

Climate 5000 M

CL5000M 41/2 E | CL5000M 53/2 E | CL5000M 62/3 E | CL5000M 79/3 E | CL5000M 82/4 E | CL5000M 105/4 E | CL5000M 125/5 E

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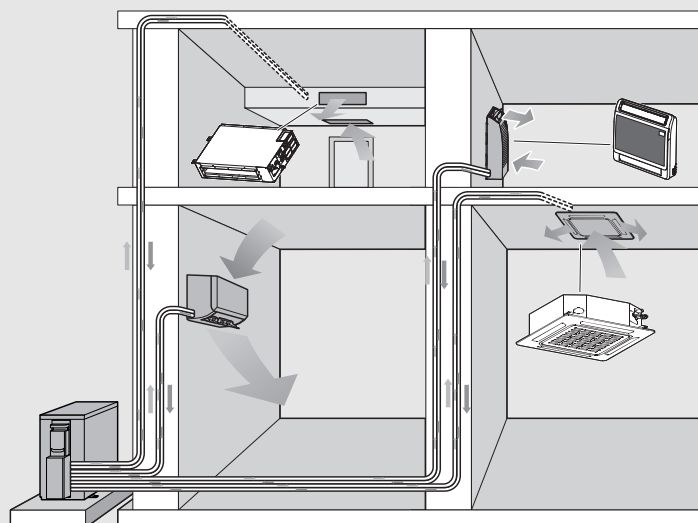


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1 Explanation of symbols and safety instructions

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 176

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.

Intended use

The indoor unit is intended for installation inside the building with connection to an outdoor unit and further system components, e.g. controls.

The outdoor unit is intended for installation outside the building with connection to an indoor unit or units and further system components, e.g. controls.

The air conditioning system is intended for commercial/residential use only where temperature deviations from adjusted set points do not lead to damage of living beings or materials. The air conditioning system is not suitable to set and maintain desired absolute humidity levels precisely.

Any other use is considered inappropriate. Any damage that may result from misuse is excluded from liability.

For installation at special locations (underground garage, mechanical rooms, balcony or at any semi-open areas):

- ▶ First refer to the requirements for the installation site in the technical documentation.

Transport and storage

- ▶ To avoid damaging the compressor, the outdoor unit should be transported and stored upright.
- ▶ Leave standing upright for 24 h prior to commissioning.

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 British, European and supplementary national requirements.

 The UKCA and CE markings declare that the product complies with all the applicable British and European legislation, which is stipulated by attaching these markings.

You can request the complete text of the Declaration of Conformity from the UK address indicated in this document.

2.2 GB Importer

Bosch Thermotechnologie Ltd.
Cotswold Way, Warndon
Worcester WR4 9SW / UK

2.3 Simplified UK/EU Declaration of conformity regarding radio equipment

Bosch Thermotechnik GmbH hereby declares, that the Climate 5000 M product described in these instructions complies with the Directive UK S.I. 2017/1206 (UK) 2014/53/EU.

You can request the complete text of the UK/EU Declaration of Conformity from the UK address indicated in this document.

2.4 Regulations

In order to ensure installation and operation of the product in accordance with the regulations, please observe all the applicable national and regional regulations as well as all technical rules and guidelines.

You can find a list of the most relevant British and European directives and regulations in the table below.

EU legislation	UK legislation
Electromagnetic Compatibility - Directive 2014/30/EU	Electromagnetic Compatibility Regulations 2016
Low Voltage Directive 2014/35	Electrical Equipment (Safety) Regulations 2016
Radio Equipment - Directive 2014/53/EU	Radio Equipment Regulations 2017
Pressure Equipment - Directive 2014/68/EU	Pressure Equipment (Safety) Regulations 2016
Gas Appliances - Regulation (EU) 2016/426	Regulation 2016/426 on gas appliances as brought into UK law and amended
Machinery Directive 2006/42/EC	Supply of Machinery (Safety) Regulations 2008
Ecodesign Directive 2009/125/EC	The Ecodesign for Energy-Related Products Regulations 2010
Energy Labelling Regulation (EU) 2017/1369	Energy Labelling Regulation (EU) 2017/1369 (as retained in UK law and amended)

EU legislation	UK legislation
Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) - Directive 2002/95/EC	The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012
European Directive 2012/19/EC on old electronic and electrical appliances	(UK) Waste Electrical and Electronic Equipment Regulations 2013 (as amended)

Table 177

2.5 Type overview

Depending on the outdoor unit, varying numbers of indoor units can be connected:

Appliance type	Quantity	
	Connections	Indoor units (max.)
CL5000M 41/2 E	2 × 6.35 mm (1/4")	2
CL5000M 53/2 E	2 × 9.53 mm (3/8")	
CL5000M 62/3 E	3 × 6.35 mm (1/4")	3
CL5000M 79/3 E	3 × 9.53 mm (3/8")	
CL5000M 82/4 E	4 × 6.35 mm (1/4")	4
CL5000M 105/4 E	3 × 9.53 mm (3/8") 1 × 12.7 mm (1/2")	
CL5000M 125/5 E	5 × 6.35 mm (1/4") 4 × 9.53 mm (3/8") 1 × 12.7 mm (1/2")	5

Table 178 Outdoor unit appliance types

The outdoor units (CL5000M... E) are designed to be combined with any of the following indoor unit types:

Model designation	Appliance type
CL5000iU D...	Built-in ducted indoor unit
CL5000iU ... C/CC	Cassette indoor unit
CL5000iU CN...	Rack-mounted unit
CL2000 UW... E/ CL3000iU W ... E / CL5000iU W ... E/ CL6000iU W ... E	Wall-mounted indoor unit

Table 179 Types of indoor units

2.6 Recommended combinations of appliances

The table on page 517 onwards show the options for combining indoor units with one outdoor unit respectively. If possible, reserve the biggest connection for the biggest indoor unit. If not all connections are used, any distribution among the connections can be used.



The combination of indoor units can be between 40 % and 130 % of the output of the outdoor unit. If the indoor units are continuously in operation at the same time, they should not exceed 100 % of the output of the outdoor unit.

The power designations of the outdoor and indoor units are stated in British thermal units (BTU) in the tables. The conversion to kW is shown in table 180.

kBTU/h	kW
7	2
9	2.6
12	3.5
17	5.0

kBTU/h	kW
18	5.3
24	7.0
27	7.9
28	8.2
36	10.6
42	12.3

Table 180 Conversion of kBTU/h to kW

Example: CL5000M 62/3 E + 2 × CL...W/C/CC/D/CN

P _{A+...+P_C} [kBTU/h]	P _{A...P_C} [kBTU/h]		
	A	B	C
14	7	7	-
16	9	7	-
...

Table 181 CL5000M 62/3 E + 2 × CL...W/C/CC/D/CN

Table 181 show the options for combining 2 indoor units in total with one outdoor unit CL5000M 62/3 E:

A...C	Connection A to C at the outdoor unit
P _{A+...+P_C}	Total output of all connected indoor units
P _{A...P_C}	Output of indoor unit at connection A to C

2.7 Scope of delivery

Depending on the make up of the system, the supplied appliances may vary. The scope of delivery of the possible appliances is shown in Fig. 76. The appliances are shown as an example and deviations are possible.

Outdoor unit (A):

- [1] Outdoor unit (filled with refrigerant)
- [2] Drainage elbow with gasket (for outdoor unit with floor or wall mounting bracket)
- [3] Set of printed documents for product documentation
- [4] Magnetic ring (number depends on appliance type)
- [5] Adapter for pipe connections (depending on appliance type)

Appliance type	Adapter diameter in [mm]	Number of magnet rings
CL5000M 41/2 E	-	6
CL5000M 53/2 E	-	6
CL5000M 62/3 E	1 × Ø 9.53 → Ø 12.7	3
CL5000M 79/3 E	1 × Ø 9.53 → Ø 12.7	3
CL5000M 82/4 E	1 × Ø 12.7 → Ø 9.53	8
CL5000M 105/4 E	1 × Ø 12.7 → Ø 9.53	8
CL5000M 125/5 E	1 × Ø 9.53 → Ø 12.7 1 × Ø 12.7 → Ø 9.53	11

Table 182 Adaptor and magnet rings included in the delivery

Indoor unit (B):

- [1] Wall-mounted indoor unit
- [2] Cassette indoor unit
- [3] Built-in ducted indoor unit
- [4] Rack-mounted unit



The scope of delivery depends on the relevant indoor unit (→ technical documentation of the indoor unit).

