

Climate 5000 L • Climate 5000iL

CL5000L 53 E • CL5000iL CF 53 E | CL5000L 70 E • CL5000iL CF 70 E |
 CL5000L 105 E • CL5000iL CF 105 E | CL5000L 105 E-3 • CL5000iL CF 105 E |
 CL5000L 140 E-3 • CL5000iL CF 140 E | CL5000L 160 E-3 • CL5000iL CF 160 E

| | | | |
|-----------|---|--|-----|
| bg | Голям климатичен уред сплит система | Ръководство за монтаж за специалисти | 2 |
| de | Large-Split-Klimagerät | Installationsanleitung für die Fachkraft | 17 |
| el | Κλιματιστικό τύπου Split Large | Οδηγίες εγκατάστασης για τον εξειδικευμένο τεχνικό | 32 |
| en | Large split air conditioner | Installation instructions for the qualified person | 47 |
| es | Climatizador Large Split | Manual de instalación para el técnico | 62 |
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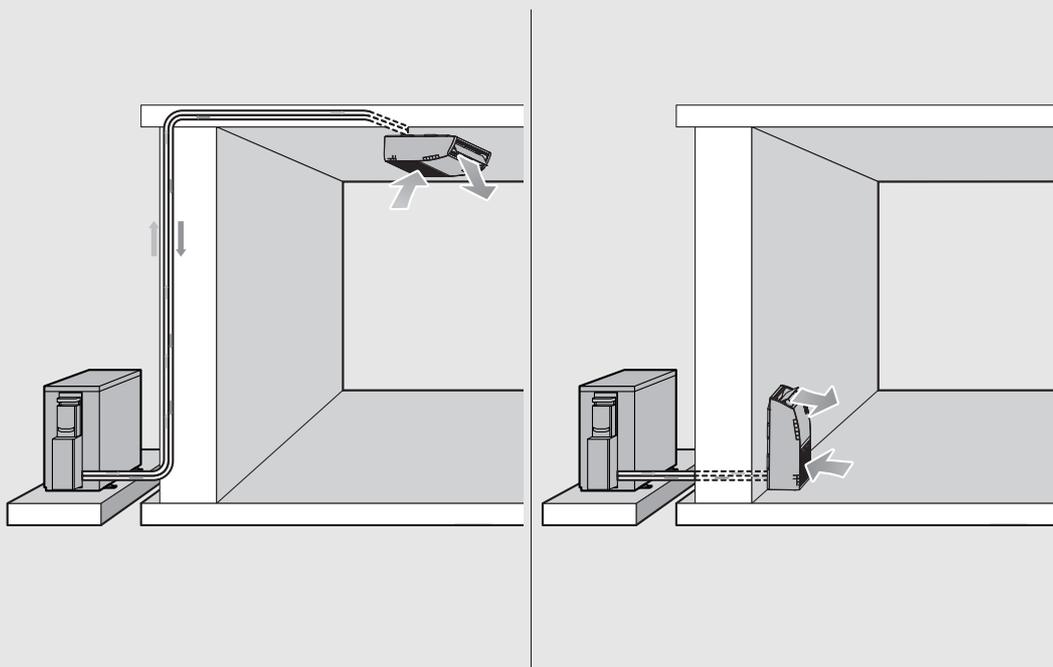


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1 Explanation of symbols and safety instructions

1.1 Explanation of symbols

Warnings

In warnings, signal words at the beginning of a warning are used to indicate the type and seriousness of the ensuing risk if measures for minimizing danger are not taken.

The following signal words are defined and can be used in this document:

 **DANGER**

DANGER indicates that severe or life-threatening personal injury will occur.

 **WARNING**

WARNING indicates that severe to life-threatening personal injury may occur.

 **CAUTION**

CAUTION indicates that minor to medium personal injury may occur.

NOTICE

NOTICE indicates that material damage may occur.

Important information

 The info symbol indicates important information where there is no risk to people or property.

| Symbol | Meaning |
|---|---|
|  | Warning regarding flammable substances: the refrigerant R32 used in this product is a gas with low combustibility and low toxicity (A2L or A2). |
|  | Wear protective gloves during installation and maintenance work. |
|  | Maintenance by a qualified person should be done while following the instructions of the service manual. |
|  | For operation follow the instructions of the user manual. |

Table 1

1.2 General safety instructions

Notices for the target group

These installation instructions are intended for qualified persons who are skilled in dealing with refrigeration engineering and HVAC technology and also electrical systems. All system-relevant instructions must be observed. Failure to comply with instructions may result in material damage and personal injury, including danger to life.

- ▶ Before carrying out the installation, read the installation instructions of all system components.
- ▶ Observe the safety instructions and warnings.
- ▶ Follow national and regional regulations, technical regulations and guidelines.
- ▶ Record all work carried out.

General dangers posed by the refrigerant

- ▶ This appliance is filled with refrigerant R32. If the refrigerant gas gets into contact with fire, it may generate toxic gas.
- ▶ Thoroughly ventilate the room if refrigerant leaks during the installation.
- ▶ Check the tightness of the system following the installation.
- ▶ Do not let any other substance than the specified refrigerant (R32) into the refrigerant cycle.

Safety of electrical devices for domestic use and similar purposes

The following requirements apply in accordance with EN 60335-1 in order to prevent hazards from occurring when using electrical appliances:

“This appliance can be used by children of 8 years and older, as well as by people with reduced physical, sensory or mental capabilities or lacking in experience and knowledge, if they are supervised and have been given instruction in the safe use of the appliance and understand the resulting dangers. Children shall not play with the appliance. Cleaning and user maintenance must not be performed by children without supervision.”

“If the power cable is damaged, it must be replaced by the manufacturer, its customer service department or a similarly qualified person, so that risks are avoided.”

Handover to the user

When handing over the air conditioning system, explain the operation and operating conditions to the user.

- ▶ Explain operation – with particular emphasis on all safety-related actions.
- ▶ Highlight the following points in particular:
 - Point out that modifications or repairs may be carried out only by an approved contractor.
 - To ensure safe and environmentally compatible operation, an annual inspection, and also cleaning and maintenance if required, must be carried out.
- ▶ Point out the possible consequences (personal injury and possible danger to life or material damage) of not carrying out inspection, cleaning and maintenance correctly, or omitting it altogether.
- ▶ Hand over the installation and operating instructions to the user for safekeeping.

1.3 Notices regarding these instructions

The figures are shown together at the end of these instructions. The text contains references to the figures.

Depending on the model, the products may be different to those shown in these instructions.

2 Product Information

2.1 Declaration of conformity

The design and operating characteristics of this product comply with the European and national requirements.

 The CE marking declares that the product complies with all the applicable EU legislation, which is stipulated by attaching this marking.

The complete text of the Declaration of Conformity is available on the Internet: worcester-bosch.co.uk.

2.2 Scope of delivery

The scope of delivery of the possible appliances is shown in Fig. 8 and 9. The appliances are shown as an example and deviations are possible.

- [1] Outdoor unit (filled with refrigerant)
- [2] Indoor unit (filled with nitrogen)
- [3] Bio filter
- [4] Copper nut (2x)
- [5] Drainage elbow with gasket
- [6] Remote controller
- [7] Remote control Holder with fixing screw
- [8] Magnet ring
- [9] Set of printed documents for product documentation
- [10] 4 anti-vibration couplings for the outdoor unit

2.3 Twin combination

The appliances can be installed as so-called twin combination. In doing so, an outdoor unit is combined with two indoor units of the same type. The indoor units must be installed at the same height.

- ▶ Observe the possible combinations in table 2.
- ▶ Observe the dimensions in Fig. 32.
- ▶ Arrange the branch joints horizontally.

| Outdoor unit | Indoor Unit |
|-----------------------------------|----------------------|
| CL5000L 105 E/ CL5000L 105 E-3 | 2 × CL5000iL CF 53 E |
| CL5000L 140 E-3 | 2 × CL5000iL CF 70 E |

Table 2 Possible twin combinations

2.4 Product dimensions and minimum clearances

2.4.1 Indoor unit and outdoor unit

Outdoor Unit

Figs. 12 to 13.

Indoor Unit

Figs. 10 to 11.

- [1] Pipe connection (gas)
- [2] Condensate pipe
- [3] Pipe connection (liquid)
- [4] Checkmark

2.4.2 Refrigerant lines

Key to figure 14:

- [1] Pipe on gas side
- [2] Pipe on liquid side
- [3] Siphon-shaped elbow as oil separator



If the indoor units are positioned lower than the outdoor unit, install a siphon-shaped elbow on the gas side after no more than 6 m and every 6 m thereafter (→ figure 14, [1]).

- ▶ Observe maximum pipe length and maximum difference in height between indoor unit and outdoor unit.

| Appliance type | Maximum pipe length [m] | Maximum height difference [m] |
|-----------------|-------------------------|-------------------------------|
| CL5000L 53 E | ≤ 30 | ≤ 20 |
| CL5000L 70 E | ≤ 50 | ≤ 25 |
| CL5000L 105 E | ≤ 75 | ≤ 30 |
| CL5000L 105 E-3 | | |
| CL5000L 140 E-3 | | |
| CL5000L 160 E-3 | | |

Table 3 Piping lengths

- ▶ Observe pipe diameter and further specifications.

| Pipe diameter [mm] | Alternative pipe diameter [mm] |
|--------------------|--------------------------------|
| 6.35 (1/4") | 6 |
| 9.53 (3/8") | 10 |
| 12.7 (1/2") | 12 |
| 15.9 (5/8") | 16 |

Table 4 Alternative pipe diameter

| Specification of the pipes | |
|---|-------------------------------|
| Min. piping length | 3 m |
| Additional refrigerant to be added if the pipe length exceeds 5 m (liquid side) | With Ø 6.35 mm (1/4"): 12 g/m |
| | With Ø 9.53 mm (3/8"): 24 g/m |
| Pipe thickness with pipe diameter from Ø 6.35 mm to 12.7 mm | ≥ 0.8 mm. |
| Pipe thickness with 15.9 mm pipe diameter | ≥ 1.0 mm |
| Thickness of insulation against heat | ≥ 6 mm |
| Material of insulation against heat | Polyethylene foam |

Table 5

2.5 Information on refrigerant

This device contains **fluorinated greenhouse gases** as refrigerant. The device is hermetically sealed. You will find the information on the refrigerant according to the Regulation (EU) No 517/2014 on fluorinated greenhouse gases in the operating instructions of the device.



Information for the installer: If you refill refrigerant, enter the additional charge size and the total charge size of the refrigerant in the table "information on refrigerant" of the operating instructions.

3 Installation

3.1 Before installation



Risk of injury from sharp edges!

- ▶ Wear protective gloves during installation.



Danger of burns!

During operation the pipes become hot.

- ▶ Make sure, that the pipes cooled down before touching them.
- ▶ Check the scope of delivery for damage.
- ▶ Check whether a hissing sound due to negative pressure can be detected when opening the pipes of the indoor unit.

3.2 Requirements for installation site

- ▶ Observe minimum clearances (→ Chapter 2.4 on page 48).
- ▶ Observe minimum room area.

| Appliance type | Installation height [m] | Minimum room area [m ²] |
|-------------------|-------------------------|-------------------------------------|
| CL5000iL CF 53 E | ≤ 1.8 | ≥ 4 |
| CL5000iL CF 70 E | ≤ 0.6 | ≥ 35 |
| CL5000iL CF 105 E | ≤ 1.8 | ≥ 8 |
| CL5000iL CF 140 E | ≤ 0.6 | ≥ 80 |
| CL5000iL CF 160 E | ≤ 1.8 | ≥ 9 |
| | ≤ 0.6 | ≥ 80 |

Table 6 Minimum room area

General notices regarding indoor units

- ▶ Do not install the indoor unit in a room in which open ignition sources (for example: open flames, an operating wall mounted gas boiler or an operating electric heating system) are in operation.
- ▶ The installation location must not be higher than 2000 m above sea level.
- ▶ Keep the air inlet and air outlet clear of any obstacles to allow the air to circulate freely. Otherwise poor performance and higher noise levels may occur.
- ▶ Keep TV, radio and similar appliances at least 1 m away from the unit and the remote control.
- ▶ Do not install the indoor unit in rooms with a high humidity (e.g. bathrooms or utility rooms).
- ▶ For ceiling-mounted installation: the ceiling construction and suspension system (on site) must be able to support the weight of the appliance.
- ▶ Floor-standing installation: the floor must be stable and able to absorb vibrations.

