy.skov.com/da1700/index.html

At every order up to 100 pcs. Fan BD-Blue 170C, 1 pc. Fan BD-Blue 170C lifting kit and extra mounting parts are supplied. At every order from 101-200 pcs., Fan BD-Blue 170C, 2 pcs. Fan BD-Blue 170C lifting kit and extra mounting parts are supplied.

The lifting kit and mounting parts consist of:

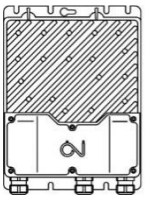
- BD-Blue Fan 170C lifting kit
- Extra Fan BD-Blue 170C mounting parts.
- 3 pcs. technical user guides for the Fan BD-Blue 170C in English.

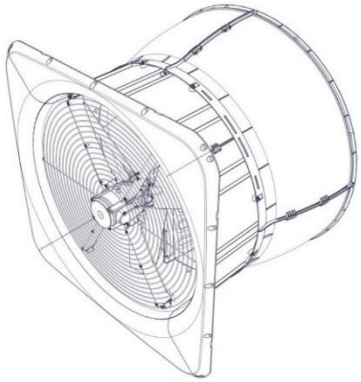




60-25-3701 Fan BD-Blue 170C-4 230V 1~50/60Hz 3,9A 47000m³/h
60-25-3702 Fan BD-Blue 170C-4 230V 1~50/60Hz 3,9A 47000m³/h Therm
Controller.
PM motor 230 V 1.3 kW 465 rpm.
4 m shielded motor cable four-core.
Supplied with mounting parts for the assembly of the Fan BD-Blue 170C.
It should not be used at negative pressure higher than 50 Pa.

60-25-3706 Fan BD-Blue 170C-5 230V 1~50/60Hz 3,9A 55600m³/h
60-25-3707 Fan BD-Blue 170C-5 230V 1~50/60Hz 3,9A 55600m³/h Therm
Controller.
PM motor 230 V 1.3 kW 550 rpm.
4 m shielded motor cable four-core.
Supplied with mounting parts for the assembly of the Fan BD-Blue 170C.
It should not be used at negative pressure higher than 80 Pa.

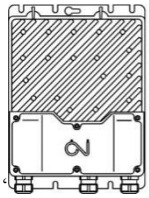




60-25-3703 Fan BD-Blue 170C-4 400V 3~50/60Hz 4,1A 47200m³/h
60-25-3704 Fan BD-Blue 170C-4 400V 3~50/60Hz 4,1A 47200m³/h Therm
Controller.
PM motor 400 V 2.3 kW 465 rpm.
4 m shielded motor cable four-core.
Supplied with mounting parts for the assembly of the Fan BD-Blue 170C.
It should not be used at negative pressure higher than 50 Pa.

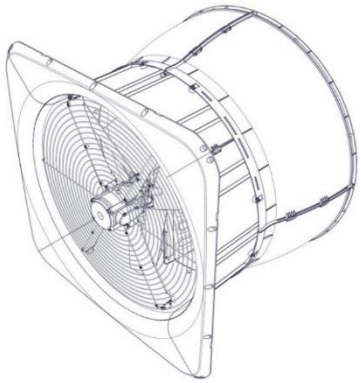
60-25-3708 Fan BD-Blue 170C-5 400V 3~50/60Hz 4,1A 55700m³/h
60-25-3709 Fan BD-Blue 170C-5 400V 3~50/60Hz 4,1A 55700m³/h Therm
Controller.
PM motor 400 V 2.3 kW 550 rpm.
4 m shielded motor cable four-core.
Supplied with mounting parts for the assembly of the Fan BD-Blue 170C.
It should not be used at negative pressure higher than 80 Pa.

60-25-3711 Fan BD-Blue 170C-6 400V 3~50/60Hz 4,1A 65800m³/h
60-25-3712 Fan BD-Blue 170C-6 400V 3~50/60Hz 4,1A 65800m³/h Therm
Controller.
PM motor 400 V 2.3 kW 650 rpm.
4 m shielded motor cable four-core.
Supplied with mounting parts for the assembly of the Fan BD-Blue 170C.
It should not be used at negative pressure higher than 100 Pa.



60-25-3705 Fan BD-Blue 170C-4 230V 3~50/60Hz 6,4A 47200m³/h

Controller.
PM motor 230 V 2.3 kW 465 rpm.
4 m shielded motor cable four-core.
Supplied with mounting parts for the assembly of the Fan BD-Blue 170C.
It should not be used at negative pressure higher than 50 Pa.

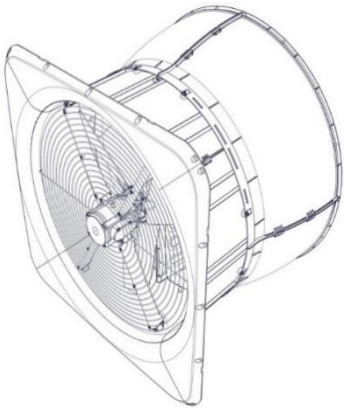


60-25-3710 Fan BD-Blue 170C-5 230V 3~50/60Hz 6,4A 55700m³/h

Controller.
PM motor 230 V 2.3 kW 550 rpm.
4 m shielded motor cable four-core.
Supplied with mounting parts for the assembly of the Fan BD-Blue 170C.
It should not be used at negative pressure higher than 80 Pa.

60-25-3713 Fan BD-Blue 170C-6 230V 3~50/60Hz 6,4A 66000m³/h

Controller.
PM motor 230 V 2.3 kW 650 rpm.
4 m shielded motor cable four-core.
Supplied with mounting parts for the assembly of the Fan BD-Blue 170C.
It should not be used at negative pressure higher than 100 Pa.



60-25-3714 Fan BD-Blue 170C ON/OFF 400V 3~50Hz 5,9A 59600m³/h
60-25-3715 Fan BD-Blue 170C ON/OFF 400V 3~50Hz 5,9A 59600m³ Ther

AC motor 400 V 2.2 kW 700 rpm.
4 m shielded motor cable four-core.
Supplied with mounting parts for the assembly of the Fan BD-Blue 170C.
It should not be used at negative pressure higher than 100 Pa.

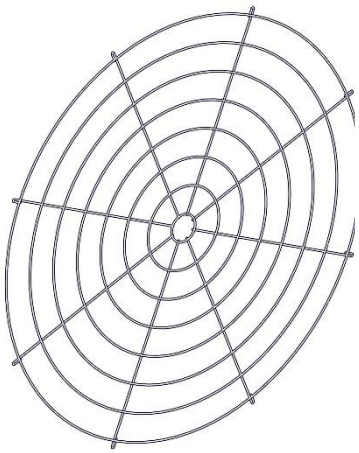
60-25-3716 Fan BD-Blue 170C ON/OFF 400V 3~60Hz 5,9A 65400m³/h
60-25-3717 Fan BD-Blue 170C ON/OFF 400V 3~60Hz 5,9A 65400m³ Ther

AC motor 400 V 2.2 kW 840 rpm.
4 m motor cable four-core.
Supplied with mounting parts for the assembly of the Fan BD-Blue 170C.
It should not be used at negative pressure higher than 100 Pa.

60-25-3718 Fan BD-Blue 170C ON/OFF 230V 3~60Hz 10,2A 66300m³/h

AC motor 230 V 2.2 kW 840 rpm.
4 m motor cable four-core.
Supplied with mounting parts for the assembly of the Fan BD-Blue 170C.
It should not be used at negative pressure higher than 100 Pa.

Accessories



60-25-0306 Wire mesh cone f/BD-Blue 170C

Fan BD-Blue 170C safety net outside is used to prevent hazard zones.

If Fan BD-Blue 170C outside safety guard is deselected - a safety distances to prevent hazard zones must be established.

The demands in the International Standard for Safety of Machinery ISO 13857 must be followed.

1 per wall fan.

Is supplied with mounting parts.

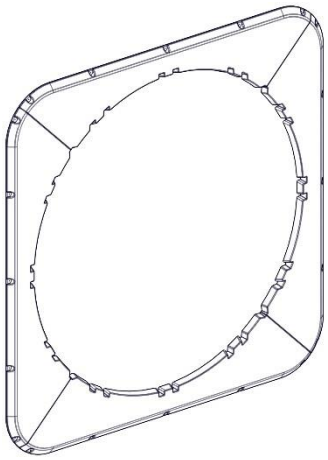
60-41-1846 Mounting set f/BD-Blue170C

Fan BD-Blue 170C lifting kit is used when mounting the fan motor.

Includes:

- 1 pcs. Fan BD-Blue 170C lifting kit
- 1 pcs. Fan BD-Blue 170C mounting parts.
- 3 stk. technical user guide for Fan BD-Blue 170C wall fan in English.

Only to be ordered if extra Fan BD-Blue 170C lifting kit and mounting parts are required.



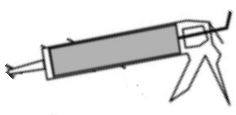
60-25-3720 Ornamental blinds cpl. f/BD-Blue 170C

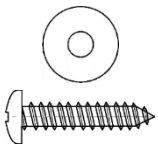
An external cover is used if a closed transition to the wall is desired.

1 per wall fan.

60-21-1106 screw kit can be used for mounting of wall cover outside.

99-50-4000 Silicone caulk transparent universal 310ml





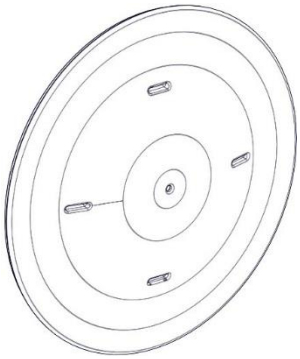
60-21-1106 Screw kit BD-Blue 170C

DA 1700 screw kit can be used for mounting of DA 1700 in the wall.

Includes:

21 x tapping screw 4.8x70 A2 pozi pan DIN7981

21 x washer ø6.4/ø18x1.6 A2 DIN9021



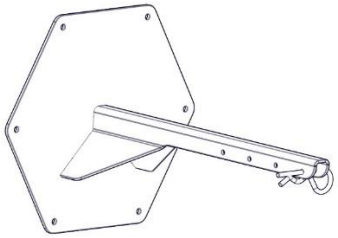
60-25-3721 Including insulation plate and kit

The plate is used to minimise draughts and heat loss during cold periods, when Fan BD-Blue 170C is not in use.

The plate should always be used if the dimensioned outside temperature is less than -10°C.

Supplied with mounting set.

1 per wall fan.



60-47-4441 Bracket f/Insulation plate BD-Blue 170C

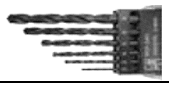
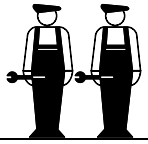
The DA 1700 bracket for insulation plates is used for storage of insulation plates when they are not in use, i.e. typically during the summer.

1 per 5 DA 1700 insulation plate.

3 General Information

3.1 Recommended Tools

Below follows a list of tools recommended for installation of your Fan BD-Blue 170C wall fan.

Part	Description
	Cordless drill
	Jigsaw
	Socket wrench set, incl. 10 and 17 mm top
	Combination spanner kit, incl. 10 mm and 17 mm
	Drill kit
	Screwdriver bits
	Sealant gun
	Felt tip marker pen
	Tape measure
	Spirit level
	Multigrip pliers
	Adjustable spanner
	Utility knife
	Ladder
	2 people

4 Mounting Guide

Check that the ordered parts have been received and that they are in undamaged condition before commencing the installation process. Read the directions carefully before starting mounting.

4.1 Placement in the Livestock House

BD-Blue 170C fans are placed in the livestock house according to the drawing supplied. Contact Big Dutchman in case of significant deviation.

It is checked that all BD-Blue 170C fans can be placed freely in relation to the other equipment, upon agreement with the owner.

With a hole size of 1525mm it may be advantageous to increase the distance between laths where BD-Blue 170C is to be placed, as well perhaps to use a stronger lath on each side of the wall inlet, only however upon agreement with the owner.

4.2 General Drawings

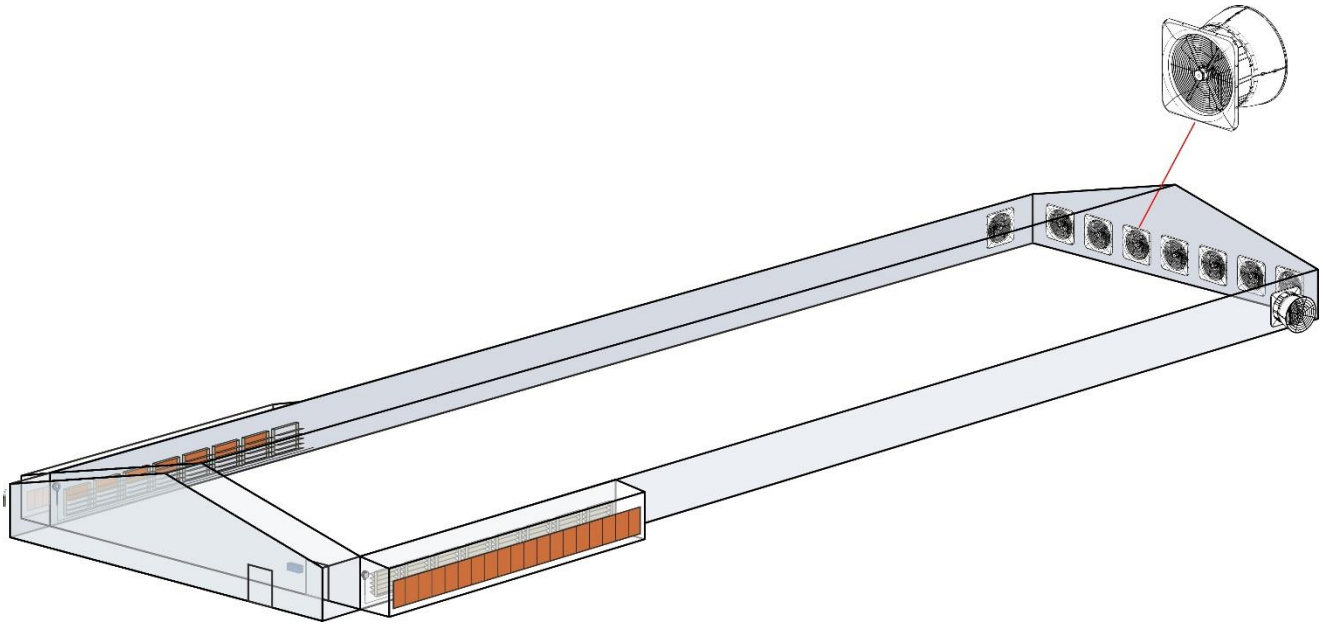
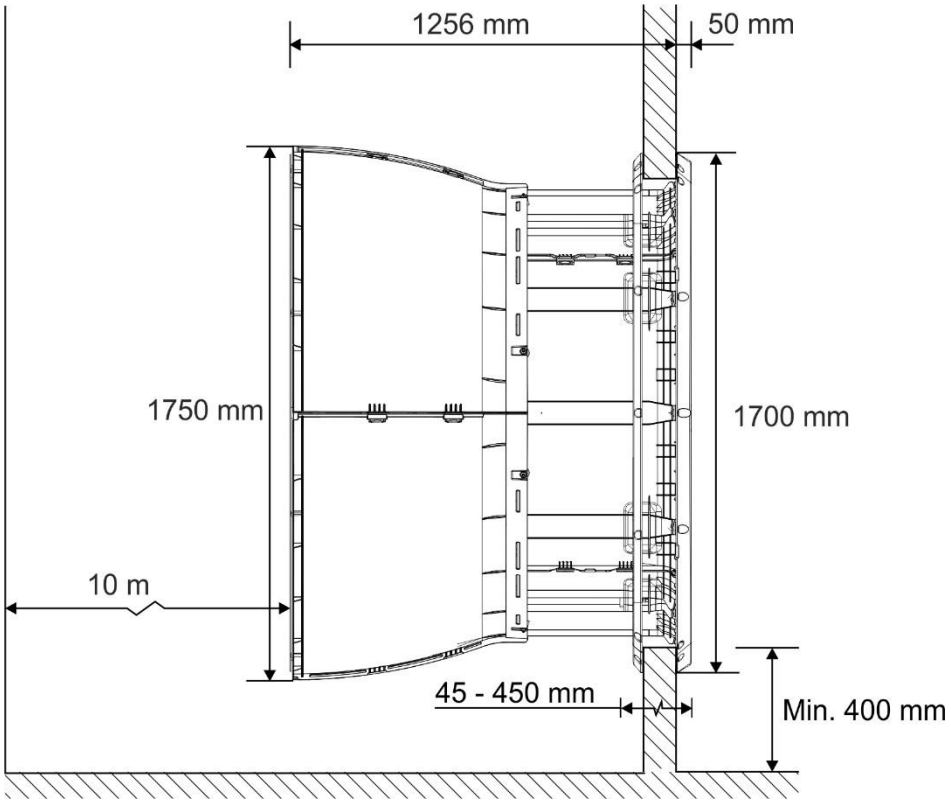


Figure 1: General drawing of tunnel house.

4.3 Preparing Hole in Wall

4.3.1 Necessary Space for BD-Blue 170C without LPC Controller



There must be a minimum of 50 mm of space inside the livestock house for the BD-Blue 170C fan.

There must be minimum of 1256 mm of space including the wall thickness outside the livestock house for the BD-Blue 170C fan.

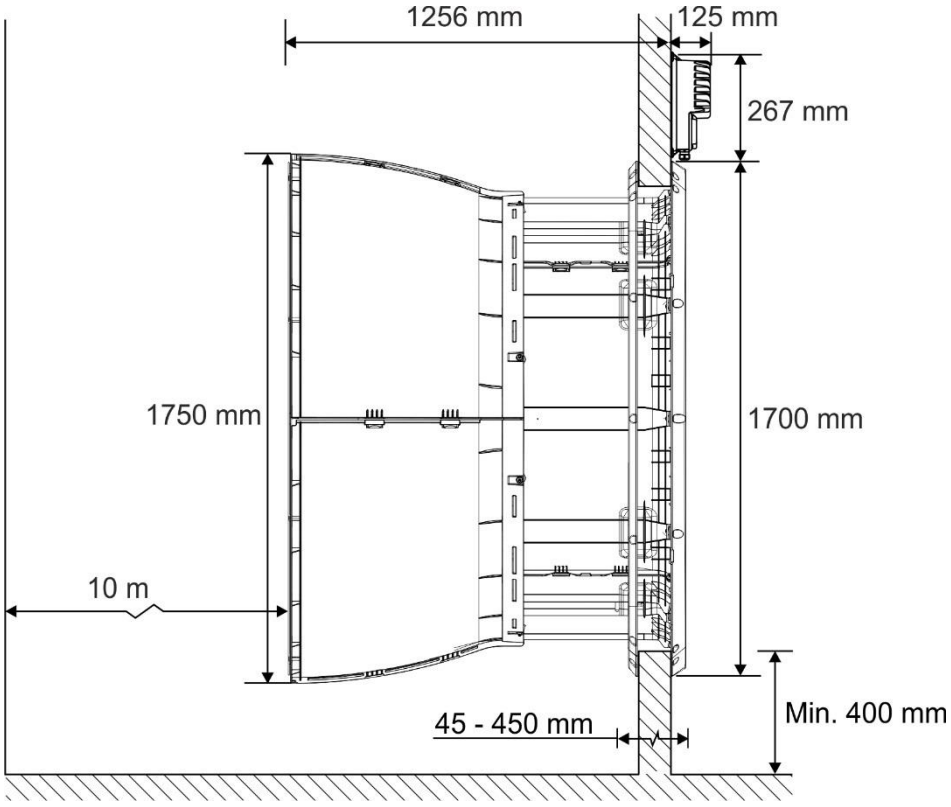
Wall thickness 40 - 450 mm.

The recommended space in front of diffuser is 10 m.

Recommended installation height from floor is minimum 400 mm in order to ensure space for dung removal.

Figure 2: Space for BD-Blue 170C without LPC Controller

4.3.2 Necessary Space for BD-Blue 170C with LPC Controller



There must be a minimum of 125 mm of space inside the livestock house for the BD-Blue 170C fan.

There must be minimum of 1256 mm of space including the wall thickness outside the livestock house for the BD-Blue 170C fan.

Wall thickness 45 - 450 mm.

The recommended space in front of diffuser is 10 m.

Recommended installation height from floor is minimum 400 mm in order to ensure space for dung removal.

Figure 3: Space for BD-Blue 170C with LPC Controller

4.3.3 Round Hole in Sandwich Wall

Dimensions are given here in mm.

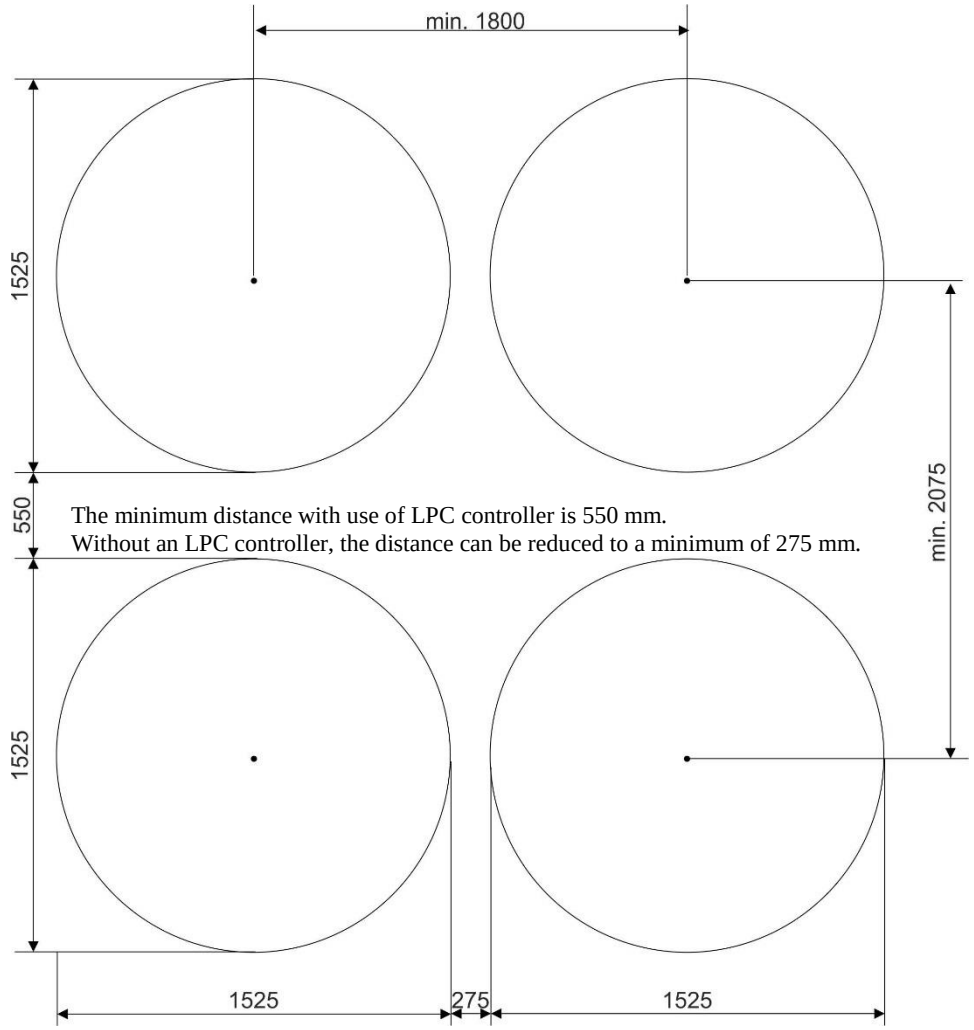


Figure 4: Minimum distance between BD-Blue 170C

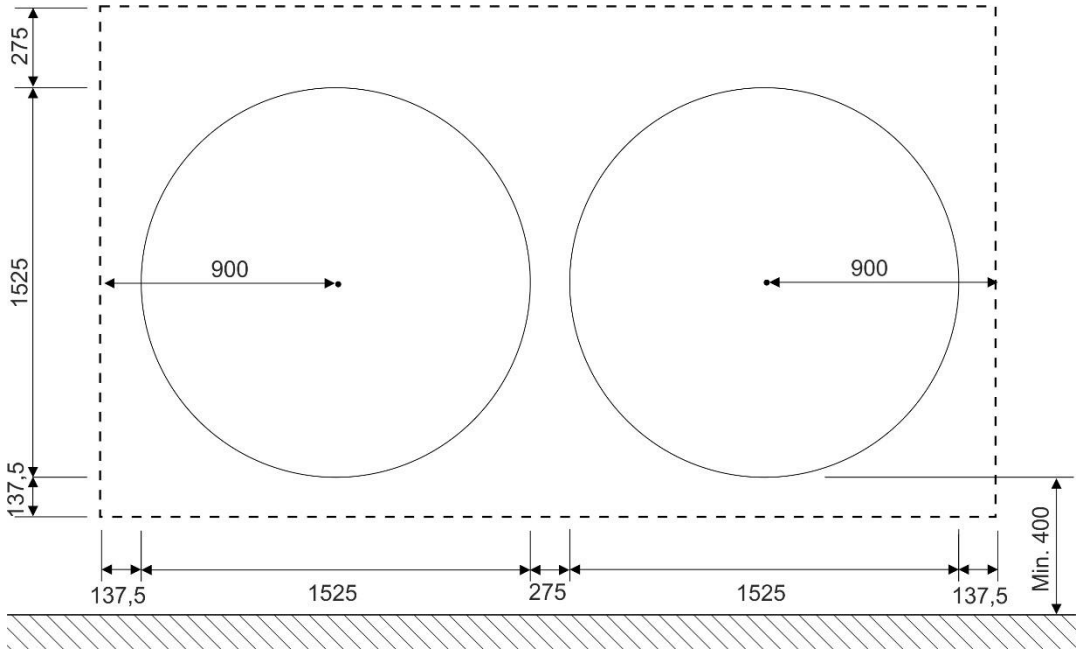


Figure 5: Minimum distance from BD-Blue 170C to wall, floor and ceiling

4.3.4 Square Hole in Concrete and Brick Wall

Dimensions are given here in mm.

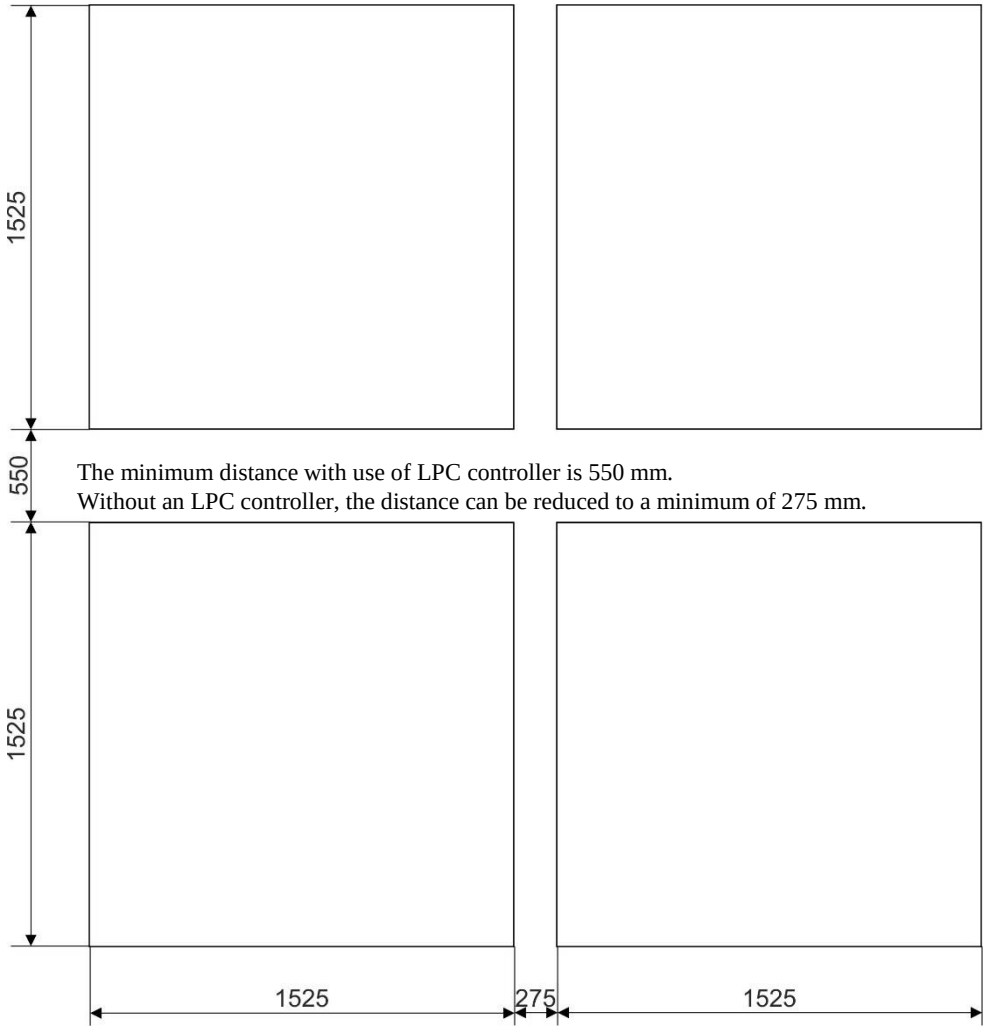


Figure 6: Minimum distance between BD-Blue 170C

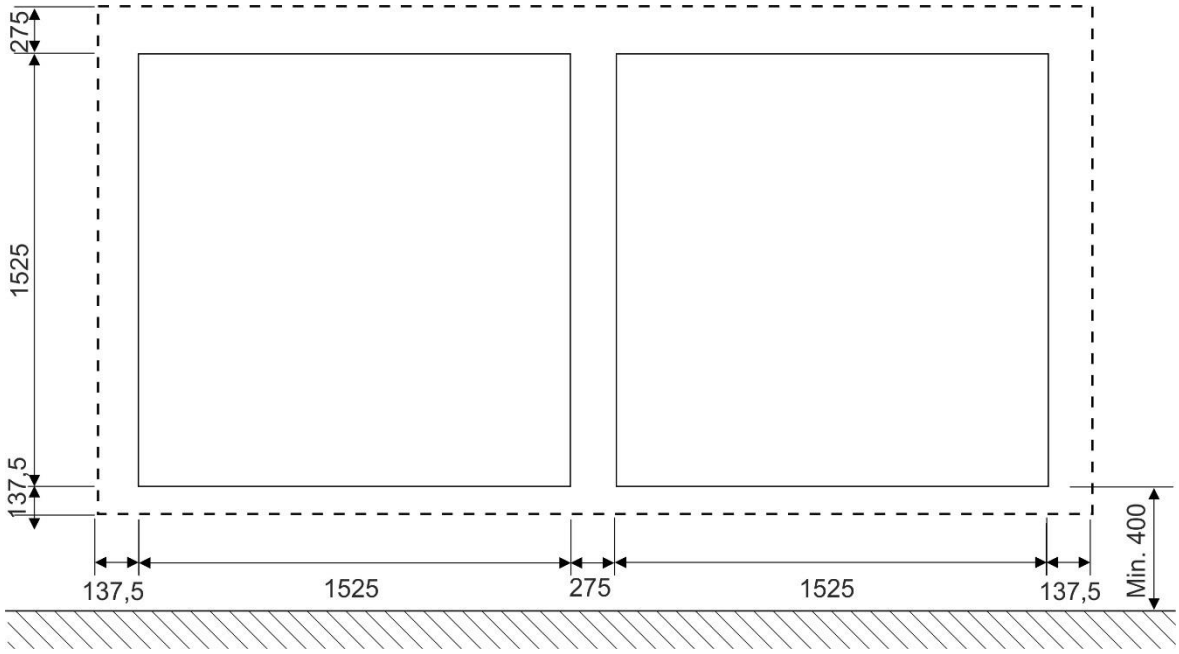
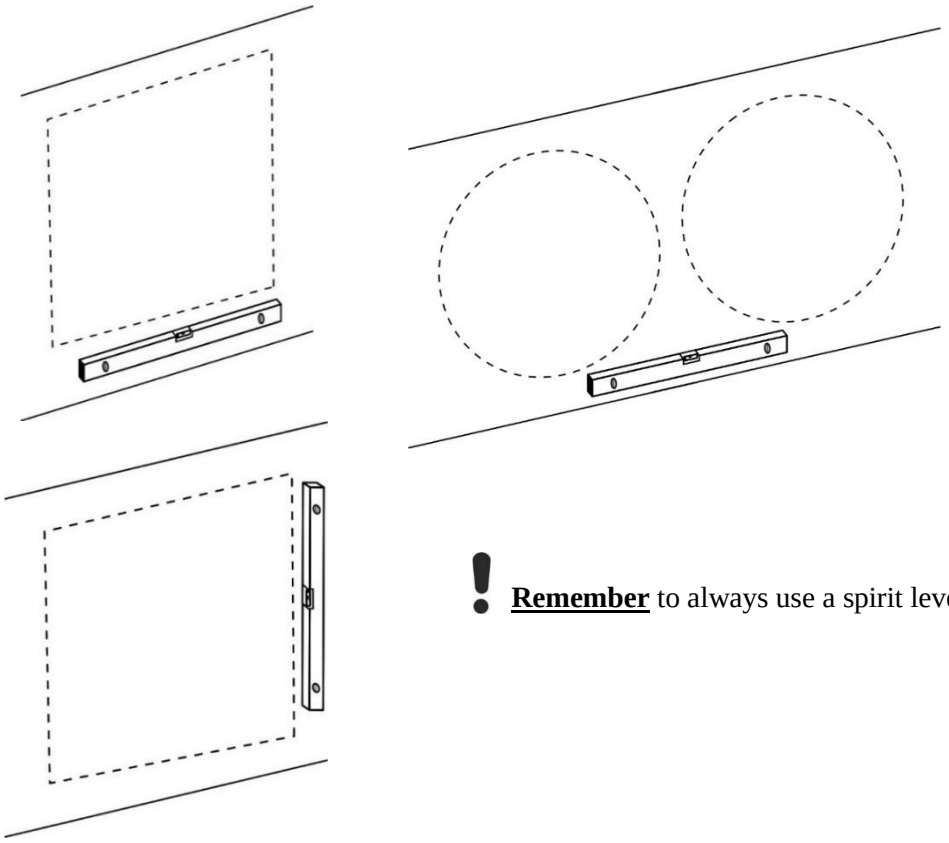
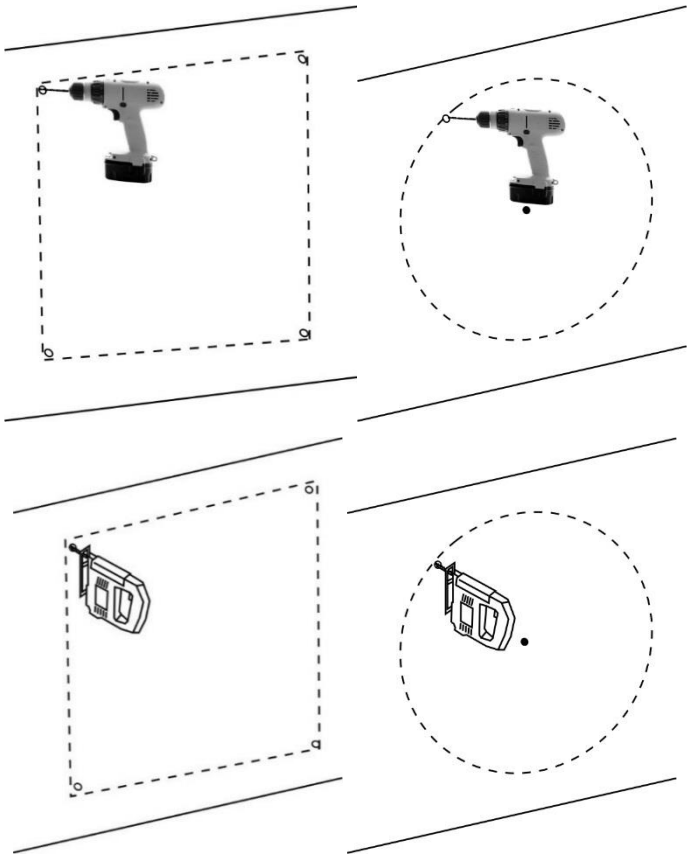


Figure 7: Minimum distance from BD-Blue 170C to wall, floor and ceiling

4.3.5 Measure and Saw Out the Holes



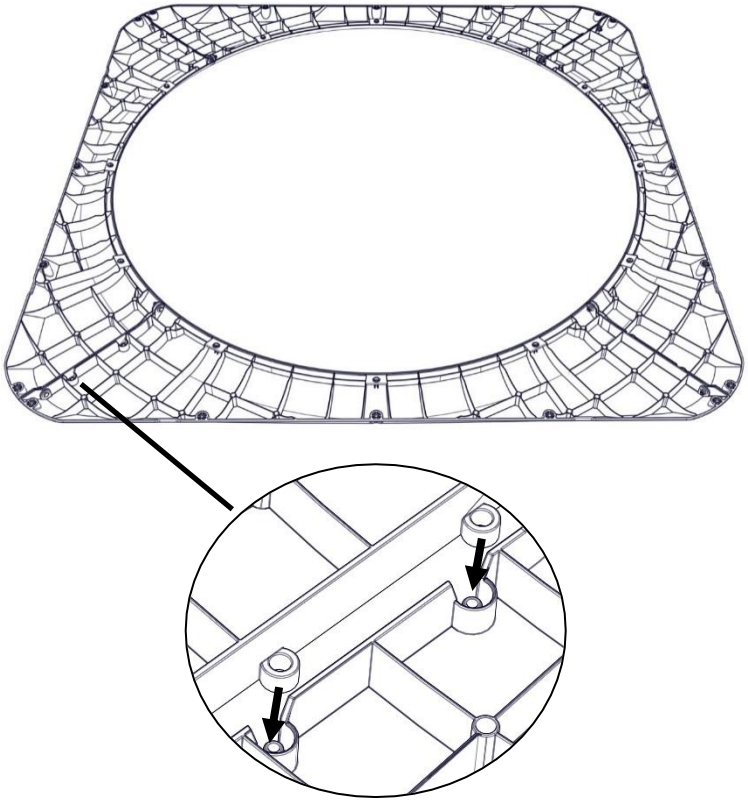
Remember to always use a spirit level.