Possible components of the scope of delivery of the indoor units (C):

- [1] Set of printed documents for product documentation
- [2] Cold catalyst filter (black) and bio filter (green)
- [3] Remote controller
- [4] Remote control holder with fixing screw
- [5] Fixing materials (screws and wall plugs)
- [6] Thermal insulation for pipes
- [7] Copper nuts
- [8] Communication cables for connection of indoor unit to outdoor unit
- [9] Anti-vibration couplings for the outdoor unit
- [10] Display unit
- [11] wired controller
- [12] Button battery
- [13] Extension cable for wired room controller (6 m)
- [14] Extension cable for display unit (2 m)
- [15] Ceiling hooks and supporting bolts
- [16] Mounting template
- [17] Connection cable and holder (used for optional accessory IP-Gateway)
- [18] Cable clip

2.8 Product dimensions and minimum clearances**2.8.1 Indoor unit and outdoor unit****Outdoor Unit**

Figs. 77 to 78.

Built-in ducted indoor unit

Figs. 89 to 90.

- [1] Connection for outside air duct
- [2] Air inlet
- [3] Air filter/air outlet
- [4] Air filter/air outlet (following modification)
- [5] Electric control box

Cassette indoor unit

Figs. 103 to 106.

- [1] Refrigerant lines
- [2] Condensate pipe
- [3] Connection for outside air duct (round)

Rack-mounted unit

Figure 119.

Wall-mounted indoor unit

Fig. 129

wired controller

Fig. 97

2.8.2 Refrigerant lines**Key to figure 79:**

- [1] Gas-side pipe
- [2] Liquid-side pipe
- [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 79, [1]).

- ▶ Observe the maximum number of connected indoor units which depends on the appliance type of the outdoor unit.
- ▶ Observe maximum piping length and maximum difference in height between the indoor units and outdoor unit. (→ Figure 80).

Appliance type	Maximum overall pipe length ¹⁾ [m]	Maximum pipe length per connection ¹⁾ [m]
CL5000M 41/2 E	≤ 40	≤ 25
CL5000M 53/2 E		
CL5000M 62/3 E	≤ 60	≤ 30
CL5000M 79/3 E		
CL5000M 82/4 E	≤ 80	≤ 35
CL5000M 105/4 E		
CL5000M 125/5 E		
CL5000M 125/5 E		

1) Gas side or liquid side

Table 183 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

Table 184 Alternative pipe diameter

Specification of the pipes	
Min. piping length	3 m
Standard piping length	7.5 m
Additional refrigerant to be added if the pipe length exceeds 7.5 m (liquid side)	With Ø 6.35 mm (1/4"): 12 g/m
	With Ø 9.53 mm (3/8"): 24 g/m
Piping Thickness	With Ø 9.53 mm (3/8"): ≥ 0.8 mm.
	With Ø 15.9 mm (5/8"): ≥ 1.0 mm
Thickness of insulation against heat	≥ 6 mm
Material of insulation against heat	Polyethylene foam

Table 185

2.8.3 Protection zone

The product contains the refrigerant R32, which is denser than air. If the refrigerant leaks, it could accumulate near the ground. The refrigerant must therefore not be allowed to accumulate in recesses, drains or gaps in the building.

There must be no openings in the building, such as air ducts, hatches, valves, downpipes, cellar entrances, windows or doors, within the defined protection zone around the unit. The protection zone must not overlap with public areas or adjacent sites.

Ignition sources, such as contactors, lamps or electrical switches, are not permitted inside the protection zone.

Protection zone with floor-standing outdoor unit against a wall

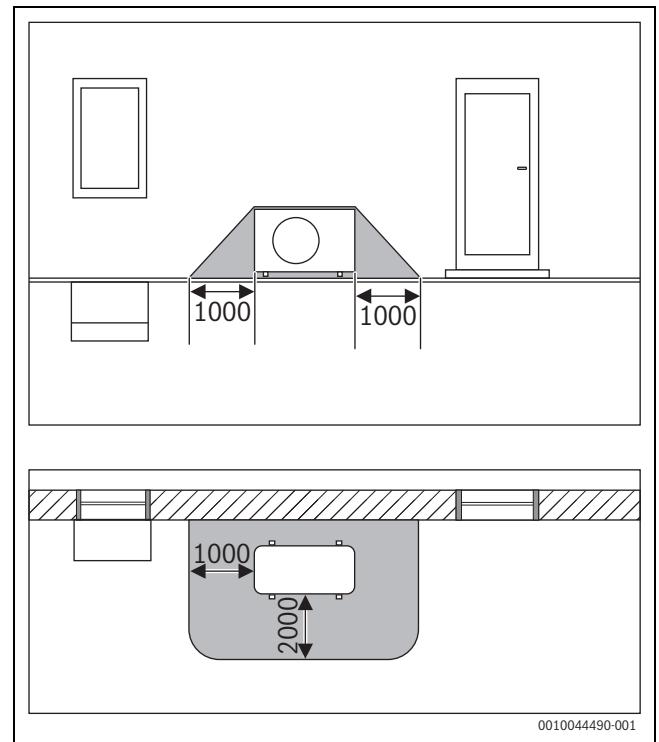


Fig. 16 Protection zone, floor-standing outdoor unit against a wall - dimensions in mm

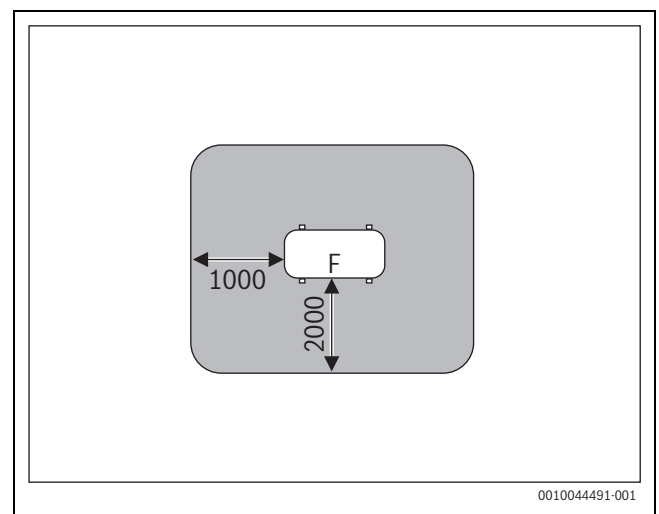


Fig. 17 Protection zone for installation on the floor, on the site or roof - dimensions in mm

F Front

Protection zone with floor-standing outdoor unit in one corner

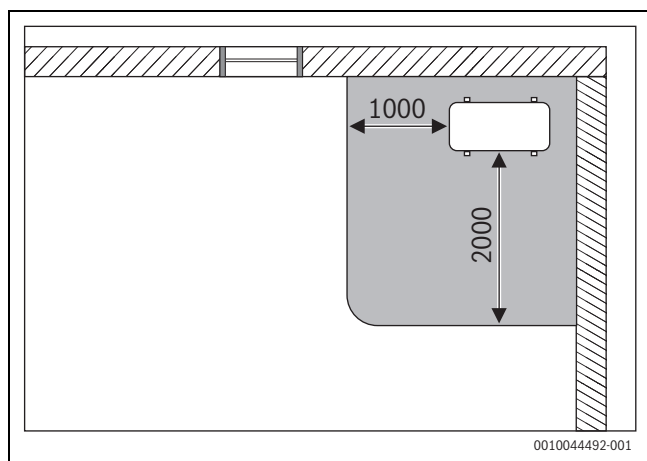


Fig. 18 Protection zone, floor-standing outdoor unit in one corner - dimensions in mm

3 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.

4 Installation

4.1 Before installation

CAUTION

Risk of injury from sharp edges!

- ▶ Wear protective gloves during installation.

CAUTION

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.

4.2 Requirements for installation site

- ▶ Observe minimum clearances (→ Chapter 2.8 on page 106).
- ▶ Observe minimum room area.