Notices regarding outdoor units

- ▶ The outdoor unit must not be exposed to machine oil vapour, hot spring vapour, sulphur gas, etc.
- ▶ Do not install the outdoor unit directly next to water or where it is exposed to sea air.
- ▶ The outdoor unit must always be kept free of snow.
- ▶ There must be no disruption caused by extract air or operating noise.
- ▶ Air should be able to circulate freely around the outdoor unit, but the appliance must not be exposed to strong wind.
- ▶ Condensate that forms during operation must be able to drain off easily. Lay a drain hose if required. In cold regions, installation of the drain pipe is not advisable as freezing could result.
- ▶ Place the outdoor unit on a stable base.

3.3 Unit installation

NOTICE

Incorrect assembly can cause material damage.

If the indoor unit is mounted incorrectly, it may drop off the ceiling.

- ▶ Only mount the indoor unit on a solid flat ceiling. The ceiling must be able to carry the weight of the appliance.
- ▶ Only use screws and wall plugs that are suitable for the ceiling type and appliance weight.

3.3.1 Installing the indoor unit

- ▶ Open the box at the top and lift the indoor unit out and up.
- ▶ Determine the installation location, taking the minimum clearances and orientation of the pipes into consideration (→ Figs. 10 to 11).
- ▶ Define and mark the position of the suspension bolts on the ceiling or wall.
- ▶ If necessary, break out the base or rear (Fig. 30) of the indoor unit at the position marked accordingly.
- ▶ Drill wall or floor lead-through on a slope for piping.

DANGER

Risk of injury!

The ceiling attachment must be suitable for carrying the weight of the indoor unit. We recommend using threaded rods in order to be able to adjust the height precisely.

DANGER

Risk of injury!

At least two persons are required to hang the appliance and fasten it securely.

- ▶ Do not install the appliance on your own.
- ▶ Remove the side panels and air inlet grille (→ Fig. 25).
- ▶ Hang the indoor unit on the ceiling using the suspension bolts with the washers and nuts (ceiling-mounted installation → Fig. 26), or secure it to the wall (floor-standing installation → Fig. 27).
- ▶ Align the indoor unit horizontally or vertically by turning the nuts on the threaded rods.

NOTICE

If the indoor unit is suspended inclined or is not standing level, condensate may leak out.

- ▶ Use a spirit level to align the indoor unit horizontally.
- ▶ For ceiling-mounted installation ensure a slope of approx. 1.5% → Fig. 26.
- ▶ Secure the appliance at the correct installation position with lock nuts.
- ▶ Establish pipe connections as described in chapter 3.5.

3.3.2 Installing the outdoor unit

- ▶ Place the box so it is facing upwards.
- ▶ Cut and remove the packing straps.
- ▶ Pull the box up and off and remove the packaging.
- ▶ Prepare and install a floor or wall mounting bracket, depending on the type of installation.
- ▶ Set up or hang the outdoor unit.
- ▶ When installing on the floor or wall mounting bracket, attach the supplied drainage elbow and gasket (→ Fig. 15).
- ▶ Remove the cover for the pipe connections (→ Fig. 19 and 20).
- ▶ Establish pipe connections as described in chapter 3.5.

3.4 Installing the outside air duct

There is an outside air intake opening on the appliance, which can be used if required (→ Fig. 30, [1]).



No more than 5% of the air volumetric flow rate can be introduced via the outside air intake opening.

3.5 Pipework connection

3.5.1 Connecting refrigerant lines to the indoor and outdoor unit

CAUTION

Discharge of refrigerant due to leaky connections

Refrigerant may be discharged if pipe connections are incorrectly installed. Reusable mechanical connections and flared connections are not permitted indoors.

- ▶ Tighten flared connections only once.
- ▶ After releasing, always fabricate the flared connection again.



Copper pipes are available in metric and imperial sizes, the flare nut thread is however the same. The flared fittings on the indoor and outdoor unit are intended for imperial sizes.

- ▶ When using metric copper pipes, replace the flare nuts with nuts of a suitable diameter (→ Tab. 7).
- ▶ Determine pipe diameter and length (→ Page 48).
- ▶ Cut the pipe to length using a pipe cutter (→ Fig. 16).
- ▶ Deburr the inside of the pipe at both ends and tap to remove swarf.
- ▶ Insert the nut onto the pipe.
- ▶ Widen the pipe using a flaring tool to the size indicated in the tab. 7. It must be possible to slide the nut up to the edge but not beyond it.
- ▶ Connect the pipe and tighten the screw fitting to the torque specified in the tab. 7.
- ▶ Repeat the above steps for the other pipes.

NOTICE

Reduced efficiency due to heat transfer between refrigerant pipes

- ▶ Thermally insulate the refrigerant lines separately.
- ▶ Fit the insulation on the pipes and secure.

| External diameter of pipe Ø [mm] | Tightening torque [Nm] | Flared opening diameter (A) [mm] | Flared pipe end | Pre-assembled flare nut thread |
|----------------------------------|------------------------|----------------------------------|-----------------|--------------------------------|
| 6.35 (1/4") | 18-20 | 8.4-8.7 | | 3/8" |
| 9.53 (3/8") | 32-39 | 13.2-13.5 | | 3/8" |
| 12.7 (1/2") | 49-59 | 16.2-16.5 | | 5/8" |
| 15.9 (5/8") | 57-71 | 19.2-19.7 | | 3/4" |

Table 7 Key data of pipe connections

3.5.2 Connecting the condensate pipe to the indoor unit

Depending on the type of installation, the condensate pipe must either be connected to the integrated condensate pump or the condensation catch pan.

- ▶ Use PVC pipes with 32 mm inside diameter and 5-7 mm wall thickness.
- ▶ Insulate drain pipe to prevent condensate formation.
- ▶ Connect drain pipe to indoor unit and secure connection with a hose clip.
- ▶ Install drain pipe on slope (→ Fig. 28). With a condensate pump installed, the outlet of the drain pipe may be higher than the indoor unit if the dimensions and wiring diagram are observed.

NOTICE

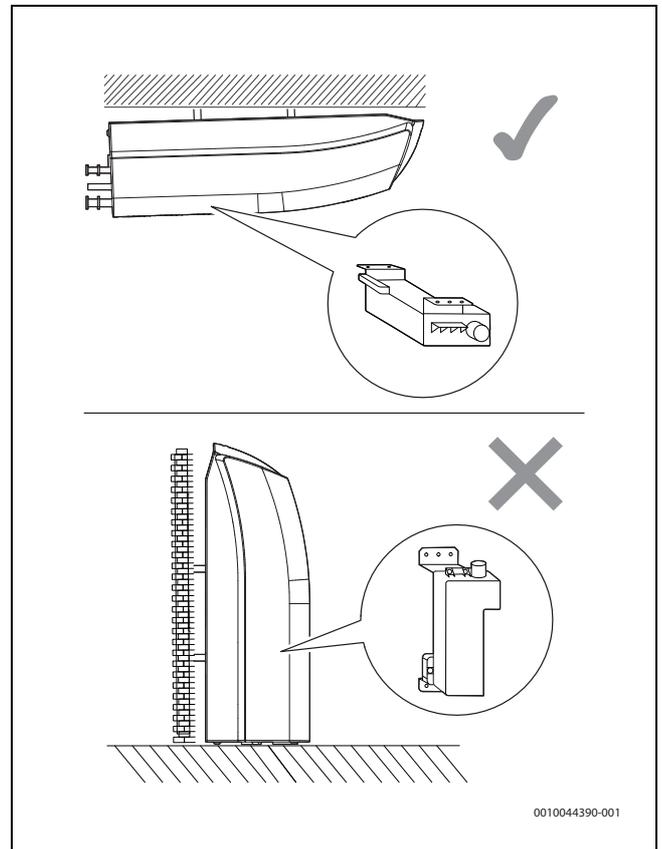
Danger due to water damage!

If the pipes are routed incorrectly, water may be discharged, or may flow back into the indoor unit and cause the water level switch to malfunction.

- ▶ With a ceiling-mounted installation: to prevent the pipes from sagging, install a support point every 1–1.5 m.
- ▶ Route a drain pipe to the sewer via a siphon.

Dismounting the drain pump

The indoor unit is delivered with the drain pump from factory for ceiling-mounted installation. If the indoor unit will be used as floor-standing, drain pump must be removed.



The drain pump should be removed first during pipe connection. Observe the following instructions on how to proceed:

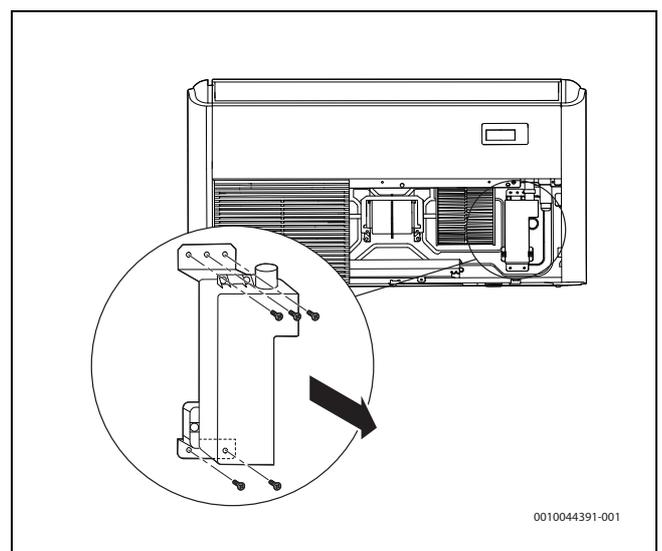


Fig. 1

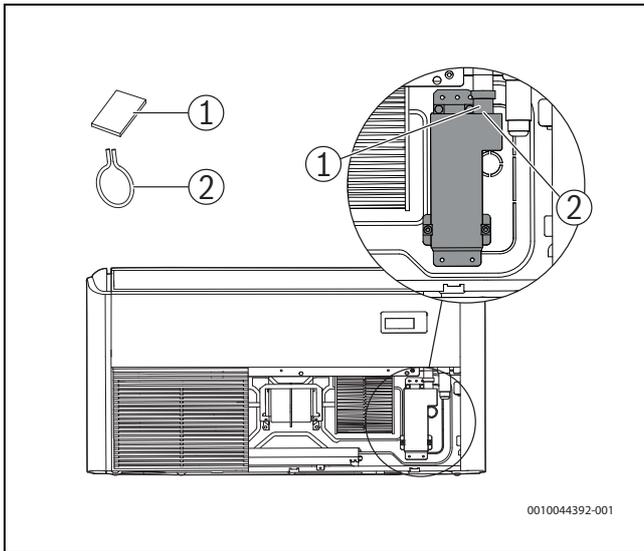


Fig. 2

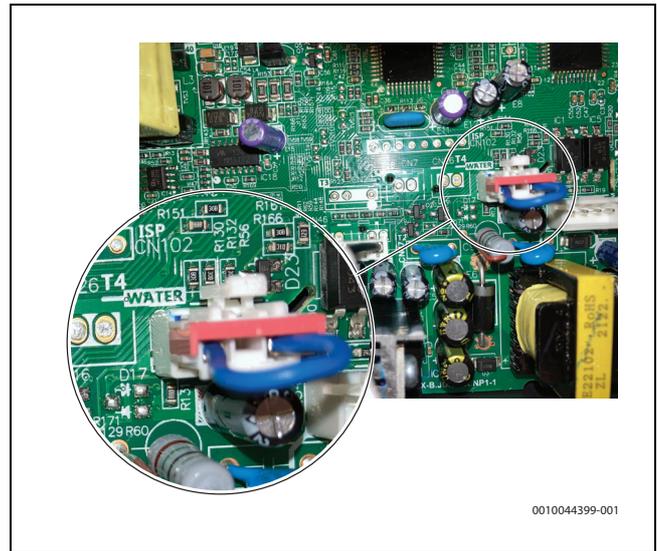


Fig. 4

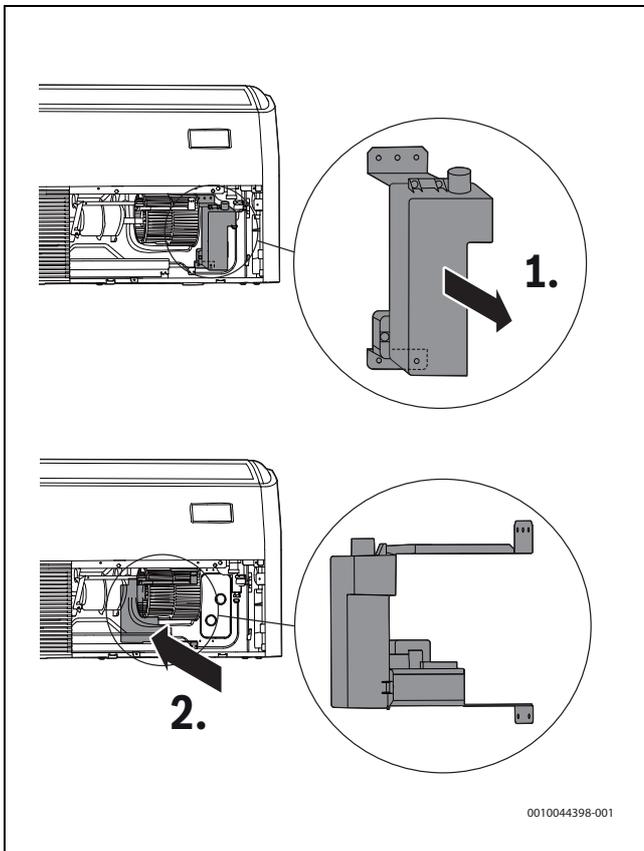


Fig. 3

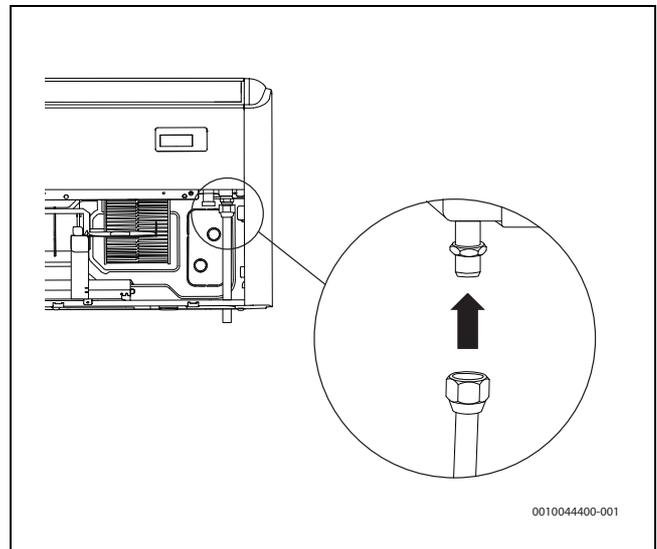


Fig. 5

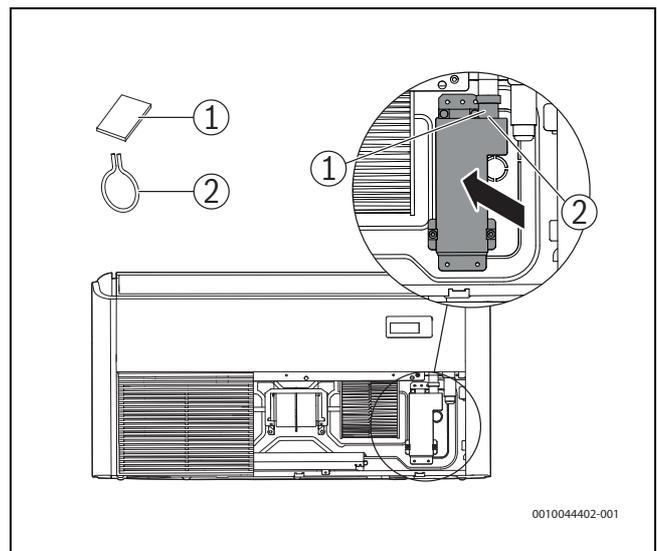


Fig. 6

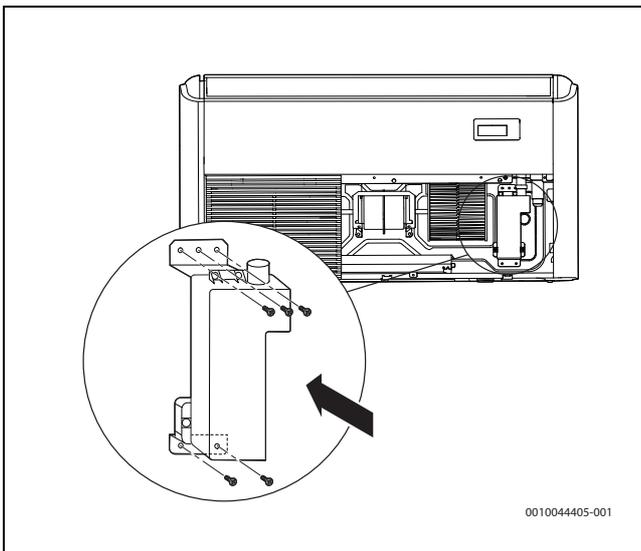


Fig. 7

- ▶ Loosen the five fasten screws of the drain pump assembly.
- ▶ Remove the sponge (→ Fig. 2 [1]) attached at the water drainage outlet, then remove the clamp spring (→ Fig. 2 [2]).
- ▶ Take out the drain pump assembly.
- ▶ Dismount the drain pump and connect the drain pipe directly to the water tray.
- ▶ Short-circuit the drain pump terminal (marked as “water”) with the plug which is delivered with the unit.
- ▶ Install the connection pipe.
- ▶ Reinstall the drain pump assembly.
- ▶ Relocate the sponge and clamp spring.
- ▶ Fix the drain pump assembly with five screws.

3.5.3 Testing the condensate pipe



Testing the condensate pipe ensures that all connections are tight.

- ▶ Test the condensate pipe before closing the cover.

The drain pump can only be tested once the electrical connection has been established.

- ▶ Fill the drain pan or water injection pipe with roughly 2 l of water.
- ▶ Switch on cooling mode. The drain pump can be heard.
- ▶ Make sure that the water drains away properly.
- ▶ Check tightness of all connections.

When the unit is turned off, if there is still water left in the machine, the drain pump will keep on working for about 1 to 3 minutes to discharge water. The sound generated by the pump motor is normal.

3.5.4 Checking tightness and filling the system

Carry out the tightness test and filling for every connected indoor unit individually.

- ▶ Once the entire system has been filled, put the cover for the pipe connections on the outdoor unit back on.

Checking tightness

Observe the national and local regulations when carrying out the tightness test.

- ▶ Remove the caps of the valves of a connection pair (→ Fig. 2 and 22, [1], [2] and [3]).
- ▶ Connect the Schrader opener [6] and pressure gauge [4] to the Schrader valve [1].
- ▶ Screw in the Schrader opener and open the Schrader valve [1].

- ▶ Leave valves [2] and [3] closed and fill the pipes with nitrogen until the pressure is 10% above the maximum operating pressure (→ Page 60).
- ▶ Check whether the pressure is still the same after 10 minutes.
- ▶ Discharge the nitrogen until the maximum operating pressure is reached.
- ▶ Check whether the pressure is still the same after at least 1 hour.
- ▶ Discharge nitrogen.

Filling the system

NOTICE

Malfunction due to incorrect refrigerant

The outdoor unit is filled with refrigerant R32 at the factory.

- ▶ If refrigerant needs to be topped up, only use the same refrigerant. Do not mix refrigerant types.
-
- ▶ Evacuate and dry the pipes with a vacuum pump (→ Fig. 21 and 22, [5]) for at least 30 minutes at roughly -1 bar (approx. 500 microns).
 - ▶ Open valve [3] on liquid side.
 - ▶ Use a pressure gauge to [4] check whether the flow is unobstructed.
 - ▶ Open valve [2] on gas side.
The refrigerant is distributed round the connected pipes.
 - ▶ Afterwards, check the pressure ratios.
 - ▶ Unscrew the Schrader opener [6] and close the Schrader valve [1].
 - ▶ Remove the vacuum pump, pressure gauge and Schrader opener.
 - ▶ Reattach the valve caps.

3.6 Electrical connection

3.6.1 General notes



WARNING

Risk to life from electric shock!

Touching live electrical parts can cause an electric shock.

- ▶ Before working on electrical parts, disconnect all phases of the power supply (fuse/circuit breaker) and lock the isolator switch to prevent unintentional reconnection.
-
- ▶ Work on the electrical system must only be carried out by an authorised electrician.
 - ▶ An authorised electrician must determine the correct conductor cross-section and circuit breaker. The maximum current consumption of the technical data (→ see chapter 9, page 60) is decisive for this purpose.
 - ▶ Observe safety measures according to national and international regulations.
 - ▶ If you identify a safety risk in the mains voltage, or if a short circuit occurs during installation, inform the operator in writing and do not install the appliances, until the problem has been resolved.
 - ▶ All electrical connections must be made in accordance with the electrical connection diagram.
 - ▶ Only use a special tool to cut cable insulation.
 - ▶ Connect the cable to the existing mounting clips / cable glands using suitable cable ties (scope of delivery).
 - ▶ Do not connect any additional consumers to the mains power supply of the device.
 - ▶ Do not mix up live and PEN conductor. This can lead to malfunctions.
 - ▶ If the mains power supply is fixed, install an overvoltage protector and isolator which is designed for 1.5 times the maximum power input of the appliance.
 - ▶ For devices with a fixed mains power supply in which the leakage current is potentially higher than 10 mA, we recommend installing a residual current device (RCD) with a maximum rated residual operating current of 30 mA.

3.6.2 Connecting the indoor unit

The indoor unit is connected via a 4-wire communication cable. Use cables of the type H07RN-F with sufficient conductor cross-section.

NOTICE

Material damage can be caused by connecting the indoor unit incorrectly

Voltage is supplied to every indoor unit via the outdoor unit.

- ▶ Only connect the indoor unit to the outdoor unit.

Connecting the communication cable

- ▶ Open the clip locks and undo the screws of the top cover.
- ▶ Fold up the top cover (→ Fig. 31).
- ▶ Undo screws and remove cover of the interface panel [2].
- ▶ Guide the cable through the cable feed [1] on the rear of the indoor unit.
- ▶ Secure cable to the strain relief and connect to the Handling terminals L, N, S and .
- ▶ Note assignment of wires to the terminals.
- ▶ Close covers.
- ▶ Route the cable to the outdoor unit.

3.6.3 Connecting the outdoor unit

A power supply cable (3-wire) and the communication cable of the indoor unit (4-wire) are connected to the outdoor unit. Use cables of the type H07RN-F with sufficient conductor cross-section and protect the mains power supply with a fuse.

- ▶ Secure the communication cable to the strain relief and connect to the terminals 1(L), 2(N), S and  (assignment of wires to terminals same as indoor unit) (→ Fig. 23 and 24).
- ▶ Attach 1 magnetic ring to the communication cable, as close as possible to the outdoor unit.
- ▶ Secure power cable to the strain relief and connect.
 - CL5000L ... E: terminals L, N and 
 - CL5000L ... E-3: terminals L1, L2, L3, N and 
- ▶ Fasten cover for connections.

3.6.4 Connection as twin combination

With the twin combination, two indoor units are connected in series. With the slave unit, terminal S is omitted. Instead of that, communication takes place between the indoor units via terminals X, Y and E.

Key to Fig. 33 and 34:

IDU-M Master unit (indoor unit 1)

IDU-S Slave unit (indoor unit 2)

- ▶ Connect master unit as described in chapter 3.6.2.
- ▶ Connect slave unit to the master unit via terminals L, N and ¹⁾.
- ▶ Connect master unit and slave unit additionally to terminals X, Y and E via a communication cable. In doing so, earth the shield.



The central controller and twin combination both use the X/Y/E terminal. For this reason, a decision must be made in advance if a twin combination or central controller is installed.

1) L=1(L) and N=2(N).