The holes should be roughly 10 mm right through the wall.

Cut the holes.

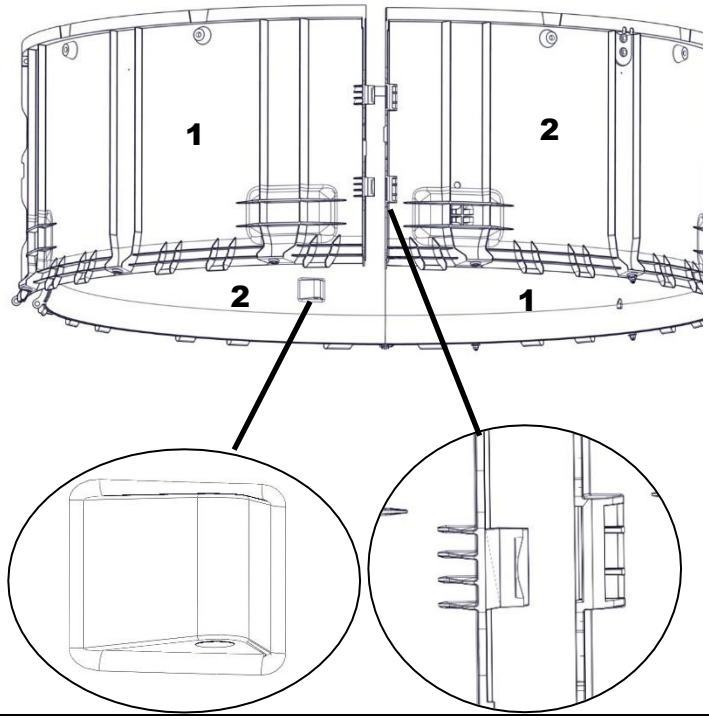
4.3.6 Press the Front Panel Together



Lay the four front panels on the floor.

Press the front panels together in all four corners.

4.3.7 Click the Ventilation Ducts Together

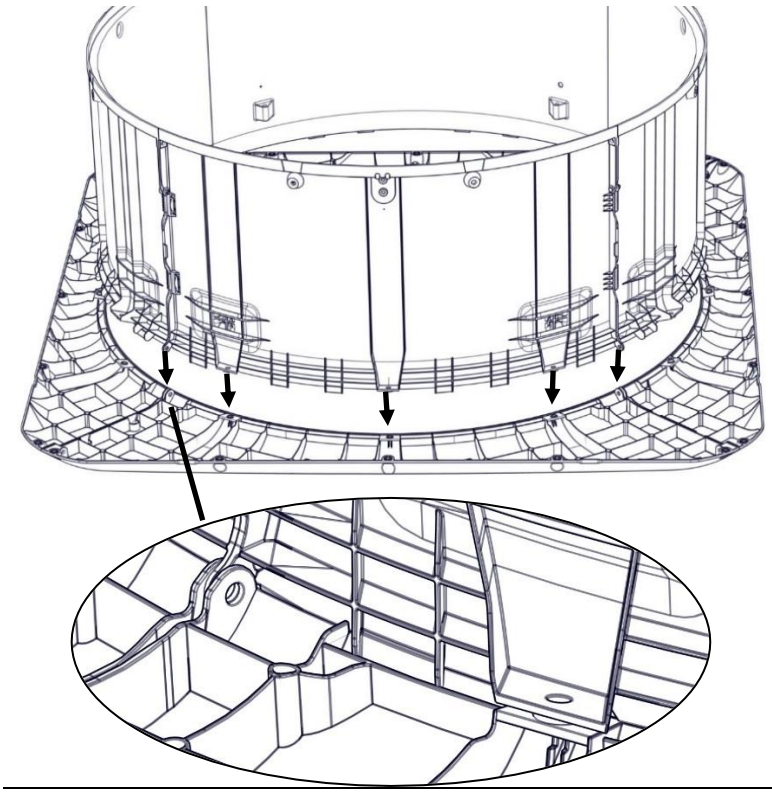


Click the four ventilation ducts together alternately.

Ventilation ducts without motor suspension **(1)**.

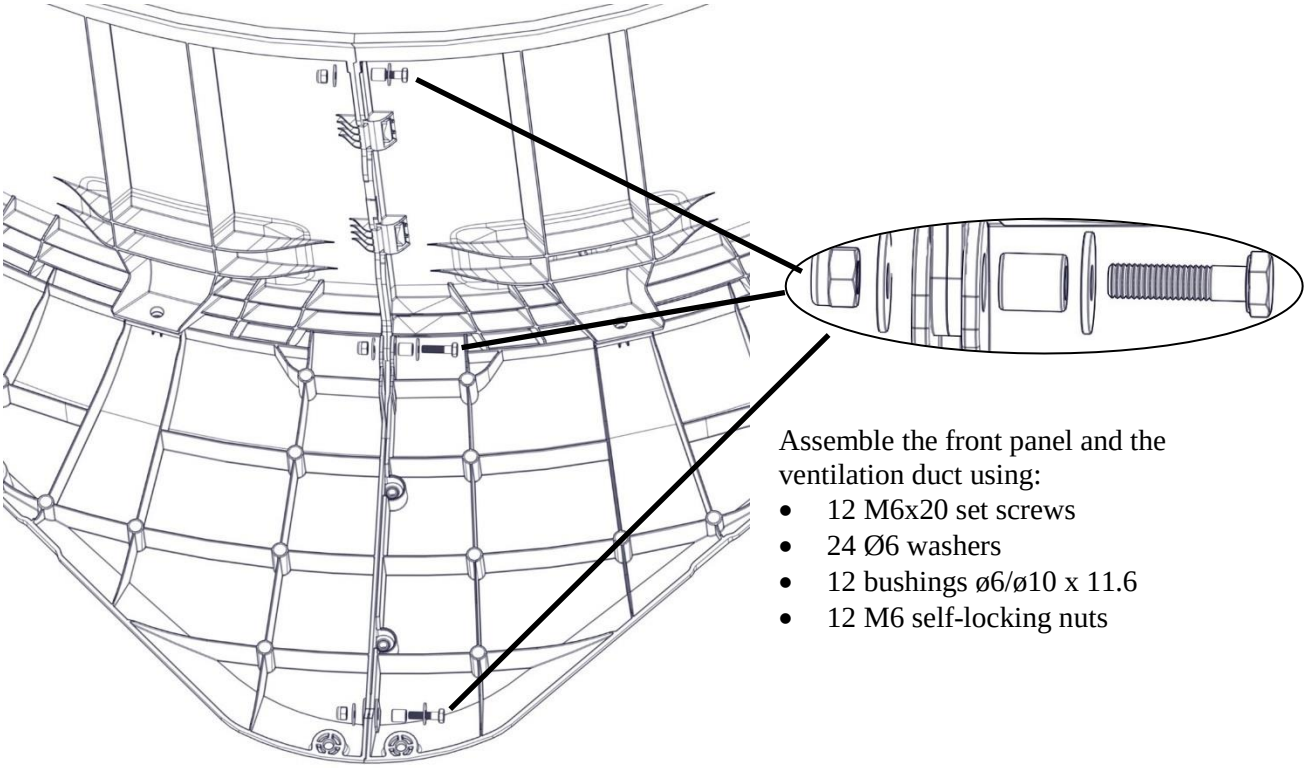
Ventilation ducts with motor suspension **(2)**.

4.3.8 Position the Ventilation Duct on the Front Panel



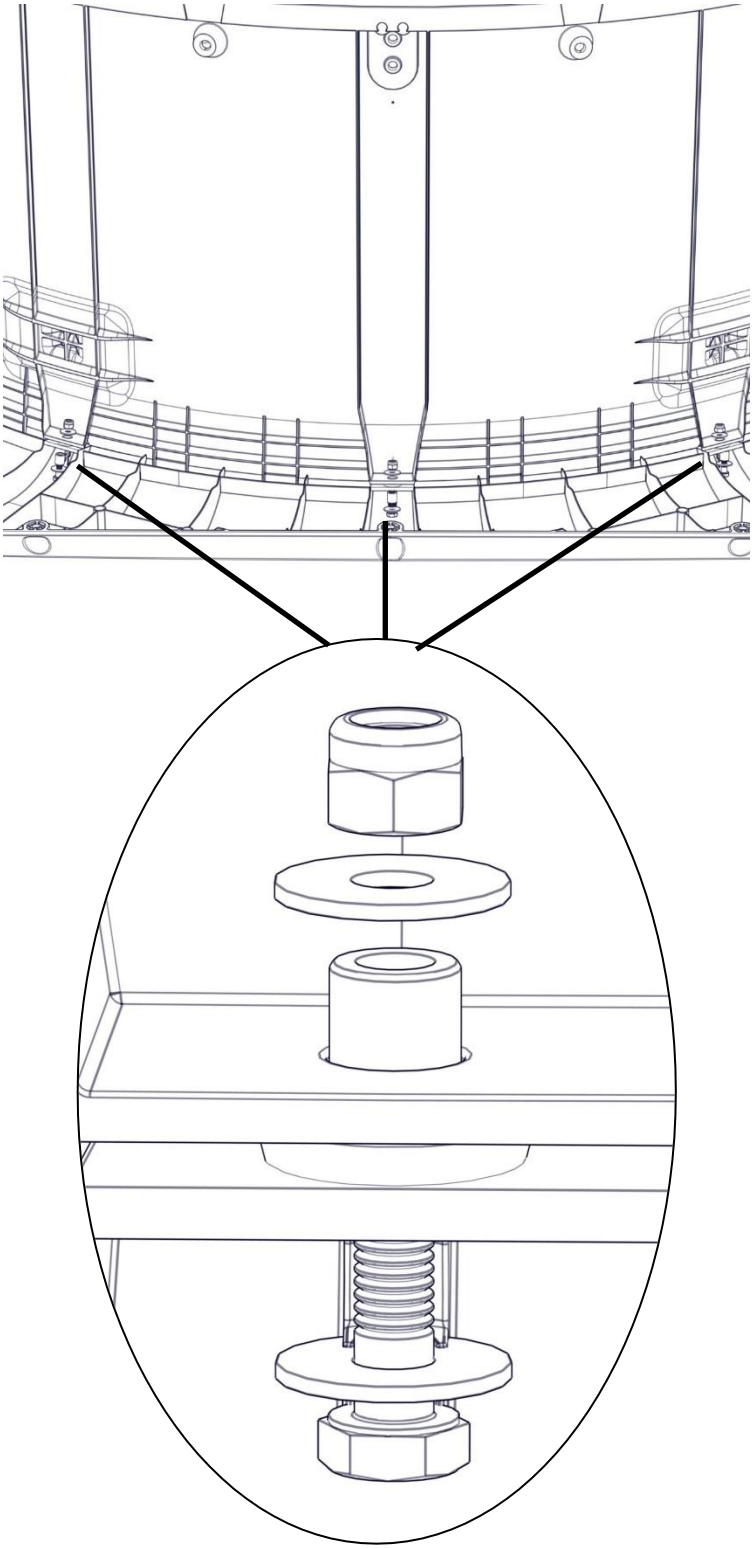
Position the ventilation duct on the front panel.

4.3.9 Mount the Ventilation Duct on the Front Panel



Assemble the front panel and the ventilation duct using:

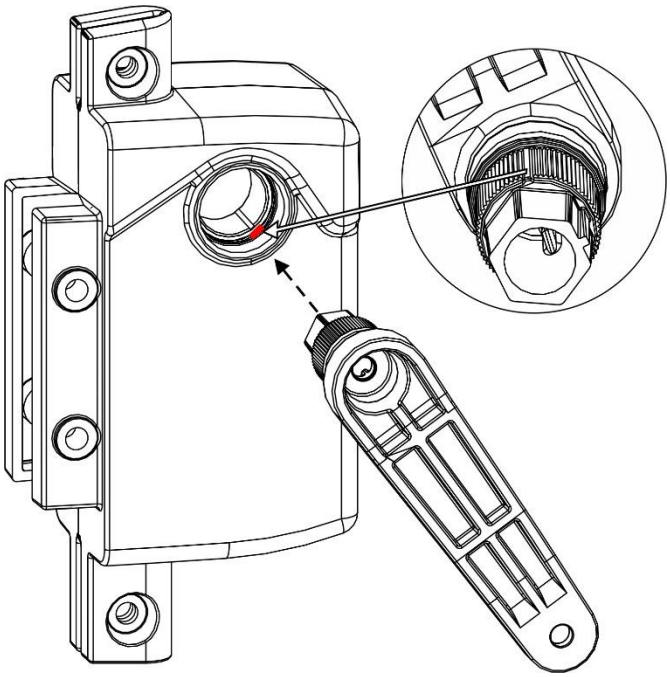
- 12 M6x20 set screws
- 24 Ø6 washers
- 12 bushings ø6/ø10 x 11.6
- 12 M6 self-locking nuts



Then assemble the front panel and the ventilation Duct using:

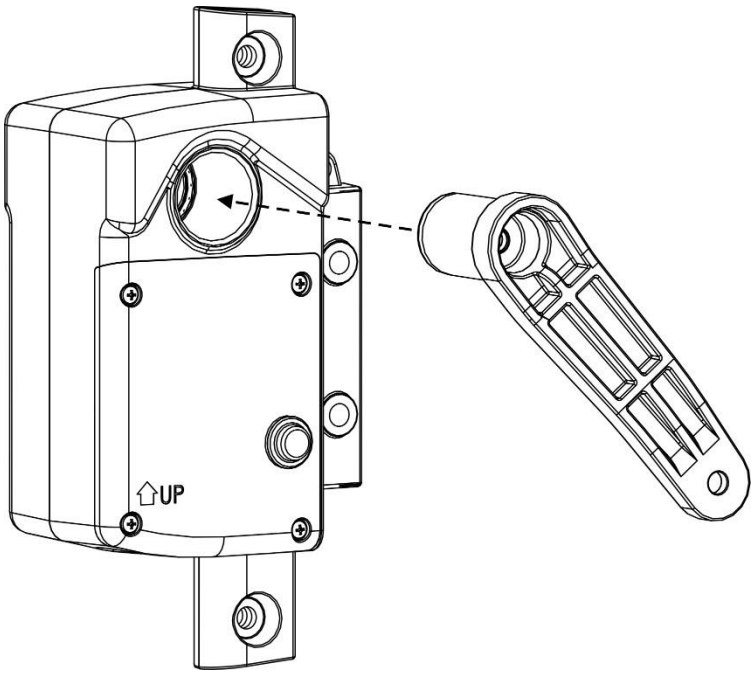
- 12 M6x20 set screws
- 24 Ø6 washers
- 12 bushings ø6/ø10 x 11.6
- 12 M6 self-locking nuts

4.3.10 Mount the Axle in the Shutter Motor

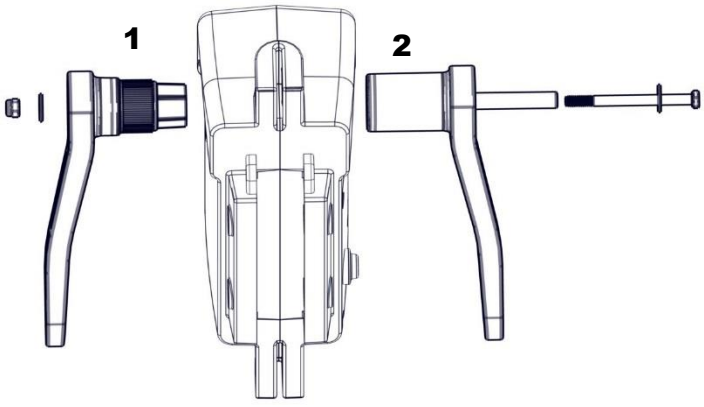


Mount the axle with tooth **(1)** in the shutter motor.

The small protuberance on the axle must fit into the wide groove on the winch motor next to the red marking.



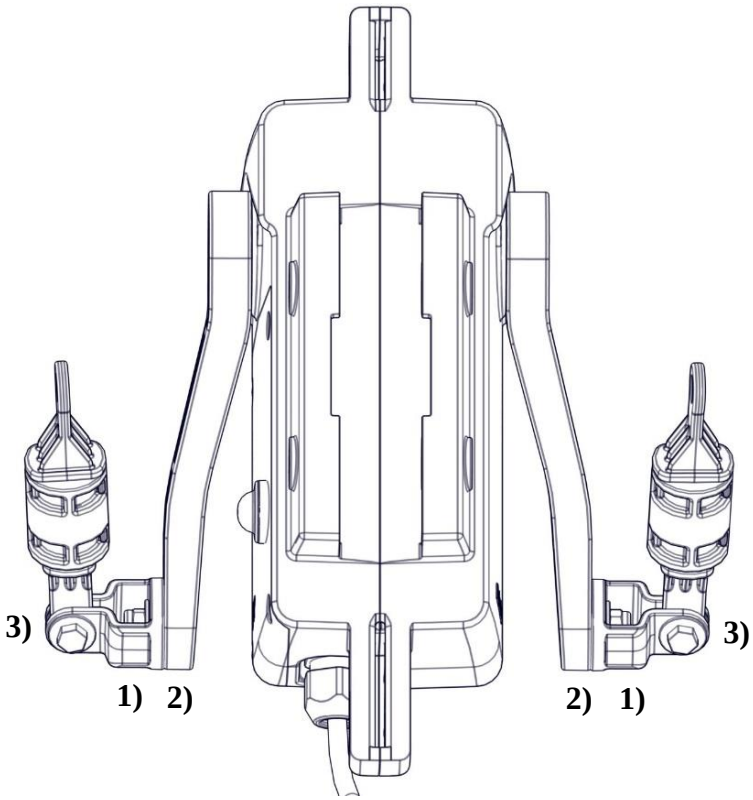
Mount the axle without teeth **(2)** in the shutter motor.



Mount the axle on the shutter motor using:

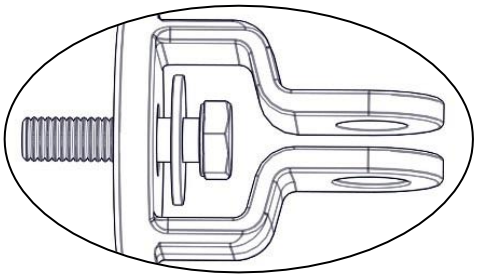
- 1 M6x80 set screw
- 2 Ø6 washers
- 1 bushing ø6/ø10 x 69.6
- 1 M6 self-locking nut

4.3.11 Mount Fork Piece and Connection Piece on the Shutter Motor



1)

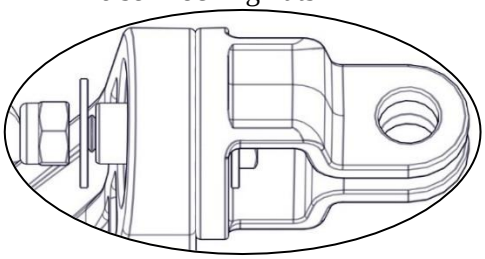
Put the M6x20 set screw and the Ø6 washers in the two fork pieces.



2)

Mount the two fork pieces on the shutter motor using:

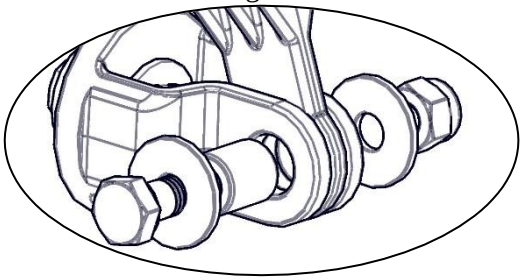
- 2 M6x20 set screws
- 4 Ø6 washers
- 2 bushings ø6/ø10 x 11.6
- 2 M6 self-locking nuts



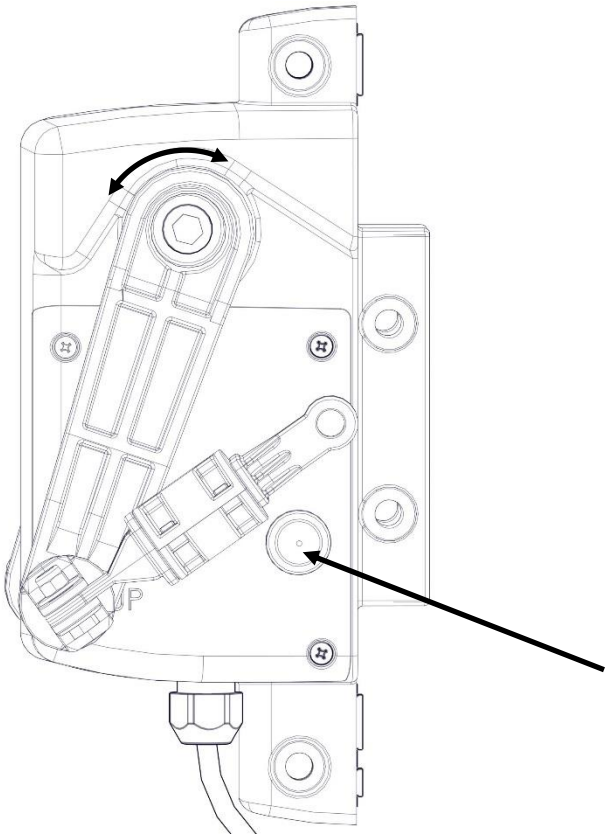
3)

Mount the two connection pieces on the shutter motor using:

- 2 M6x20 set screws
- 4 Ø6 washers
- 2 bushings ø6/ø10 x 11.6
- 2 M6 self-locking nuts

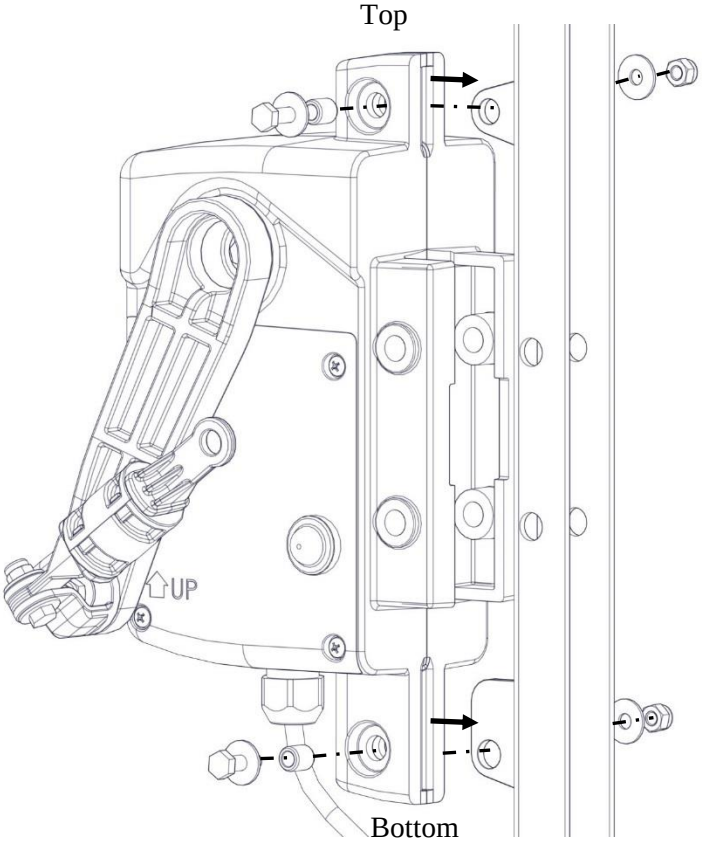


4.3.12 Mount the Shutter Motor on the Centre pillar



Press on the manual trigger to check that the arms of the shutter motor can move.

Top

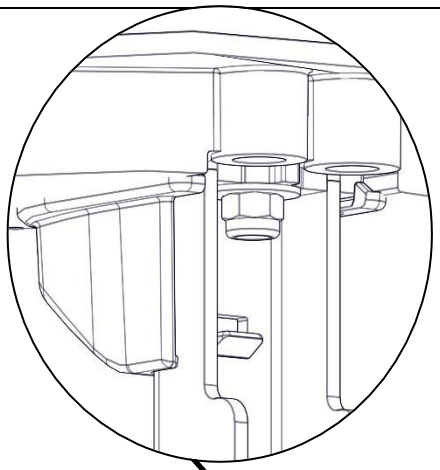


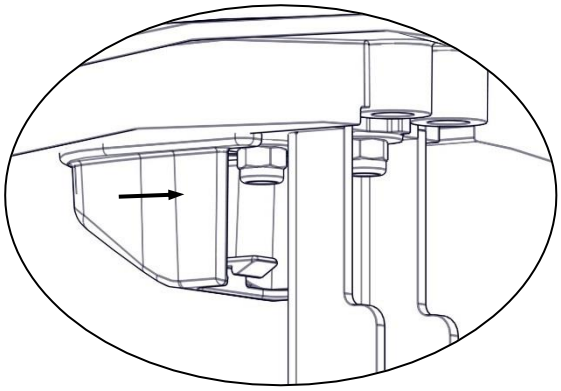
Bottom

Mount the shutter motor on the Centre pillar using:

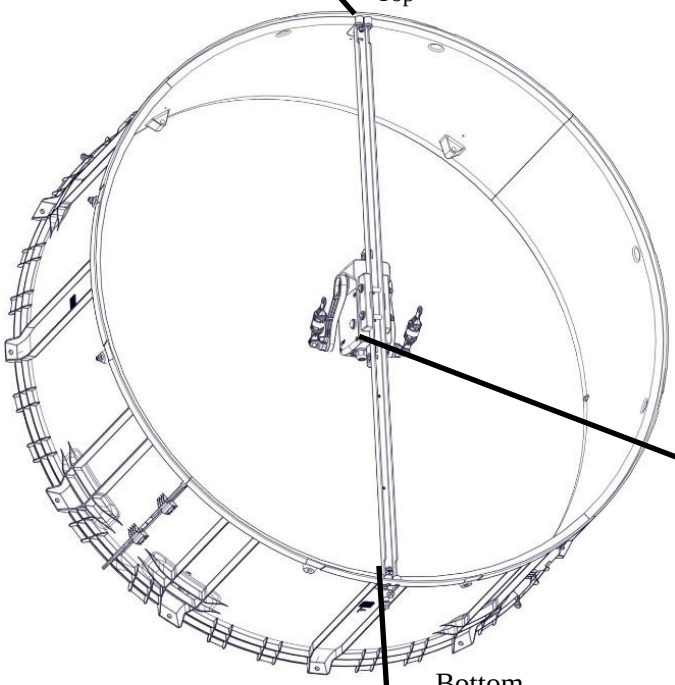
- 2 M6x20 set screws
- 4 Ø6 washers
- 2 bushings ø6/ø10 x 11.6
- 2 M6 self-locking nuts

4.3.13 Mount the Centre Pillar on the Ventilation duct



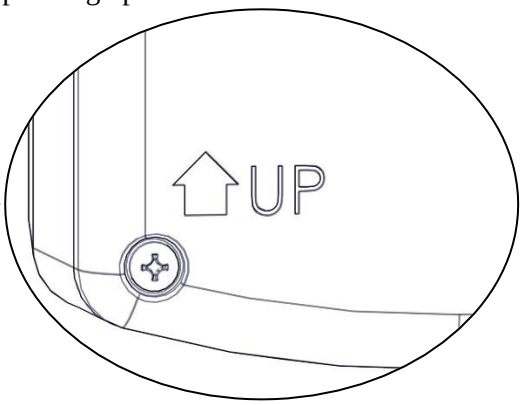


Top

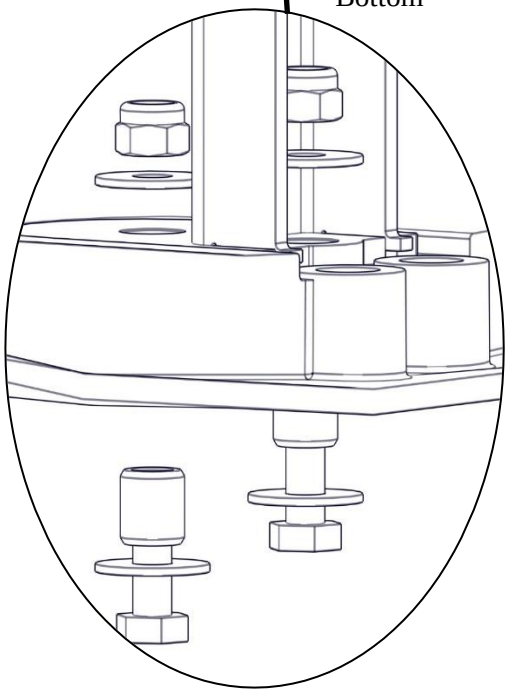


Press the cover for centre pillar on the centre cover at the top and bottom.

! Make sure the arrow on the shutter motor is pointing upwards.



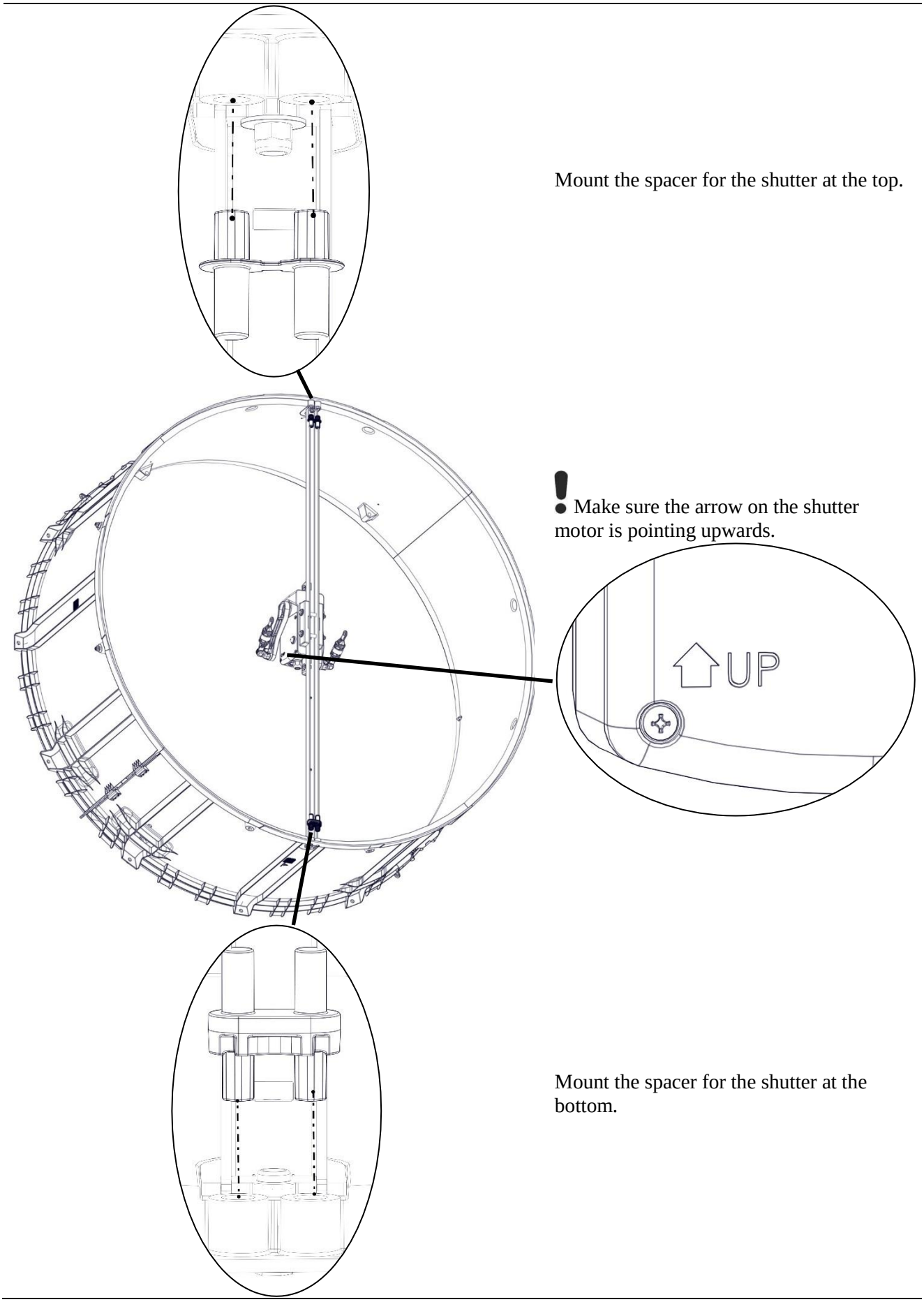
Bottom



Mount the Centre pillar on the ventilation duct using:

- 4 M6x20 set screws
- 8 Ø6 washers
- 4 bushings ø6/ø10 x 11.6
- 4 M6 self-locking nuts

4.3.14 Mount the Spacer for the Shutter at the Top and Bottom

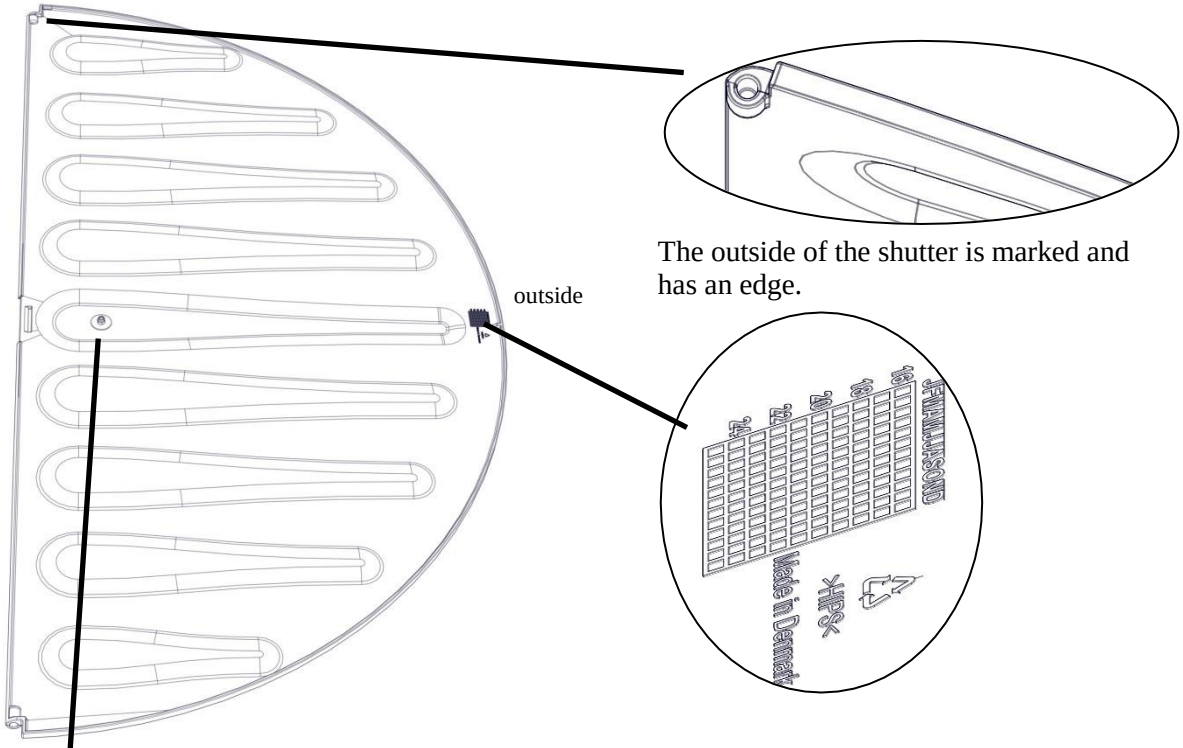


Mount the spacer for the shutter at the top.