Installation height [m]	Refrigerant [kg]							
	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7
	Minimum room area [m ²]							
0.6	9.0	10.5	12.5	14.5	17.0	19.5	22.0	25.0
1.8	1.0	1.5	1.5	2.0	2.0	2.5	2.5	3.0
2.2	1.0	1.0	1.0	1.5	1.5	1.5	2.0	2.0

Table 186 Minimum room area (1 of 3)

Installation height [m]	Refrigerant [kg]							
	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
	Minimum room area [m ²]							
0.6	28.0	31.0	34.5	38.0	41.5	45.5	49.5	54.0
1.8	3.5	3.5	4.0	4.5	5.0	5.0	5.5	6.0
2.2	2.5	2.5	3.0	3.0	3.5	3.5	4.0	4.0

Table 187 Minimum room area (2 of 3)

Installation height [m]	Refrigerant [kg]							
	2.6	2.7	2.8					
	Minimum room area [m ²]							
0.6	58.0	63.0	67.5					
1.8	6.5	7.0	7.5					
2.2	4.5	5.0	5.0					

Table 188 Minimum room area (3 of 3)

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.

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).
- ▶ Indoor units with a cooling capacity of 2.0 to 5.3 kW are designed for a single room.

Notices regarding ceiling-mounted indoor units

- ▶ The ceiling construction and suspension system (on site) must be able to support the weight of the appliance.
- ▶ Take minimum room area into account

Notices regarding wall-mounted indoor units

- ▶ Mount the indoor unit on a wall that absorbs vibrations.
- ▶ Take minimum room area into account

Notes on the wired room controller (built-in ducted indoor unit)

- ▶ The ambient temperature at the installation location should be in the following range: -5...43 °C.
- ▶ The relative humidity at the installation location should be in the following range: 40. 90 %.

4.3 Unit installation

NOTICE

Incorrect assembly can cause material damage.

If the unit is assembled incorrectly, it may fall off the wall.

- ▶ Only install the unit on a solid flat wall. The wall must be capable of supporting the weight of the unit.
- ▶ Only use screws and rawl plugs that are suitable for the wall type and weight of the unit.

4.3.1 Install the cassette indoor unit or built-in ducted indoor unit in the ceiling



We recommend preparing the pipes before hanging the indoor unit so that only the pipes need to be connected.

- ▶ 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:
 - Cassette indoor units: Figs. 103 to 106
 - Built-in ducted indoor units: Figs. 89 to 90



Make sure that the appliance fits between the structural ceiling and drop ceiling.

- ▶ In the case of the cassette indoor unit, the fascia must be flush with the drop ceiling.
- ▶ The clearance between the built-in ducted indoor unit and drop ceiling must be at least 24 mm.

- ▶ Define and mark the position of the suspension bolts on the ceiling.



Risk of injury!

The ceiling attachment must be suitable for carrying the weight of the indoor unit. We recommend using M10 threaded rods in order to be able to adjust the height precisely. Suitable nuts and washers are included in the scope of delivery of the indoor unit.



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.
- ▶ Hang the appliance on the suspension bolts with the washers and nuts included in the scope of delivery.
- ▶ Position the indoor unit at the correct height and align horizontally by turning the nuts on the threaded rods.

NOTICE

If the appliance is not level condensate may leak out.

- ▶ Use a spirit level to align the appliance horizontally.
- ▶ Secure the appliance at the correct installation position with lock nuts.
- ▶ Establish pipe connections as described in chapter 4.6.

4.3.2 Assembly of cover CL5000iU 4CC...

- ▶ Remove the air inlet grille from the cover (→ Fig. 107).
- ▶ Attach cover to the indoor unit with screws provided, paying attention to orientation (→ Fig. 108). The display [2] must be located opposite the "shorter" side of the L-shaped electronics [1].
- ▶ The cover must rest evenly and tightly against the indoor unit.

Only reinstall the air inlet grille when establishing the electrical connection.

4.3.3 Assembly of cover CL5000iL 4C...

- ▶ Remove the air inlet grille from the cover (→ Fig. 109).
- ▶ Remove the cover at the 4 corners (→ Fig. 110).

NOTICE

Damage to the cover and display

The display is fixed at one of the removable corner covers and can be damaged when removing the corner.

- ▶ Carefully lever the corner clamps with a screwdriver and lift off the corners.

- ▶ Attach the 4 corner hooks of the cover in the tabs of the indoor unit, paying attention to the orientation (→ Fig. 111). If required, bring the cover into the correct position by turning it. The corner with the display [2] must be orientated on the electronics [3] and be located above the refrigerant lines [1].
- ▶ Evenly tighten the screw hooks until the thickness of the foam between the casing and the air outlet on the cover is roughly 4-6 mm. The edge of the cover should be tight against the ceiling.
- ▶ Remove the foam parts from the inside of the unit.

Only reinstall the air inlet grille when establishing the electrical connection.

4.3.4 Install the rack-mounted unit on the wall

- ▶ Open the box at the top and lift the indoor unit out and up.
- ▶ Place the indoor unit with the moulded parts of the packaging face down.
- ▶ Undo screw and remove the mounting plate on the rear of the indoor unit (→ Figure 120. For routing the pipes through the indoor unit, we recommend loosening the plate on the underside and reattaching it later.
- ▶ Determine the installation location, taking the minimum clearances into consideration (→ Fig. 119).
- ▶ Attach the mounting plate with a screw and wall plug centrally and at the top of the wall and level out (→ Fig. 121).
- ▶ Fasten the mounting plate with a further four screws and wall plugs so that the the mounting plate lies flat on the wall. We recommend using the holes marked with arrows.
- ▶ Drill wall outlet for the piping (wall outlet should be behind the indoor unit as a recommendation → Fig. 121).
- ▶ If a skirting board is present, adapt the panel to the skirting board on the lower edge with the aid of tools (→ Figure 122).



The pipe fittings on the indoor unit are generally located behind the indoor unit. We recommend extending the pipes before mounting the indoor unit.

- ▶ Establish pipe connections as described in chapter 4.6.
- ▶ Bend the piping in the required direction if necessary, and knock out an opening on the side of the indoor unit.
- ▶ Route the piping through the wall and attach the indoor unit to the mounting plate.

- ▶ If necessary, open the front cover and remove the filter element (→ Figure 123) in order to insert the cold catalyst filter from the scope of supply.

4.3.5 Install the wall-mounted indoor unit on the wall

- ▶ Open the box at the top and lift the indoor unit out and up.
- ▶ Place the indoor unit with the moulded parts of the packaging face down (→ Fig. 130).
- ▶ Undo screw and remove the mounting plate on the rear of the indoor unit.
- ▶ Determine the installation location, taking the minimum clearances into consideration (→ Fig. 129).
- ▶ Attach the mounting plate with a screw and wall plug centrally and at the top of the wall and level out (→ Fig. 131).
- ▶ Fasten the mounting plate with a further four screws and wall plugs so that the the mounting plate lies flat on the wall.
- ▶ Drill wall outlet for the piping (wall outlet should be behind the indoor unit as a recommendation → Fig. 132).
- ▶ Change the position of the condensate pipe if necessary (→ Fig. 133).



The pipe fittings on the indoor unit are generally located behind the indoor unit. We recommend extending the pipes before mounting the indoor unit.

- ▶ Establish pipe connections as described in chapter 4.6.
-
- ▶ Bend the piping in the required direction if necessary, and knock out an opening on the side of the indoor unit (→ Fig. 135).
 - ▶ Route the piping through the wall and attach the indoor unit to the mounting plate (→ Fig. 136).
 - ▶ Fold up the top cover and remove one of the two filter elements (→ Fig. 137).
 - ▶ Insert the cold catalyst filter which is included in the scope of delivery into the filter element, and mount the filter element again.
- If it is necessary to take the indoor unit off the mounting plate:
- ▶ Pull the underside of the casing down in the area of the two recesses and pull the indoor unit forwards (→ Fig. 138).

4.3.6 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. 82).
- ▶ Remove the cover for the pipe connections (→ Fig. 84).
- ▶ Establish pipe connections as described in chapter 4.6.

4.4 Installing the air duct in built-in ducted indoor units

4.4.1 Installation of pipe and accessories



The appliance must be hung in order to install the pipes, etc.



If an air filter is not used, dust particles may accumulate in the heat exchanger and cause malfunctions and leaks.