3.6.5 Connecting external accessories

External accessories can be connected to the terminals listed below.

| Connection | Description / special features |
|------------|--|
| CN23 | On / Off contact switch <ul style="list-style-type: none"> • Volt free terminal • When using jumper connector, remove J6 next to the connection. • Open contact: <ul style="list-style-type: none"> – Indoor unit off – Remote control / room controller inactive (CP in the display) • Closed contact: <ul style="list-style-type: none"> – Indoor unit on – Remote control / room controller active |
| CN33 | Alarm signal output <ul style="list-style-type: none"> • Volt free terminal • Connection, maximum 24 V DC, 500 mA • Open contact: Alarm off • Closed contact: Alarm on |
| CN40 | Connection for room controller |
| CN43 | External fan for supply of fresh air <ul style="list-style-type: none"> • Integrated power supply for maximum 200 W or 1 A (relay recommended). • External fan switches on / off simultaneously with the fan of the indoor unit. • In test mode or manual operation, the external fan remains off. |

Table 8



To connect a gateway, observe the technical documentation of the gateway and the connection accessories.

4 On-site configuration

4.1 DIP switch setting



WARNING

Risk to life from electric shock!

Touching live electrical parts can cause an electric shock.

- ▶ Before working on electrical parts, disconnect all phases of the power supply (fuse/circuit breaker) and lock the isolator switch to prevent unintentional reconnection.



All DIP switches have been configured before delivery. The default setting is highlighted bold.

- ▶ Only professional maintenance personnel should change these settings.
- ▶ Improper DIP switch settings may cause condensation, noise, or unexpected system malfunction.

| Definition of DIP switch 0/1: | |
|---|--------------|
|  | Definition 0 |
|  | Definition 1 |

Table 9 Switch positions

| ENC1 | Code | Capacity setting ¹⁾ |
|---|------|--------------------------------|
|  | 0 | 20 |
| | 1 | 26 |
| | 2 | 32 - 35 |
| | 4 | 36 - 53 |
| | 5 | 54 - 71 |
| | 7 | 72 - 90 |
| | 8 | 91 - 105 |
| | 9 | 109 - 140 |
| | A | 141 - 160 |
| | B | 161 - 200 |

1) Default depending on the model

Table 10 Set the output

| S1 | S1 Setting | S2 | Network address |
|--|------------|---|----------------------|
|  | 0 - F |  | 0 - 15 ¹⁾ |
| | 0 - F |  | 16 - 31 |
| | 0 - F |  | 32 - 47 |
| | 0 - F |  | 48 - 63 |

1) Default

Table 11 Set the network address

| DIP switch | Definition of DIP Switches ¹⁾ | |
|--|---|--|
| Fan OFF temperature when heating (anti-cold air function) | | |
| SW1 |  | <ul style="list-style-type: none"> [00]: 0 ° [01]: 15 °C [10]: 8 °C [11]: Reserved |
| Behaviour of the fan once the room target temperature has been reached | | |
| SW2 |  | <ul style="list-style-type: none"> [0]: Fan off [1]: Fan on (anti-cold air function deactivated) |
| Auto restart | | |
| SW3 |  | <ul style="list-style-type: none"> [0]: Automatic restart on [1]: Automatic restart off |
| Set master and slave unit | | |
| SW5 |  | <ul style="list-style-type: none"> [00]: Master unit only, no slave unit [01]: Master unit (heating) [10]: Master unit (cooling) [11]: Slave unit |
| Temperature compensation (heating) | | |
| SW6 |  | <ul style="list-style-type: none"> [00]: 0 °C [01]: 2 °C [10]: 4 °C [11]: Reserved |

1) Default highlighted in bold

Table 12 Definition of DIP Switches

5 Commissioning

5.1 Commissioning checklist

| | | |
|---|---|--|
| 1 | Outdoor unit and indoor units are correctly installed. | |
| 2 | Pipes are correctly <ul style="list-style-type: none"> connected, thermally insulated, and checked for tightness. | |
| 3 | Electrical connection has been correctly established. <ul style="list-style-type: none"> Power supply is in the normal range. Protective conductor is properly attached. Connection cable is securely attached to the terminal strip. Optional external accessories properly connected and DIP switch correctly set. WLAN-Gateway (optional accessories) Connection is correct and established according to the Gateway installation instructions. | |
| 4 | Condensate pump and condensate pipe is properly installed and tested. | |
| 5 | All covers are fitted and secured. | |

Table 13

5.2 Function check

The system can be tested once the installation including tightness test has been carried out and the electrical connection has been established:

- ▶ Connect the power supply.
- ▶ Switch on indoor unit with the remote control.
- ▶ Switch on cooling mode and set the lowest temperature.
- ▶ Test cooling mode for 5 minutes.
- ▶ Switch on heating mode and set the highest temperature.
- ▶ Test heating mode for 5 minutes.



Observe the operating instructions provided for operation of the indoor units.

5.3 Handover to the user

- ▶ When the system has been set up, hand over the installation manual to the customer.
- ▶ Explain to the customer how to use the system, referring to the operation manual.
- ▶ Advise the customer to carefully read the operation manual.

6 Troubleshooting

6.1 Faults with indication (Self diagnosis function)

WARNING

Risk to life from electric shock!

Touching live electrical parts can cause an electric shock.

- ▶ Before working on electrical parts, disconnect all phases of the power supply (fuse/circuit breaker) and lock the isolator switch to prevent unintentional reconnection.

If a fault occurs during operation, the LEDs flash for an extended period or an error code is displayed (e.g. EH 02).

If a fault is present for more than 10 minutes:

- ▶ Briefly interrupt the power supply and switch the indoor unit back on.

If a fault persists:

- ▶ Call customer service and provide the fault code and details of the appliance.

4C Indoor Unit

| Fault code | Content |
|-------------|---|
| EH 00/EH 0A | Indoor unit EEPROM fault |
| EL 01 | Communication fault between outdoor and indoor unit |
| EH 03 | Indoor unit fan outside the normal range (with some units) |
| EH 60 | Temperature sensor T1 (room temperature sensor) switched off or short-circuited |
| EH 61 | Temperature sensor T2 (pipe temperature sensor) switched off or short-circuited |
| EL 0C | Refrigerant leakage detector (with some units) |
| EH 0b | Communication fault of the indoor unit main board |
| EH 0E | Malfunction of the water level alarm |
| EC 53 | Temperature sensor T4 (outside temperature) switched off or short-circuited |
| EC 52 | Temperature sensor T3 (pipe temperature sensor) switched off or short-circuited |
| EC 54 | Temperature sensor TP (compressor discharge temperature protection) switched off or short-circuited |
| EC 56 | Temperature sensor T2B (pipe temperature) switched off or short-circuited |
| EC 51 | Outdoor unit EEPROM fault |
| EC 07 | Outdoor unit fan outside the normal range (with some units) |
| PC 00 | IPM malfunction or IGBT overvoltage protector |
| PC 01 | Overvoltage or low-voltage protection |
| PC 02 | Maximum temperature protection of compressor or high temperature protection of IPM module |
| PC 04 | Compressor control system failure of inverter |
| PC 03 | High or low-pressure protection (with some units) |
| EC 0d | Malfunction of outdoor unit |

Table 14 Fault codes of type 4C indoor unit

4CC Indoor Unit

| Content | Timer lamp | Operation lamp (flashes) |
|--|------------|--------------------------|
| Indoor unit EEPROM fault | OFF | 1 |
| Communication fault between outdoor and indoor unit | OFF | 2 |
| Indoor unit fan outside the normal range (with some units) | OFF | 4 |

| Content | Timer lamp | Operation lamp (flashes) |
|---|----------------|--------------------------|
| Temperature sensor T3 (pipe temperature sensor) switched off or short-circuited | OFF | 5 |
| Temperature sensor T4 (outside temperature) switched off or short-circuited | OFF | 5 |
| Temperature sensor TP (compressor discharge temperature protection) switched off or short-circuited | OFF | 5 |
| Temperature sensor T1 (room temperature sensor) switched off or short-circuited | OFF | 6 |
| Temperature sensor T2 (pipe temperature sensor) switched off or short-circuited | OFF | 6 |
| Refrigerant leakage detector (with some units) | OFF | 7 |
| Malfunction of the water level alarm | OFF | 9 |
| Outdoor unit fan outside the normal range (with some units) | OFF | 12 |
| Outdoor unit is faulty (for old communication protocol) | OFF | 14 |
| Outdoor unit EEPROM fault (with some units) | ON | 5 |
| IPM malfunction | FLASH (at 2Hz) | 7 |
| Overvoltage or low-voltage protection | FLASH (at 2Hz) | 2 |
| Maximum temperature protection of compressor or high temperature protection of IPM module | FLASH (at 2Hz) | 3 |
| High or low-pressure protection (with some units) | FLASH (at 2Hz) | 7 |
| Compressor control system failure of inverter | FLASH (at 2Hz) | 5 |

Table 15 Fault codes of type 4CC indoor unit

Outdoor Unit

| Fault code | Content |
|------------|---|
| EC 51 | Outdoor unit EEPROM fault |
| EL 01 | Communication fault between outdoor and indoor unit |
| PC 40 | Communication fault between PCI and printed circuit board of outdoor unit |
| PC 08 | Overcurrent protection of outdoor unit |
| PC 10 | Low-voltage protection of outdoor unit AC voltage |
| PC 11 | Overvoltage protector of DC-bus for outdoor unit PCB |
| PC 12 | Overvoltage protector of DC-bus for outdoor unit PCB/341/MCE fault |
| PC 00 | IPM module protection |
| PC 0F | PFC module protection |
| EC 71 | Overvoltage defect in fan motor (DC current) of outdoor unit |
| EC 72 | Missing phase detection of outdoor unit fan motor (direct current) |
| EC 07 | Fan speed of outdoor unit out of control |
| PC 43 | Phase detection protection of outdoor unit compressor |
| PC 44 | Zero speed protection of outdoor unit |
| PC 45 | IR control failure (outdoor unit) |
| PC 46 | Compressor speed out of control |
| PC 49 | Overvoltage defect in compressor |
| PC 30 | High-pressure protection |
| PC 31 | Low-pressure protection |
| PC 0A | Condenser high-temperature protection |
| PC 06 | Compressor discharge temperature protection |
| PC 02 | Maximum temperature protection of compressor |
| EC 52 | Temperature sensor T3 (pipe temperature sensor) switched off or short-circuited |
| EC 53 | Temperature sensor T4 (outside temperature) switched off or short-circuited |
| EC 54 | Temperature sensor TP (compressor discharge temperature protection) switched off or short-circuited |

Table 16 Outdoor unit fault codes

6.2 Faults not indicated

| Fault | Possible cause | Remedy |
|--|---|--|
| The output of the indoor unit is too low. | Heat exchanger of the outdoor or indoor unit contaminated or partially blocked. | ▶ Clean heat exchanger of outdoor or indoor unit. |
| | Shortage of refrigerant | ▶ Check tightness of pipes, reseal if required. ▶ Refill refrigerant. |
| Outdoor unit or indoor unit is not working. | No current | ▶ Check power connection. ▶ Power on the IDU. |
| | Leakage protector or fuse installed in the device ¹⁾ has blown. | ▶ Check power connection. ▶ Check the leakage protection and fuse. |
| Outdoor unit or indoor unit starts and stops continuously. | Insufficient refrigerant in the system. | ▶ Check tightness of pipes, reseal if required. ▶ Refill refrigerant. |
| | Too much refrigerant in the system. | Remove refrigerant with refrigerant recovery unit. |
| | Moisture or impurities in the refrigerant circuit. | ▶ Evacuate refrigerant circuit. ▶ Fill with new refrigerant. |
| | Voltage fluctuations too high. | ▶ Install voltage regulator. |
| | Defective compressor. | ▶ Replace compressor. |

1) A fuse for the overcurrent protection is located on the main PCB. The specification is printed on the main PCB and can also be found in the technical data on page 60. Use only ex-protected ceramic fuses.

Table 17

7 Environmental protection and disposal

Environmental protection is a fundamental corporate strategy of the Bosch Group.

The quality of our products, their economy and environmental safety are all of equal importance to us and all environmental protection legislation and regulations are strictly observed.

We use the best possible technology and materials for protecting the environment taking account of economic considerations.

Packaging

Where packaging is concerned, we participate in country-specific recycling processes that ensure optimum recycling.

All of our packaging materials are environmentally compatible and can be recycled.

Used appliances

Used appliances contain valuable materials that can be recycled.

The various assemblies can be easily dismantled. Synthetic materials are marked accordingly. Assemblies can therefore be sorted by composition and passed on for recycling or disposal.