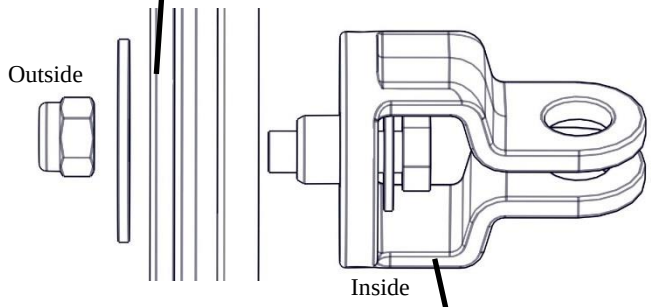
! Make sure the arrow on the shutter motor is pointing upwards.

Mount the spacer for the shutter at the bottom.

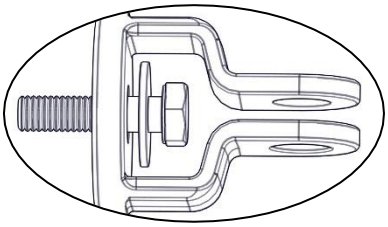
4.3.15 Mount the Fork Piece on the Shutter

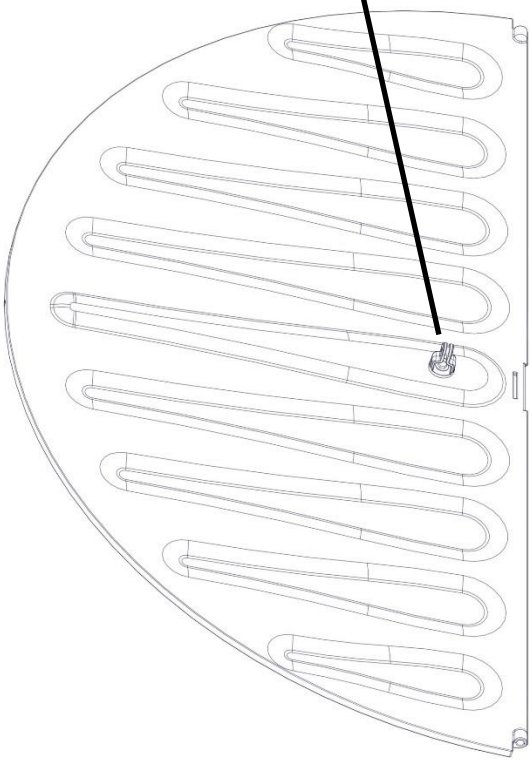


The outside of the shutter is marked and has an edge.



Put the M6x20 set screw and the Ø6 washers in the two fork pieces.

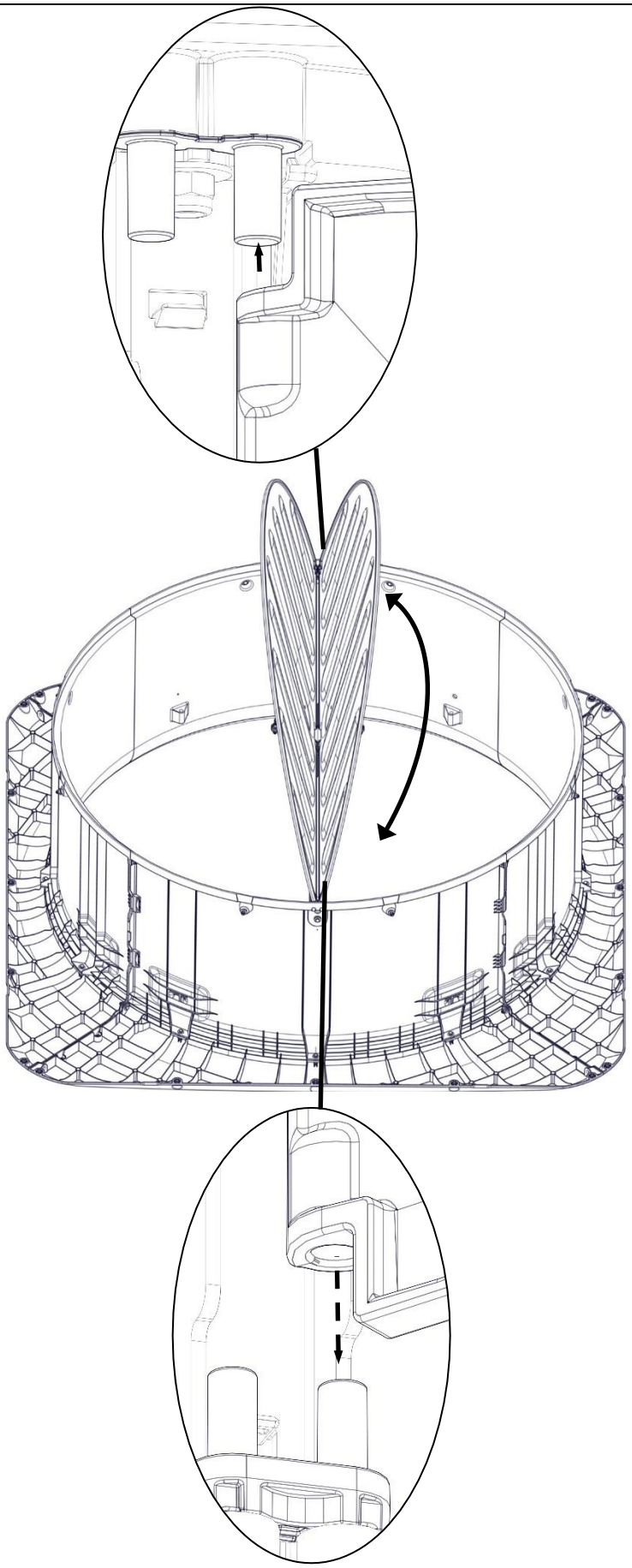




Mount the fork piece on the two shutters using:

- 2 M6x20 set screws
- 2 Ø6 washers (inside)
- 2 Ø6,4/30 washers (outside)
- 2 bushings ø6/ø10 x 11.6
- 2 M6 self-locking nuts

4.3.16 Mount the Shutter

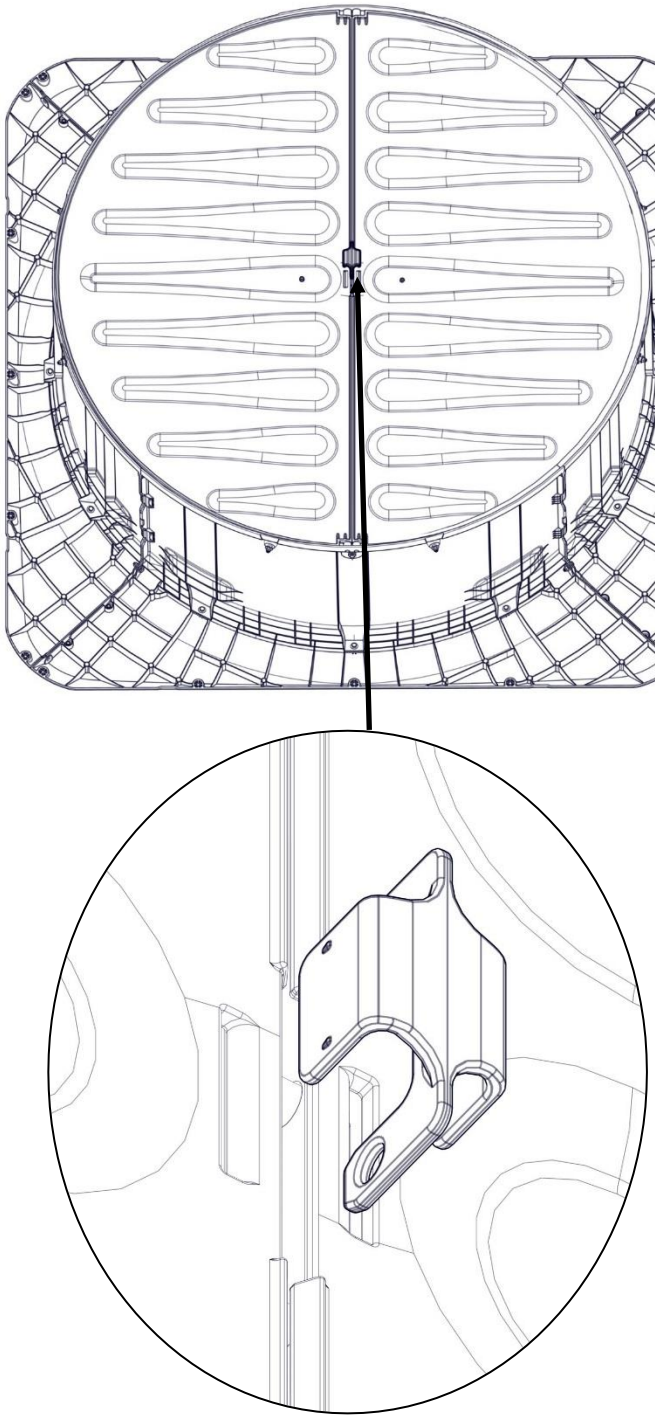


Mounting the shutter top.

Mount the two shutters onto the ventilation duct by pushing the shutter down over one of the axle journals. Bend the shutter a fraction, then push the shutter over the other axle journal.

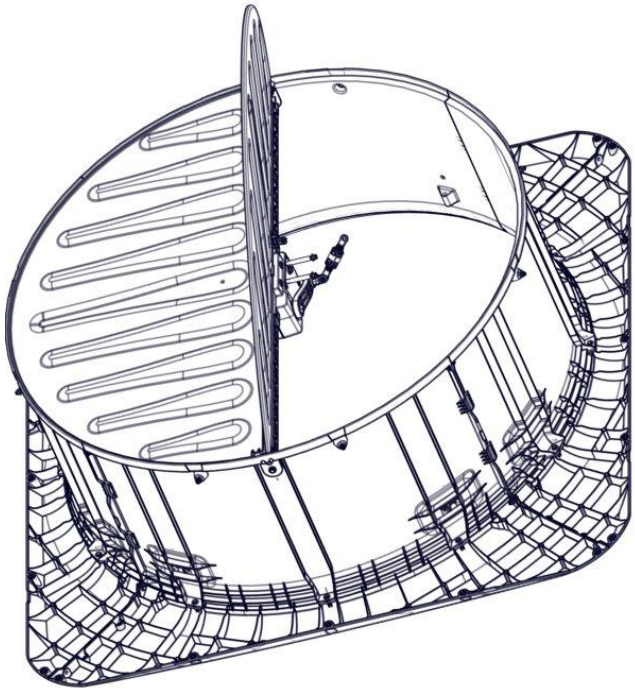
Mounting the shutter bottom

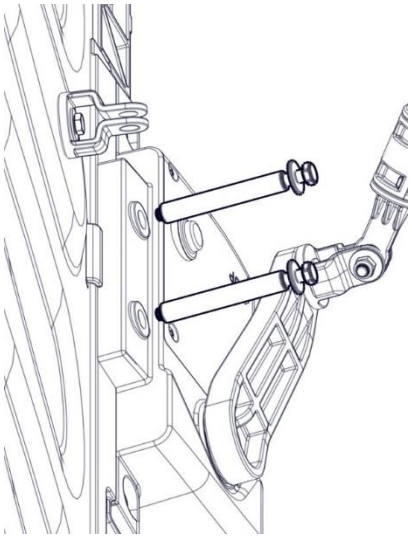
4.3.17 Mount the Shutter Lock onto the Centre Pillar

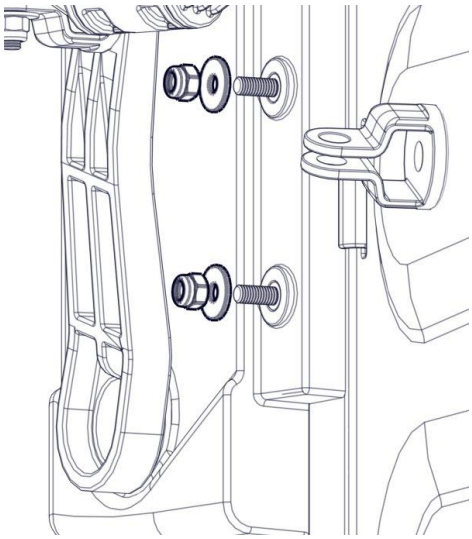


Mount the shutter lock onto the Centre pillar.

4.3.18 Mount the Shutter Lock together with the Shutter Motor





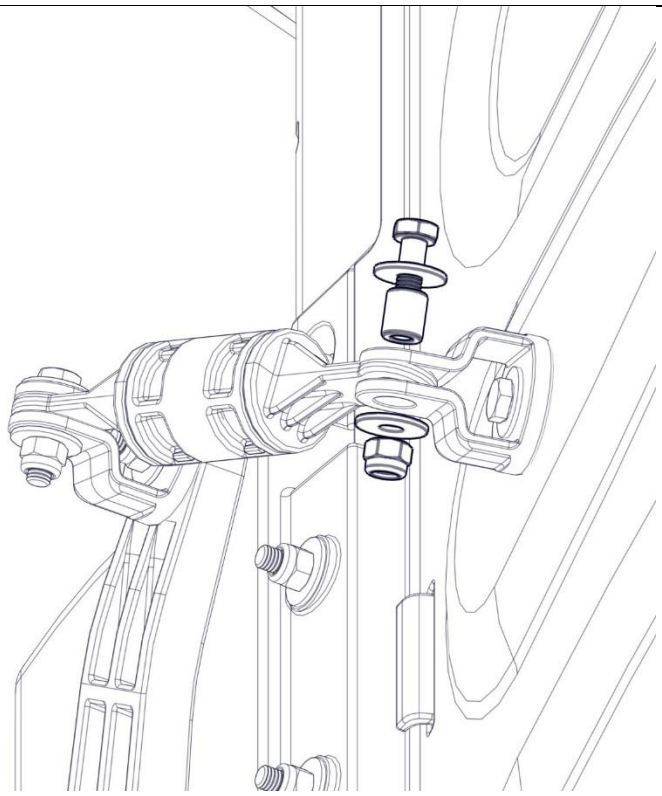


Open one shutter at a time.

Mount the shutter lock and the shutter motor together using:

- 2 M6x80 set screws
- 4 Ø6 washers
- 2 bushings ø6/ø10 x 69.6
- 2 M6 self-locking nuts

4.3.19 Connect the Fork Piece and the Actuator Arm together

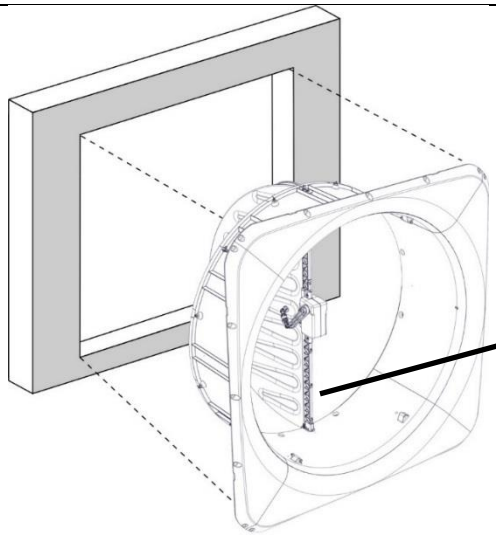


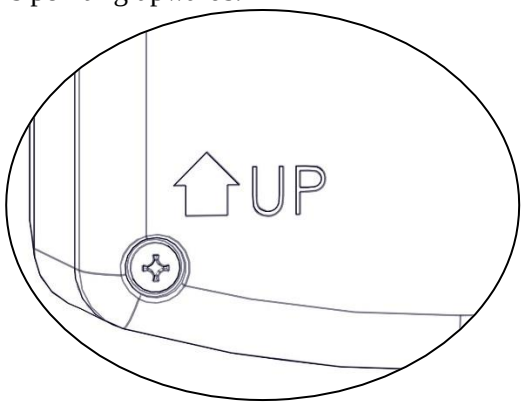
Connect the fork piece and the actuator arm together using:

- 2 M6x20 set screws
- 4 Ø6 washers
- 2 bushings ø6/ø10 x 11.6
- 2 M6 self-locking nuts

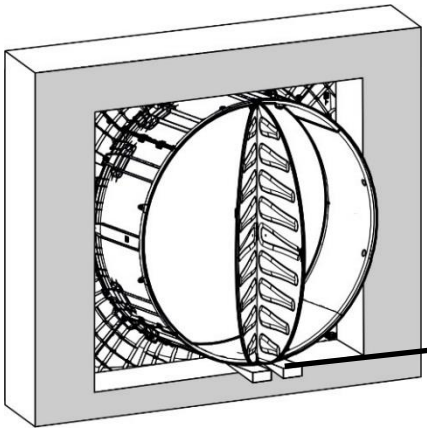
Press on the manual trigger to turn the arms on the shutter motor, see section 4.3.12.

4.3.20 Mount BD-Blue 170C in Wall



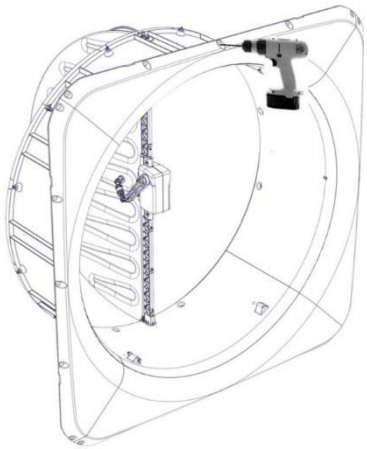


Make sure the arrow on the shutter motor is pointing upwards.

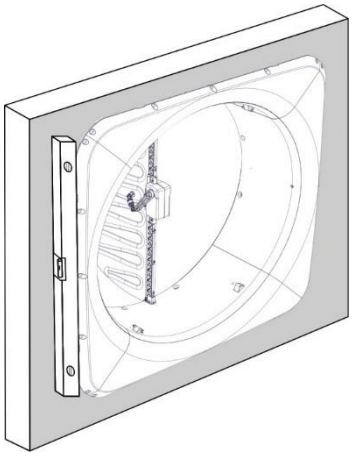


Centre BD-Blue 170C in the hole, use wedges at the bottom.

Use the holes in BD-Blue 170C to mark out holes in the wall.



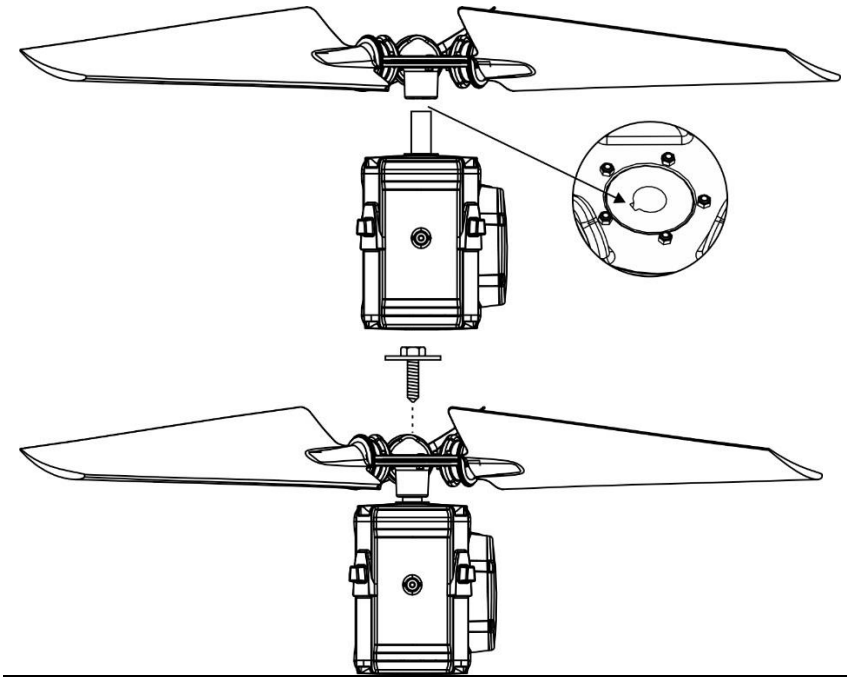
Mounting on a sandwich wall:
Drill 3 mm holes in the wall.



Use a screw that fits the wall structure

For mounting the shutter cable, see section 4.3.26.

4.3.21 Mount Fan Blades on the Motor Shaft



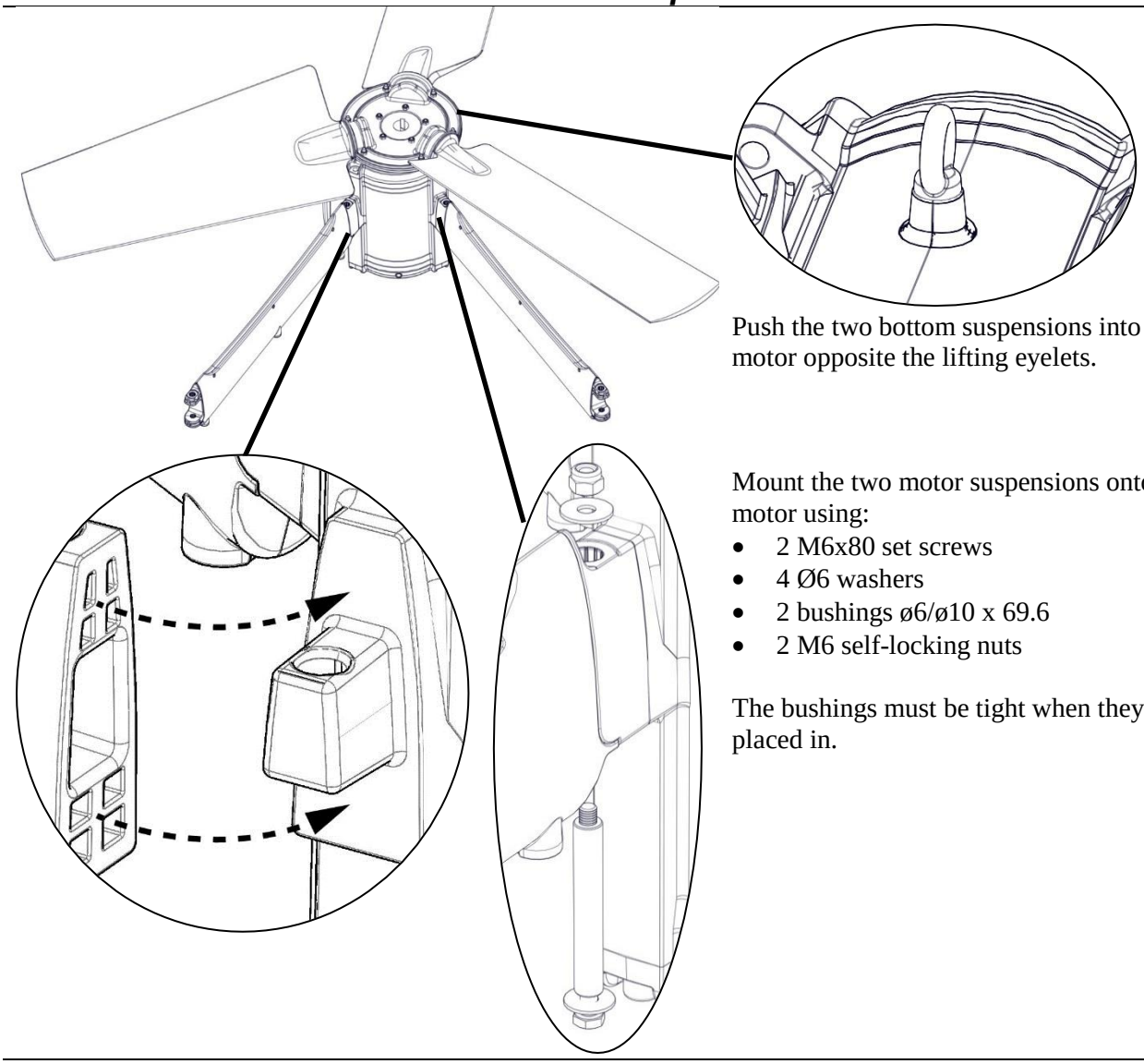
The grooves on the fan blade and the grooves on the axle must be in line with each other.

Press the parts together.

Mount fan blades on the motor shaft using:

- 1 M10x25 set screw
- 1 Ø10.5/Ø45x3 washer

4.3.22 Mount the two Bottom Motor Suspensions on the Motor



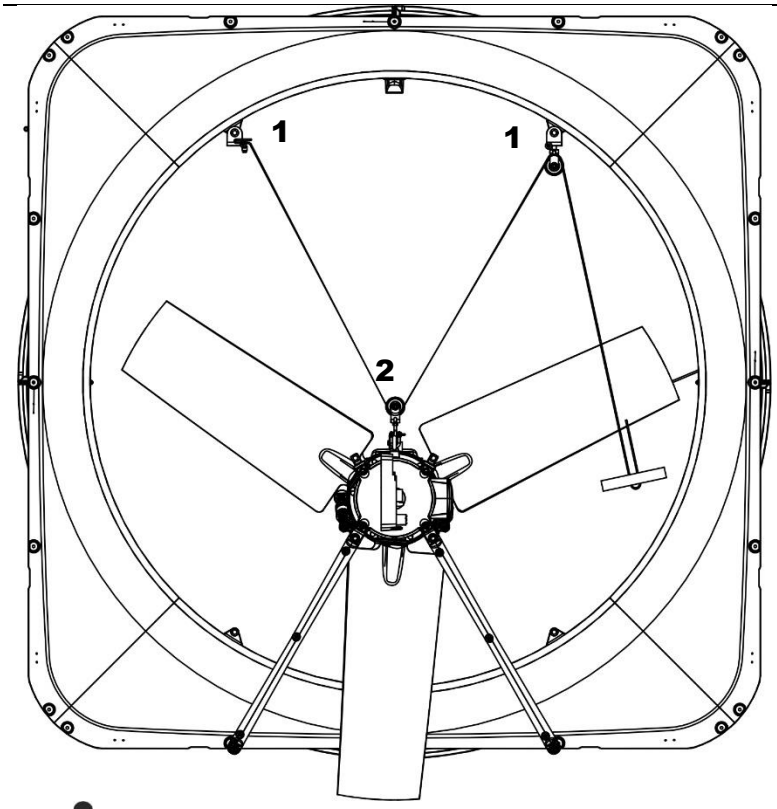
Push the two bottom suspensions into the motor opposite the lifting eyelets.

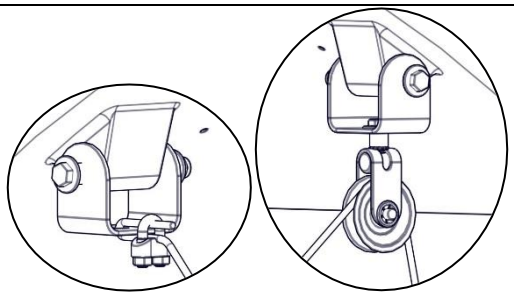
Mount the two motor suspensions onto the motor using:

- 2 M6x80 set screws
- 4 Ø6 washers
- 2 bushings ø6/ø10 x 69.6
- 2 M6 self-locking nuts

The bushings must be tight when they are placed in.

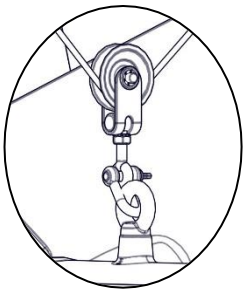
4.3.23 Lifting kit





(1) Mount the lifting kit using:

- 2 M6x80 screws
- 4 Ø6 washers
- 2 bushings ø6/ø10x11,6 A2

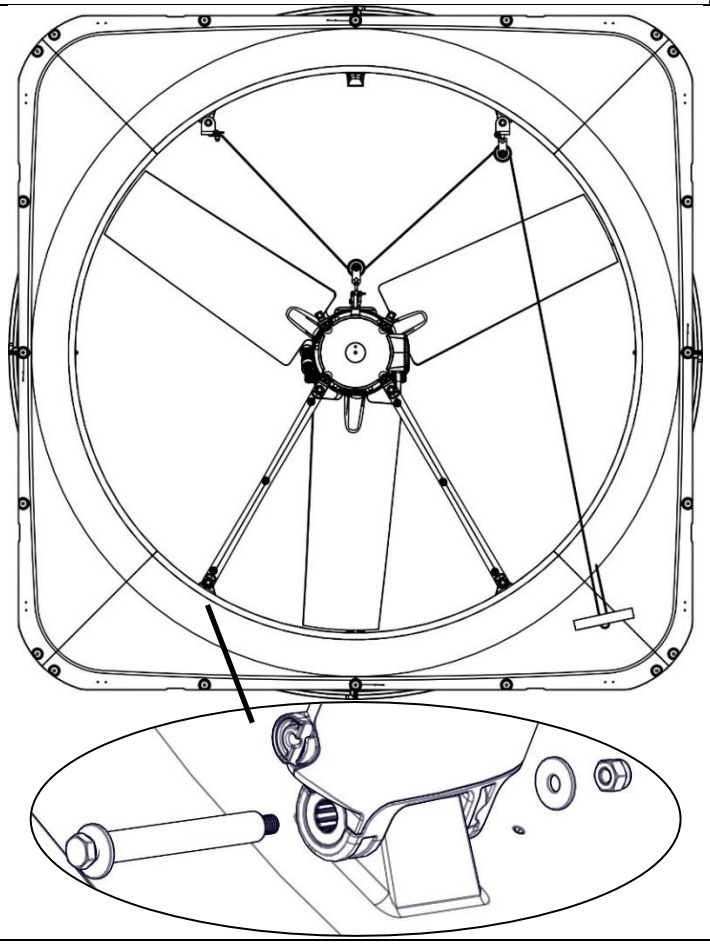


(2) Mount the lifting kit on the motor using:

- 1 Shackle M6 A2 short

Make sure that the fan blades do not touch the floor.

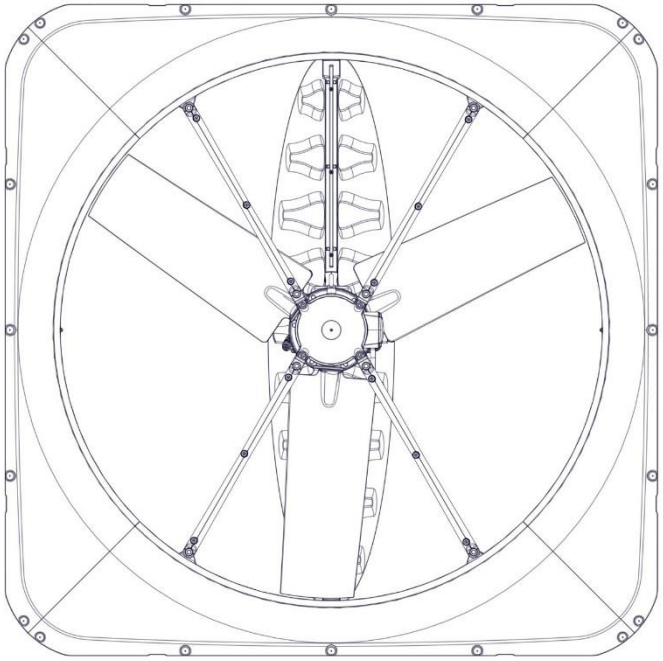
4.3.24 Mount Motor to Bottom Motor Suspensions in the Fan Housing



Mount motor with the two bottom motor suspensions in the fan housing using:

- 2 M6x80 set screws
- 4 Ø6 washers
- 2 bushings ø6/ø10 x 69.6
- 2 M6 self-locking nuts

4.3.25 Mount Top Motor Suspensions to the Motor and the Fan Housing



Remove the lifting beam.

Mount the top motor suspensions to the motor using:

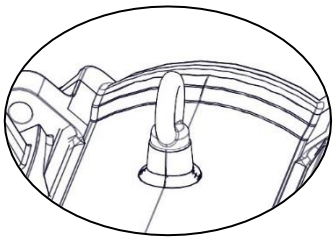
- 2 M6x80 set screws
- 4 Ø6 washers
- 2 bushings ø6/ø10 x 69.6
- 2 M6 self-locking nuts

For more details, see section 4.3.22.