- ▶ To prevent the air discharged by the air conditioner from being drawn back in directly, or to prevent a short circuit: plan the air outlet and air inlet so that they are not too close to one another.
- ▶ Before installing the air duct, make sure the static pressure of the air duct is within the permitted range (→ Tables 189 and figures 143 to 158).

Legend for the figures 143 to 158:

- 1 limit
- 2 Gauge point
- H High
- M Middle
- L Low

Model	Static pressure (Pa) Pressure range
CL5000iM D 21E	0-40
CL5000iM D 26 E	0-40
CL5000iU D 35 E	0-60
CL5000iU D 53 E	0-100
CL5000iU D 70 E	0-160

Table 189 External static pressure



The external static pressure (SP1...4) can be set via the configuration menu of the wired controller.

- ▶ Always incorporate isolators when connecting the air conduits to the appliance in order to prevent the noise from the indoor unit being transmitted to the ventilation pipes.
- ▶ Attach the air duct as shown in Fig. 91.

Key to figure 91:

- [1] Thermal insulation
- [2] Isolator
- [3] Air inlet grille
- [4] Test orifice
- [5] Built-in ducted indoor unit
- [6] Air Outlet

- ▶ Insulate the pipes to prevent condensation.

4.4.2 Adjusting air inlet direction (from the rear to the underside)

Carry out modification as shown in Fig. 92:

- ▶ Remove filter grille [3].
- ▶ Remove fan plate [1] and air inlet flange [2].
- ▶ Bend fan plate on the rear through 90°.
- ▶ Reinstall the fan plate in the position previously occupied by the air inlet flange and vice-versa.
- ▶ Guide the filter grille [3] into the air inlet flange.

4.4.3 Installing the outside air duct

There is an outside air intake opening on the built-in ducted indoor unit side which can be used if required (→ Fig. 89).



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

4.5 Installing the outside air duct in cassette indoor units

There is an outside air intake opening on side the appliance, which can be used if required (→ Fig. 103 and Fig. 104, [3]).

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

4.6 Pipework connection

4.6.1 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.

- ▶ When reusing flared joints, always fabricate the flared part again.

i
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. 190).

- ▶ Determine pipe diameter and length (→ Page 106).
- ▶ Cut the pipe to length using a pipe cutter (→ Fig. 83).
- ▶ 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. 190 .
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 Table 190.

i
A connection pair (gas side and liquid side) exists for every indoor unit. Different connection pairs must not be mixed (→ Fig. 81).

- ▶ 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 190 Key data of pipe connections

4.6.2 Connecting condensate pipe to the wall-mounted indoor unit

The condensation catch pan of the indoor unit has two connections. A condensate hose and bung are mounted on these connections at the factory and can be replaced (→ Fig. 133).

- ▶ Only route the condensate hose with a slope.

4.6.3 Connecting condensate pipe to the ceiling-mounted indoor units

- ▶ 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 (→ cassette indoor unit: figure 112 and 113, built-in ducted indoor unit: figure 93). When a condensate pump is 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.

- ▶ To prevent the pipes from sagging, install a support every 1–1.5 m.
- ▶ Route a drain pipe to the sewer via a siphon.

4.6.4 Testing the condensate pipe

i
Testing the condensate pipe ensures that all connections are tight.
▶ Test the condensate pipe before closing the ceiling.

Indoor unit without a drainage pump

- ▶ Fill the condensation catch pan or water injection pipe with roughly 2 l of water.
- ▶ Make sure that the condensate drains away properly.
- ▶ Check tightness of all connections.

Indoor unit with a drainage pump

The condensate pipe can only be tested once the electrical connection has been established.

- ▶ Fill the condensation catch pan or water injection pipe with roughly 2 l of water (for built-in ducted indoor units → Fig. 94).
- ▶ Switch on cooling mode. The drainage pump can be heard.
- ▶ Make sure that the condensate drains away properly.
- ▶ Check tightness of all connections.

4.6.5 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 valve caps of a connection pair (→ Fig. 86, [1], [2] and [3]).
- ▶ Connect the Schrader opener [6] and pressure gauge [4] to the service connection [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 119).
- ▶ 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. 86, [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.

4.7 Mount the wired room controller (built-in ducted indoor unit)

NOTICE

Damage to the wired room controller

Opening the wired room controller in the wrong way or tightening the screws too tightly can damage it.

- ▶ Do not exert too much pressure on the wired room controller.
-
- ▶ Remove the wall plinth of the wired room controller (→ Fig. 98).
 - Insert the tip of a screwdriver at the bending point [1] on the rear of the wired room controller.
 - Lift up the screwdriver to lever open the wall plinth [2].
 - ▶ If necessary, prepare the wall and communication wire (→ Fig. 99).
 - [1] Realise putty or insulating material.
 - [2] Make an elbow in the cable.
 - ▶ Attach the wall plinth to the wall (→ Fig. 100, [1]).
 - ▶ Fix the wired room controller to the wall plinth (→ Fig. 102).

4.8 Electrical connection

4.8.1 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 10, page 119) 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.

4.8.2 Connecting the outdoor unit

A power supply cable (3-wire) and the communication cable of the indoor units (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 L(x), N(x), S(x) and  (assignment of wires to terminals same as indoor unit) (→ Fig. 87).
- ▶ Attach 1 magnet ring to each communication cable, as close as possible to the outdoor unit.
- ▶ Secure power cable to the strain relief and connect to the terminals L, N and .
- ▶ Fasten cover for connections.

4.8.3 Notice regarding connection of indoor units

The indoor units are connected to the outdoor unit using a 4-wire communication cable of the type H07RN-F. The conductor cross-section of the communication cable should be at least 1.5 mm².

Every connection pair of the pipes has a corresponding electrical connection.

- ▶ Connect every indoor unit to the corresponding terminals (→ Fig. 81).

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.

4.8.4 Connecting the built-in ducted indoor unit

To connect the communication cable:

- ▶ Remove the cover of the electronics.
- ▶ Secure cable to the strain relief and connect to the terminals L, N, S and .
- ▶ Note assignment of wires to the terminals.
- ▶ Reattach the covers.
- ▶ Route the cable to the outdoor unit.

Installation of display unit

- ▶ Put the buckles of the display board → Fig. 96 into the grooves of electric control box and push the display board down.
- ▶ Route the wire of the display unit through the cable clamp on the electronic control unit and connect to the control board.

Connect the wired room controller to CL5000iU D...

NOTICE

Damage to the wired room controller or wiring

- ▶ Do not jam wires during installation.
- ▶ To avoid water entering the wired room controller when attaching the cabling (→ Fig. 99), use trap [2] and putty [1] to seal the plug-in connector.
- ▶ Cables must be securely attached and must not be under tension.

NOTICE

Damage due to overvoltage

The wired room controller is designed for low voltage.


- ▶ Never bring the communication cable into contact with high voltages.

Use the cable provided.

- ▶ If necessary, route an extension cable between the indoor unit and installation location of the wired room controller.
- ▶ Connect the communication cable to the indoor unit.
- ▶ Where applicable, connect the communication cable with the wired room controller via an extension cable.
- ▶ Fit the magnet ring.
- ▶ Connect the earthing terminal lug.
- ▶ Insert the button battery into the holder (→ figure 101 [1]).


4.8.5 Connecting the cassette indoor unit

Connect CL5000iU 4CC...

- ▶ Remove the cover of the indoor unit electronics.
- ▶ Connect the cable of the cover and the communication cable to the indoor unit (→ Fig. 116) and secure to the strain relief.
 - Plug the cables of the cover into the connections provided.
 - With several product types, connect the communication cable to the terminals L, N, S and ¹⁾.
 - If necessary, connect other accessories.
- ▶ Note assignment of communication cable wires to the terminals.
- ▶ Hook in air inlet grille on one side (→ Fig. 117).
- ▶ Reattach the cover of the electronics and close the air inlet grille (→ Fig. 118).
- ▶ Route the cable to the outdoor unit.

Connect CL5000iL 4C...

- ▶ Remove the cover of the indoor unit electronics.