Old electrical and electronic appliances



This symbol means that the product must not be disposed of with other waste, and instead must be taken to the waste collection points for treatment, collection, recycling and disposal.

The symbol is valid in countries where waste electrical and electronic equipment regulations apply, e.g. "European Directive 2012/19/EC on old electronic and electrical appliances". These regulations define the framework for the return and recycling of old electronic appliances that apply in each country.

As electronic devices may contain hazardous substances, it needs to be recycled responsibly in order to minimize any potential harm to the environment and human health. Furthermore, recycling of electronic scrap helps preserve natural resources.

For additional information on the environmentally compatible disposal of old electrical and electronic appliances, please contact the relevant local authorities, your household waste disposal service or the retailer where you purchased the product.

You can find more information here:

www.weee.bosch-thermotechnology.com/

Batteries

Batteries must not be disposed together with your household waste.

Used batteries must be disposed of in local collection systems.

Refrigerant R32



The appliance contains fluorinated gas R32 (global warming potential 675¹⁾) mild combustibility and low toxicity (A2L or A2).

Contained quantity is indicated on the equipment outdoor unit name label.

Refrigerant is hazardous to the environment and must be collected and disposed of separately.

8 Data Protection Notice



We, **Bosch Thermotechnology Ltd., Cotswold Way, Warndon, Worcester WR4 9SW, United Kingdom**

process product and installation information, technical and connection data, communication data, product registration and client history data to provide product functionality (art. 6 (1) sentence 1 (b)

GDPR), to fulfil our duty of product surveillance and for product safety and security reasons (art. 6 (1) sentence 1 (f) GDPR), to safeguard our rights in connection with warranty and product registration questions (art. 6 (1) sentence 1 (f) GDPR) and to analyze the distribution of our products and to provide individualized information and offers related to the product (art. 6 (1) sentence 1 (f) GDPR). To provide services such as sales and marketing services, contract management, payment handling, programming, data hosting and hotline services we can commission and transfer data to external service providers and/or Bosch affiliated enterprises. In some cases, but only if appropriate data protection is ensured, personal data might be transferred to recipients located outside of the European Economic Area. Further information are provided on request. You can contact our Data Protection Officer under: Data Protection Officer, Information Security and Privacy (C/ISP), Robert Bosch GmbH, Postfach 30 02 20, 70442 Stuttgart, GERMANY.

You have the right to object, on grounds relating to your particular situation or where personal data are processed for direct marketing purposes, at any time to processing of your personal data which is based on art. 6 (1) sentence 1 (f) GDPR. To exercise your rights, please contact us via privacy.ttgb@bosch.com To find further information, please follow the QR-Code.

1) Based on ANNEX I of REGULATION (EU) No 517/2014 of the European Parliament and of the Council of 16 April 2014.

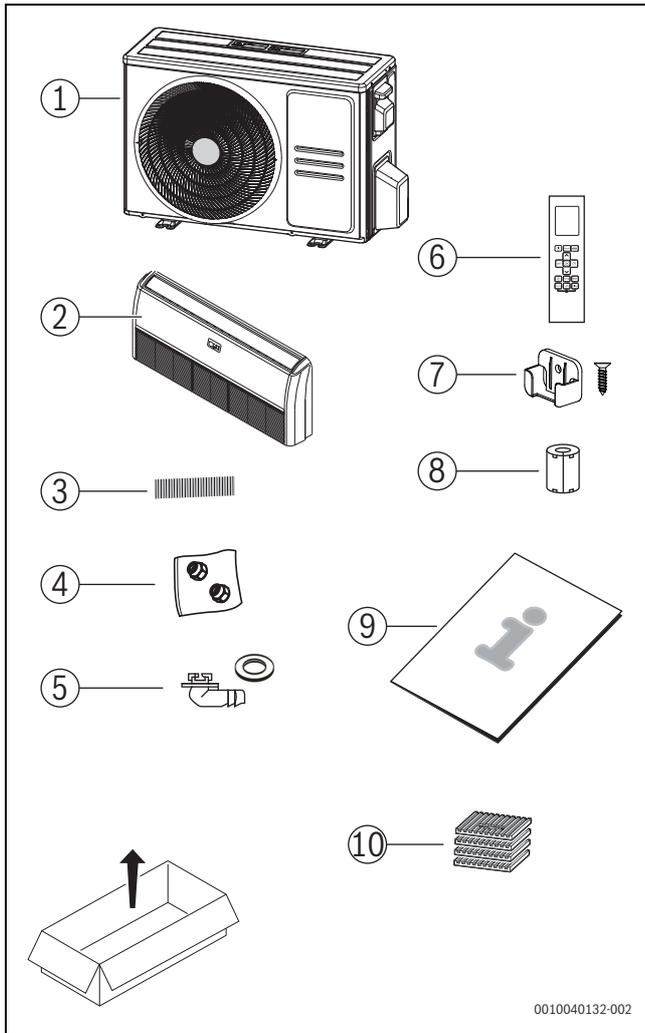
9 Technical data

| Set | | CL5000iL-Set 53 CF | CL5000iL-Set 70 CF | CL5000iL-Set 105 CF |
|--|-------------------|------------------------------|------------------------------|------------------------------|
| Indoor Unit | | CL5000iL CF 53 E | CL5000iL CF 70 E | CL5000iL CF 105 E |
| Outdoor Unit | | CL5000L 53 E | CL5000L 70 E | CL5000L 105 E |
| General | | | | |
| Refrigerant | - | R32 | R32 | R32 |
| Design pressure (max./min.) | MPa | 4.3/1.7 | 4.3/1.7 | 4.3/1.7 |
| Cooling | | | | |
| Rated output | kW | 5.28 | 7.03 | 10.55 |
| Rated output | kBtu/h | 18 | 24 | 36 |
| Power input at rated output | W | 1450 | 2300 | 3900 |
| Cooling load (Pdesignc) | kW | 5.4 | 7.2 | 10.5 |
| Output (min. - max.) | kW | 2.71-5.86 | 3.22-7.77 | 2.73-11.43 |
| Power input (min. - max.) | W | 670-2027 | 747-2930 | 900-4250 |
| Max. current consumption | A | 6.0 | 10.54 | 17.0 |
| Energy efficiency class | - | A++ | A++ | A++ |
| Coefficient of Performance in cooling mode (SEER) | W/W | 6.2 | 6.1 | 6.4 |
| Heating | | | | |
| Rated output | kW | 5.57 | 7.62 | 11.72 |
| Rated output | kBtu/h | 19 | 26 | 40 |
| Power input at rated output | W | 1500 | 2050 | 3350 |
| Pdesignh | kW | 4.0 | 5.5 | 8.6 |
| Output (min. - max.) | kW | 2.42-6.30 | 2.72-8.29 | 2.78-12.78 |
| Power input (min. - max.) | W | 540-1640 | 650-2850 | 800-3950 |
| Max. current consumption | A | 6.6 | 9.5 | 15.0 |
| Energy efficiency class | - | A+ | A+ | A+ |
| Coefficient of Performance in heating mode (SCOP) | W/W | 4.0 | 4.0 | 4.1 |
| Indoor unit | | | | |
| Ex-protected ceramic fuse on main board | - | T 20A/250V | T 20A/250V | T 30A/250V |
| Power infeed | V / Hz | 220-240 / 50 single phase | 220-240 / 50 single phase | 220-240 / 50 single phase |
| Volumetric flow rate (high/medium/low) | m ³ /h | 958/839/723 | 1192/1023/853 | 1955/1728/1504 |
| Sound pressure level (high/medium/low/noise reduction) | dB(A) | 44/41/37/31 | 51/47/43/32 | 51.5/48/45/39 |
| Sound power level (high) | dB(A) | 59 | 55 | 65 |
| Permissible ambient temperature (cooling/heating) | °C | 16...32/0...30 | 16...32/0...30 | 16...32/0...30 |
| Net weight | kg | 28 | 28 | 41.5 |
| Outdoor unit | | | | |
| Maximum power consumption | W | 2950 | 3700 | 5000 |
| Maximum power consumption | A | 13.5 | 19 | 22.5 |
| Ex-protected ceramic fuse on main board | - | T 20A/250V | T 20A/250V | T 30A/250V |
| Power infeed | V / Hz | 220-240 / 50 single phase | 220-240 / 50 single phase | 220-240 / 50 single phase |
| Vol. flow rate | m ³ /h | 2100 | 3500 | 4000 |
| Sound pressure level | dB(A) | 56 | 60 | 63 |
| Sound power level | dB(A) | 65 | 69 | 70 |
| Permissible ambient temperature (cooling/heating) | °C | -15...50/-15...24 | -15...50/-15...24 | -15...50/-15...24 |
| Net weight | kg | 66.9 | 80.5 | 66.9 |

Table 18

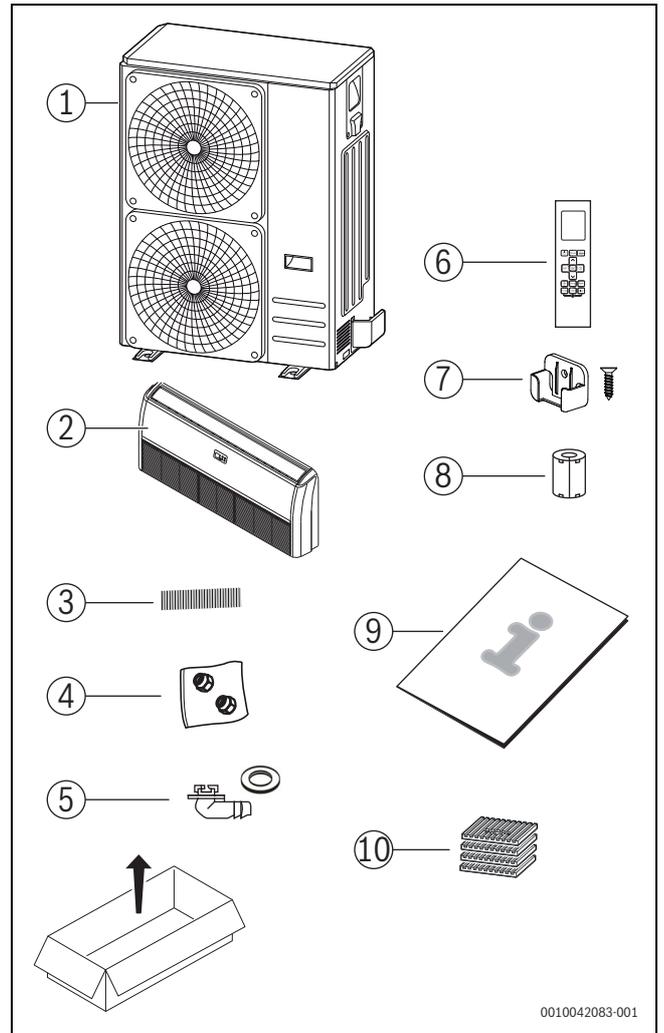
| Set | | CL5000iL-Set 105 CF-3 | CL5000iL-Set 140 CF-3 | CL5000iL-Set 160 CF-3 |
|--|-------------------|------------------------------|------------------------------|------------------------------|
| Indoor Unit | | CL5000iL CF 105 E | CL5000iL CF 140 E | CL5000iL CF 160 E |
| Outdoor Unit | | CL5000L 105 E-3 | CL5000L 140 E-3 | CL5000L 160 E-3 |
| General | | | | |
| Refrigerant | - | R32 | R32 | R32 |
| Design pressure (max./min.) | MPa | 4.3/1.7 | 4.3/1.7 | 4.3/1.7 |
| Cooling | | | | |
| Rated output | kW | 10.55 | 14.07 | 15.83 |
| Rated output | kBtu/h | 36 | 48 | 54 |
| Power input at rated output | W | 4000 | 5000 | 5650 |
| Cooling load (Pdesignc) | kW | 10.5 | 14 | 15.5 |
| Output (min. - max.) | kW | 2.73-11.78 | 3.52-15.24 | 4.10-16.71 |
| Power input (min. - max.) | W | 890-4300 | 900-5950 | 1100-6650 |
| Max. current consumption | A | 6.30 | 8.8 | 9.7 |
| Energy efficiency class | - | A++ | A++ | A++ |
| Coefficient of Performance in cooling mode (SEER) | W/W | 6.2 | 6.1 | 6.1 |
| Heating | | | | |
| Rated output | kW | 11.72 | 16.12 | 18.17 |
| Rated output | kBtu/h | 40 | 55 | 62 |
| Power input at rated output | W | 3350 | 5100 | 6050 |
| Heating load (Pdesignh) | kW | 8.6 | 11.2 | 11.9 |
| Output (min. - max.) | kW | 2.81-12.78 | 4.10-17.00 | 4.40-19.64 |
| Power input (min. - max.) | W | 780-3950 | 1000-6050 | 1050-7100 |
| Max. current consumption | A | 5.40 | 8.9 | 10.5 |
| Energy efficiency class (cooling/heating) | - | A+ | A | A+ |
| Coefficient of Performance in heating mode (SCOP) | W/W | 4.0 | 3.9 | 4.0 |
| Indoor unit | | | | |
| Ex-protected ceramic fuse on main board | - | T 30A/250V | T 30A/250V | T 30A/250V |
| Power infeed | V / Hz | 220-240 / 50 single phase | 220-240 / 50 single phase | 220-240 / 50 single phase |
| Volumetric flow rate (high/medium/low) | m ³ /h | 1955/1728/1504 | 2100/1850/1600 | 2200/1950/1650 |
| Sound pressure level (high/medium/low/noise reduction) | dB(A) | 51/47.5/45/37 | 53/50/46/40 | 55/52/48/39 |
| Sound power level (high) | dB(A) | 65 | 67 | 67 |
| Permissible ambient temperature (cooling/heating) | °C | 16...32/0...30 | 16...32/0...30 | 16...32/0...30 |
| Net weight | kg | 41.5 | 41.7 | 42.3 |
| Outdoor unit | | | | |
| Maximum power consumption | W | 5000 | 6900 | 7500 |
| Maximum power consumption | A | 10 | 13 | 14 |
| Ex-protected ceramic fuse on main board | - | T 30A/250V | T 30A/250V | T 30A/250V |
| Power infeed | V / Hz | 380-415 / 50 three phase | 380-415 / 50 three phase | 380-415 / 50 three phase |
| Vol. flow rate | m ³ /h | 4000 | 7500 | 7500 |
| Sound pressure level | dB(A) | 63 | 63.5 | 64 |
| Sound power level | dB(A) | 70 | 74 | 75 |
| Permissible ambient temperature (cooling/heating) | °C | -15...50/-15...24 | -15...50/-15...24 | -15...50/-15...24 |
| Net weight | kg | 71 | 80.5 | 71 |