Mount the motor suspensions in the fan housing using:

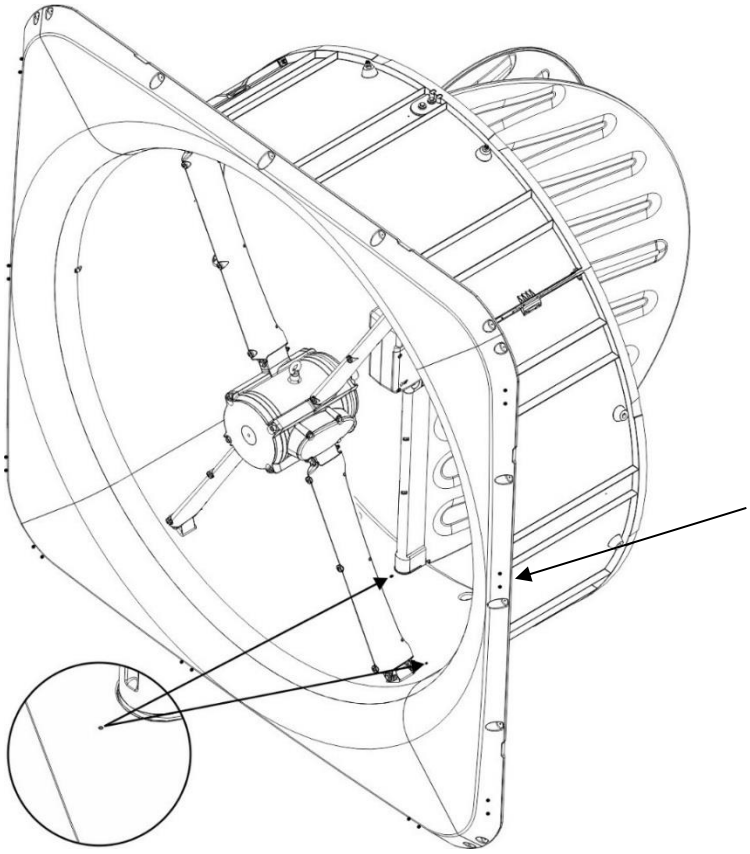
- 2 M6x80 set screws
- 4 Ø6 washers
- 2 bushings ø6/ø10 x 69.6
- 2 M6 self-locking nuts

For more details, see section 4.3.24.



Tighten the eyebolt.

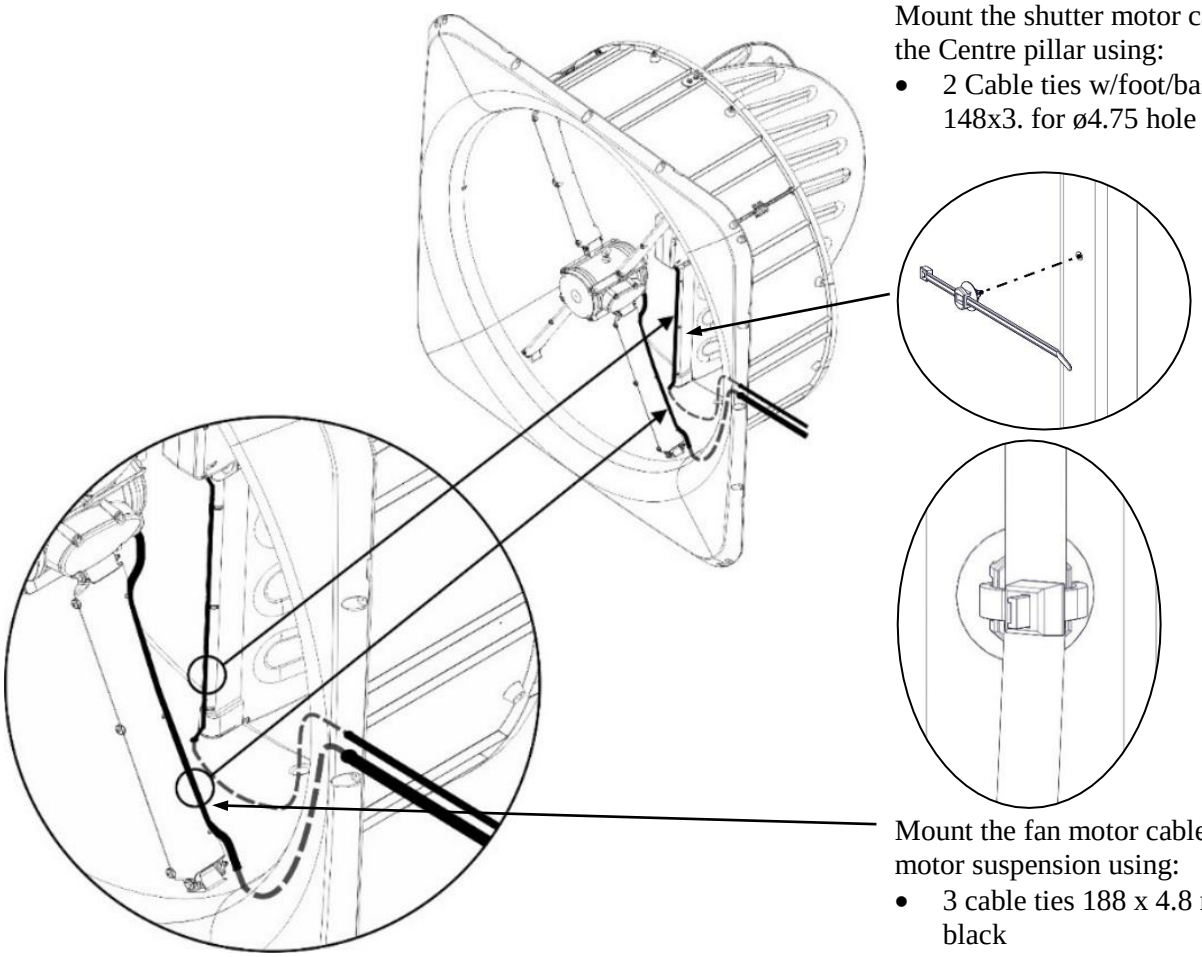
4.3.26 Guiding Cables from Motors



Drill a hole in the base with centre marks.
Drill an 8 mm hole for the shutter motor cable.
Drill a 13 mm hole for the fan motor cable.

Select where cables must come out, in the side or in the bottom, and drill a hole with the aid of centre marks:

- 8 mm hole for the winch motor cable at the top.
- 13 mm hole for the fan motor cable at the bottom.

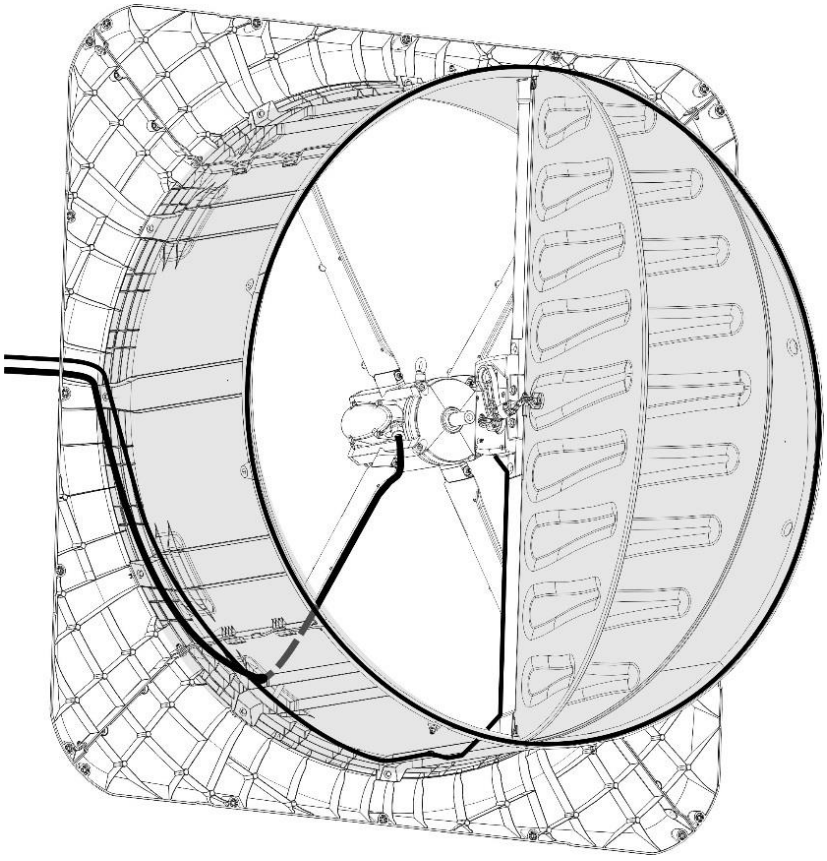


Mount the shutter motor cable on the Centre pillar using:

- 2 Cable ties w/foot/base 148x3. for ø4.75 hole

Mount the fan motor cable on the motor suspension using:

- 3 cable ties 188 x 4.8 mm, black

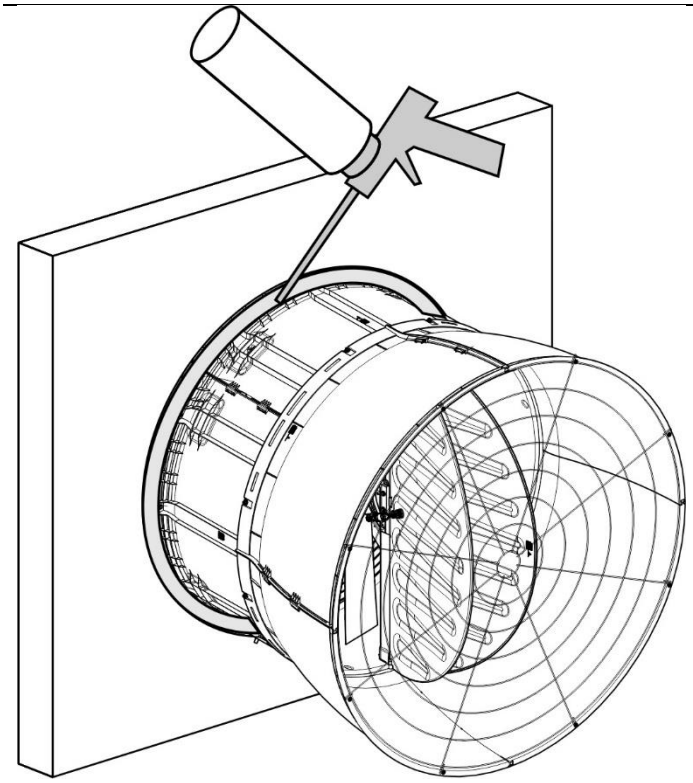


Before mounting the diffuser, pull the cables around the ventilation duct and in through the drilled holes.

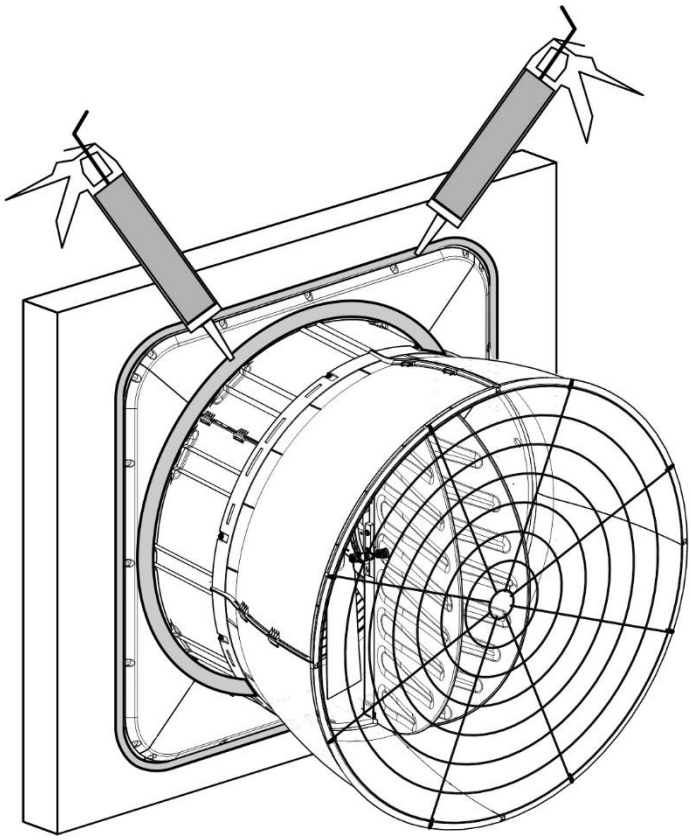
For sealing when leading through cables, see section 4.3.28.

4.3.27 Foam and Seal the Outer Side

Seal the outer side before placing the diffuser on the ventilation duct.

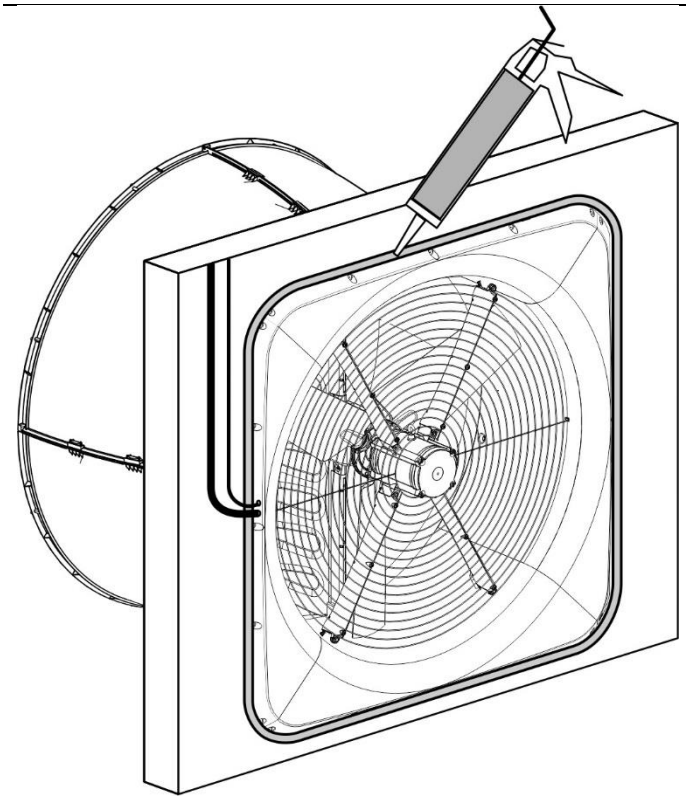


If there is no outside cover, foam must be placed around the ventilation duct. For mounting of external cover, see section 4.4.2.

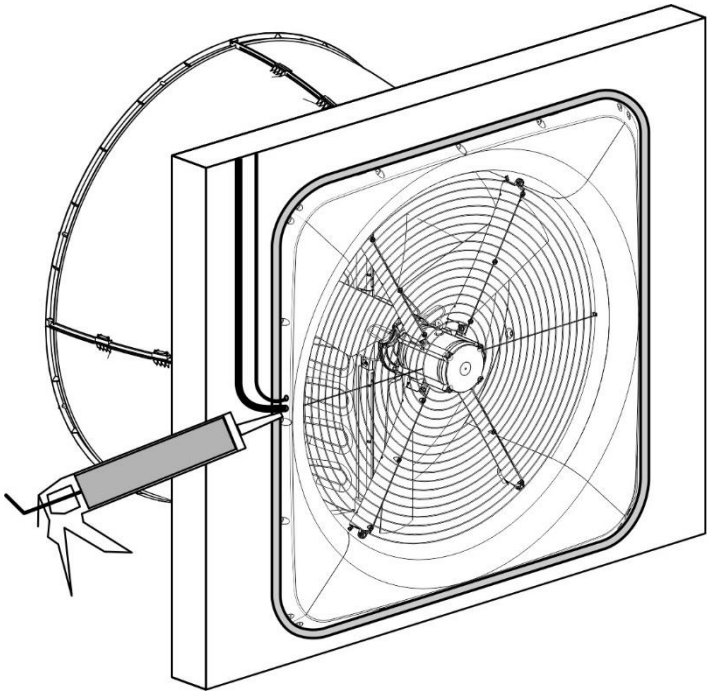


With use of outside cover, apply a sealing edge at the transition between wall and duct.

4.3.28 Seal the Inner Side



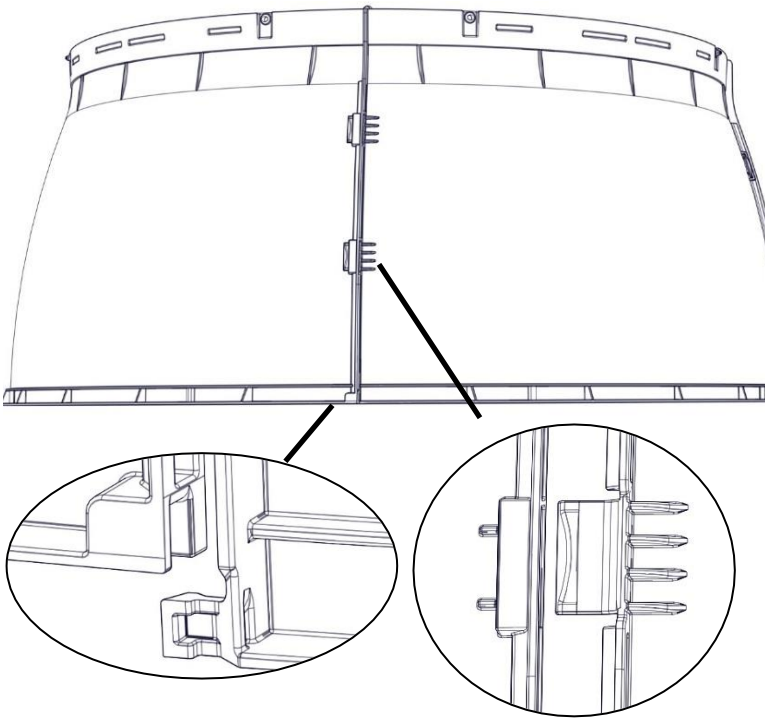
Apply a sealing edge between the wall inlet and the wall.



Apply a seal next to the place where the cables have been led through.

4.3.29 Assembly of Diffuser

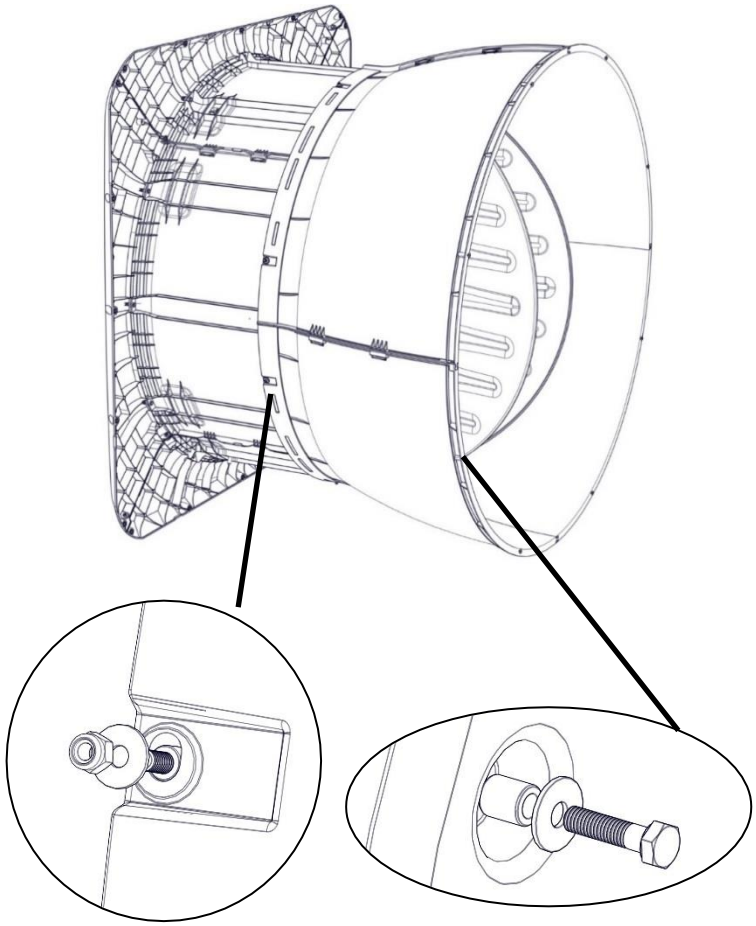
If it has been decided to purchase an external cover as accessory, this should be mounted before the diffuser, see section 4.4.2.



Ensure the feather and groove at the base are in line.

Click the sides together.

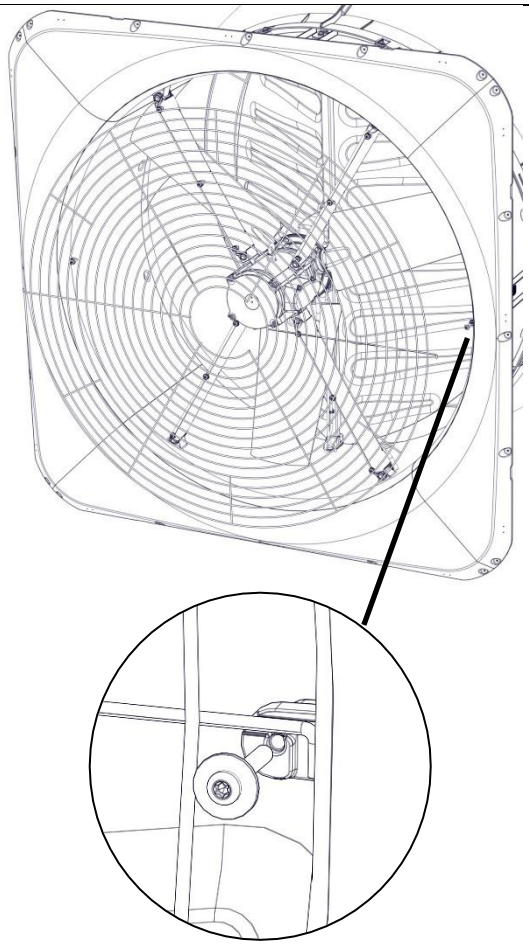
4.3.30 Mount the Diffuser on the Ventilation Duct



Mount the assembled diffuser onto the ventilation duct using:

- 8 M6x20 set screws
- 16 Ø6 washers
- 8 bushings ø6/ø10x11.6
- 8 M6 self-locking nuts

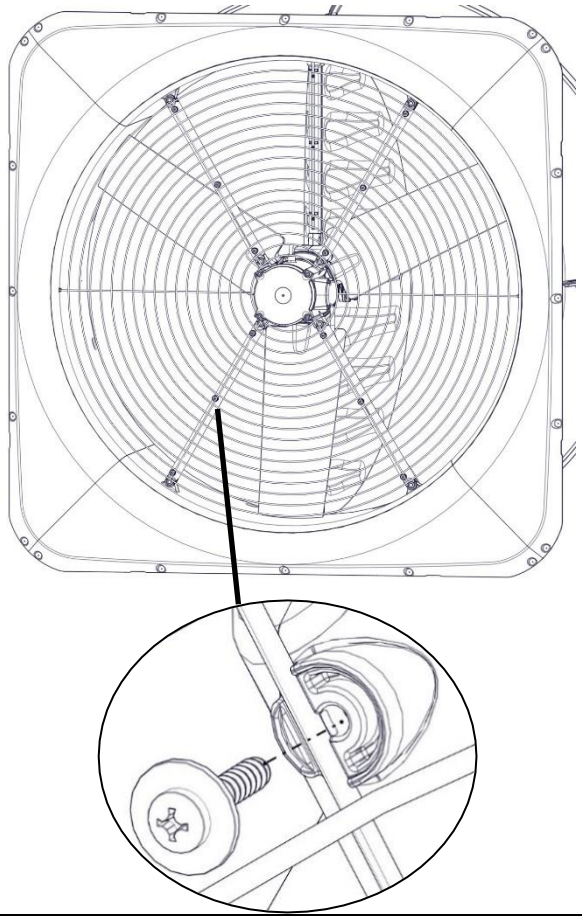
4.3.31 Mounting of Inside Safety Net



Mount the inside safety net with:

- 2 4x30 screws
- 2 Ø4.3 washers

In the two holes in the sides of the fan housing.



Secure the inside safety net in the four motor suspension brackets using:

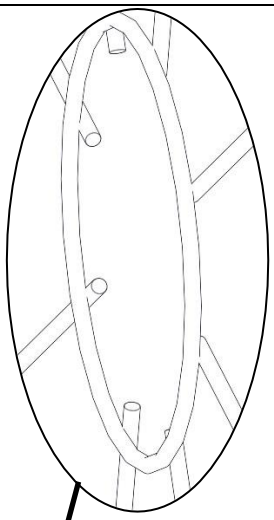
- 12 4x30 screws
- 12 Ø4.3 washers

Ensure the screws are screwed in tightly.

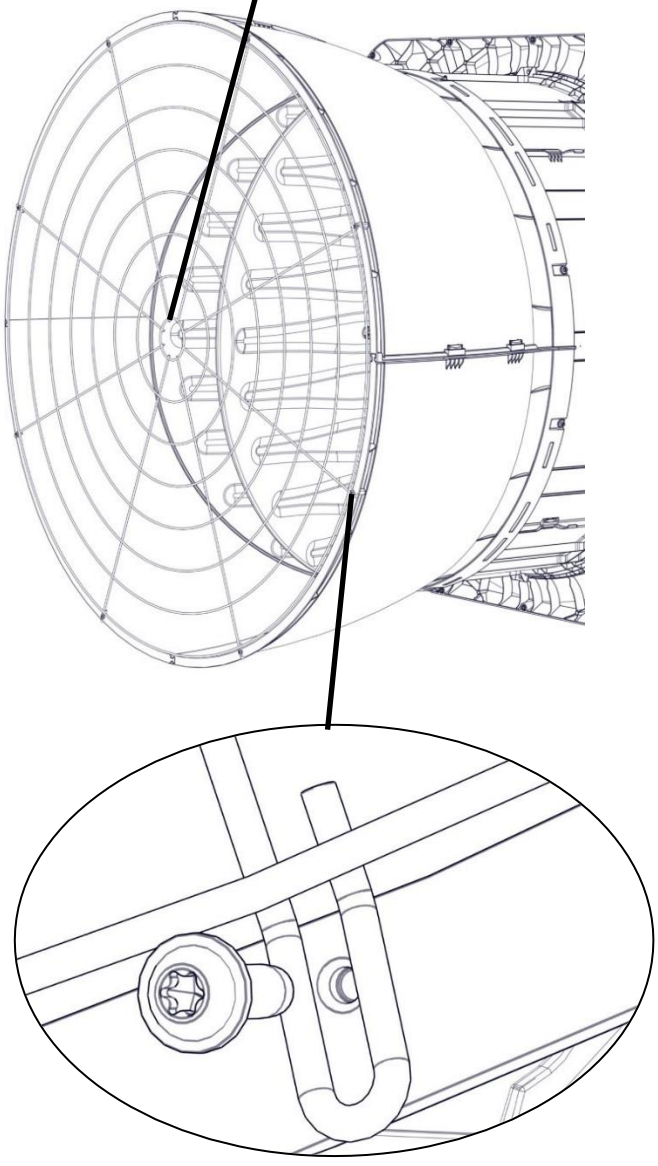
4.4 Mounting of Accessories

4.4.1 Mounting of Outside Safety Net

If BD-Blue 170C outside safety guard is deselected - a safety distances to prevent hazard zones must be established. The demands in the International Standard for Safety of Machinery ISO 13857 must be followed.



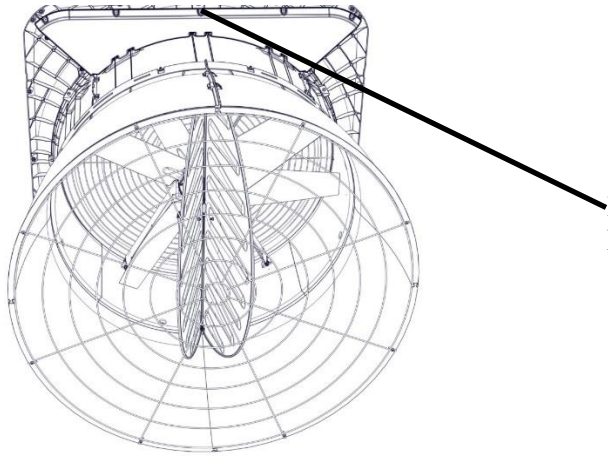
- Mount the outside safety net, so the ring of the net faces outwards.



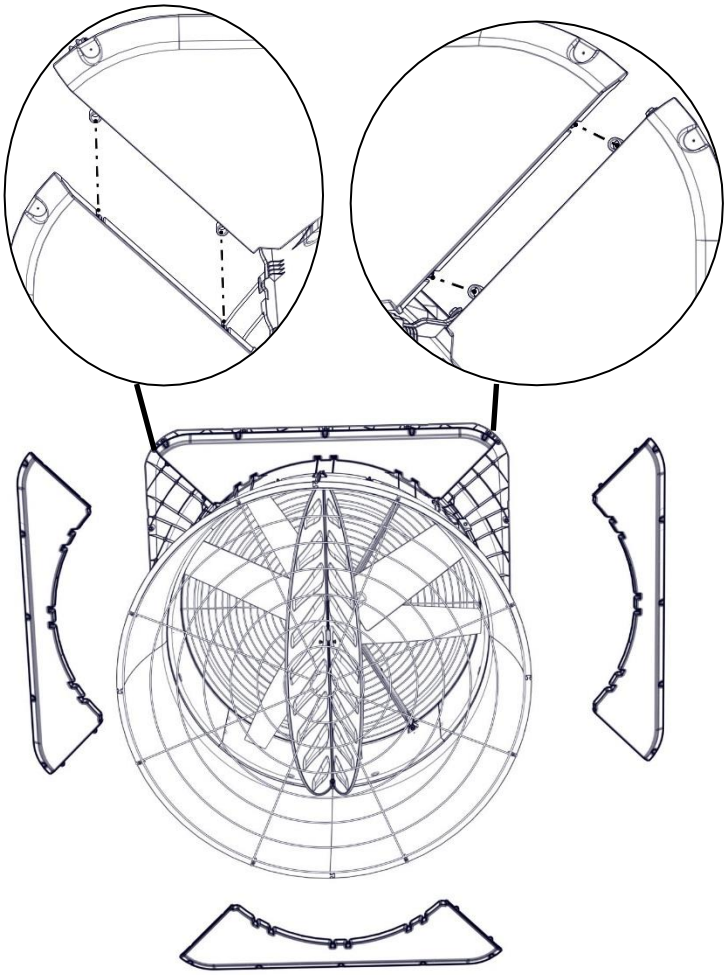
Mount the outside safety net using:
8 Delta PT screw 6x20 flange torx 30 A2

4.4.2 Mounting of Outside Wall Cover

The outside wall cover should be mounted before the diffuser.



Mount the first of the four identical covers loosely with a screw in the middle hole.



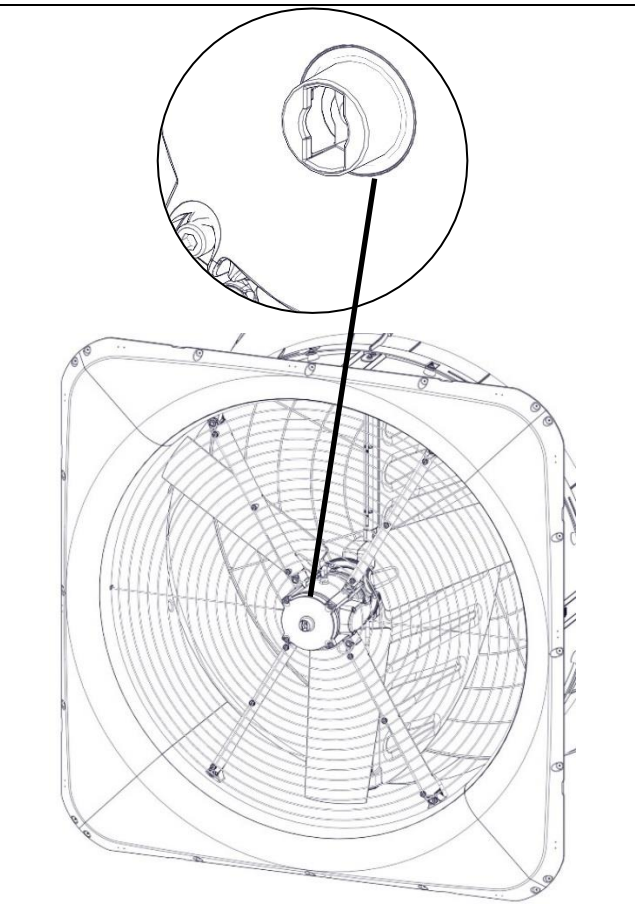
Assemble the last covers without securing them to the wall.

If necessary, use a saw to adjust the cover size.

Then mount all four covers on the wall with the aid of screws.

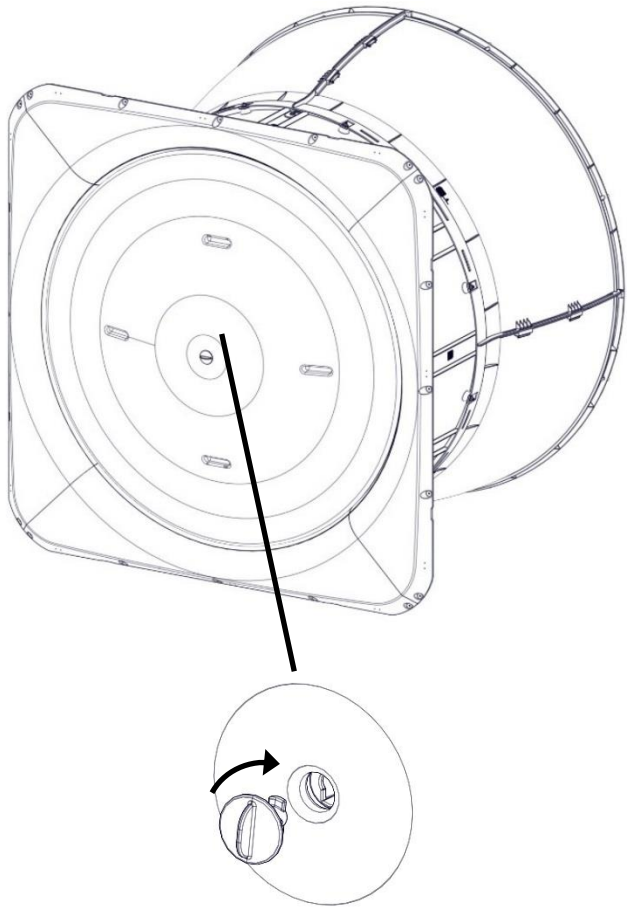
For sealing, see section 4.3.27

4.4.3 Mounting of Insulation Plate



Mount the lock on the motor using:

- 1 8x16 screw with inside hexagon
- 1 Ø8.4 washer



Mount the insulation cover at the end of the fan motor using:

- 1 lock for insulation plate

5 Installation Guide

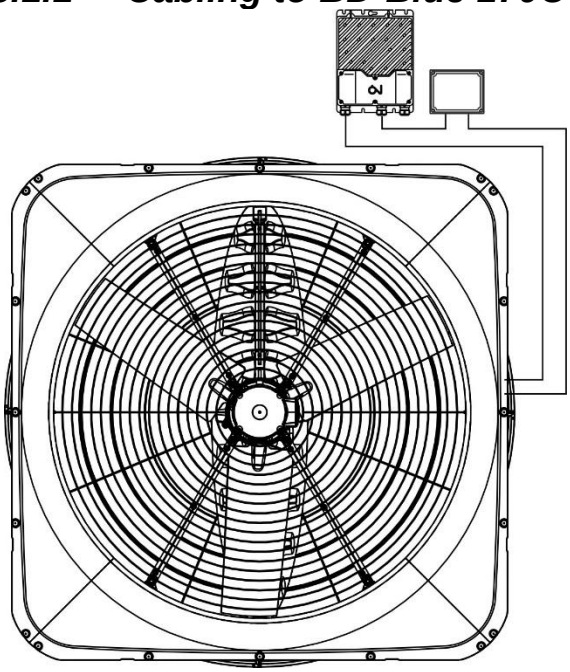
5.1 Electrical Connection

Qualified personnel must perform installation, service and fault-finding of all electrical equipment in accordance with the applicable national and international standard EN 60204-1 and any other EU standards that are applicable in Europe.

The installation of a power supply isolator is required for each motor and power supply to facilitate voltage-free work on the electrical equipment. Big Dutchman does not supply the power supply isolator.