- ▶ Connect the cable of the cover to the control unit, (→ Fig. 115) and secure to the strain relief.
 - Plug the cables of the cover into the connections provided.
 - With several product types, connect the communication cable to the terminals 1(L), 2(N), S and .
 - If necessary, connect other accessories.
- ▶ Hook in air inlet grille on one side (→ Fig. 117).
- ▶ Close and secure the air inlet grille with the screw.
- ▶ Attach the cover of the corners again.
- ▶ Route the cable to the outdoor unit.

4.8.6 Connecting the rack-mounted unit

NOTICE

The refrigerant circuit may become very hot.


- ▶ Take precautions so that the communication cable is not exposed to the heat of the refrigerant pipes.

To connect the communication cable:

- ▶ Open the front cover (→ Figure 127).
- ▶ Remove the cover of the electronics (→ Figure 128).
- ▶ Remove pre-installed cable [1].




The pre-installed cable has no use.

- ▶ Secure cable to the strain relief and connect to the terminals L, N, S and .
- ▶ Note assignment of wires to the terminals.
- ▶ Reattach the covers.
- ▶ Route the cable to the outdoor unit.

4.8.7 Connecting the wall-mounted unit

To connect the communication cable:

- ▶ Fold up the top cover (→ Fig. 140).
- ▶ Undo screw and remove cover of the interface panel.
- ▶ Remove screw and cover [1] of the terminal (→ Fig. 141).
- ▶ Knock out an opening for the cable feed [3] on the rear of the indoor unit and feed the cable through.
- ▶ Secure cable to the strain relief [2] and connect to the terminals L, N, S and .
- ▶ Note assignment of wires to the terminals.
- ▶ Reattach the covers.
- ▶ Route the cable to the outdoor unit.

4.8.8 Connecting external accessories (built-in ducted indoor units and cassette indoor units)

Terminals for external accessories

External accessories can be connected to the terminals listed below.

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

Terminals CL5000iU D...

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 191

Terminals CL5000iU ... C/CC

Connection	Designation
CN8	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.
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
CN38 ¹⁾	For connection of the gateway (WLAN) without connection accessories
CN40	Connection for room controller

1) Only CL5000iL 4C...

Table 192



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

5 On-site configuration

5.1 DIP switch positions for cassette indoor units and built-in ducted indoor units



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 193 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 194 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 195 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]: 24° [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)
Automatic restart	
SW3 	<ul style="list-style-type: none"> [0]: Automatic restart on (note setting) [1]: Automatic restart off (do not note setting)
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]: 6 °C [01]: 2°C [10]: 4°C [11]: Reserved

1) Default highlighted in bold

Behaviour of terminals (F2)




F2	Behaviour if contact switch is closed	Behaviour if contact switch is open
	(As-delivered condition) <ul style="list-style-type: none"> Operation via app/remote control is possible. Indoor unit switches on. Output signal is on/off, depending on operation via the app/remote control. <ul style="list-style-type: none"> Off: if indoor unit is switched on. On: if indoor unit is switched off. 	(As-delivered condition) <ul style="list-style-type: none"> Operation via app/remote control is possible. CP appears in display of indoor unit. Indoor unit switches off. Output signal is on.
	<ul style="list-style-type: none"> Operation via app/remote control is possible. Indoor unit switches on. Output signal is off. 	<ul style="list-style-type: none"> Operation via app/remote control is possible. Indoor unit switches off. Output signal is on.

Table 199 DIP switch F2

Table 196 Definition of DIP Switches

Only available for CL5000iL 4C...

DIP switch	Definition of DIP Switches ¹⁾
Default cooling and heating or only cooling	
SW7 	<ul style="list-style-type: none"> [0]: Cooling and heating [1]: Cooling only

1) Default highlighted in bold

5.2 DIP switch settings for rack-mounted units




DIP switch	Definition of DIP Switches
ENC3 	Network address
F1 	Expands the number of possible network addresses.
F2 	Behaviour of terminals (input/output signal).

Table 197 Definition of DIP Switches

Network addresses (F1+ENC3)



The network address must be set in systems in which many indoor units communicate with one another.





F1	ENC3	Network address
	0 - F	0 – 15 (Factory setting)
	0 - F	16 – 31
	0 - F	32 – 47
	0 - F	48 – 63

Table 198 DIP switch F1



"Remote control" means infra-red remote control or room controller.

5.3 Configuration of the wired room controller (built-in ducted indoor unit)

Call up the configuration menu and make the settings:

- ▶ Switch off the air conditioning system.
- ▶ Keep the **COPY** key pressed until a parameter appears in the display.



If several indoor units are detected, the address (e.g. **00**) appears initially.

- ▶ With the **▼** or **▲** key, select an indoor unit (**00... 16**) and confirm with the **☑** key.
- ▶ Select a parameter with the **▼** or **▲** key and confirm with the **☑** key.
- ▶ Press the **▼** or **▲** key to set the parameter and confirm it with the **☑** key, or press the **↵** key to cancel the setting.

To exit the configuration menu:

- ▶ Press the **↵** key or wait for 15 seconds.

Make the settings in the configuration menu:

- ▶ Call up the configuration menu.
- ▶ Select a parameter with the **▼** or **▲** key and confirm with the **☑** key.



The factory settings are highlighted in **bold** in the following table.

Parameters	Description
Tn (n=1,2, ...)	Check the temperature at the indoor unit.
CF	Check the status of the fan.
SP	Set the statistic pressure for the channel wall unit. <ul style="list-style-type: none"> • SP1: low • SP2: middle 1 • SP3: middle 2 • SP4: high
AF	Function test for three to six minutes.
tF	Offset temperature for the Follow me function. <ul style="list-style-type: none"> • -5...0...5 °C
tyPE	Restrict the control to specific operating modes: <ul style="list-style-type: none"> • CH: do not restrict available operating modes. • CC: no heating and automatic mode • HH: only heating and Fan Mode • NA: no automatic mode
tHi	Maximum value of adjustable temperature <ul style="list-style-type: none"> • 25...30 °C
tLo	Minimum value of adjustable temperature <ul style="list-style-type: none"> • 17...24 °C
rEC	Switch the control on/off via the remote control. <ul style="list-style-type: none"> • ON: on • OF: off

Parameters	Description
Addr	Set the addresses of the wired room controller. If there are two wired room controllers in the system, each wired room controller must have a different address. <ul style="list-style-type: none"> • --: only one wired room controller in the system • A: primary wired room controller with the address 0. • B: secondary wired room controller with the address 1.
Init	ON: restore factory settings.

Table 200

6 Commissioning

6.1 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	Condensate pipes are functioning correctly and have been tested.	
4	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 	
5	All covers are fitted and secured.	
6	With wall-mounted indoor units: the air baffle of the indoor unit is fitted correctly and the actuator is engaged.	

Table 201

6.2 Functional test of the unit

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.
- ▶ If necessary, ensure air baffle is moving freely.



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

6.3 Automatic correction function for connection errors



The outside temperature must be higher than 5 °C for this function to work.

If the refrigerant lines and electrical wiring at the outdoor unit is incorrectly connected, this can be corrected automatically.

- ▶ Bring the system into operation (open valves, switch indoor units on).
- ▶ Press the test switch [1] on the main PCB (→ Fig. 88) until [2] **CE** appears on the display.
- ▶ Wait 5-10 minutes until **CE** is no longer displayed.
The refrigerant pipes and electrical wiring has now been corrected.

6.4 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.

7 Troubleshooting

7.1 Operating mode conflict

When using multi-split air conditioners, all operating modes are possible, but with the following special features:

If you operate more than one indoor unit, indoor units may go into standby due to an operating mode conflict. An operating mode conflict occurs when at least one indoor unit is in heating mode and at least one

indoor unit is in another operation mode at the same time (e.g. cooling mode). Heating mode always has priority. All indoor units that are not in heating mode go into standby due to the operating mode conflict.



Indoor units with operation mode conflict show "--" in the display or the ON indicator flashes and the timer indicator is on. See technical documentation of the indoor unit for more information.

Avoid the operating mode conflict:

- No indoor unit is in heating mode.
- All indoor units are in heating mode and/or off.

7.2 Faults with indication



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.

7.3 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 119.

Table 202

8 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. "(UK) Waste Electrical and Electronic Equipment Regulations 2013 (as amended)". 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.