Table 19 Technical data



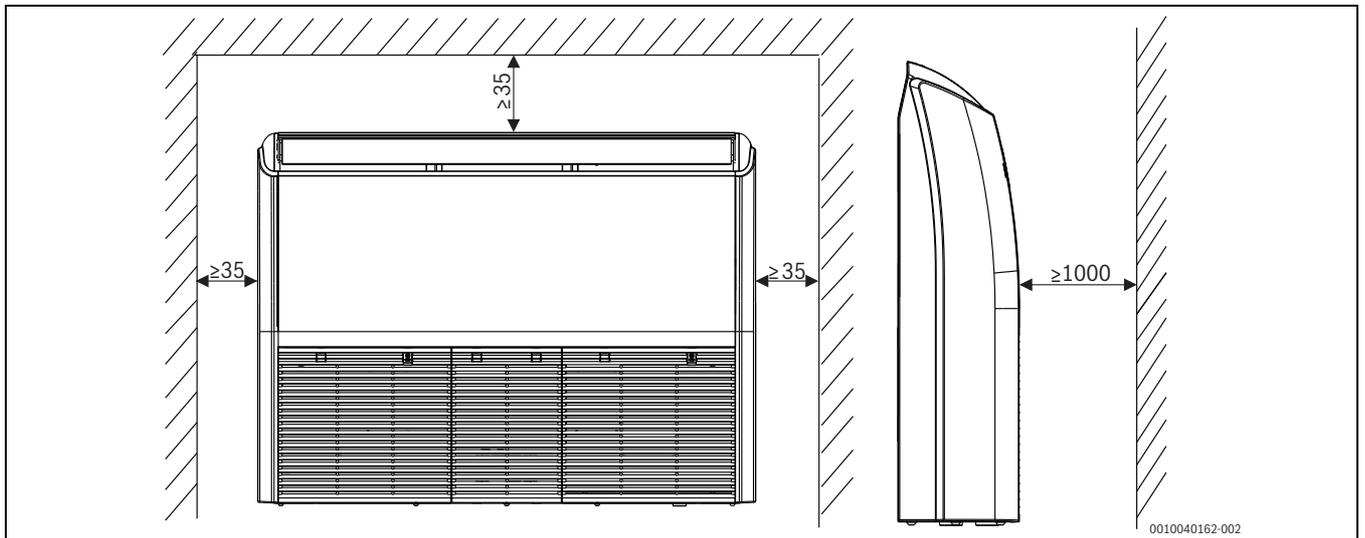
8 CL5000L 53~105 E

0010040132-002



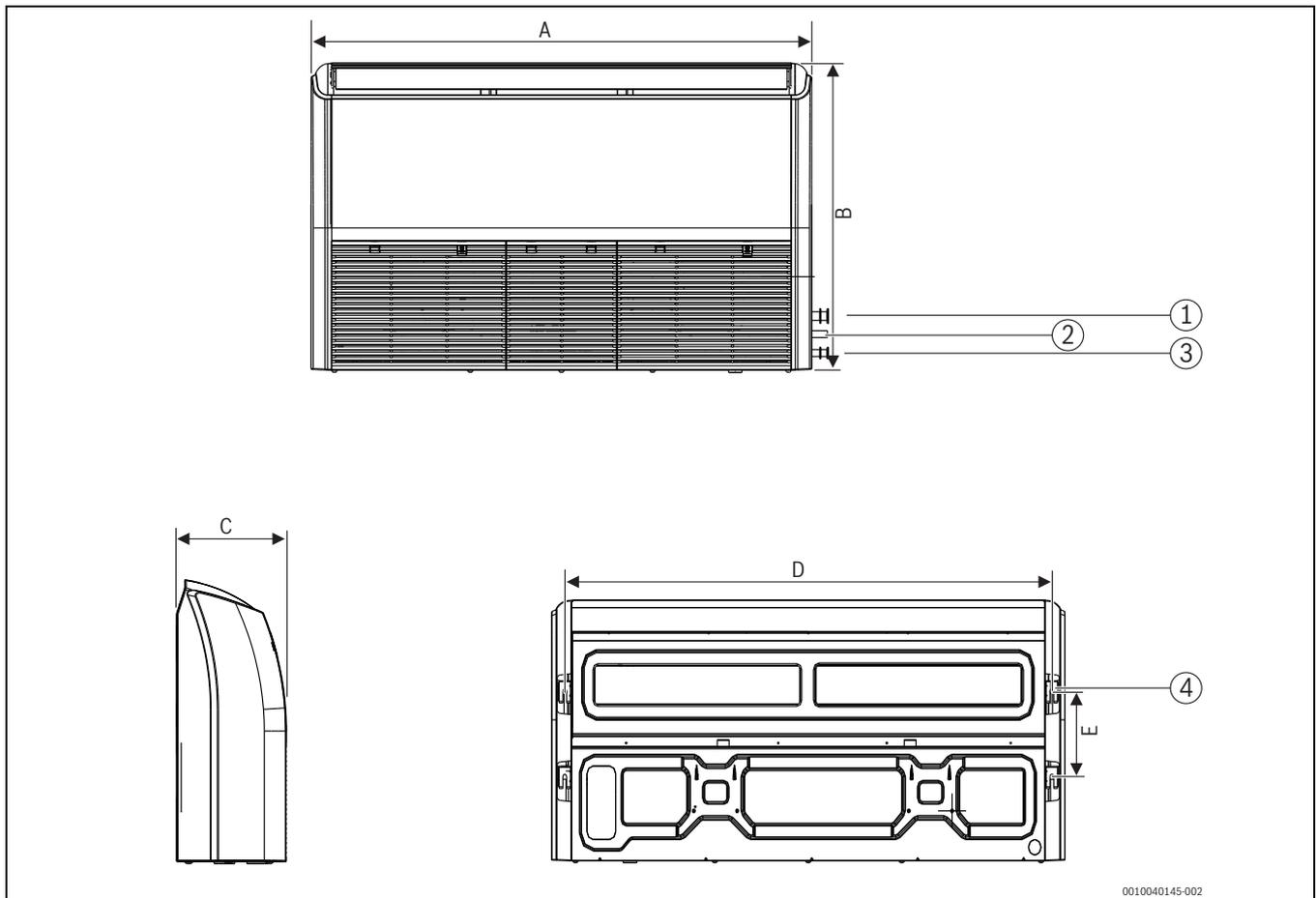
9 CL500iL 140~160 E

0010042083-001



10 [mm]

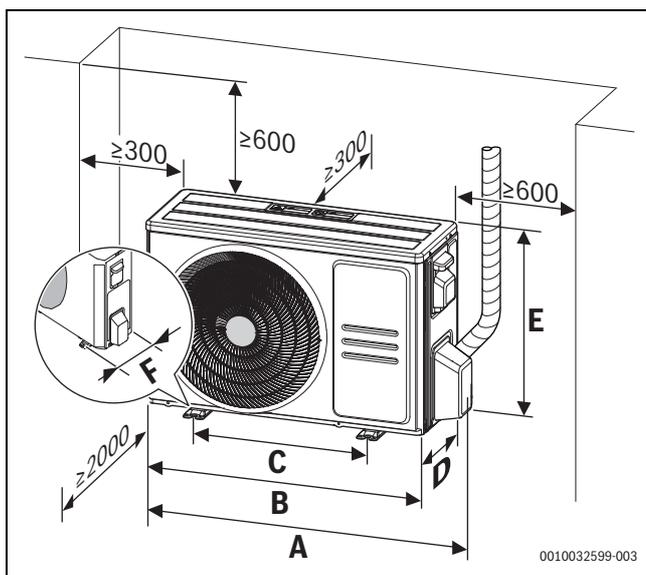
0010040162-002



11

| | A [mm] | B [mm] | C [mm] | D [mm] | E [mm] |
|-------------------|--------|--------|--------|--------|--------|
| CL5000iL CF 53 E | 1068 | 675 | 235 | 983 | 220 |
| CL5000iL CF 70 E | 1068 | 675 | 235 | 983 | 220 |
| CL5000iL CF 105 E | 1650 | 675 | 235 | 1565 | 220 |
| CL5000iL CF 140 E | 1650 | 675 | 235 | 1565 | 220 |
| CL5000iL CF 160 E | 1650 | 675 | 235 | 1565 | 220 |

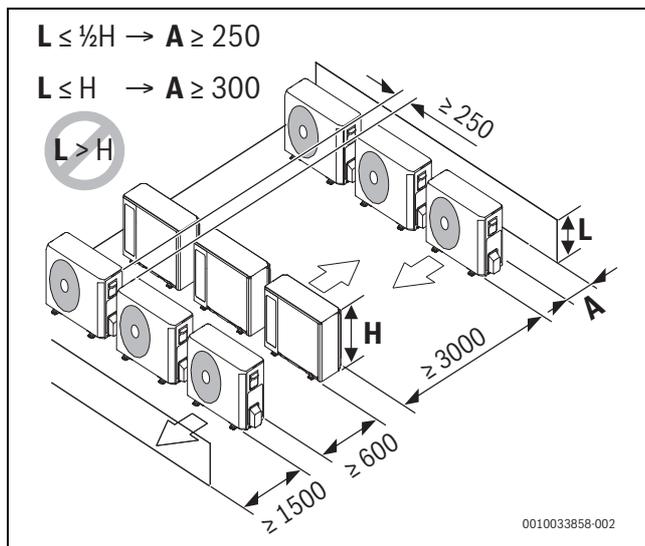
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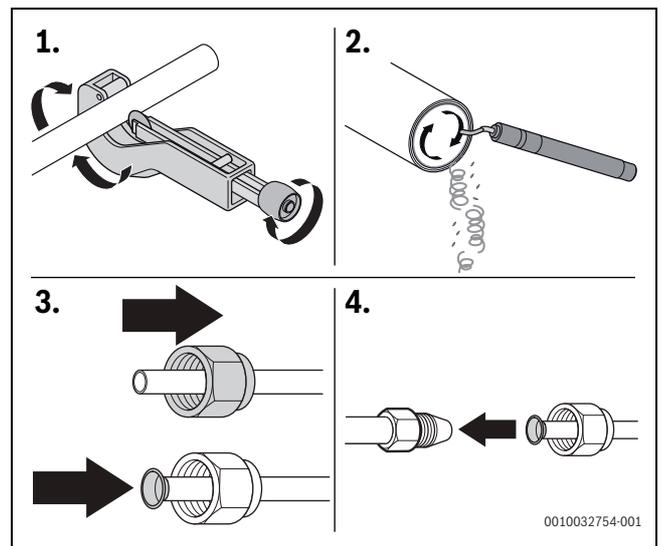
12 [mm]

| | A [mm] | B [mm] | C [mm] | D [mm] | E [mm] | F [mm] |
|-----------------|--------|--------|--------|--------|--------|--------|
| CL5000L 53 E | 874 | 805 | 511 | 330 | 554 | 317 |
| CL5000L 70 E | 955 | 890 | 663 | 342 | 673 | 354 |
| CL5000L 105 E | 1030 | 946 | 673 | 410 | 810 | 403 |
| CL5000L 105 E-3 | 1030 | 946 | 673 | 410 | 810 | 403 |
| CL5000L 140 E-3 | 1045 | 952 | 634 | 415 | 1333 | 404 |
| CL5000L 160 E-3 | 1045 | 952 | 634 | 415 | 1333 | 404 |