We recommend to perform lightning and transient protection of the installation in consultation with local electricians.

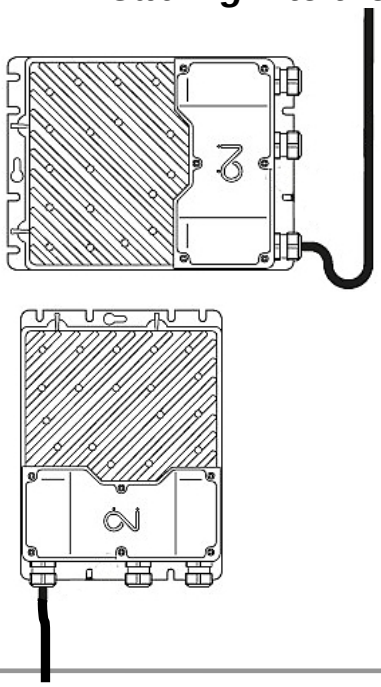
5.1.1 Cabling to BD-Blue 170C



Example of cabling to electrical box and LPC motor controller.

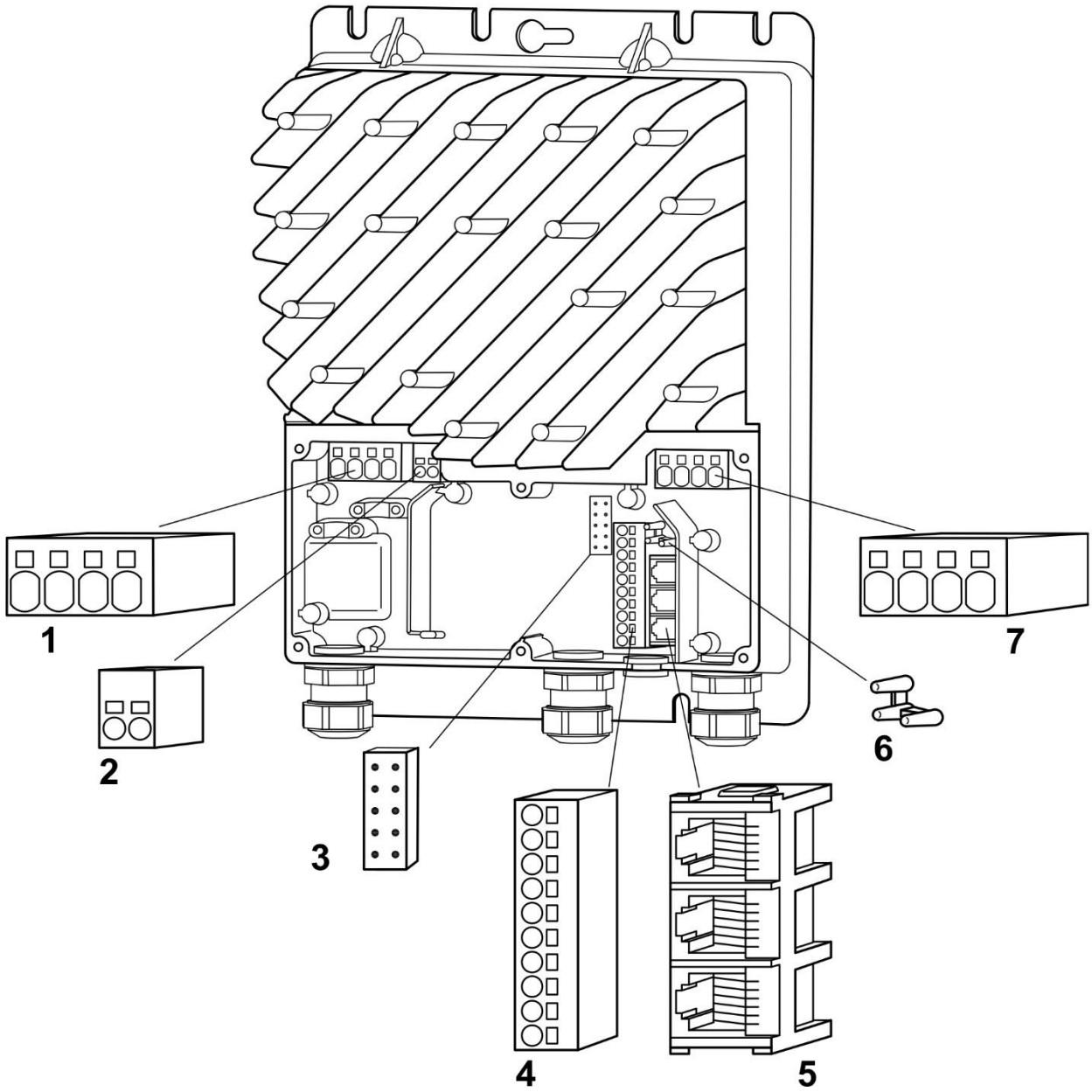
For cabling from shutter motor and fan, see section 4.3.26.

5.1.2 Cabling into the LPC Motor Controller



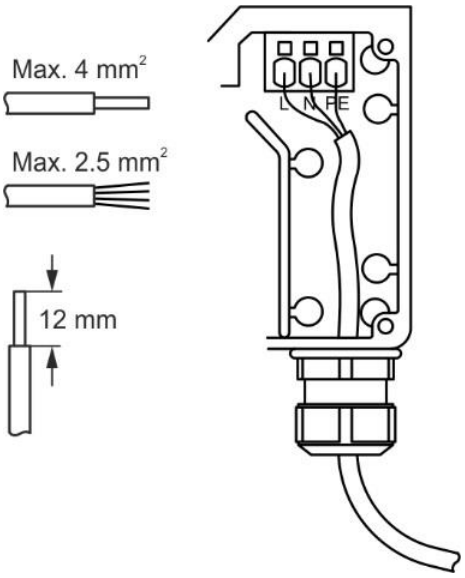
In order to prevent water from running into the motor controller via cables and screwed connections, the cabling must be carried out so that it can stand water around the cable in the gasket of the screwed connection.

5.2 Connection in the LPC Motor Controller



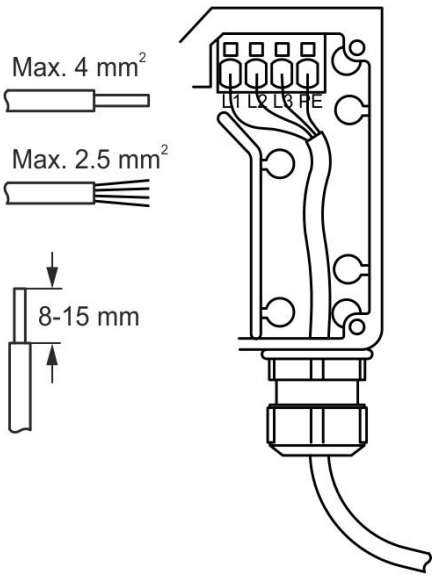
1	Motor connection terminals (U, V, W, PE)
2	Connection terminals for braking resistor (not used)
3	Connector for optional module
4	Terminal block for Modbus and A/D control signal
5	RJ12 Modbus connector (2 x slave / 1 x master)
6	3-point strain relief for Modbus cable
7	Power supply terminals for 1-phase (L, N, PE) and 3-phase (L1, L2, L3, N, PE)

5.2.1 Terminals for 230 V Power Supply



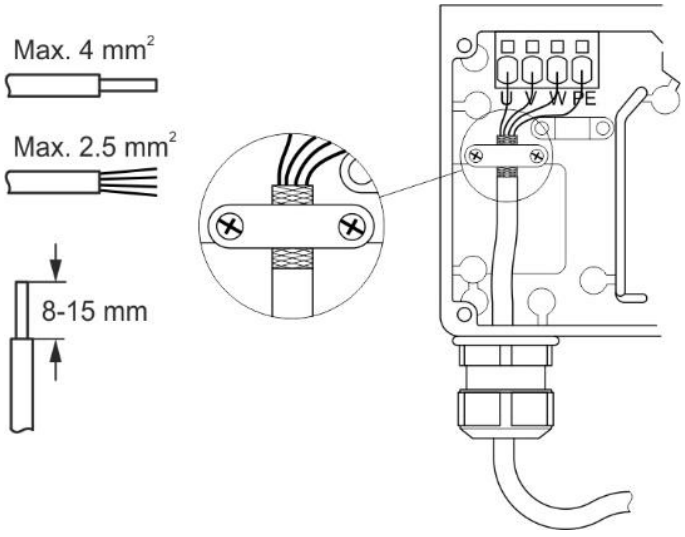
Power supply 1 x 230 V

5.2.2 Terminals for 400 V Power Supply



Power supply 3 x 400 V

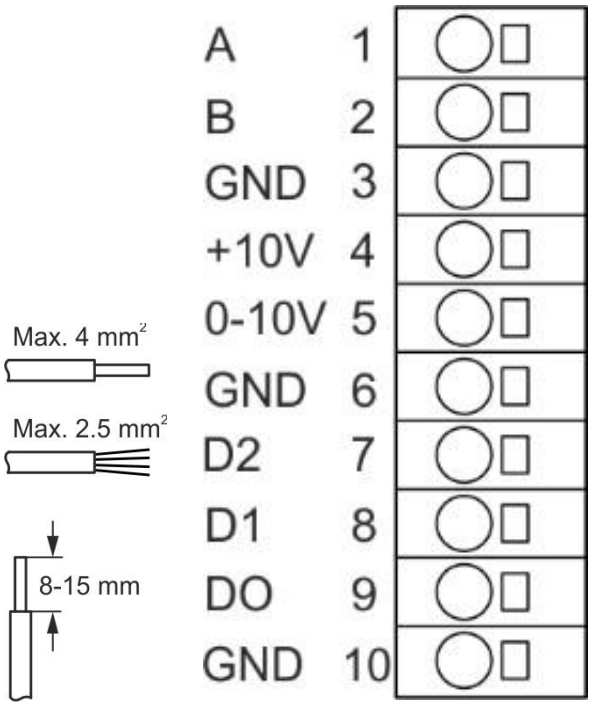
5.2.3 Terminals for Power Supply to Fan



Remember to strip the cable so that the protective shield from the fan can be connected to the motor controller during mounting under the rail.

Power supply 3 x 230 V from motor controller to fan motor.

5.2.4 Signal Terminals



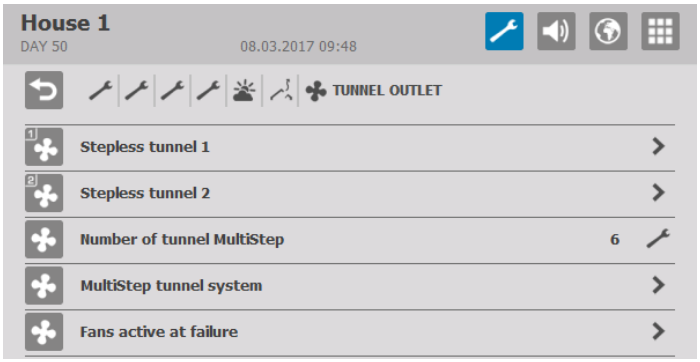
Not in use	
Not in use	
Ground	
Not in use	
Signal from climate computer (speed regulation of motor)	
Ground	
10-0 V = open 0-10 V = GND (Jumper between terminal 7 and GND)	
Stop = open Start = GND (Jumper between terminal 8 and GND)	
Not in use	
Ground	

5.3 Emergency Opening for Shutter Motor

If emergency opening for the shutter motor is required, it must be powered from F6 24 V power supply in the climate controller.

For wall fans that do not require emergency opening, the shutter motor is powered by an external 24 V power supply without battery backup.

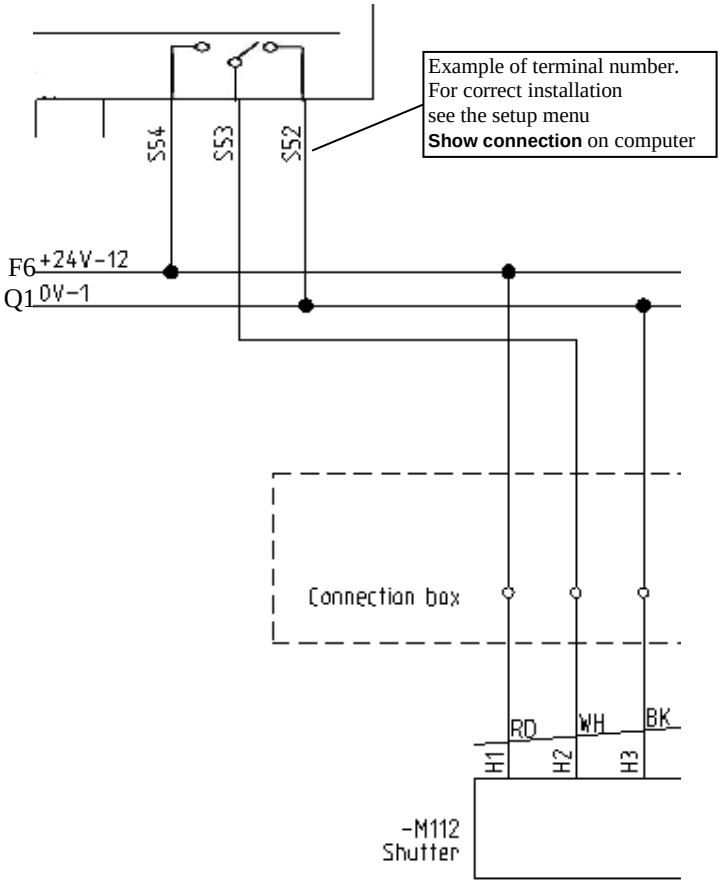
5.3.1 Fans active at failure



To activate the fan at power failure, select **Technical / Setup / Installation / Climate / Air outlet / Tunnel outlet / Fans active at failure** in the climate controller menu.

The default setting of **MultiStep 1** to **MultiStep 3** is **Yes**

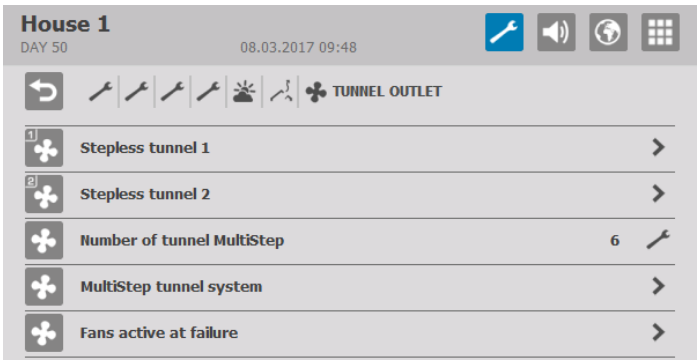
To change this, select the **MultiStep** which should be changed, and select **Yes**.



F6 +24V-12 is mounted on NO relay in the climate controller.

Q1 0V-1 is mounted on NC relay in the climate controller.

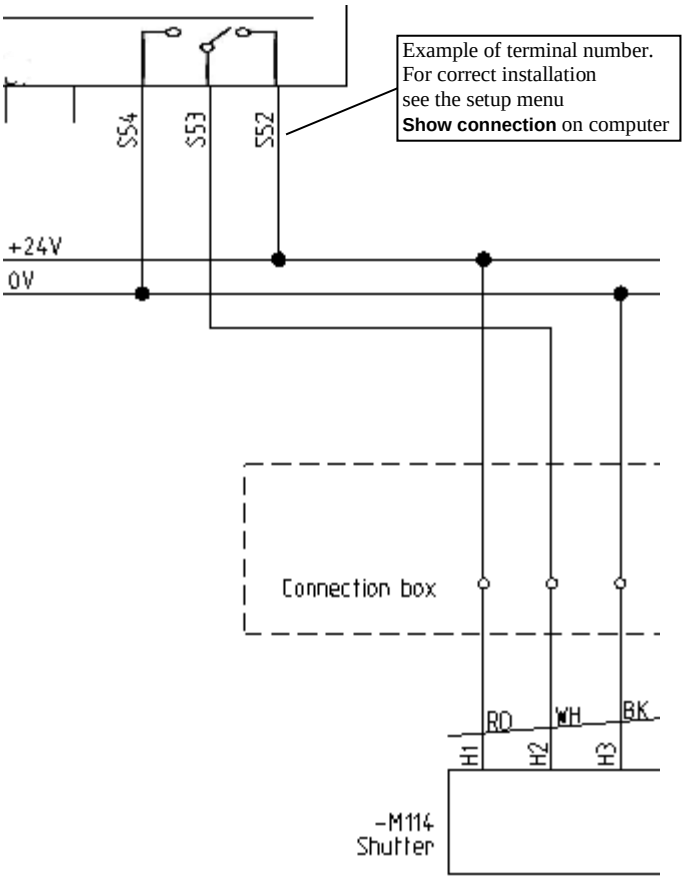
5.3.2 Fans not active at failure



To activate the fan at power failure, select **Technical / Setup / Installation / Climate / Air outlet / Tunnel outlet / Fans active at failure** in the climate controller menu.

The default setting of **MultiStep 4** to **MultiStep 16** is **No**

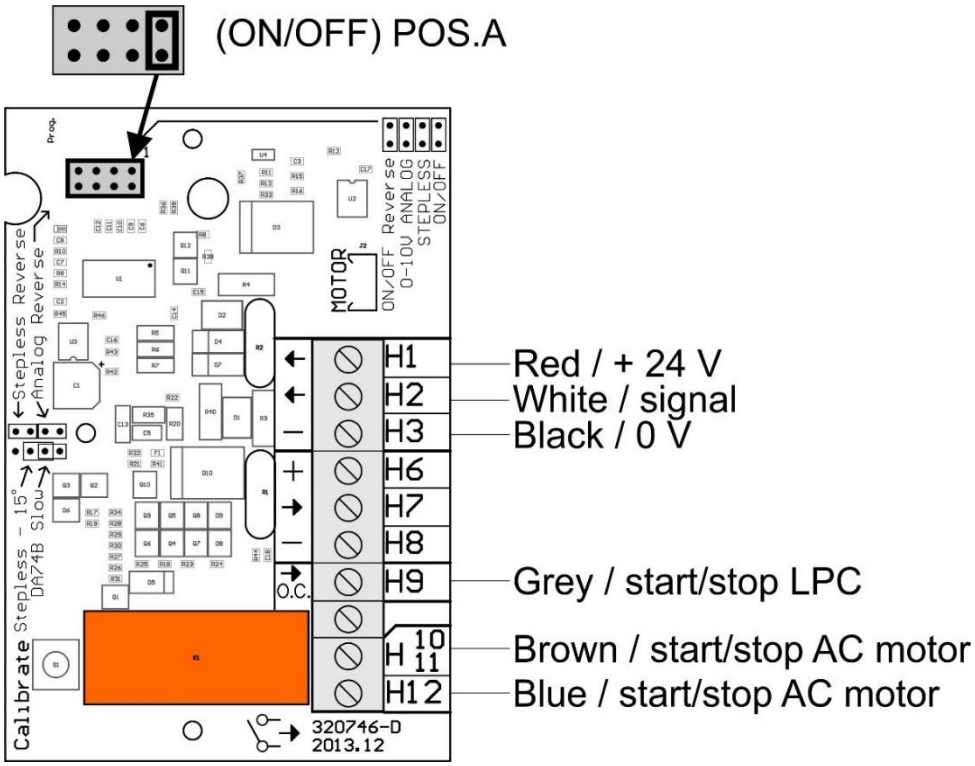
To change this, select the **MultiStep** which should be changed, and select **No**.



External +24V is mounted on NC relay in the climate controller.

0V is mounted on NO relay in the climate controller.

5.4 Connection to Shutter Motor

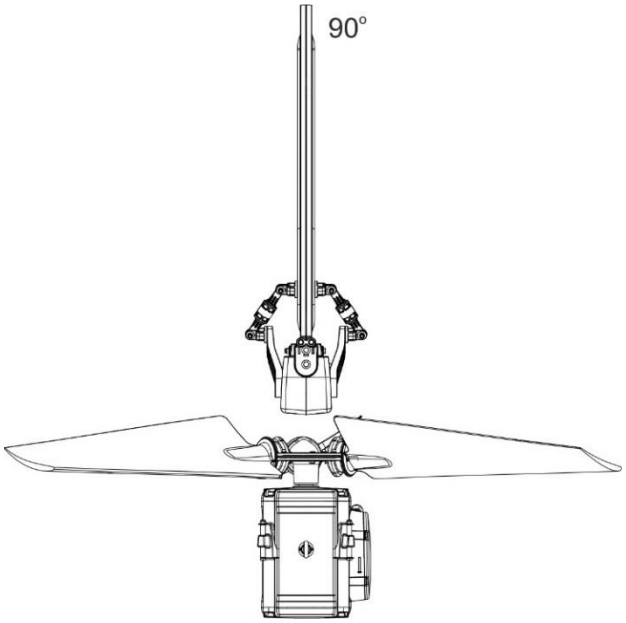


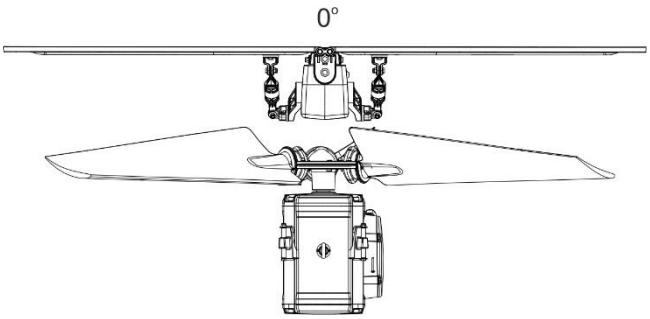
Jumper must be (ON/OFF) POS.A

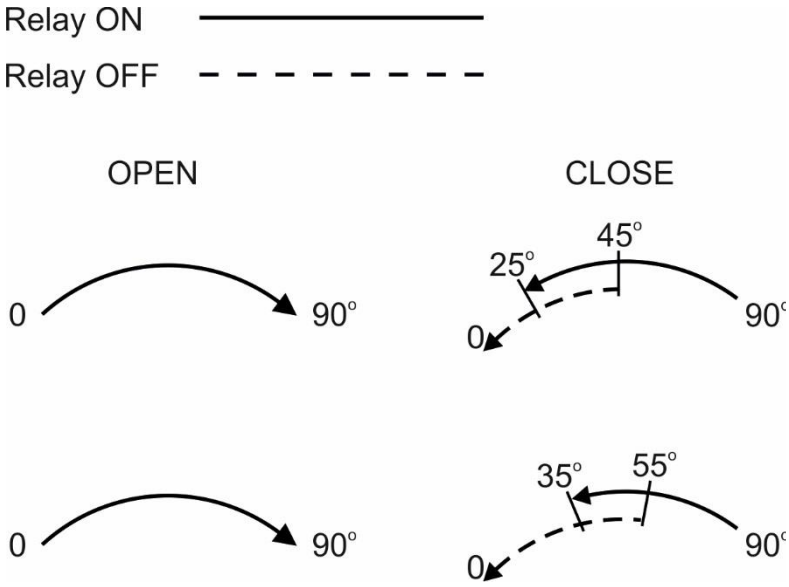
Power and signal from climate computer.

O.C (transistor output) is used to BD-Blue 170C with LPC controller.

Relay output is used to BD-Blue 170C without controller.

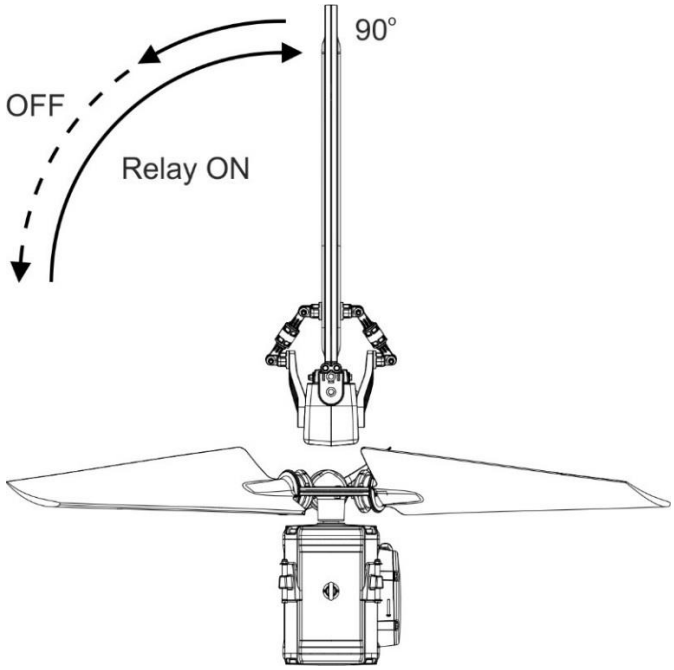






O.C ON/OFF
H9 is placed on PCB for shutter motor. Used for start/stop of the BD-Blue 170C with LPC controller.

Relay ON/OFF
H11 and H12 is placed on PCB for shutter motor. Used for start/stop of the BD-Blue 170C without LPC controller.



5.5 Cable Plans and Circuit Diagrams

5.5.1 General Information about Circuit Diagrams

Symbols are in accordance with the IEC/EN 60617 standard.

The classification of the symbols ("letter codes") on the symbols is in accordance with the IEC/EN 81346-2 standard

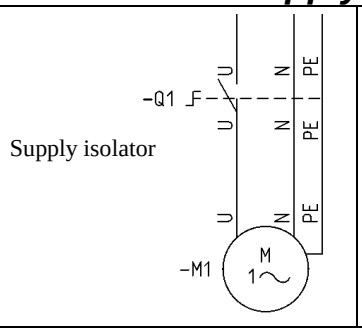
Reference designations are in accordance with IEC/EN 81346-1:2001structuring principles and reference designations. This standard indicates structured methods for naming electrotechnical systems.

5.5.2 Colour Code

Letter code	Colour
BK	Black
BN	Brown
RD	Red
OG	Orange
YE	Yellow
GN	Green
BU	Blue (incl. light blue)
VT	Violet (purple red)
GY	Grey (slate)
WH	White
PK	Pink
GD	Gold
TQ	Turquoise
SR	Silver
GNYE	Green-and-yellow

Colour code on the wires in appliance with the IEC 60757 standard: Alphabetic codes for identification of colours used on drawings, diagrams, marking, etc.

5.5.3 Power Supply Isolator



Supply isolator

All motors must be mounted with a power supply isolator.

For reasons of space, the switches have not been included in the circuit diagram.

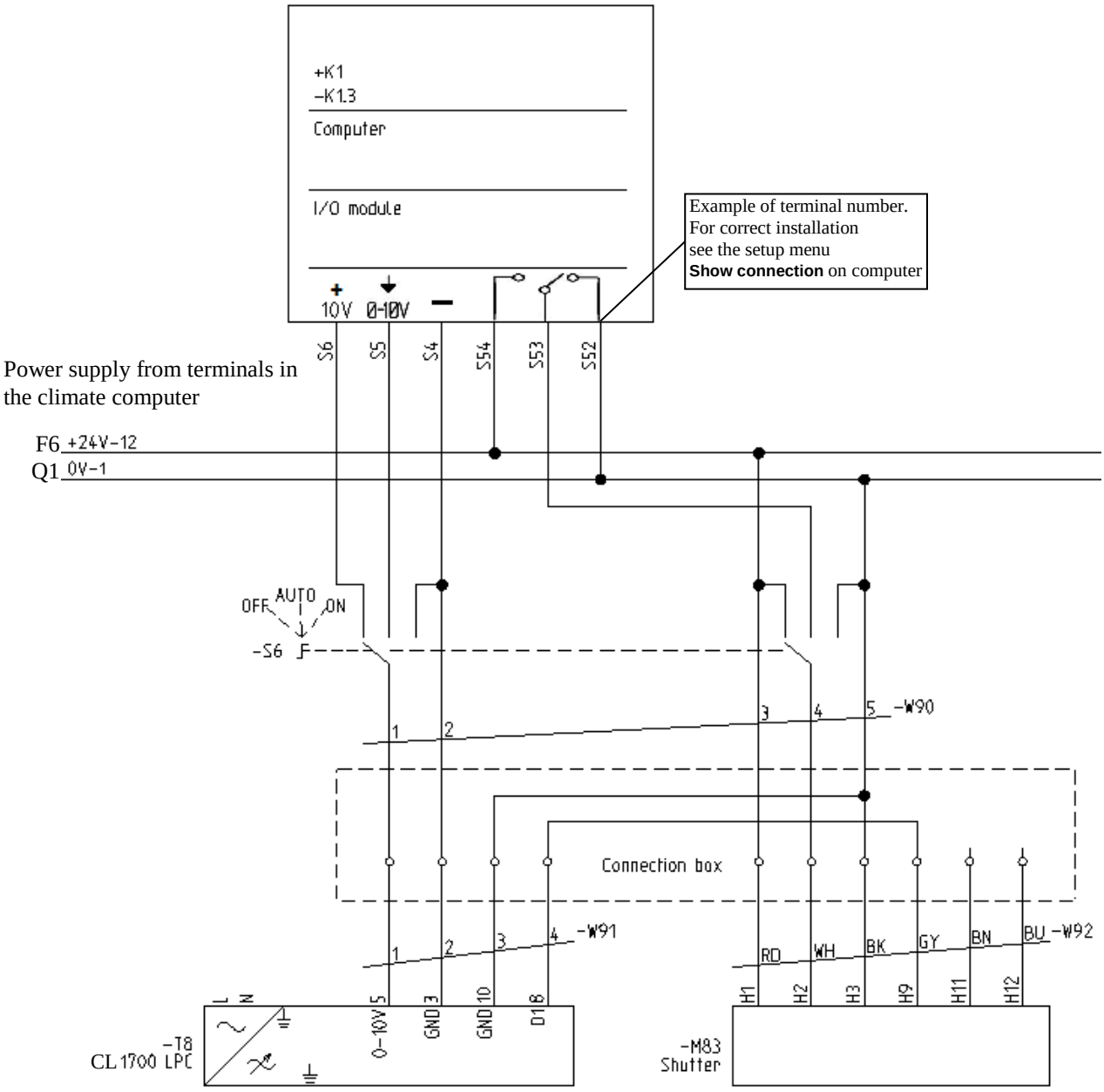
5.5.4 Letter Codes

Reference designations are in accordance with IEC/EN61346-2

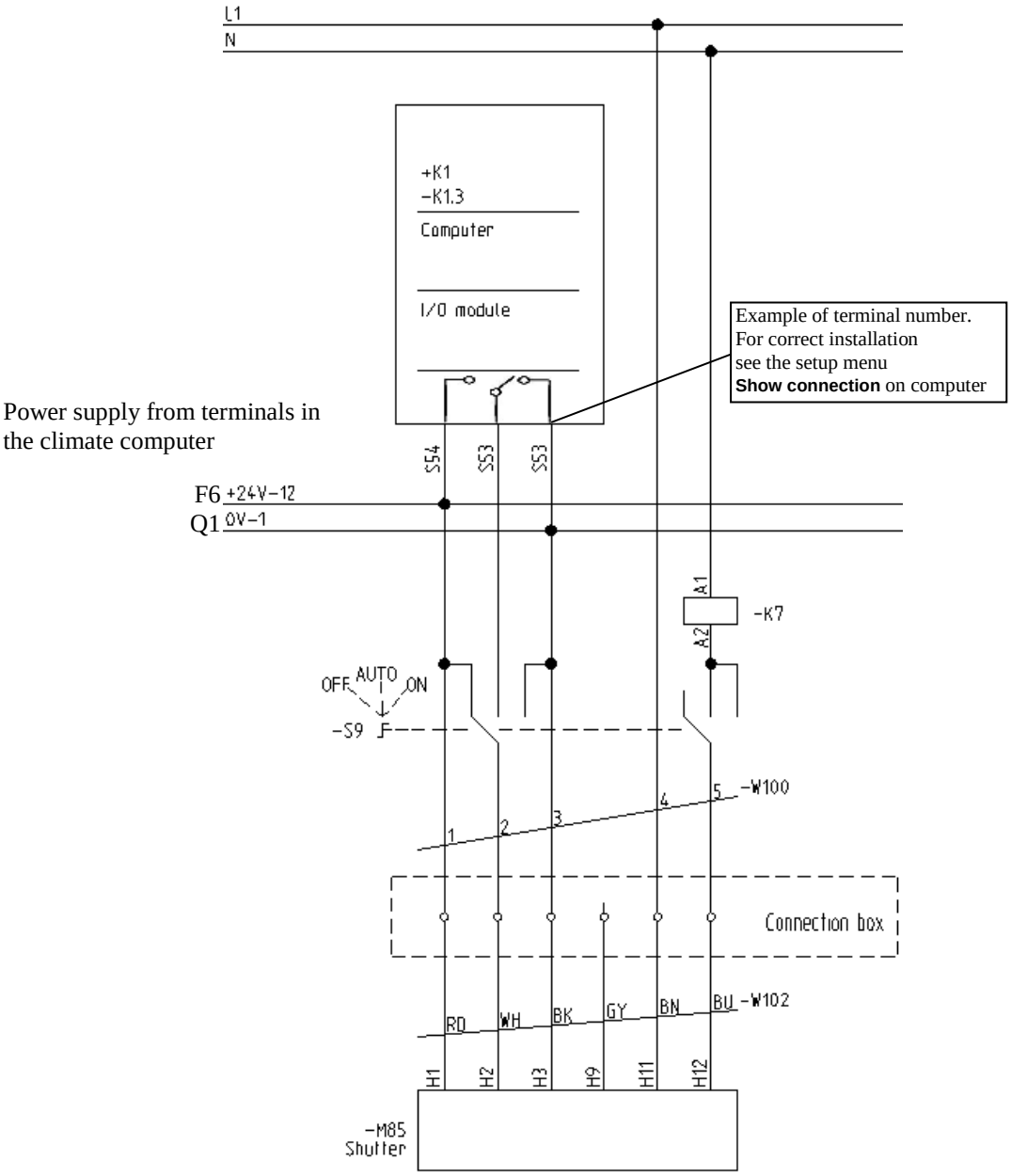
-F	-K	-M	-S	-T	-W
Protective equipment RCCB Initial fuse Protective motor switch	Climate controller Contactor	Fan motor	Switch	LPC, motor controller	Cable