9 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

/ UK GDPR), to fulfil our duty of product surveillance and for product safety and security reasons (art. 6 (1) sentence 1 (f) GDPR / UK GDPR), to safeguard our rights in connection with warranty and product registration questions (art. 6 (1) sentence 1 (f) GDPR / UK 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 / UK 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 and the United Kingdom. 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 / UK 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.

10 Technical data

10.1 Outdoor units

Outdoor Unit		CL5000M 41/2 E	CL5000M 53/2 E
When combined with indoor units of the type:		2 × CL3000iU W 20 E	2 × CL3000iU W 26 E
Cooling			
Rated output	kW	4.1	5.3
Rated output	kBtu/h	14	18
Power input at rated output	W	1270	1635
Output (min. - max.)	kBtu	5.0-17.0	5.8-19.0
Power input (min. - max.)	W	100-1650	154-2000
Cooling load (Pdesignc)	kW	4.1	5.3
Energy efficiency (SEER)	-	6.8	6.1
Energy efficiency class	-	A++	A++
Heating			
Rated output	kW	4.4	5.6
Rated output	kBtu/h	15	19
Power input at rated output	W	1185	1500
Output (min. - max.)	kBtu	5.5-16.5	6.2-19.2
Power input (min. - max.)	W	220-1630	255-1780
Heating load (Pdesignh - average climate)	kW	3.8	4.5
Heating load (Pdesignh - warmer climate)	kW	4.1	5.0
Energy efficiency (SCOP) at -7 °C	-	4.0	4.0
Energy efficiency class at -7 °C	-	A+	A+
Energy efficiency (SCOP) at 2 °C	-	5.1	5.1
Energy efficiency class at 2 °C	-	A+++	A+++
General			
Power infeed	V / Hz	220-240 / 50	220-240 / 50
Max. power consumption	W	2750	3050
Max. current consumption	A	12	13
Refrigerant	-	R32	R32
Refrigerant charge	g	1100	1250
Design pressure	MPa	4.3/1.7	4.3/1.7
Outdoor unit			
Vol. flow rate	m ³ /h	2100	2100
Sound pressure level	dB(A)	55	54
Sound power level	dB(A)	65	65
Permissible ambient temperature (cooling/heating)	°C	-15...50/-15...24	-15...50/-15...24
Net weight/gross weight	kg	34.7/31.6	35/38

Table 203

Outdoor Unit		CL5000M 62/3 E	CL5000M 79/3 E
When combined with indoor units of the type:		3 × CL3000iU W 20 E	3 × CL3000iU W 26 E
Cooling			
Rated output	kW	6.2	7.9
Rated output	kBtu/h	21	27
Power input at rated output	W	1905	2450
Output (min. - max.)	kBtu	6.8-22.5	10.3-29
Power input (min. - max.)	W	180-2200	230-3250
Cooling load (Pdesignc)	kW	6.1	7.9
Energy efficiency (SEER)	-	6.5	6.1
Energy efficiency class	-	A++	A++
Heating			
Rated output	kW	6.4	8.2
Rated output	kBtu/h	22	28
Power input at rated output	W	1738	2210
Output (min. - max.)	kBtu	6.8-22.8	7.5-29.0
Power input (min. - max.)	W	350-1800	330-2960
Heating load (Pdesignh - average climate)	kW	5.4	5.7
Heating load (Pdesignh - warmer climate)	kW	5.5	6.0
Energy efficiency (SCOP) at -7 °C	-	4.0	4.0
Energy efficiency class at -7 °C	-	A+	A+
Energy efficiency (SCOP) at 2 °C	-	5.1	5.1
Energy efficiency class at 2 °C	-	A+++	A+++
General			
Power infeed	V / Hz	220-240 / 50	220-240 / 50
Max. power consumption	W	3910	4100
Max. current consumption	A	17	18
Refrigerant	-	R32	R32
Refrigerant charge	g	1500	1850
Design pressure	MPa	4.3/1.7	4.3/1.7
Outdoor unit			
Vol. flow rate	m ³ /h	3000	3000
Sound pressure level	dB(A)	55	55
Sound power level	dB(A)	66	68
Permissible ambient temperature (cooling/heating)	°C	-15...50/-15...24	-15...50/-15...24
Net weight/gross weight	kg	43.3/47.1	48/51.8

Table 204

Outdoor Unit		CL5000M 82/4 E	CL5000M 105/4 E	CL5000M 125/5 E
When combined with indoor units of the type:		4 × CL3000iU W 20 E	4 × CL3000iU W 26 E	5 × CL3000iU W 26 E
Cooling				
Rated output	kW	8.2	10.6	12.3
Rated output	kBtu/h	28	36	42
Power input at rated output	W	2500	3270	3800
Output (min. - max.)	kBtu	10.5-35	10.5-38.5	10.8-44.0
Power input (min. - max.)	W	230-3340	260-4125	280-4600
Cooling load (Pdesignc)	kW	8.2	10.5	12.3
Energy efficiency (SEER)	-	7.0	6.5	6.5
Energy efficiency class	-	A++	A++	A++
Heating				
Rated output	kW	8.8	10.6	12.3
Rated output	kBtu/h	30	36	42
Power input at rated output	W	2400	2845	3300
Output (min. - max.)	kBtu	8.0-34.6	11.2-40.8	12.0-44.0
Power input (min. - max.)	W	370-3200	470-3684	570-4300
Heating load (Pdesignh - average climate)	kW	6.8	9.2	9.5
Heating load (Pdesignh - warmer climate)	kW	6.8	10.0	9.8
Energy efficiency (SCOP) at -7 °C	-	4.0	4.0	3.8
Energy efficiency class at -7 °C	-	A+	A+	A
Energy efficiency (SCOP) at 2 °C	-	5.1	5.1	5.1
Energy efficiency class at 2 °C	-	A+++	A+++	A+++
General				
Power infeed	V / Hz	220-240 / 50	220-240 / 50	220-240 / 50
Max. power consumption	W	4150	4600	4700
Max. current consumption	A	19	21.5	22
Refrigerant	-	R32	R32	R32
Refrigerant charge	g	2100	2100	2900
Design pressure	MPa	4.3/1.7	4.3/1.7	4.3/1.7
Outdoor unit				
Vol. flow rate	m ³ /h	3000	3000	3850
Sound pressure level	dB(A)	61	62	61.5
Sound power level	dB(A)	70	70	70
Permissible ambient temperature (cooling/heating)	°C	-15...50/-15...24	-15...50/-15...24	-15...50/-15...24
Net weight/gross weight	kg	62.1/67.7	68.8/75.6	74.1/79.5

Table 205

10.2 Indoor units

Indoor Unit		CL3000iU W 20 E	CL5000iM CN 26 E
Rated cooling output	kW	2.1	2.6
	kBTU/h	7	9
Rated heating output	kW	2.3	2.9
	kBTU/h	8	10
Power input at rated output	W	23	45
Power infeed	V / Hz	220-240 / 50	220-240 / 50
Ex-protected ceramic fuse on main board	–	T 3.15 A/250 V	T 3.15 A/250 V
Volumetric flow rate (high/medium/low)	m ³ /h	520/460/330	650/580/490
Sound pressure level (high/medium/low/noise reduction)	dB(A)	37/32/22/20	37/34/27
Sound power level	dB(A)	54	54
Permissible ambient temperature (cooling/heating)	°C	17...32/0...30	16...32/0...30

Table 206

Indoor Unit		CL5000iM 4CC 21 E	CL5000iM 4CC 26 E	CL5000iM D 21E	CL5000iM D 26 E
Rated cooling output	kW	2.1	2.6	2.1	2.6
	kBTU/h	7	9	7	9
Rated heating output	kW	2.3	2.9	2.3	2.9
	kBTU/h	8	10	8	10
Power input at rated output	W	40	40	170	180
Power infeed	V / Hz	220-240 / 50	220-240 / 50	220-240 / 50	220-240 / 50
Ex-protected ceramic fuse on main board	–	T 3.15 A/250 V	T 3.15 A/250 V	T 3.15 A/250 V	T 3.15 A/250 V
Volumetric flow rate (high/medium/low)	m ³ /h	540/500/460	540/500/460	500/340/230	500/340/230
Sound pressure level (high/medium/low)	dB(A)	37.5/33.5/31.5	39/37/35	40/34.5/27.5	40/34.5/27.5
Sound power level	dB(A)	53	55	54	56
Permissible ambient temperature (cooling/heating)	°C	16...32/0...30	16...32/0...30	17...32/0...30	17...32/0...30