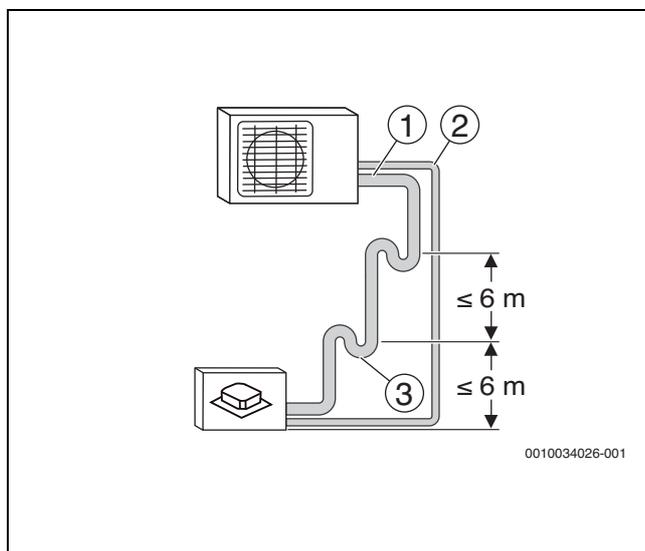
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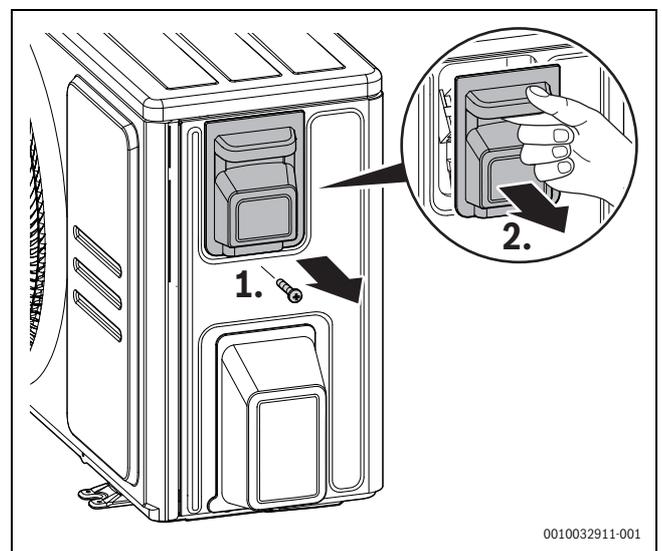
13 [mm]



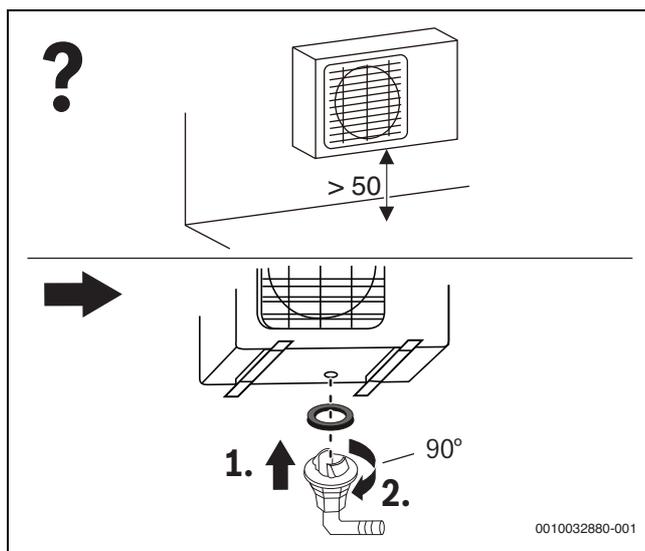
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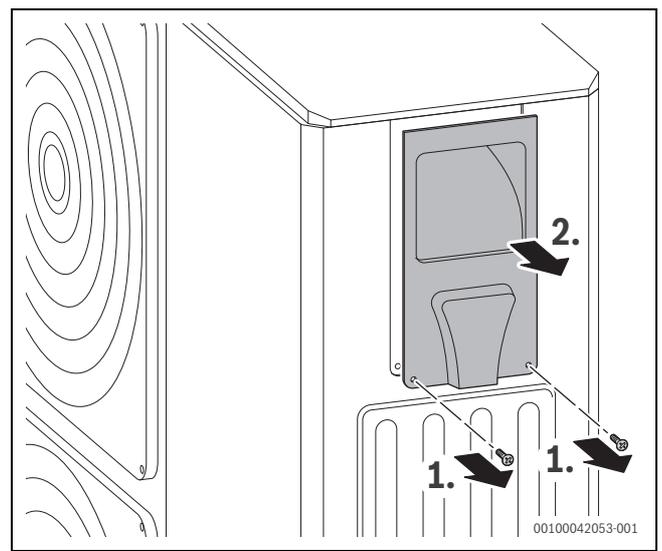
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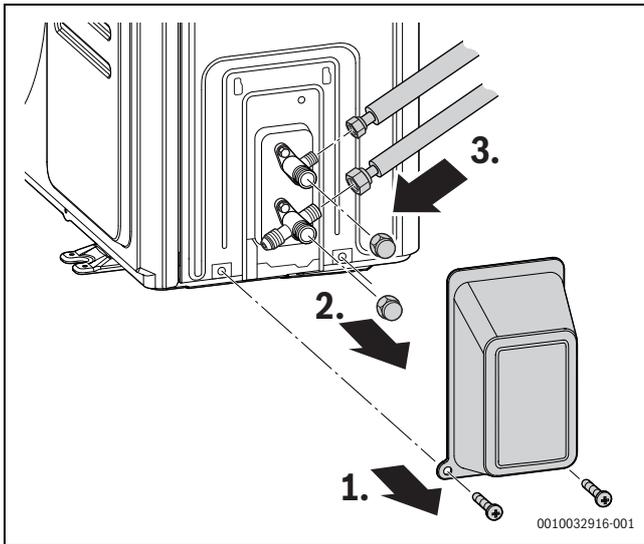
17 CL5000L 53-105 E