5.5.5 Circuit Diagrams for OFF/AUTO/ON Switch

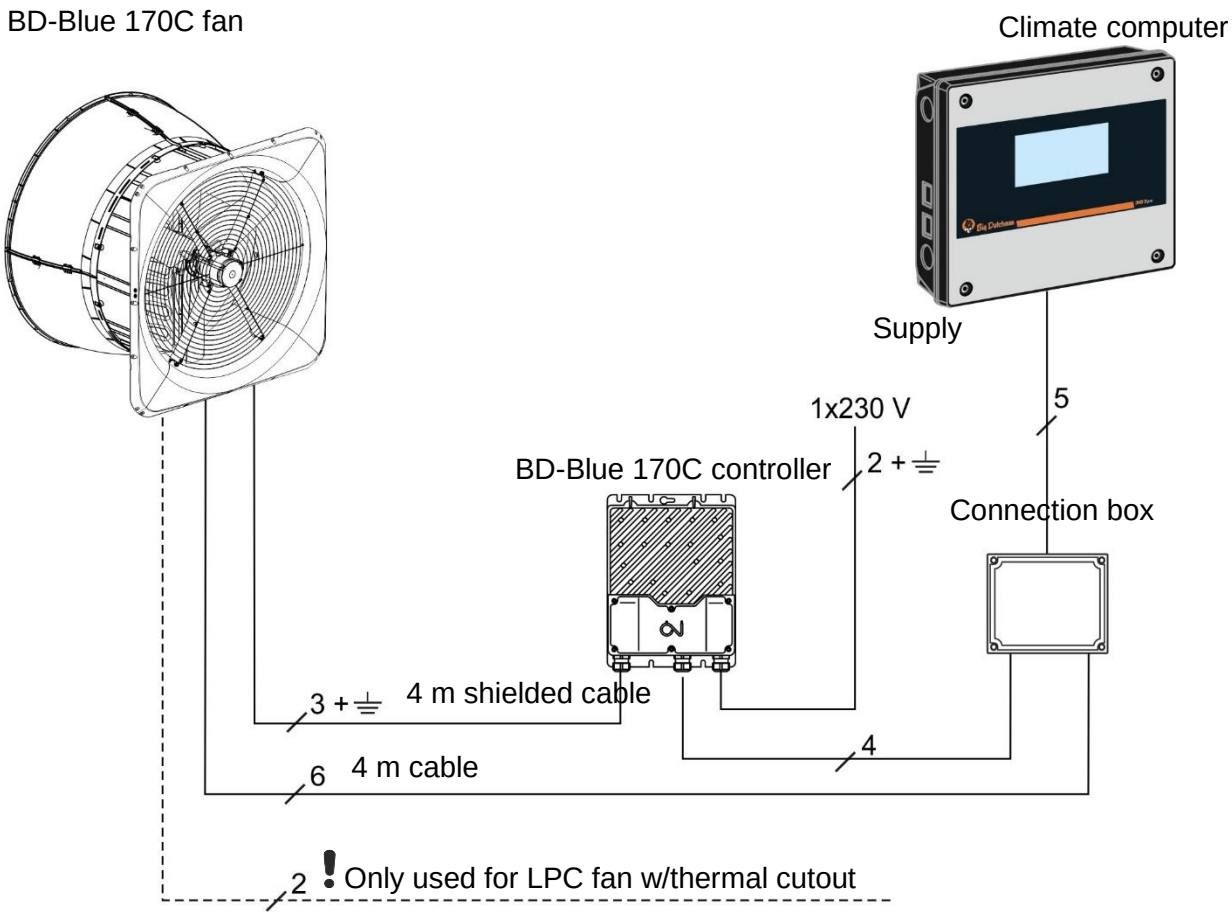
5.5.5.1 Control Voltage (LPC) controllable version



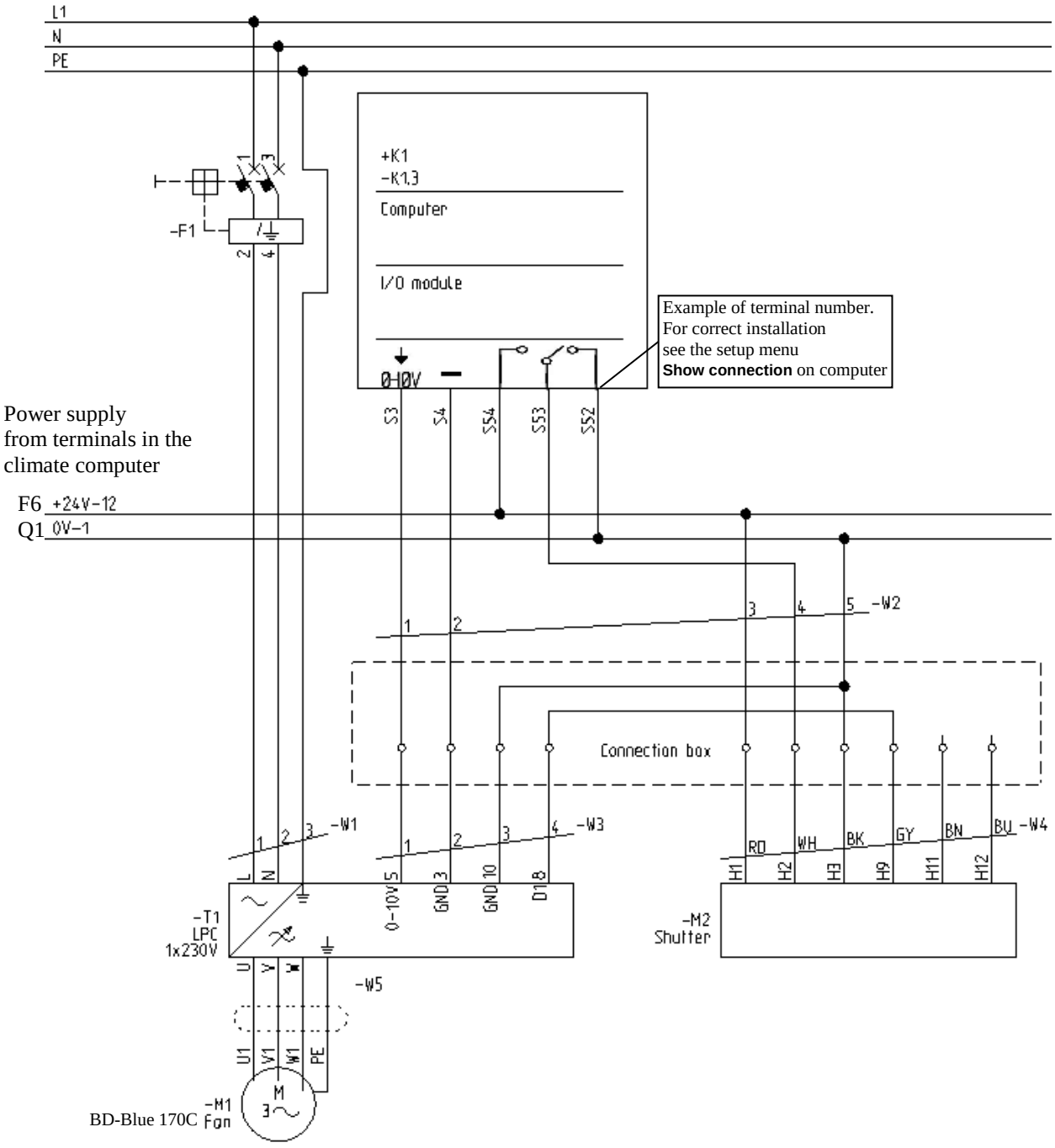
5.5.5.2 Control Voltage (without LPC) ON/OFF version



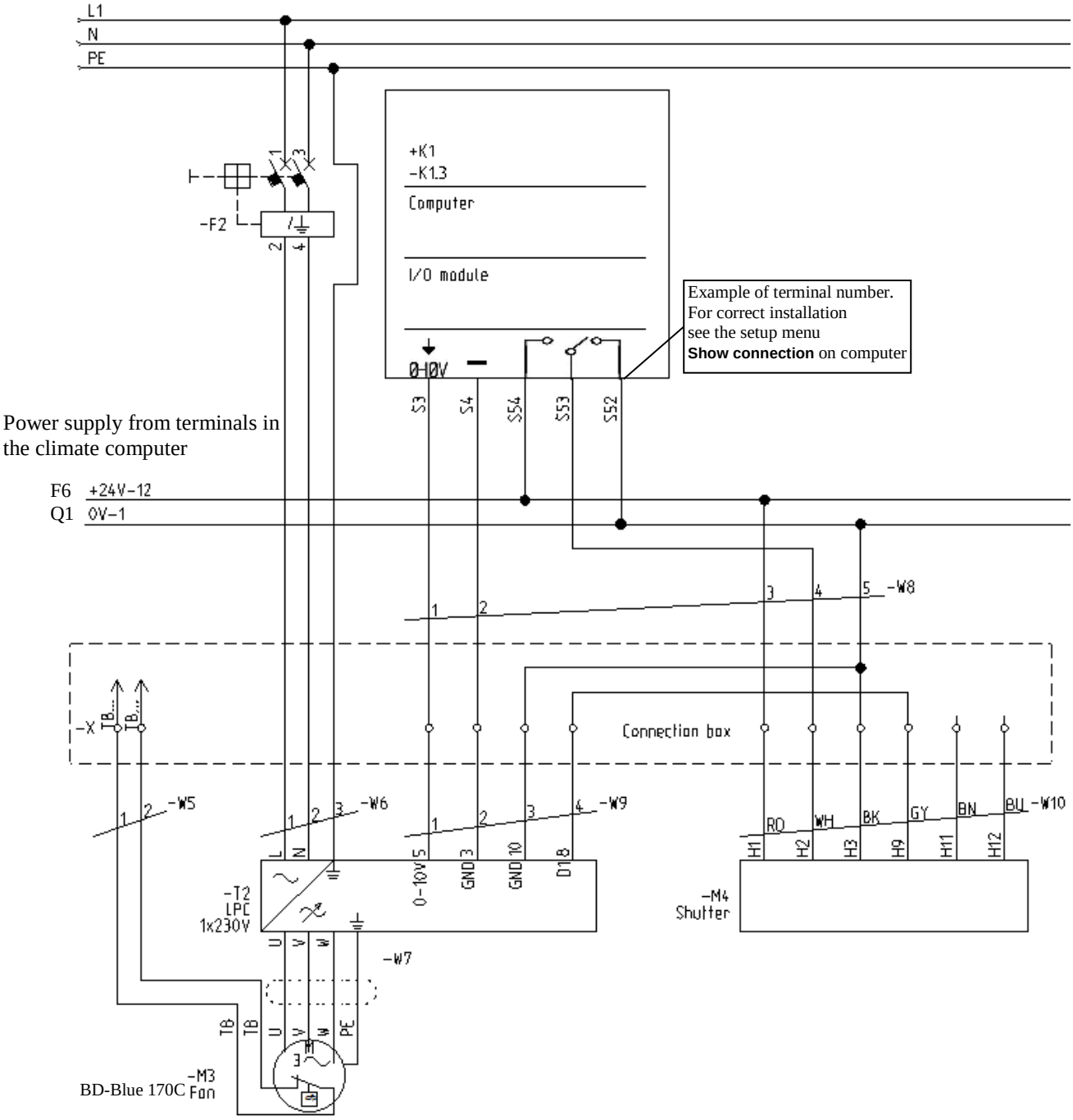
5.5.6 Cable Plan BD-Blue 170C LPC 1x230 V



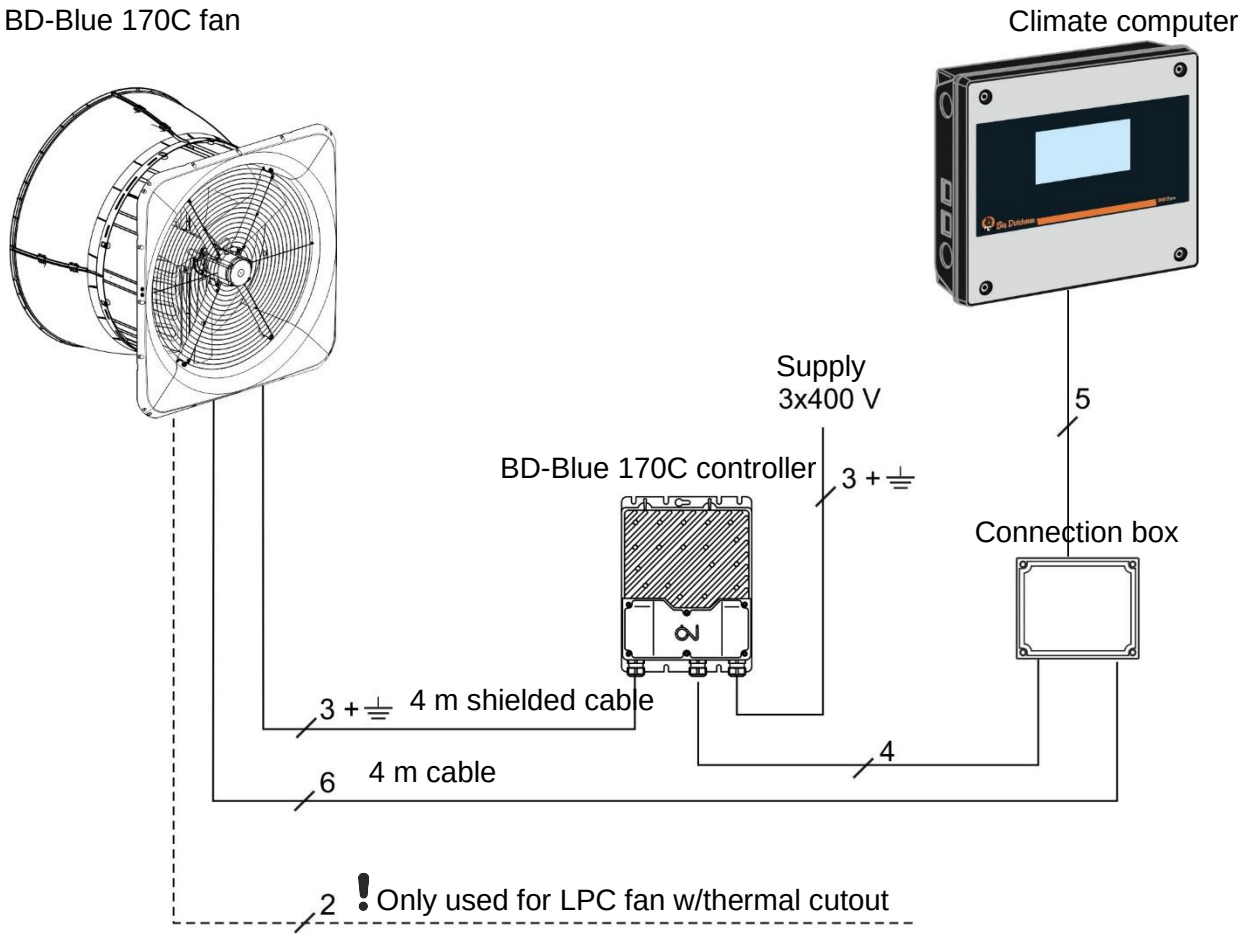
5.5.7 Circuit Diagram BD-Blue 170C LPC 1x230 V



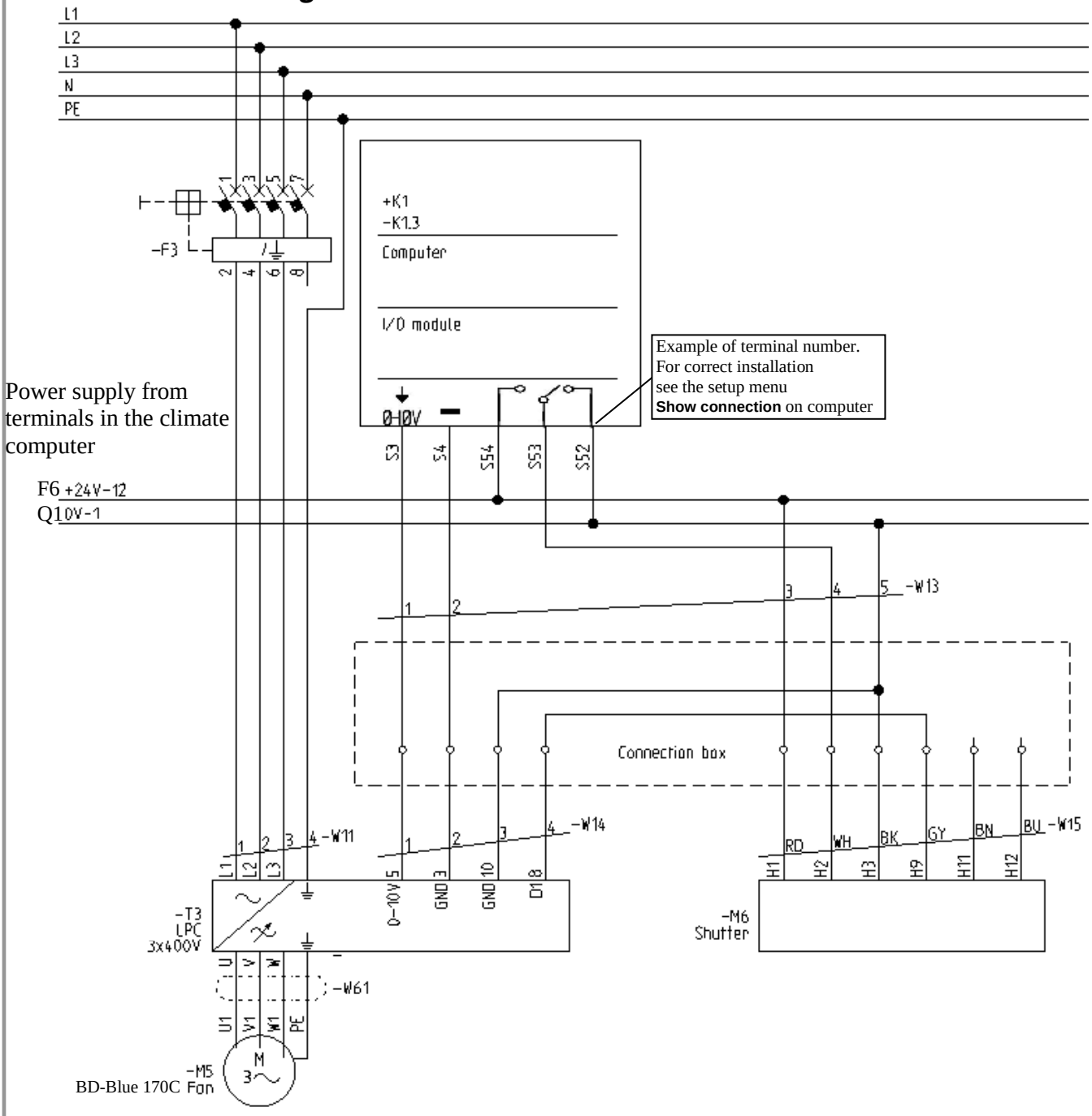
5.5.8 Circuit Diagram BD-Blue 170C LPC 1x230 V with Thermal Cutout



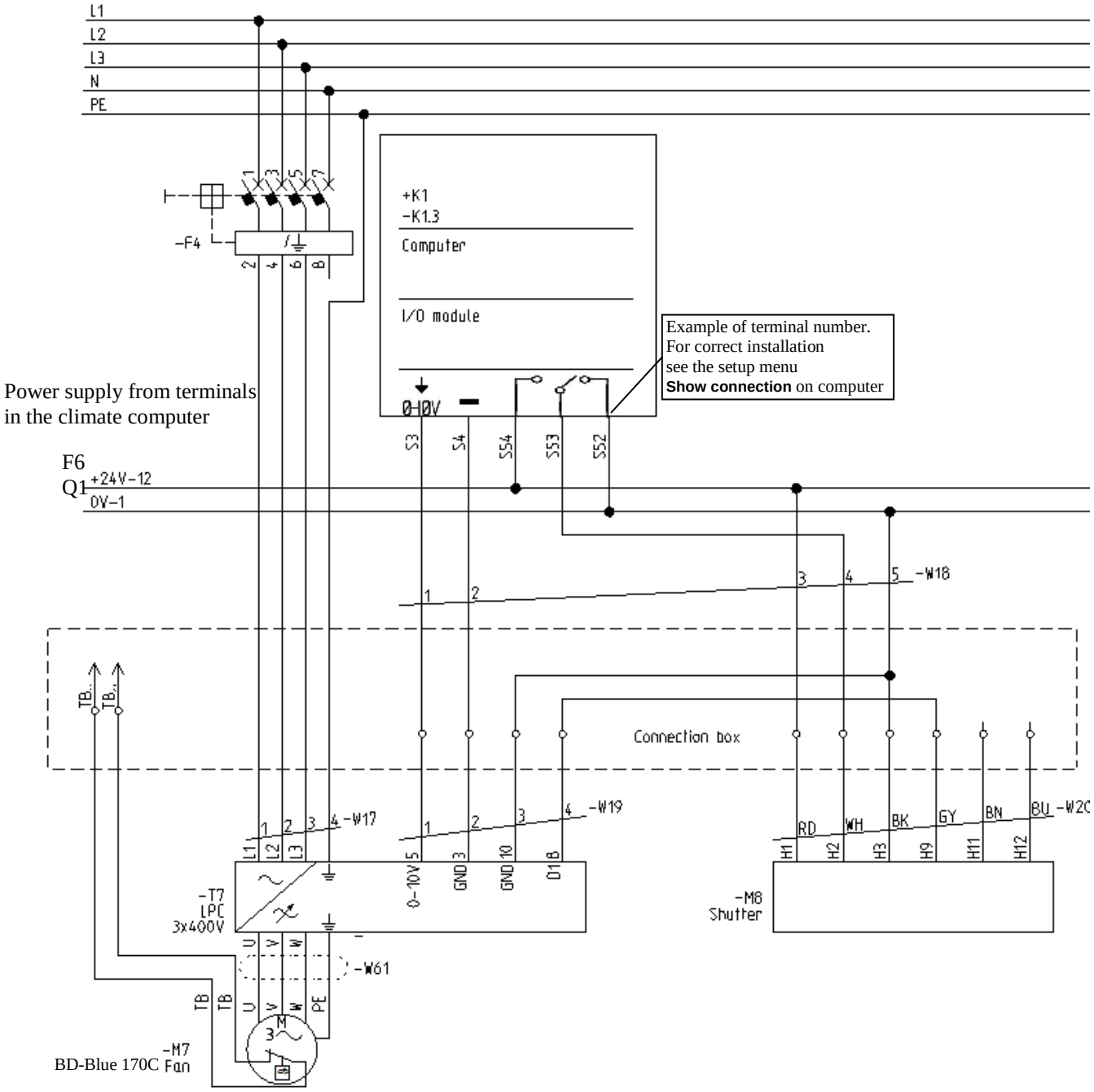
5.5.9 Cable Plan BD-Blue 170C LPC 3x400 V



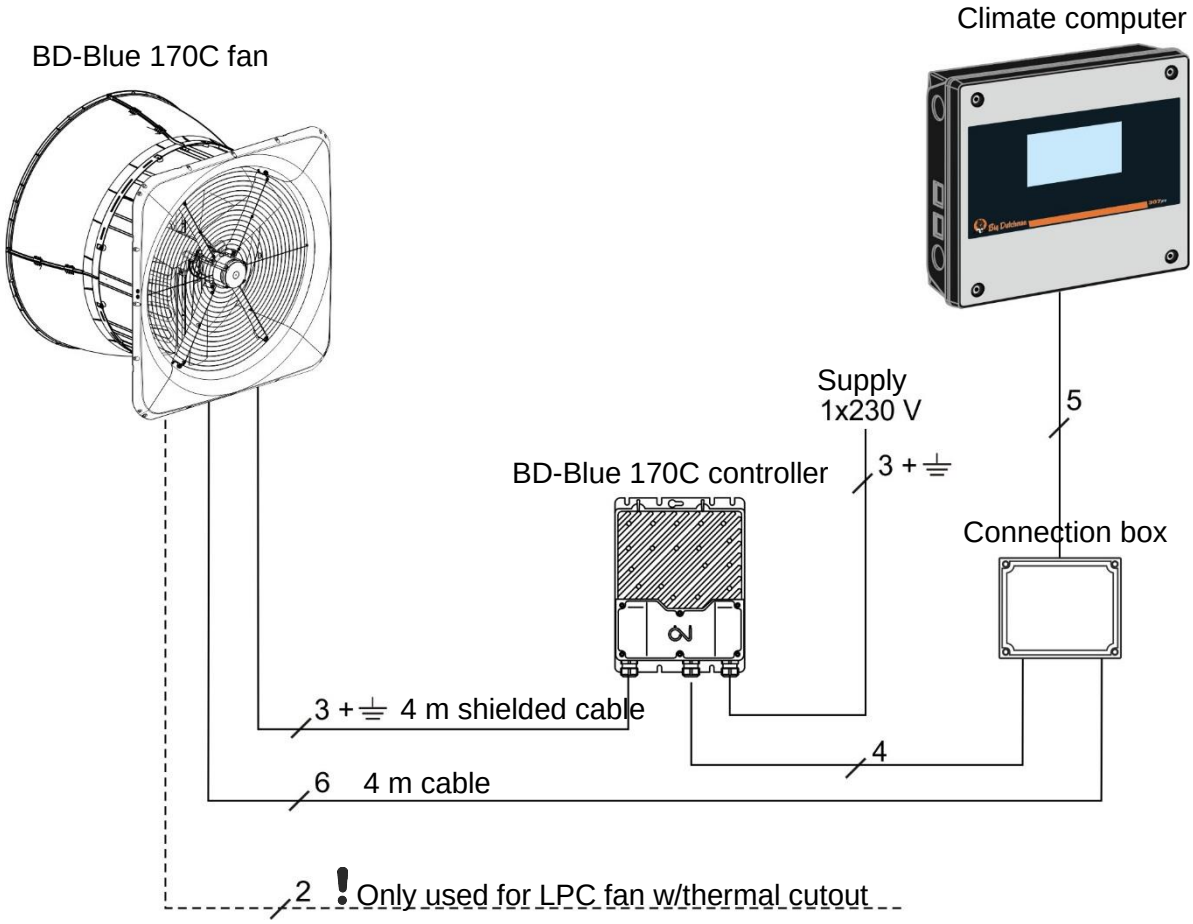
5.5.10 Circuit Diagram BD-Blue 170C LPC 3x400 V



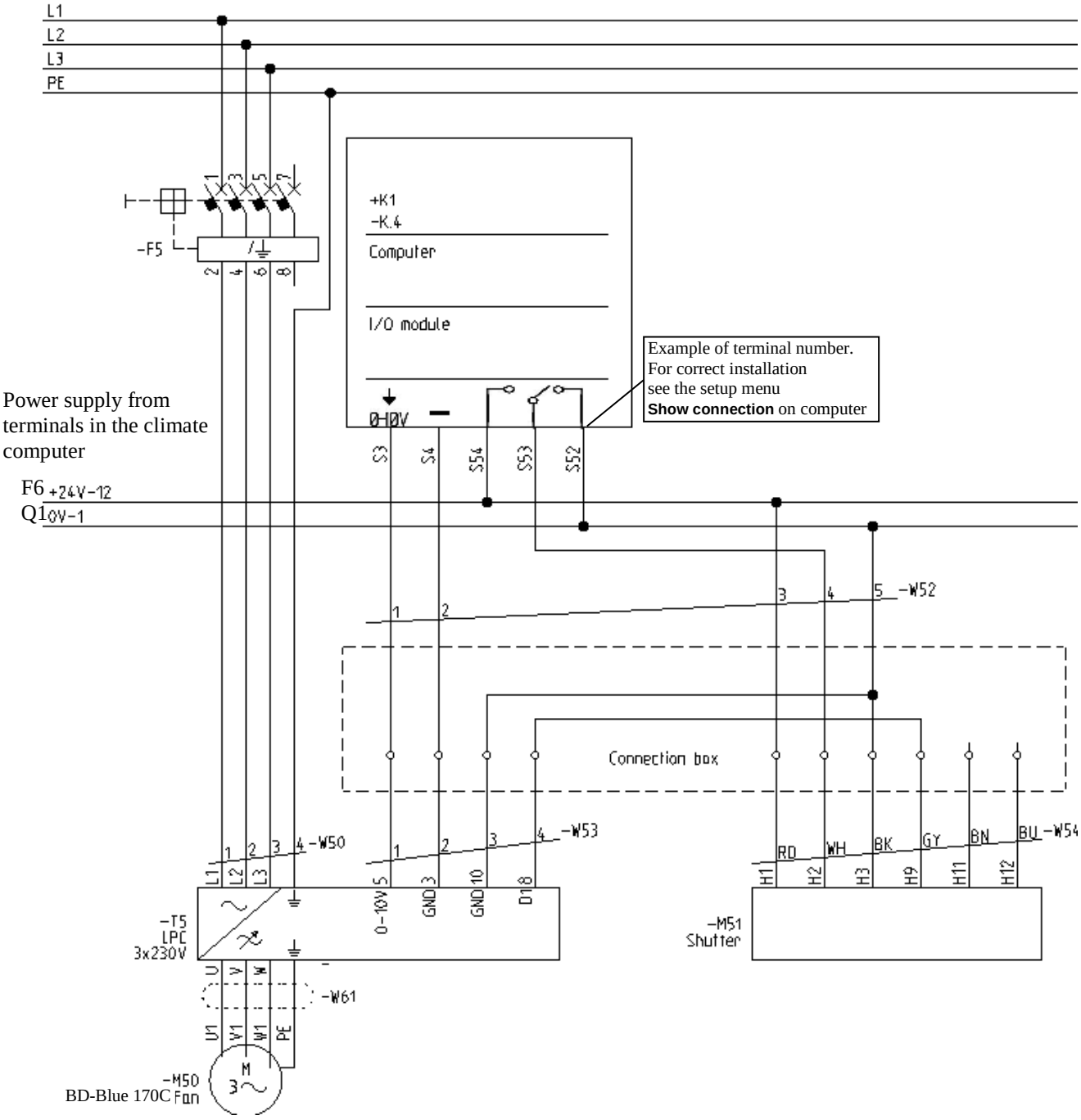
5.5.11 Circuit Diagram BD-Blue 170C LPC 3x400 V with Thermal Cutout



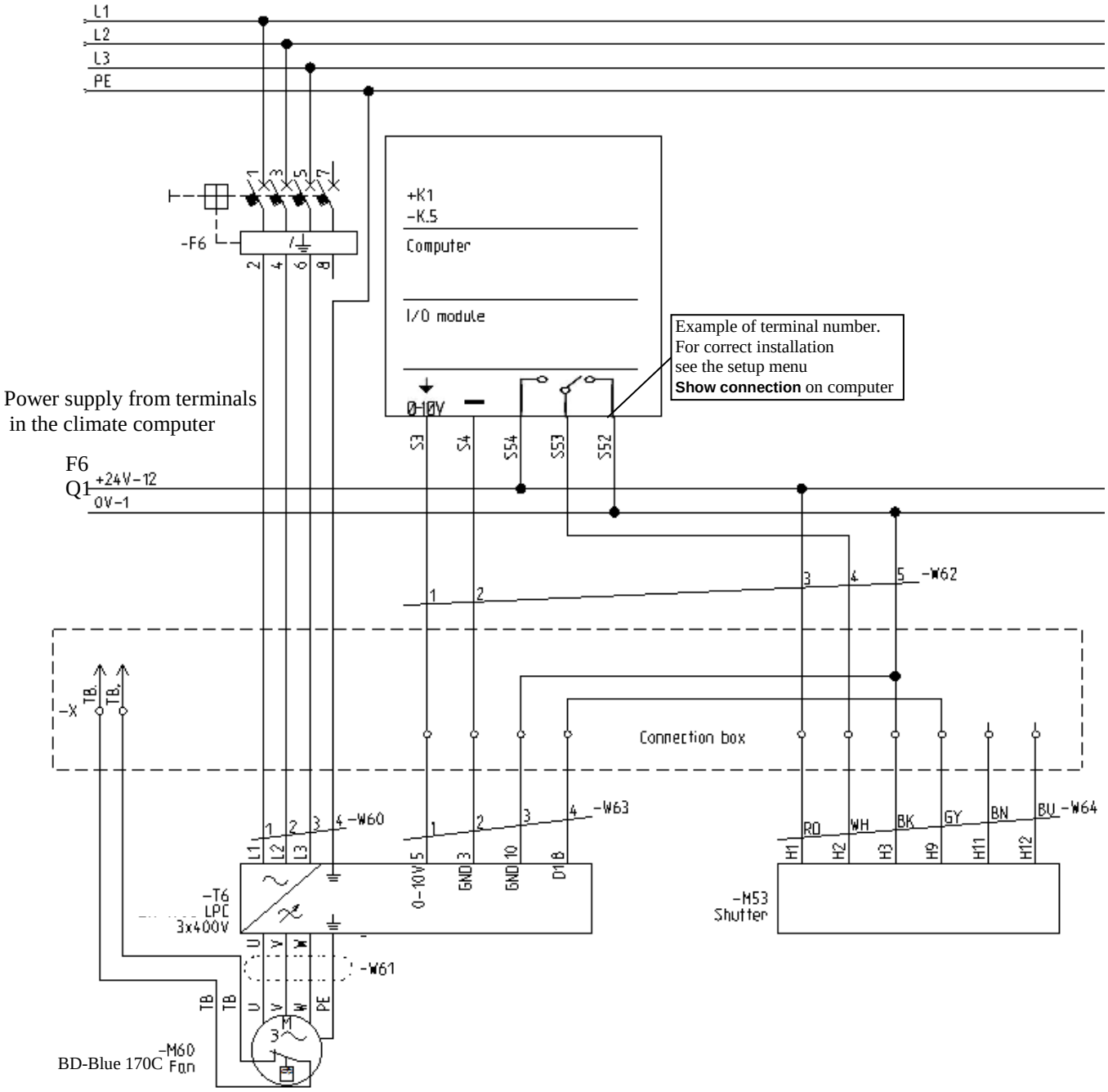
5.5.12 Cable Plan BD-Blue 170C LPC 3x230 V



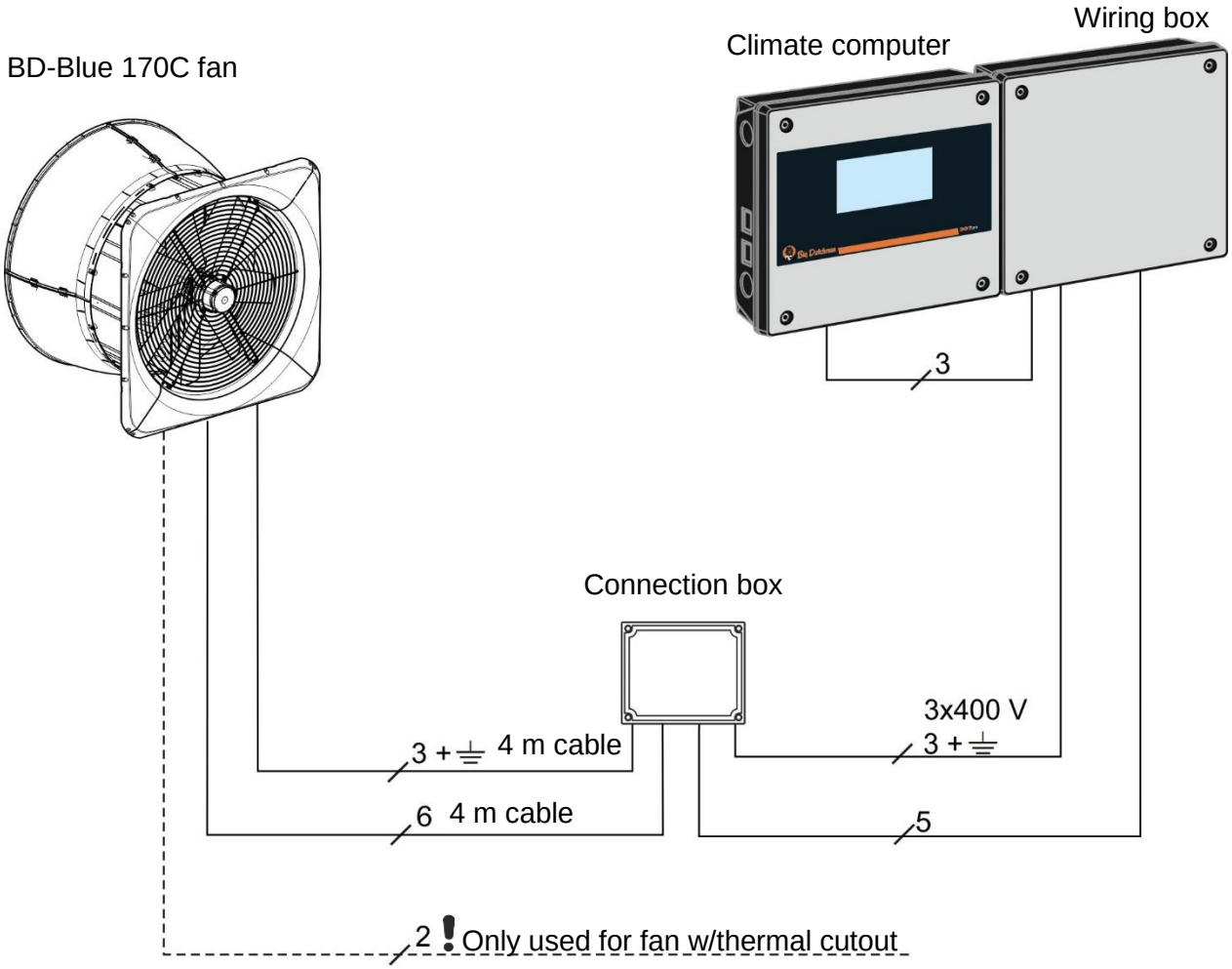
5.5.13 Circuit Diagram BD-Blue 170C LPC 3x230 V