Table 207

Indoor unit - Wall-mounted indoor unit	Weight in kg (net)
CL2000iU W 26 E	7.6
CL2000iU W 35 E	
CL2000iU W 53 E	10
CL2000iU W 20 E	12.3
CL3000iU W 20 E	8
CL3000iU W 26 E	
CL3000iU W 35 E	8.7
CL3000iU W 53 E	11.2
CL3000iU W 70 E	13.6
CL5000iU W 26 E	8.7
CL5000iU W 35 E	
CL6001iU W 26 E	10.2
CL6001iU W 35 E	
CL6001iU W 53 E	12.3
CL6001iU W 70 E	20.0

Table 208 Net weight of indoor units (wall-mounted indoor unit)

Indoor unit - cassette indoor unit	Weight in kg (net)	
	Housing	Cover
CL5000iM 4CC 21 E	14.5	2.5
CL5000iM 4CC 26 E	14.5	2.5
CL5000iU 4CC 35 E	16.3	2.5
CL5000iU 4CC 53 E	16.0	2.5
CL5000iU 4C 70 E	21.6	6.0

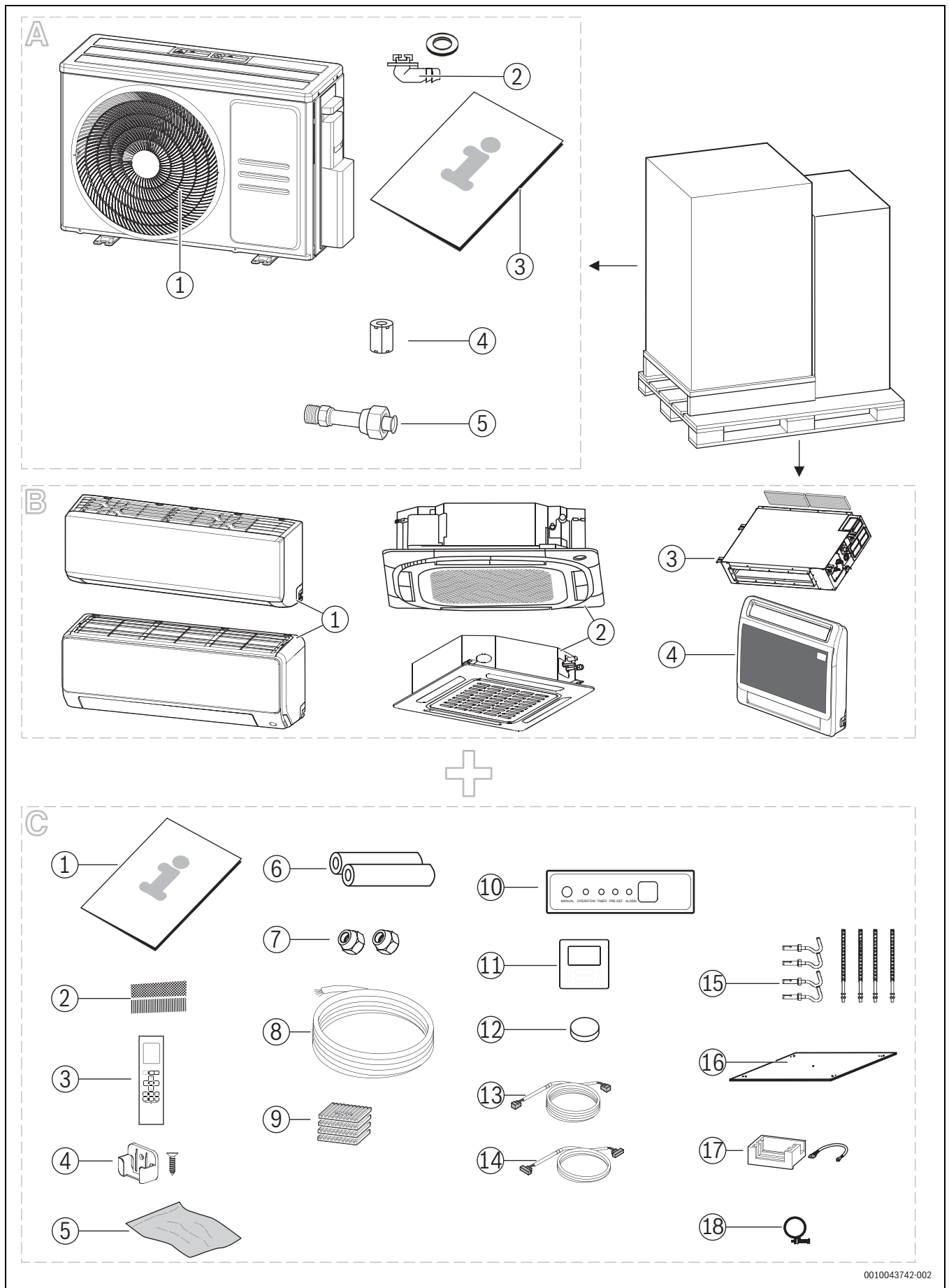
Table 209 Net weight of indoor units (cassette indoor unit)

Indoor unit - Ducted	Weight in kg (net)
CL5000iM D 21E	17.8
CL5000iM D 26 E	17.8
CL5000iU D 35 E	17.8
CL5000iU D 53 E	24.4
CL5000iU D 70 E	32.3

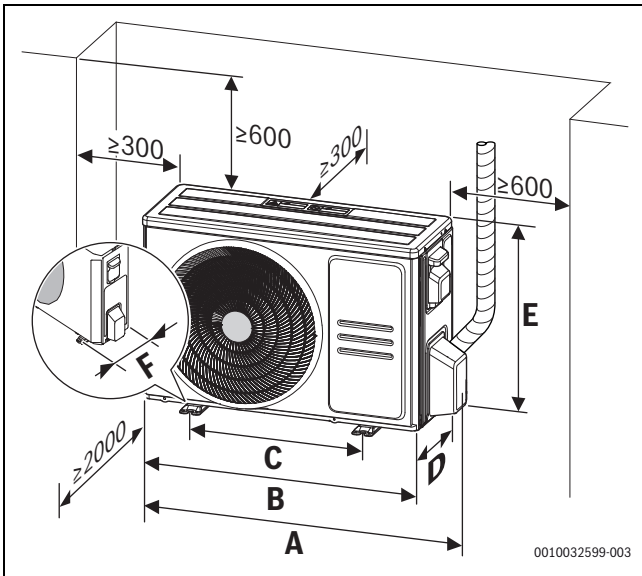
Table 210 Net weight of indoor units (built-in ducted indoor unit)

Indoor unit - Rack-mounted unit	Weight in kg (net)
CL5000iM CN 26 E	14.9
CL5000iU CN 35 E	14.9
CL5000iU CN 50 E	14.9

Table 211 Net weight of indoor units (rack-mounted unit)



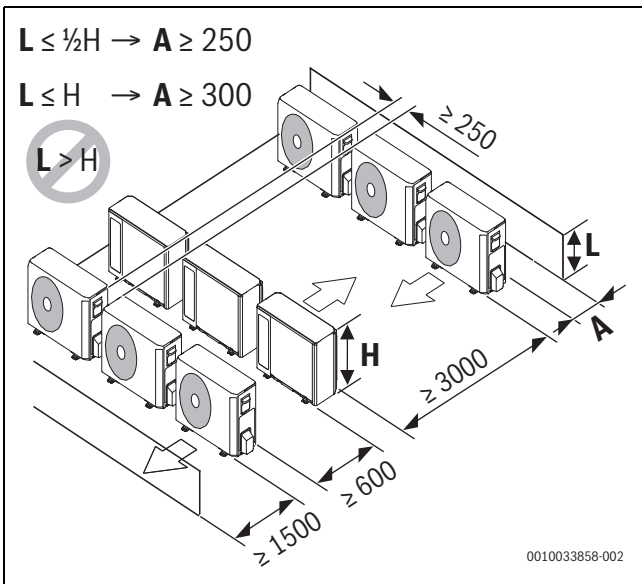
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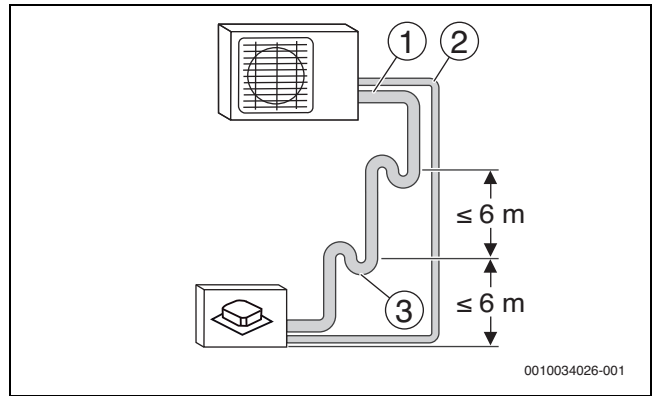
77