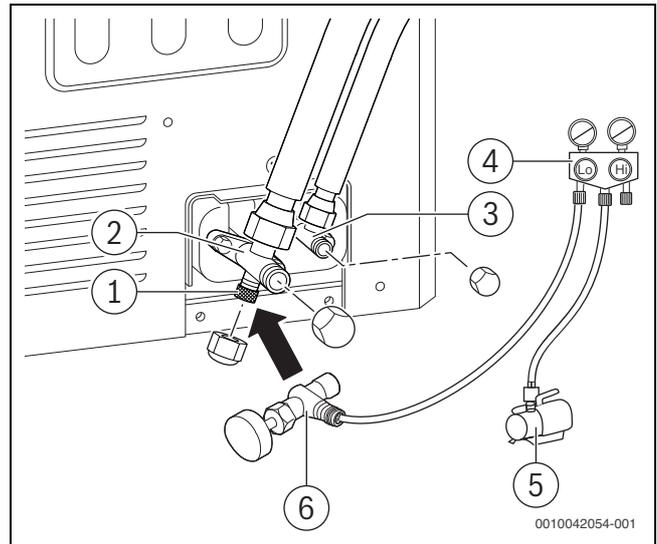
15



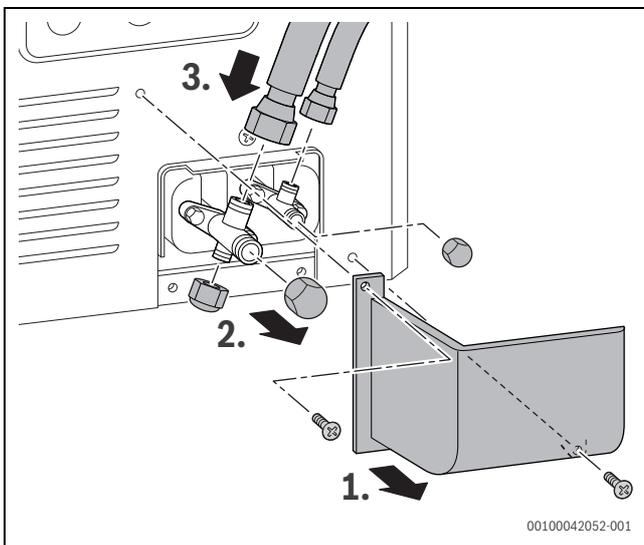
18 CL5000iL 140-160 E



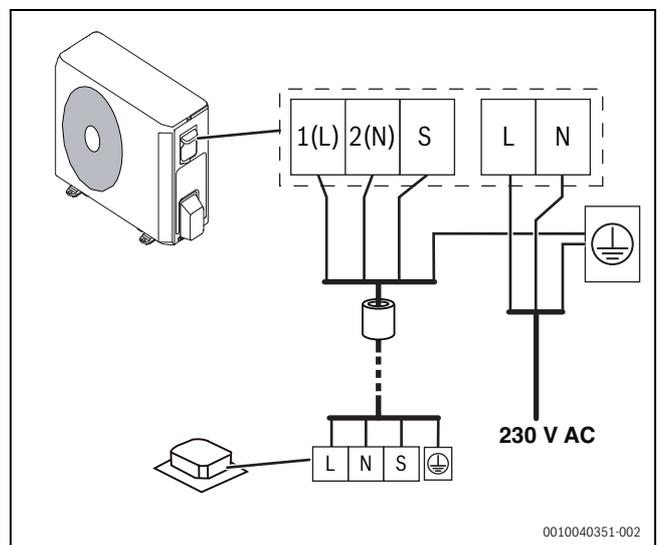
19 CL5000L 53~105 E



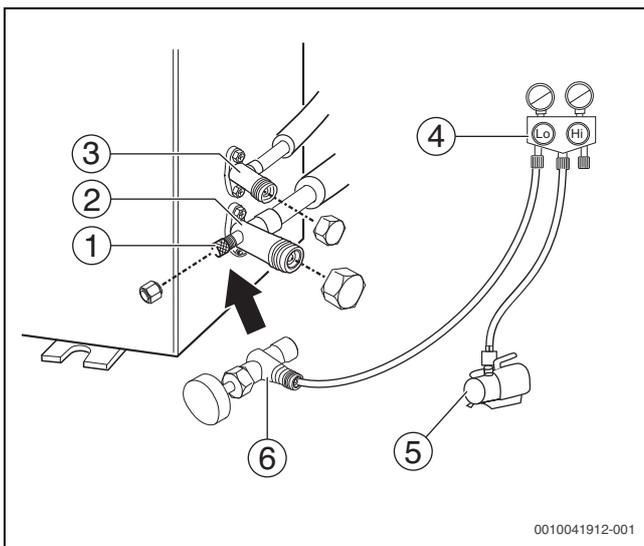
22 CL500iL 140~160 E



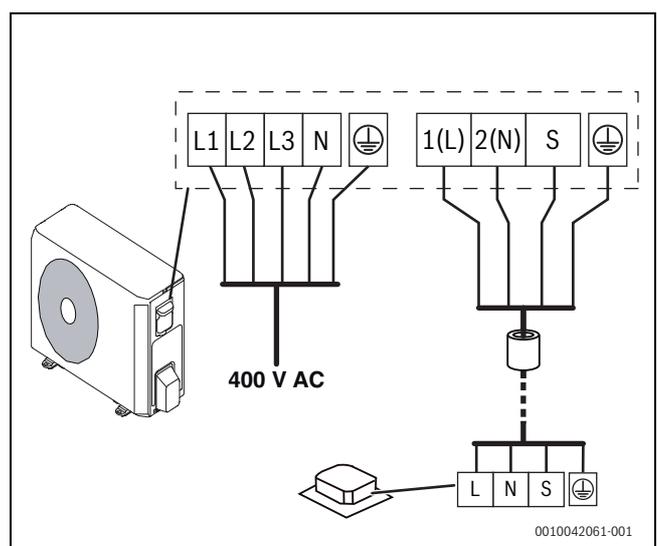
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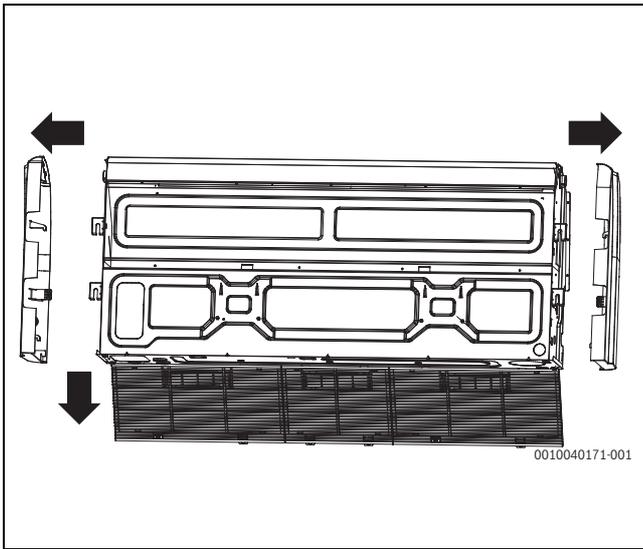
23 CL5000L ... E



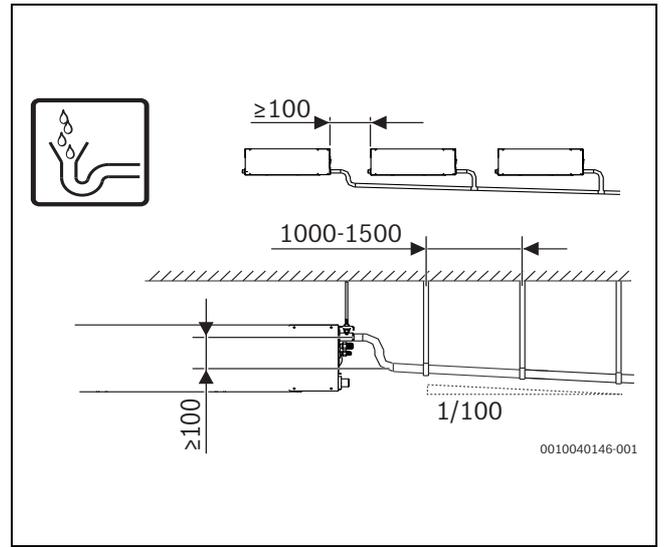
21 CL5000L 53~105 E



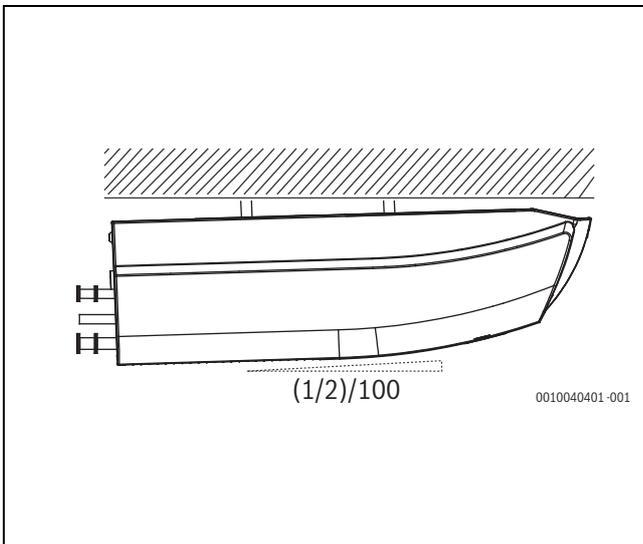
24 CL5000L ... E-3



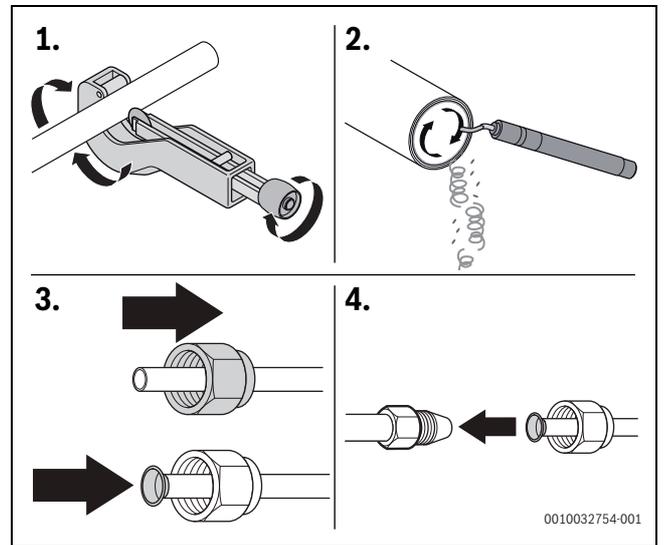
25



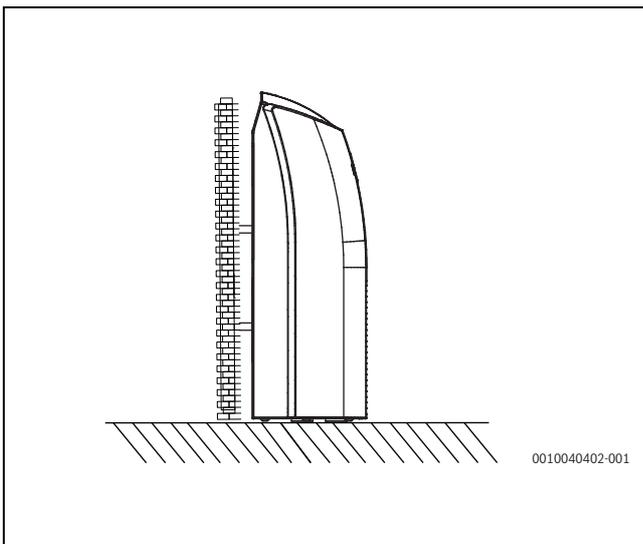
28



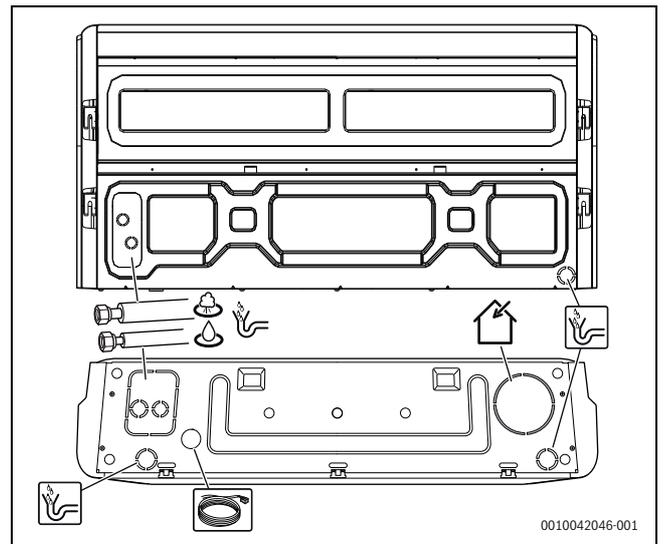
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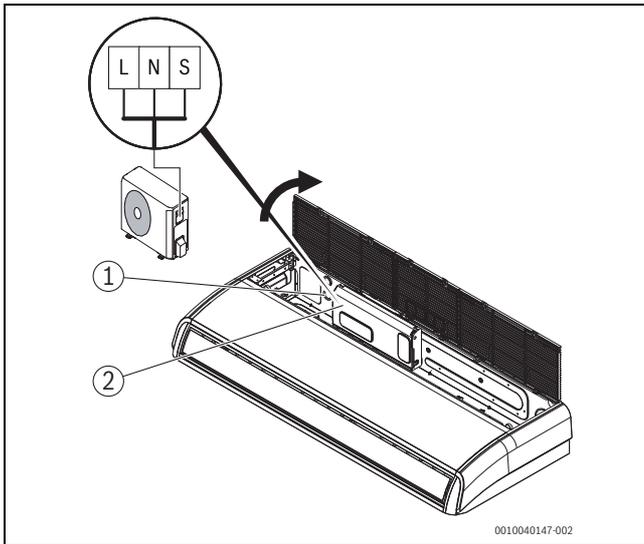
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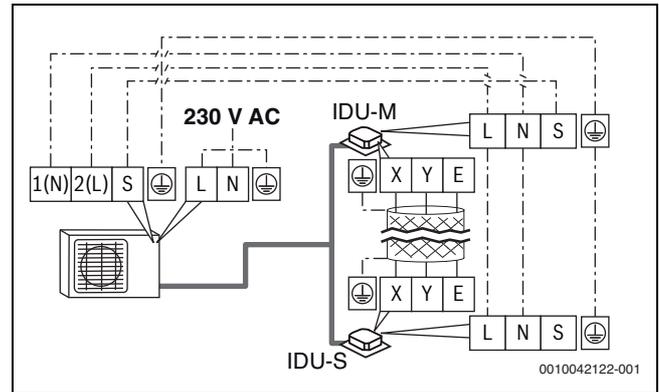
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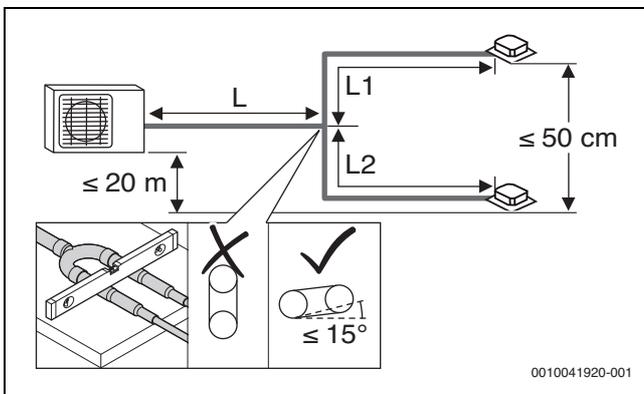
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31



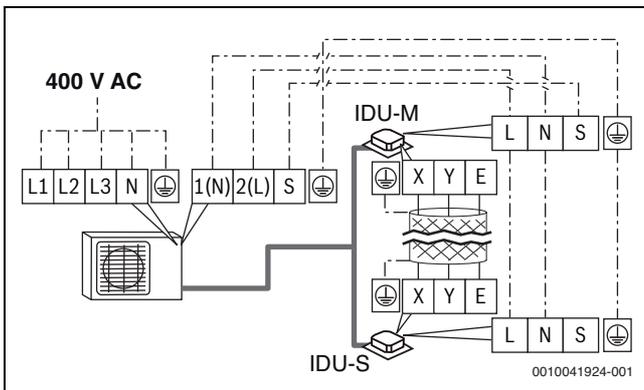
34 CL5000L ... E



32

| | L + L1 | L1 | L1 - L2 |
|----------------------|--------|------|---------|
| | L + L2 | L2 | L2 - L1 |
| | [m] | [m] | [m] |
| 2 × CL5000iL CF 53 E | ≤ 50 | ≤ 15 | ≤ 10 |
| 2 × CL5000iL CF 70 E | ≤ 65 | ≤ 15 | ≤ 10 |

22



33 CL5000L ... E-3







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