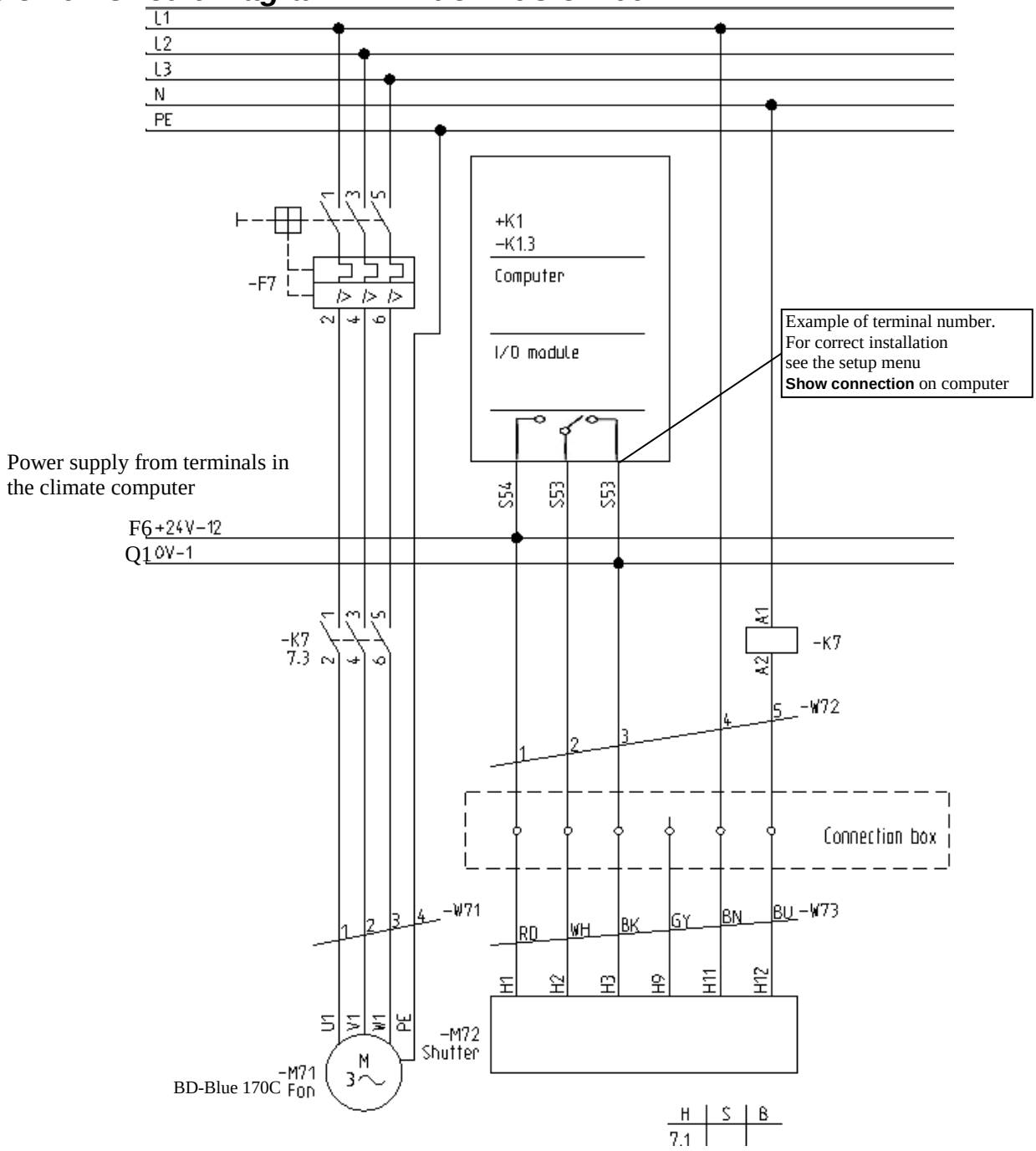
5.5.14 Circuit Diagram BD-Blue 170C LPC 3x230 V with Thermal Cutout



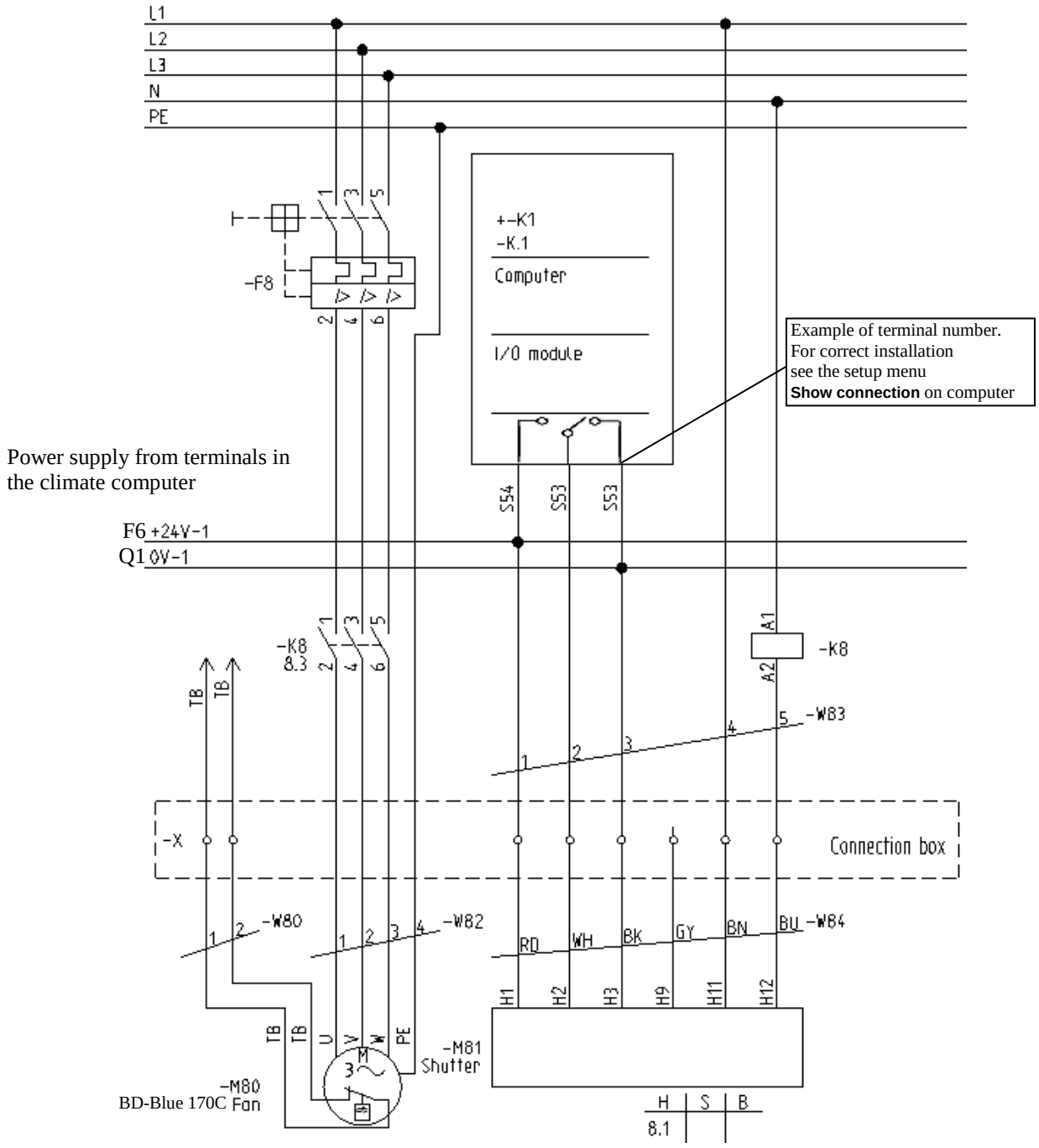
5.5.15 Cable Plan BD-Blue 170C 3x400 V



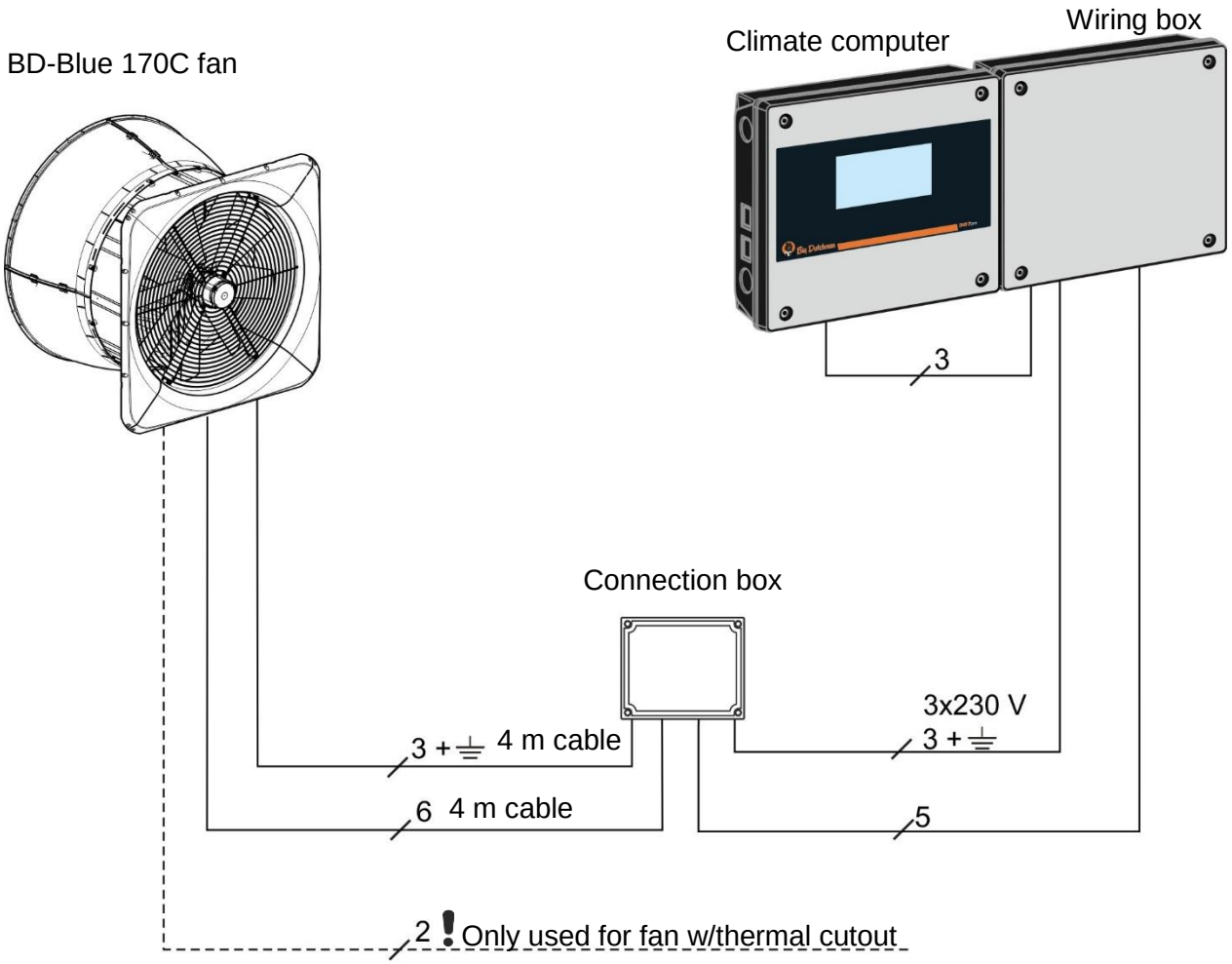
5.5.16 Circuit Diagram BD-Blue 170C 3x400 V



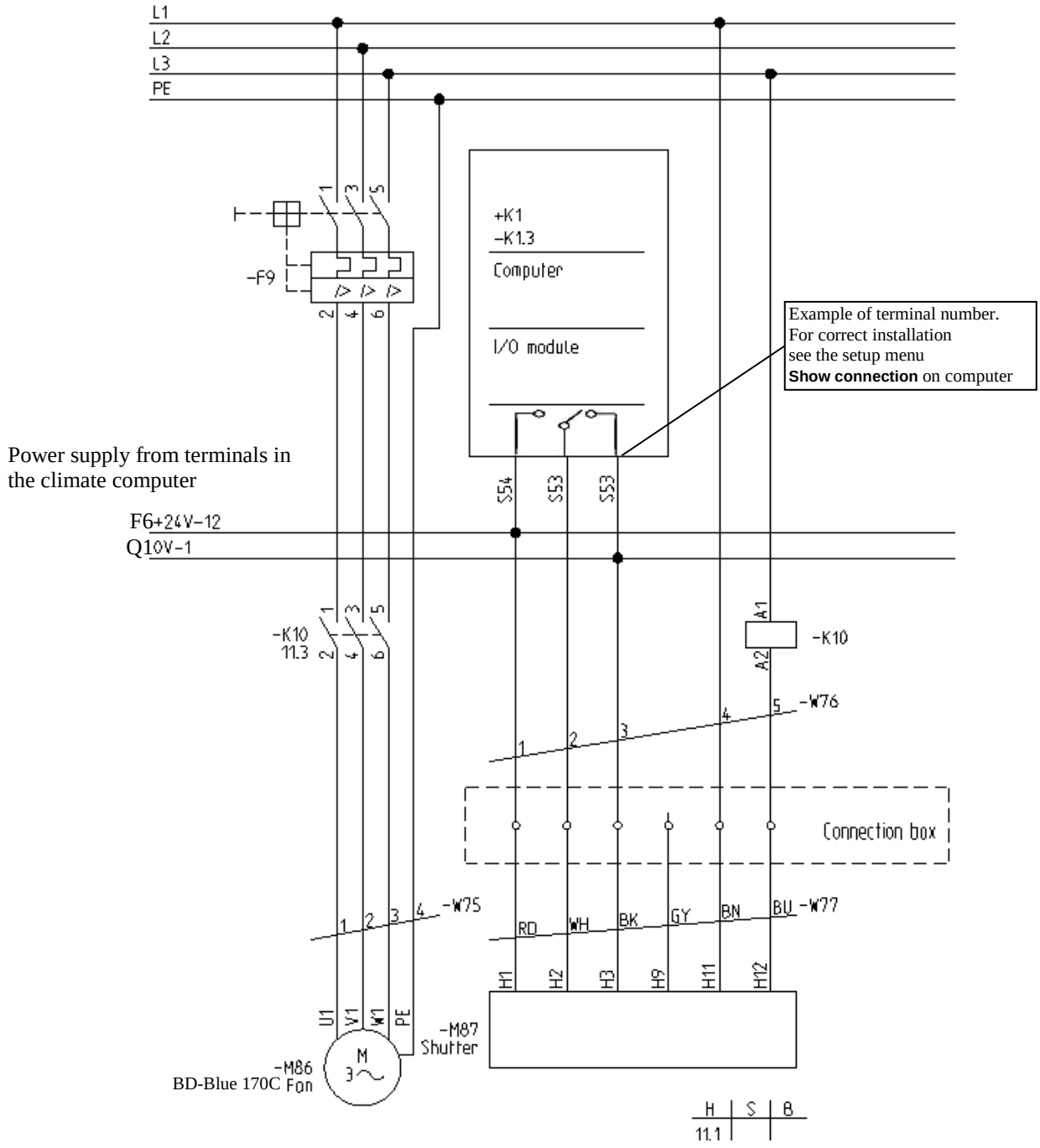
5.5.17 Circuit Diagram BD-Blue 170C 3x400 V with Thermal Cutout



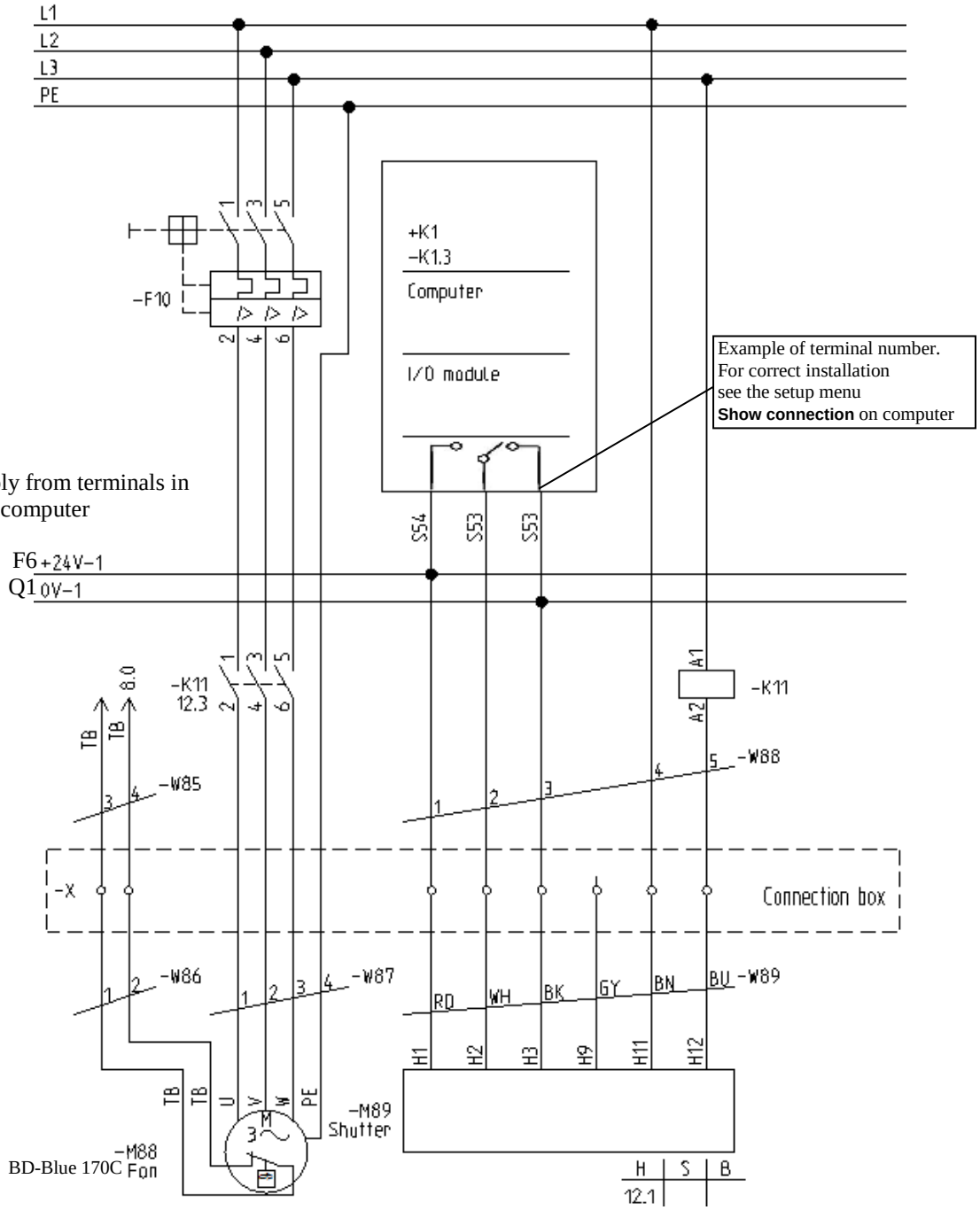
5.5.18 Cable Plan BD-Blue 170C 3x230 V



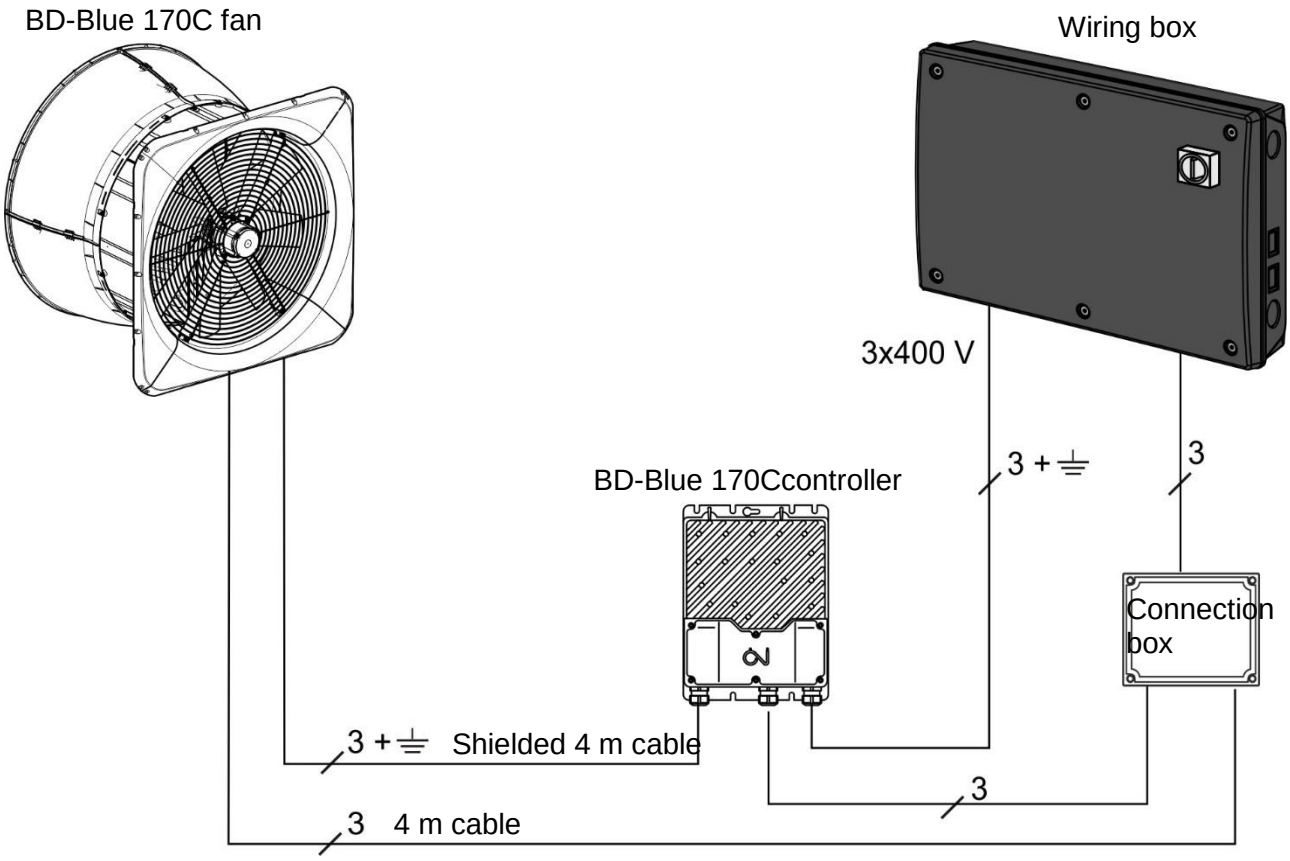
5.5.19 Circuit Diagram BD-Blue 170C 3x230 V



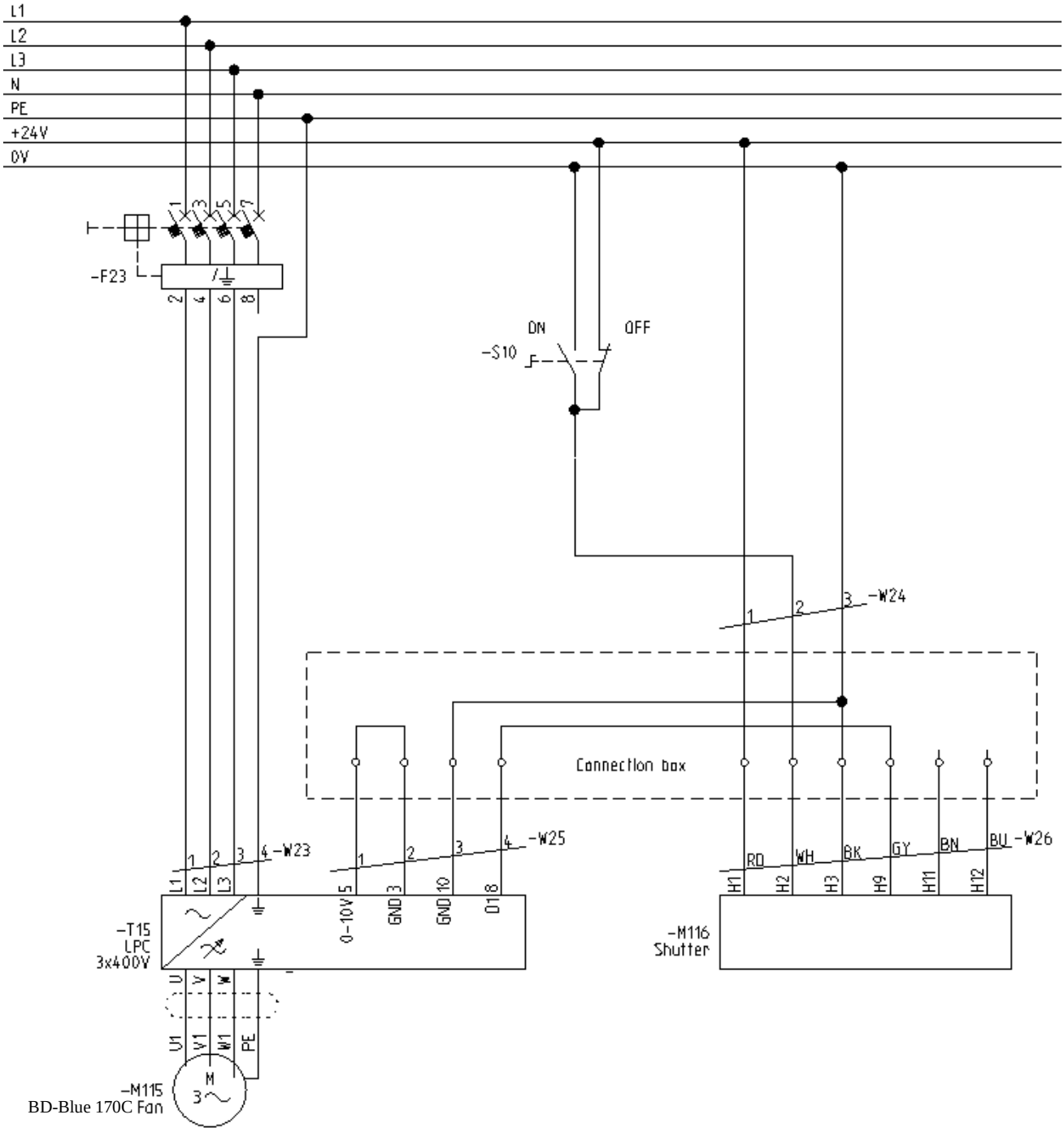
5.5.20 Circuit Diagram BD-Blue 170C 3x230 V with Thermal Cutout



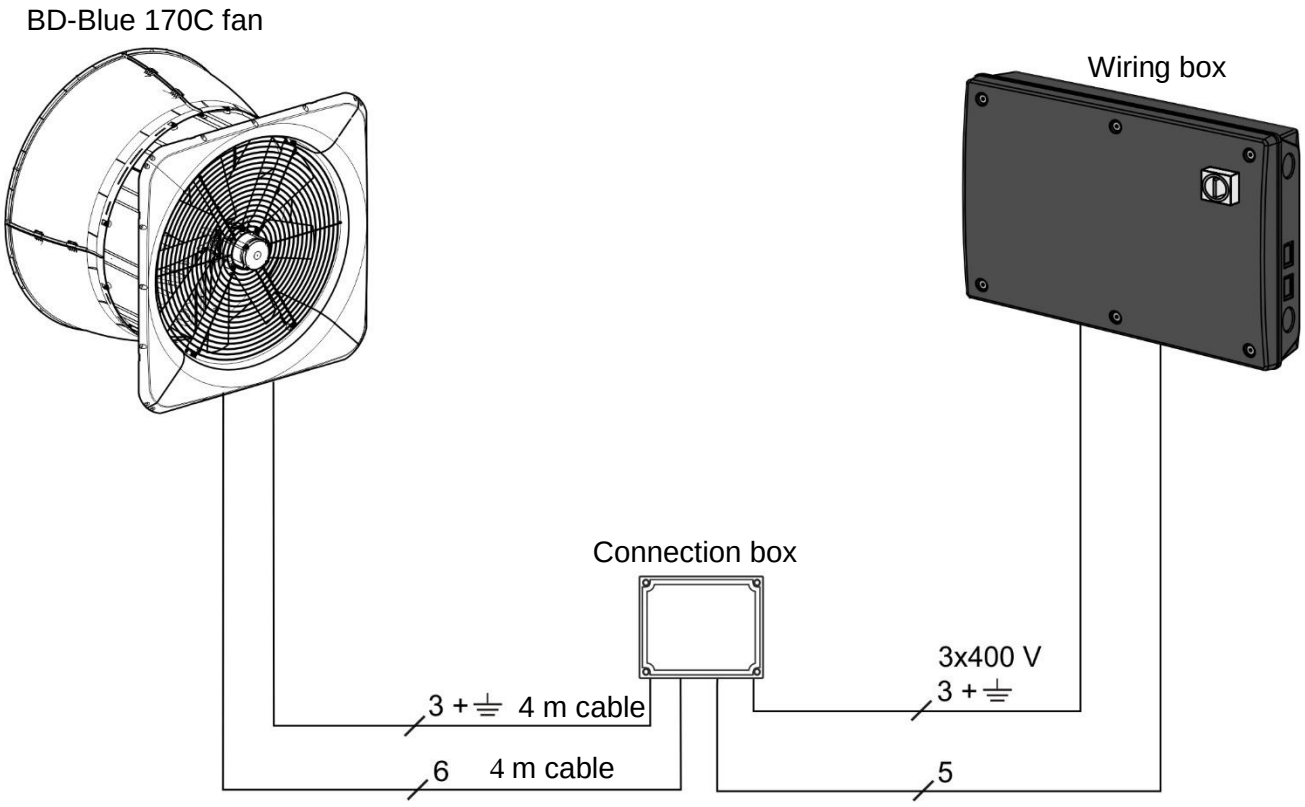
5.5.21 Cable Plan BD-Blue 170C LPC 3x400V Stand Alone



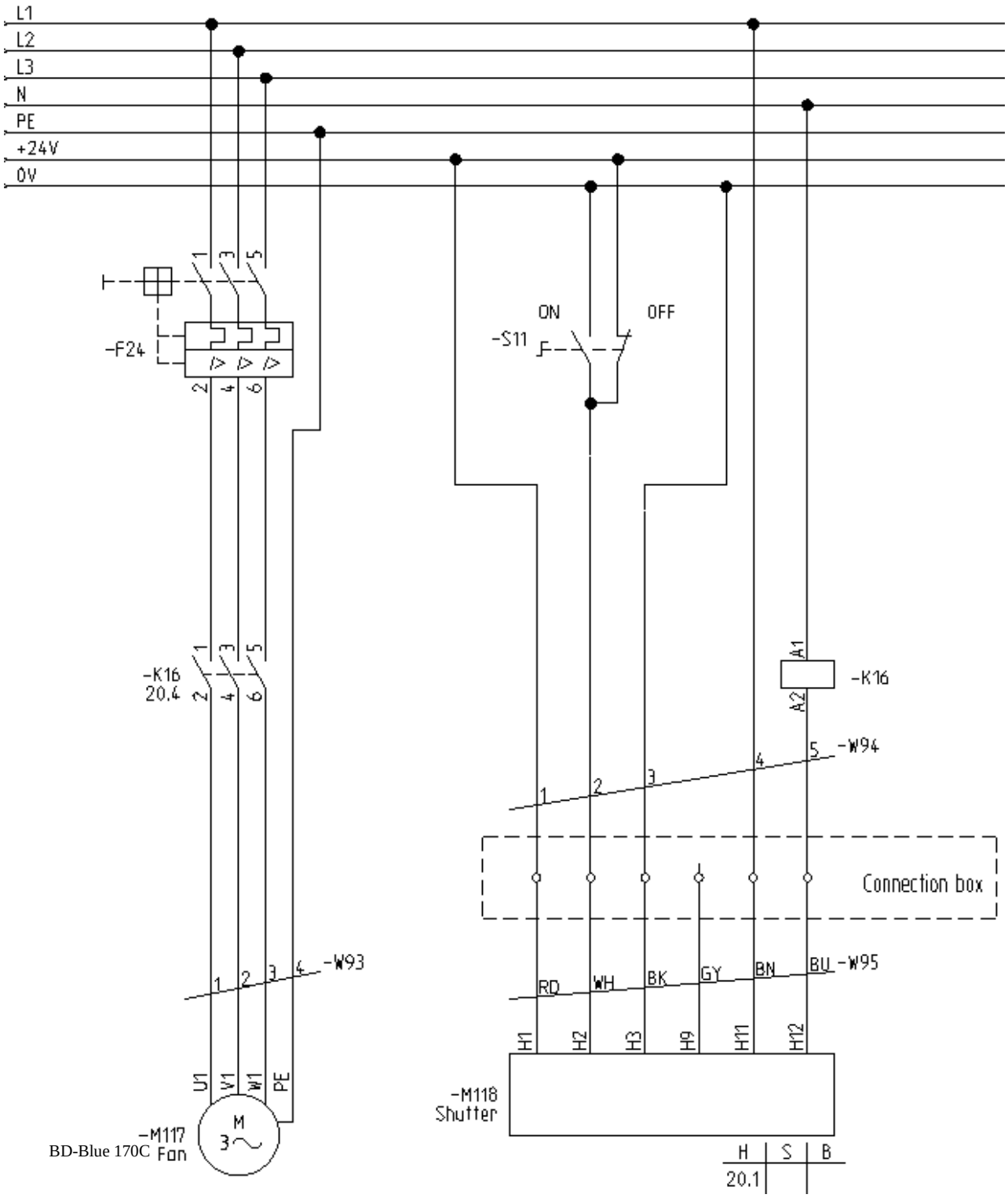
5.5.22 Circuit Diagram BD-Blue 170C LPC 3x400 V Stand Alone



5.5.23 Cable Plan BD-Blue 170C 3x400 V Stand Alone



5.5.24 Circuit Diagram BD-Blue 170C 3x400 V Stand Alone



6 Maintenance Instructions

Do not use any kind of lubricant for the Fan BD-Blue 170C wall fan.

Remember to shut off the fan at the isolator prior to maintenance and cleaning.

1. Check at least once a year that blades and suspension units are still intact.
   Call service in case of abnormal noise and vibration.
2. Only authorised personnel may carry out repairs.

6.1 Cleaning

Remember to shut off the fan at the isolator prior to maintenance and cleaning.

6.1.1 Fan

Clean the fan at regular intervals so that cooling and air can pass through unimpeded.

1. Set the computer to the in-between function **Wash**.
2. Rinse out the fan duct using a long flushing pipe.
   Remember that fans cannot withstand high-pressure cleaning.
3. It is recommended that the fan run at 100% for one hour after cleaning, in order to dry off any moisture in the fan.

The fan must not be stopped by placing hard objects between the fan blades, as they will then be damaged.

6.1.2 Controller

To ensure sufficient cooling, keep the cooling ribs on the controller dust-free, e.g. by means of compressed air.

Never flush the controller with water.
Clean using a limited amount of water (water spraying), a brush and a cloth.

6.2 Dismantling for Recycling/Disposal

Big Dutchman products which are suitable for recycling are marked with a pictogram showing a refuse bin that is crossed over. See the picture.

Customers can dispose of Big Dutchman products at local collecting points/recycling stations according to local directions. The recycling station will then arrange for further transport to a certified plant for reuse, recovering and recycling.

7 Troubleshooting Guide

Symptom	Solution
BD-Blue 170C fan will not start.	Check that there is voltage between terminals L and N. Check the control voltage to the controller. Set the computer to manual control and try to start the fan via the Auto/Manual menu. Disconnect the supply voltage for 60 sec. to restart the controller after a fault has occurred. Control error: - too high temperature - too high output current - short-circuiting of output/short-circuit to earth - voltage too high/low (power supply) - connection to power supply interrupted
BD-Blue 170C shutter will not close/open	Check/replace fuse Replace/repair shutter motor
BD-Blue 170C shutter will not close completely	Check the mechanical assembly; calibrate the winch motor, if required.
Abnormal fan noise. Bearing noise. Vibrating fan.	Check for broken or dirty fan blades.

8 Technical data

8.1 BD-Blue 170C LPC 1x230 V

Electrical	60-25-3701/60-25-3702	60-25-3706/60-25-3707
Rated voltage [V AC]	230 ± 10 %	
Operational voltage [V AC]	160 - 280	
RCD	To be installed in accordance with applicable laws and standards. RCCB 300 mA (type B) is applicable in front of the supply voltage to LPC regulated fans.	
Frequency [Hz]	50/60	
Leakage current to ground [mA]	Max 3 Pay attention to other leak current sources in the house.	
Max. ballast fuse [A]	16	
Max. power consumption [A]	2.6	3.8
Power consumption at [A] - 40Pa	3.87	5.96
Max. shaft power [W]	900	1300
Motor current (rated) [A]	3.9	3.9
Efficiency motor controller [%]	94	
Output frequency [Hz]	0 - 400	
Max. output voltage [V AC]	3 x 250	
Interface		
Inputs Analogue in [V DC]	10-0 / 0-10	
Digital in Digital in accessories	2 1	
Digital out Alarm relay	O.C max. 24V 20mA pull-up 1A; 30 V DC/24 V AC	
Mechanical		
Cable length [m] protective shielded	4	
Control type, motor controller	Sensorless back EMF	
Fan output	**60-25-3701/60-25-3702**	**60-25-3706/60-25-3707**
RPM (rated current)	465	550
Air output m^3/hour (at -10 Pa)	44,300	53,100
Air output m^3/hour (at -20 Pa)	41,500	51,000
Air output m^3/hour (at -30 Pa)	38,500	48,500
Air output m^3/hour (at -40 Pa)	35,000	45,800
Air output m^3/hour (at -50 Pa)	31,300	43,200
Air output m^3/hour (at -60 Pa)	27,600	40,100
Air output m^3/hour (at -70 Pa)	17,900	37,100
Air output m^3/hour (at -80 Pa)	12,300	34,500
Air output m^3/hour (at -90 Pa)	9,200	29,100
Air output m^3/hour (at -100 Pa)	-	19,800
Air output m^3/hour (at -110 Pa)	-	15,000
Air output m^3/hour (at -120 Pa)	-	13,000
Power consumption [W] (at -10 Pa)	676	1,093
Specific output m^3/kWh (at -10 Pa)	65,500	48,600
Specific energy [Watt/1000 m3/h] (at -10 Pa)	15	21
Pressure stability, change from 0 to -20 Pa [%]	12	8

Environment	60-25-3701/60-25-3702	60-25-3706/60-25-3707
Operating temperature [°C]	- 40 to +40	
Start temperature [°C]	- 40 to +50	
Storage temperature [°C]	- 40 to +70	
Ambient humidity, operation [%] RH	10-95	
Corrosion-resistant	EN/ISO12944-2:1998 category C4	
Protection class	Controller: IP 65 Fan motor: IP 65	
Encapsulation material Bottom Top	Aluminium (EN AB-44300) Aluminium 5052 Polypropylene (PP)	
Fan noise, outside (2 m, 45 degrees) [dB(A)]	66	70
Shipping		
DA 1700 fan housing packed HxWxD [mm]	800x735x1600	
Inside safety net packed HxWxD [mm]	3x1410x1354	
Fan motor packed HxWxD [mm]	320x320x400	
Fan blade packed HxWxD [mm]	1700x1170x1330	
Motor controller packed HxWxD [mm]	260x190x150	
DA 1700 fan housing weight [g]	72,600	
Inside safety net weight [g]	2,600	
Fan motor weight [g]	25,400	
Fan blade weight [g]	7,500	
Motor controller weight [g]	2,890	

*The noise levels are calculated sound pressure, L_p [dB (A)] at a distance of 2 m from the outflow of the exhaust unit, provided that the sound spreads in an ideal half ball.
Based on measured sound effect, L_w [dB (A)] according to ISO 9614-2.

8.2 ErP/Ecodesign BD-Blue 170C LPC 1x230 V

Fan type	60-25-3701/60-25-3702	60-25-3706/60-25-3707
Ecodesign	ErP 2015	ErP 2015
Efficiency classification [N]	56	53,5
Efficiency (η) [%]	53.4-	52.3
Measurement category	A	A
Efficiency category	Static	Static
Optimum efficiency [%]	33.4	34.8
VSD required	Yes	Yes
Year of manufacture	2016	2016
Manufacturer's name	SKOV A/S	SKOV A/S
Product's model number	435300/435301	435304/435305
Motor power input [kW] Flow rate [m^3/s] Optimum pressure [Pa] Total pressure [Pa]	0.916 7.2 62 -	1.117 8.8 75 -
Rotations per minute (RPM)	465	550
Specific ratio	1.0	1.0
Recycling/Disposal	The product is designed for recycling and it will be possible for customers to deliver worn-out product to SKOV A/S or to local collection sites/recycling stations according to local instructions.	
Impact on environmental	-	
Additional items used when determining the fan energy efficiency	BD-Blue fan incl. outside safety net	

8.3 BD-Blue 170C LPC 3x400 V

Electrical	60-25-3703/60-25-3704	60-25-3708/60-25-3709	60-25-3711/60-25-3712
Rated voltage [V AC]	3x400 ± 10 %		
Operational voltage [V AC]	280 - 485		
RCD	To be installed in accordance with applicable laws and standards. RCCB 300 mA (type B) is applicable in front of the supply voltage to LPC regulated fans.		
Frequency [Hz]	50/60		
Leakage current to ground [mA]	Max. 3 Pay attention to other leak current sources in the house.		
Max. ballast fuse [A]	16		
Max. power consumption [A]	1.6	2.3	4.0
Power consumption at [A] - 40Pa	1.33	2.07	3.07
Max. shaft power [W]	900	1300	2300
Motor current (rated) [A]	4.1	4.1	4.1
Efficiency motor controller	>96.5	>96.5	>96.5
Output frequency [Hz]	0 - 400	0 - 400	0 - 400
Max. output voltage [V AC]	3 x 364	3 x 364	3 x 364
Interface			
Inputs Analogue in [V DC]	10-0 / 0-10		
Digital in Digital in accessories	2 1		
Digital out Alarm relay (accessory)	O.C max. 24V 20mA pull-up 1A; 30 V DC / 24 V AC		
Mechanical			
Cable length [m] protective shielded	4		
Control type, motor controller	Sensorless back EMF		
Fan output	**60-25-3703/60-25-3704**	**60-25-3708/60-25-3709**	**60-25-3711/60-25-3712**
RPM (rated current)	465	550	650
Air output m^3/hour (at -10 Pa)	44,300	53,100	63,600
Air output m^3/hour (at -20 Pa)	41,500	51,000	61,700
Air output m^3/hour (at -30 Pa)	38,500	48,500	59,900
Air output m^3/hour (at -40 Pa)	35,000	45,800	57,800
Air output m^3/hour (at -50 Pa)	31,300	43,200	55,500
Air output m^3/hour (at -60 Pa)	27,600	40,100	53,300
Air output m^3/hour (at -70 Pa)	17,900	37,100	51,100
Air output m^3/hour (at -80 Pa)	12,300	34,500	48,600
Air output m^3/hour (at -90 Pa)	9,200	29,100	45,900
Air output m^3/hour (at -100 Pa)	-	19,800	43,200
Air output m^3/hour (at -110 Pa)	-	15,000	41,000
Air output m^3/hour (at -120 Pa)	-	13,000	38,000
Air output m^3/hour (at -130 Pa)	-	-	31,400
Air output m^3/hour (at -140 Pa)	-	-	22,700
Air output m^3/hour (at -150 Pa)	-	-	18,200
Power consumption [W] (at -10 Pa)	676	1093	1763
Specific output m^3/kWh (at -10 Pa)	65,500	48,600	36,100
Specific energy [Watt/1000 m3/h] (at -10 Pa)	15	21	28
Pressure stability, change from 0 to -20 Pa [%]	12	8	6
Environment	**60-25-3703/60-25-3704**	**60-25-3708/60-25-3709**	**60-25-3711/60-25-3712**

Operating temperature [°C]	- 40 to +40		
Start temperature [°C]	- 40 to +50		
Storage temperature [°C]	- 40 to +70		
Ambient humidity, operation [%] RH	10-95		
Corrosion-resistant	EN/ISO12944-2:1998 category C4		
Protection class	Controller: IP 65 Fan motor: IP 65		
Encapsulation material Bottom Top	Aluminium (EN AB-44300) Aluminium 5052 Polypropylene (PP)		
Fan noise, outside (2 m, 45 degrees) [dB(A)]	66	70	75
Shipping			
DA 1700 fan housing packed HxWxD [mm]	800x735x1600	800x735x1600	800x735x1600
Inside safety net packed HxWxD [mm]	3x1410x1354	3x1410x1354	3x1410x1354
Fan motor packed HxWxD [mm]	320x320x400	320x320x400	320x320x400
Fan blade packed HxWxD [mm]	1700x1170x1330	1700x1170x1330	1700x1170x1330
Motor controller packed HxWxD [mm]	310x165x230	260x190x150	310x165x230
DA 1700 fan housing weight [g]	72.600	72.600	72.600
Inside safety net weight [g]	2.600	2.600	2.600
Fan motor weight [g]	25.400	25.400	25.400
Fan blade weight [g]	7.500	25.400	25.400
Motor controller weight [g]	2.890	2.890	2.885

*The noise levels are calculated sound pressure, L_p [dB (A)] at a distance of 2 m from the outflow of the exhaust unit, provided that the sound spreads in an ideal half ball.
Based on measured sound effect, L_w [dB (A)] according to ISO 9614-2.

8.4 ErP/Ecodesign BD-Blue 170C LPC 3x400 V

Fan type	**60-25-3703/60-25-3704**	**60-25-3708/60-25-3709**	**60-25-3711/60-25-3712**
Ecodesign	ErP 2015	ErP 2015	ErP 2015
Efficiency classification [N]	58.1	58.6	57.5
Efficiency (η) [%]	55.4	57.3	57.4
Measurement category	A	A	A
Efficiency category	Static	Static	Static
Optimum efficiency [%]	33.3	34.6	36.0
VSD required	Yes	Yes	Yes
Year of manufacture	2016	2016	2016
Manufacturer's name	SKOV A/S	SKOV A/S	SKOV A/S
Product's model number	435302/435303	435306/435307	435308/435309
Motor power input [kW] Flow rate [m^3/s] Optimum pressure [Pa] Total pressure [Pa]	0.862 7.4 50 -	1.425 8.7 87 -	2.310 10 125 -
Rotations per minute (RPM)	465	550	650
Specific ratio	1.0	1.0	1.0
Recycling/Disposal	The product is designed for recycling and it will be possible for customers to deliver worn-out product to SKOV A/S or to local collection sites/recycling stations according to local instructions.		
Impact on environmental	-		
Additional items used when determining the fan energy efficiency	BD-Blue fan incl. outside safety net		

8.5 BD-Blue 170C LPC 3x230 V

Electrical	60-25-3705	60-25-3710	60-25-3713
Rated voltage [V AC]	3x230 ± 10 %		
Operational voltage [V AC]	185 - 485		
RCD	To be installed in accordance with applicable laws and standards. RCCB 300 mA (type B) is applicable in front of the supply voltage to LPC regulated fans.		
Frequency [Hz]	50/60		
Leakage current to ground [mA]	Max. 3 Pay attention to other leak current sources in the house.		
Max. ballast fuse [A]	16		
Max. power consumption [A]	2.4	3.5	6.2
Power consumption at [A] - 40Pa	2.97	4.09	5.70
Max. shaft power [W]	900	1300	2300
Motor current (rated) [A]	6.4	6.4	6.4
Efficiency motor controller	>96.5	>96.5	>96.5
Output frequency [Hz]	0 - 400	0 - 400	0 - 400
Max. output voltage [V AC]	3 x 250	3 x 250	3 x 250
Interface			
Inputs Analogue in [V DC]	10-0 / 0-10		
Digital in Digital in accessories	2 1		
Digital out Alarm relay (accessory)	O.C max. 24V 20mA pull-up 1A; 30 V DC / 24 V AC		
Mechanical			
Cable length [m] protective shielded	4		
Control type, motor controller	Sensorless back EMF		
Fan output	**60-25-3705**	**60-25-3710**	**60-25-3713**
RPM (rated current)	465	550	650
Air output m^3/hour (at -10 Pa)	44,300	53,100	63,600
Air output m^3/hour (at -20 Pa)	41,500	51,000	61,700
Air output m^3/hour (at -30 Pa)	38,500	48,500	59,900
Air output m^3/hour (at -40 Pa)	35,000	45,800	57,800
Air output m^3/hour (at -50 Pa)	31,300	43,200	55,500
Air output m^3/hour (at -60 Pa)	27,600	40,100	53,300
Air output m^3/hour (at -70 Pa)	17,900	37,100	51,100
Air output m^3/hour (at -80 Pa)	12,300	34,500	48,600
Air output m^3/hour (at -90 Pa)	9,200	29,100	45,900
Air output m^3/hour (at -100 Pa)	-	19,800	43,200
Air output m^3/hour (at -110 Pa)	-	15,000	41,000
Air output m^3/hour (at -120 Pa)	-	13,000	38,000
Air output m^3/hour (at -130 Pa)	-	-	31,400
Air output m^3/hour (at -140 Pa)	-	-	22,700
Air output m^3/hour (at -150 Pa)	-	-	18,200
Power consumption [W] (at -10 Pa)	680	1.093	1,763
Specific output m^3/kWh (at -10 Pa)	65,300	48,600	36,100
Specific energy [Watt/1000 m3/h] (at -10 Pa)	15	21	28
Pressure stability, change from 0 to -20 Pa [%]	12	8	6

Environment	60-25-3705	60-25-3710	60-25-3713
Operating temperature [°C]	- 40 to +40		
Start temperature [°C]	- 40 to +50		
Storage temperature [°C]	- 40 to +70		
Ambient humidity, operation [%] RH	10-95		
Corrosion-resistant	EN/ISO12944-2:1998 category C4		
Protection class	Controller: IP 65 Fan motor: IP 65		
Encapsulation material Bottom Top	Aluminium (EN AB-44300) Aluminium 5052 Polypropylene (PP)		
Fan noise, outside (2 m, 45 degrees) [dB(A)]	66	70	75
Shipping			
DA 1700 fan housing packed HxWxD [mm]	800x735x1600	800x735x1600	800x735x1600
Inside safety net packed HxWxD [mm]	3x1410x1354	3x1410x1354	3x1410x1354
Fan motor packed HxWxD [mm]	320x320x400	320x320x400	320x320x400
Fan blade packed HxWxD [mm]	1700x1170x1330	1700x1170x1330	1700x1170x1330
Motor controller packed HxWxD [mm]	310x165x230	415x315x175	310x165x230
DA 1700 fan housing weight [g]	72,600	72,600	72,600
Inside safety net weight [g]	2,600	2,600	2,600
Fan motor weight [g]	25,400	25,400	25,400
Fan blade weight [g]	7,500	7,500	7,500
Motor controller weight [g]	3,009	4,674	4,248

*The noise levels are calculated sound pressure, L_p [dB (A)] at a distance of 2 m from the outflow of the exhaust unit, provided that the sound spreads in an ideal half ball.
Based on measured sound effect, L_w [dB (A)] according to ISO 9614-2.

8.6 ErP/Ecodesign BD-Blue 170C LPC 3x230 V

Fan type	60-25-3705	60-25-3710	60-25-3713
Ecodesign	ErP 2015	ErP 2015	ErP 2015
Efficiency classification [N]	59.2	55.8	48.9
Efficiency (η) [%]	56.5	54.5	48.8
Measurement category	A	A	A
Efficiency category	Static	Static	Static
Optimum efficiency [%]	33.3	34.7	35.9
VSD required	Yes	Yes	Yes
Year of manufacture	2016	2016	2016
Manufacturer's name	SKOV A/S	SKOV A/S	SKOV A/S
Product's model number	435321	435322	435322
Motor power input [kW] Flow rate [m^3/s] Optimum pressure [Pa] Total pressure [Pa]	0.879 7.3 62 -	1.443 9.8 75 -	2.247 13.8 75 -
Rotations per minute (RPM)	465	550	650
Specific ratio	1.0	1.0	1.0
Recycling/Disposal	The product is designed for recycling and it will be possible for customers to deliver worn-out product to SKOV A/S or to local collection sites/recycling stations according to local instructions.		
Impact on environmental	-		
Additional items used when determining the fan energy efficiency	BD-Blue fan incl. outside safety net		

8.7 BD-Blue 170C 3x400 V

Electrical	60-25-3714/60-25-3715	60-25-3716/60-25-3717
Rated voltage [V AC]	3x400 ± 10 %	
Operational voltage [V AC]	180 - 485	
Frequency [Hz]	50	60
Max. ballast fuse [A]	16	16
Max. power consumption [A]	5.9	5.9
Power consumption at [A] - 40Pa	5.03	4.98
Max. shaft power [W]	2,200	2,200
Efficiency motor controller [%]	76	76
Mechanical		
Cable length [m] unshielded	4	
Fan output	**60-25-3714/60-25-3715**	**60-25-3716/60-25-3717**
RPM (rated current)	700	840
Air output m^3/hour (at -10 Pa)	58,000	63,000
Air output m^3/hour (at -20 Pa)	56,300	60,900
Air output m^3/hour (at -30 Pa)	54,300	58,900
Air output m^3/hour (at -40 Pa)	52,400	57,000
Air output m^3/hour (at -50 Pa)	50,500	55,100
Air output m^3/hour (at -60 Pa)	48,200	52,400
Air output m^3/hour (at -70 Pa)	45,900	49,500
Air output m^3/hour (at -80 Pa)	43,700	46,600
Air output m^3/hour (at -90 Pa)	41,500	43,500
Air output m^3/hour (at -100 Pa)	39,200	40,300
Air output m^3/hour (at -110 Pa)	36,600	36,900
Air output m^3/hour (at -120 Pa)	33,600	33,100
Power consumption [W] (at -10 Pa)	1,712	2,097
Specific output m^3/kWh (at -10 Pa)	33,900	30,000
Specific energy [Watt/1000 m3/h] (at -10 Pa)	30	33
Pressure stability, change from 0 to -20 Pa [%]	6	7
Environment	**60-25-3714/60-25-3715**	**60-25-3716/60-25-3717**
Operating temperature [°C]	- 40 to +40	
Start temperature [°C]	- 40 to +50	
Storage temperature [°C]	- 40 to +70	
Ambient humidity, operation [%] RH	10-95	
Protection class	Fan motor: IP 65	
Fan noise, outside (2 m, 45 degrees) [dB(A)]	78	80
Shipping		
DA 1700 fan housing packed HxWxD [mm]	800x735x1600	800x735x1600
Inside safety net packed HxWxD [mm]	3x1410x1354	3x1410x1354
Fan motor packed HxWxD [mm]	320x320x400	320x320x400
Fan blade packed HxWxD [mm]	1700x1170x1330	1700x1170x1330
DA 1700 fan housing weight [g]	72.600	72.600
Inside safety net weight [g]	2.600	2.600
Fan motor weight [g]	34.800	34.800
Fan blade weight [g]	7.500	7.500

*The noise levels are calculated sound pressure, L_p [dB (A)] at a distance of 2 m from the outflow of the exhaust unit, provided that the sound spreads in an ideal half ball.
Based on measured sound effect, L_w [dB (A)] according to ISO 9614-2.

8.8 ErP/Ecodesign BD-Blue 170C 3x400 V

Fan type	60-25-3714/60-25-3715	60-25-3716/60-25-3717
Ecodesign	ErP 2015	ErP 2015
Efficiency classification [N]	49.0	46
Efficiency (η) [%]	48.9	46.0
Measurement category	A	A
Efficiency category	Static	Static
Optimum efficiency [%]	35.9	36.1
VSD required	No	No
Year of manufacture	2016	2016
Manufacturer's name	SKOV A/S	SKOV A/S
Product's model number	435310/435311	435312/435313
Motor power input [kW] Flow rate [m^3/s] Optimum pressure [Pa] Total pressure [Pa]	2.254 8.9 125 -	2.426 11.2 100 -
Rotations per minute (RPM)	700	840
Specific ratio	1.0	1.0
Recycling/Disposal	The product is designed for recycling and it will be possible for customers to deliver worn-out product to SKOV A/S or to local collection sites/recycling stations according to local instructions.	
Impact on environmental	-	
Additional items used when determining the fan energy efficiency	BD-Blue fan incl. outside safety net	

8.9 BD-Blue 170C 3x230 V

Electrical	60-25-3718
Rated voltage [V AC]	230 ± 10 %
Operational voltage [V AC]	185 - 485
Frequency [Hz]	60
Max. ballast fuse [A]	16
Max. power consumption [A]	10.2
Power consumption at [A] - 40Pa	8.5
Max. shaft power [W]	2,200
Efficiency motor controller [%]	76
Mechanical	
Cable length [m] unshielded	4
Fan output	**60-25-3718**
RPM (rated current)	840
Air output m^3/hour (at -10 Pa)	64,200
Air output m^3/hour (at -20 Pa)	62,300
Air output m^3/hour (at -30 Pa)	60,200
Air output m^3/hour (at -40 Pa)	58,300
Air output m^3/hour (at -50 Pa)	56,500
Air output m^3/hour (at -60 Pa)	54,200
Air output m^3/hour (at -70 Pa)	51,700
Air output m^3/hour (at -80 Pa)	49,000
Air output m^3/hour (at -90 Pa)	46,100
Air output m^3/hour (at -100 Pa)	43,100
Air output m^3/hour (at -110 Pa)	40,100
Air output m^3/hour (at -120 Pa)	36,000
Power consumption [W] (at -10 Pa)	2,189
Specific output m^3/kWh (at -10 Pa)	29,300
Specific energy [Watt/1000 m3/h] (at -10 Pa)	34
Pressure stability, change from 0 to -20 Pa [%]	6
Environment	**60-25-3718**
Operating temperature [°C]	÷ 40 til +40
Start temperature [°C]	÷ 40 til +50
Storage temperature [°C]	÷ 40 til +70
Ambient humidity, operation [%] RH	10-95
Protection class	Fan motor: IP 65
Fan noise, outside (2 m, 45 degrees) [dB(A)]	80
Shipping	
DA 1700 fan housing packed HxWxD [mm]	800x735x1600
Inside safety net packed HxWxD [mm]	3x1410x1354
Fan motor packed HxWxD [mm]	320x320x400
Fan blade packed HxWxD [mm]	1700x1170x1330
DA 1700 fan housing weight [g]	66,600
Inside safety net weight [g]	2,600
Fan motor weight [g]	34,800
Fan blade weight [g]	7,500

*The noise levels are calculated sound pressure, L_p [dB (A)] at a distance of 2 m from the outflow of the exhaust unit, provided that the sound spreads in an ideal half ball.
Based on measured sound effect, L_w [dB (A)] according to ISO 9614-2.

8.10 ErP/Ecodesign BD-Blue 170C 3x230 V

Fan type	60-25-3718
Ecodesign	ErP 2015
Efficiency classification [N]	45.2
Efficiency (η) [%]	45.5
Measurement category	A
Efficiency category	Static
Optimum efficiency [%]	36.1
VSD required	No
Year of manufacture	2016
Manufacturer's name	SKOV A/S
Product's model number	435324
Motor power input [kW] Flow rate [m^3/s] Optimum pressure [Pa] Total pressure [Pa]	2.623 9.6 125 -
Rotations per minute (RPM)	840
Specific ratio	1.0
Recycling/Disposal	The product is designed for recycling and it will be possible for customers to deliver worn-out product to SKOV A/S or to local collection sites/recycling stations according to local instructions.
Impact on environmental	-
Additional items used when determining the fan energy efficiency	BD-Blue fan incl. outside safety net

8.11 BD-Blue 170C Plastic Parts

Mechanical	BD-Blue 170C Plastic Parts
Material	
Front panel Fan ducts Shutter Wall cover outside Cover centre pillar Cover motor suspension	PS (HIPS)
Diffuser	PP
Motor suspension	PP (GF30)
House for shutter	ABS
Shutter parts	PA
Metal parts	Stainless steel A2
Colour	RAL 7035 / RAL 9005 / sort
Environment	
Ambient temperature, operation [°C]	-40 to +60
Ambient temperature, repository [°C]	-40 to +65 protected against direct sunlight
Ambient humidity, operation [%] RH	0-95

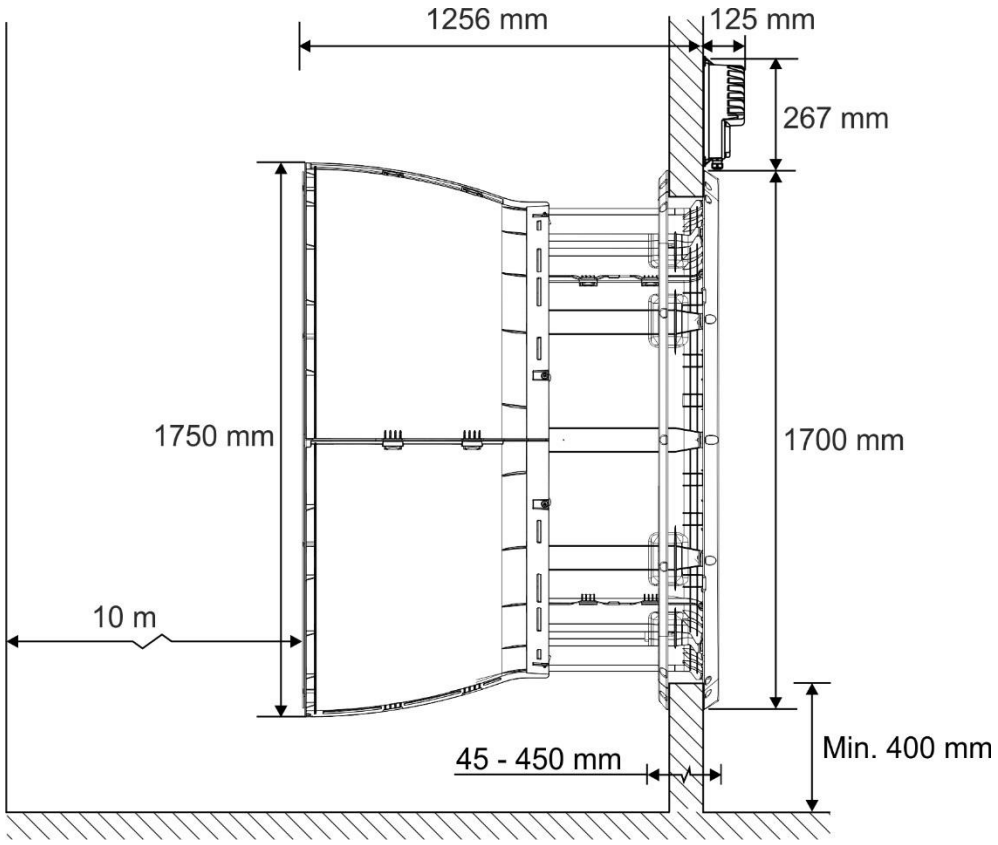
8.12 BD-Blue 170C Shutter Motor

	BD-Blue 170C shutter motor
Power supply [V DC]	24 ± 20 %
Running time, unloaded [sec.]	70
Running time max. load [sec.]	90
Max. torque [Nm]	24 Nm.
Max. power consumption [A]	0.14
Feedback signal	0-10 V - R_{out} 2.2 KΩ
O.C. (open collector) output max.	20 mA – 30 V DC
Cabinet insulating cover	IP 65

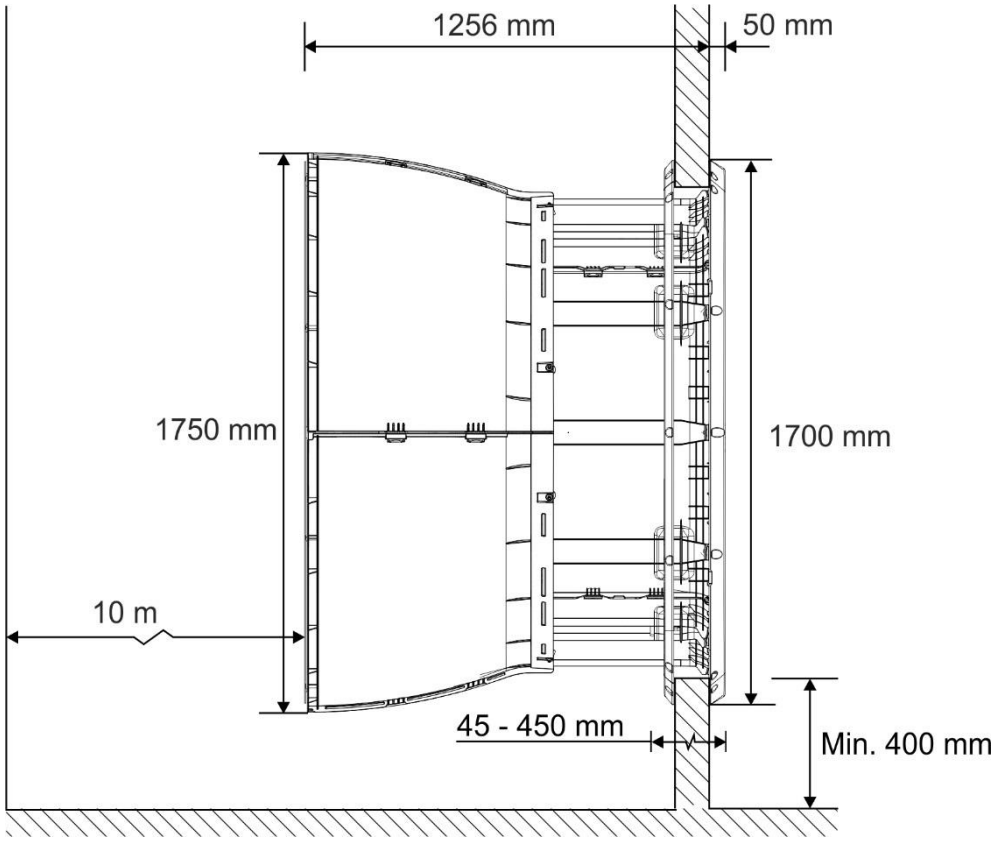
9 Dimensioned Sketch

In mm.

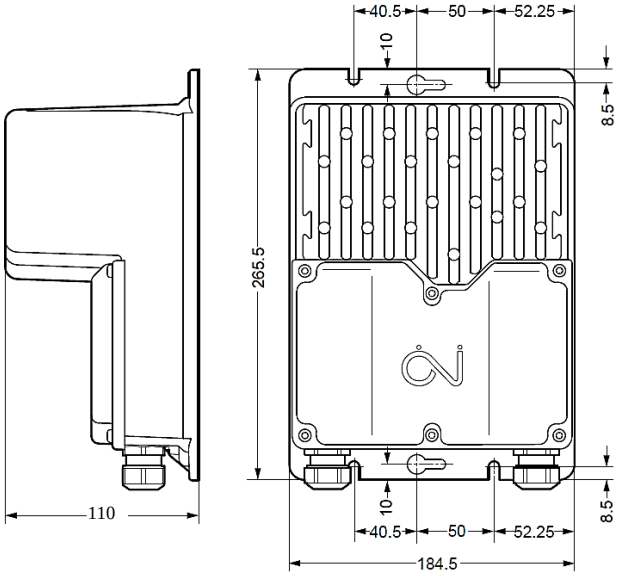
9.1 BD-Blue 170C LPC with Motor Controller



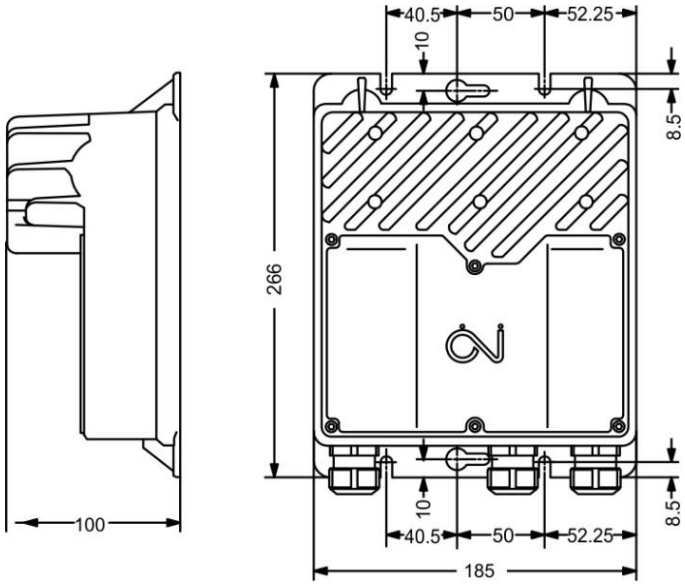
9.2 BD-Blue 170C without Motor Controller



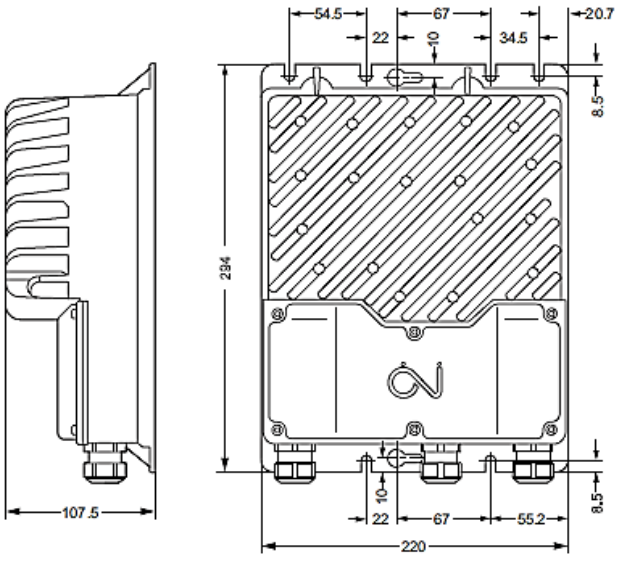
9.3 Motor Controller LPC 1x230V



9.4 Motor Controller LPC 3x400V



9.5 Motor Controller LPC 3x230V



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