	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
CL5000M 41/2 E	874	805	511	330	554	317
CL5000M 53/2 E						
CL5000M 62/3 E	955	890	663	342	673	354
CL5000M 79/3 E						
CL5000M 82/4 E	1034	946	673	410	810	403
CL5000M 105/4 E						
CL5000M 125/5 E						

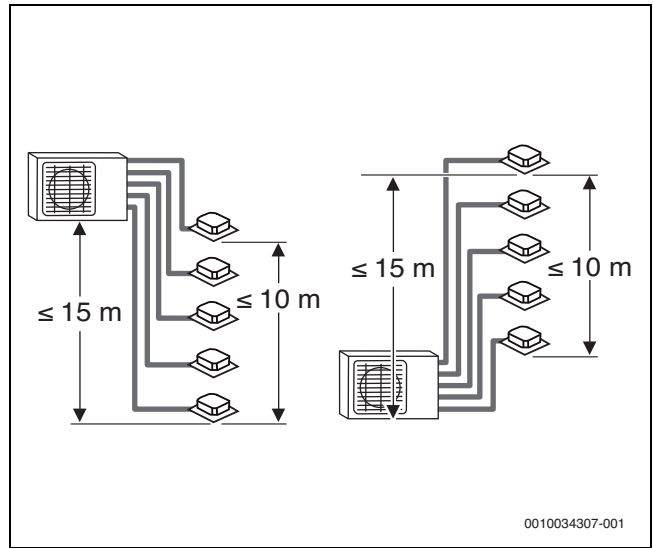
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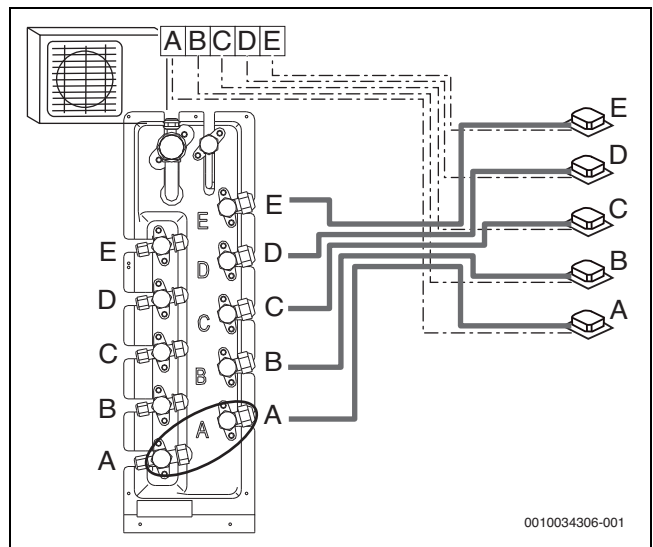
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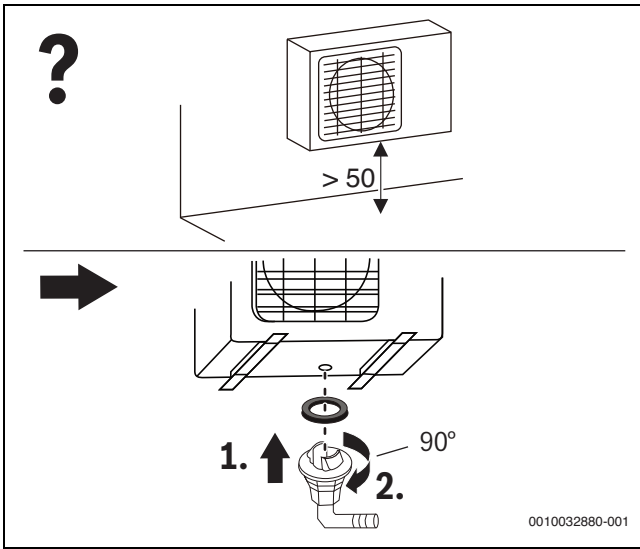
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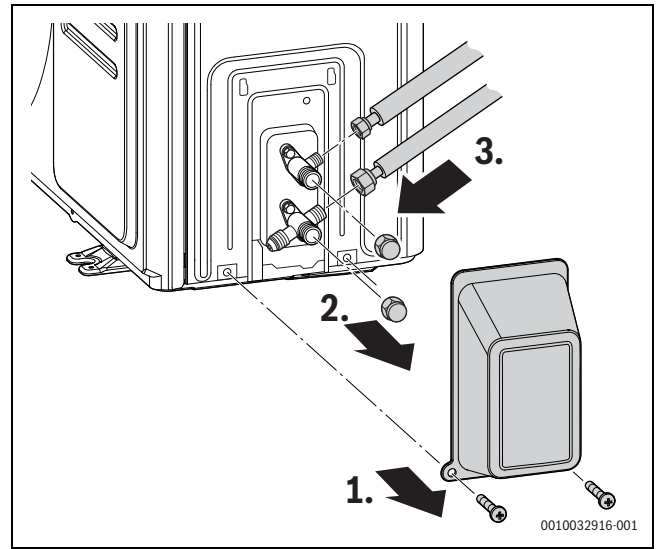
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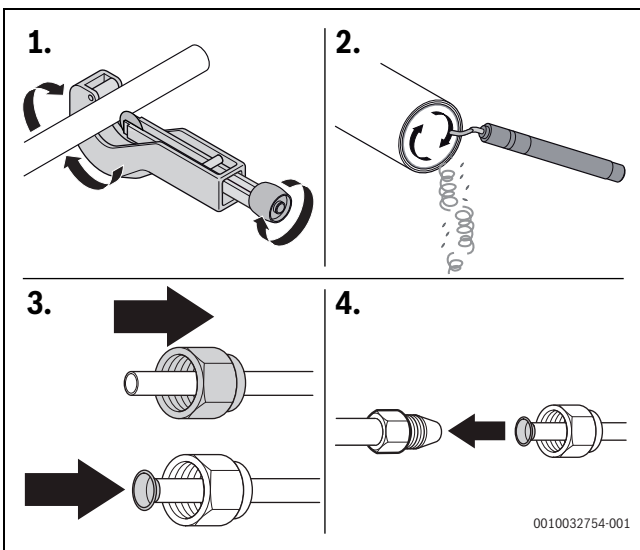
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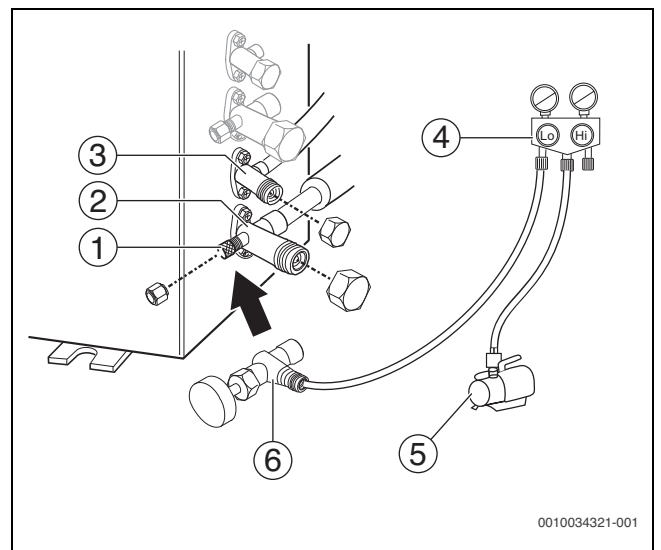
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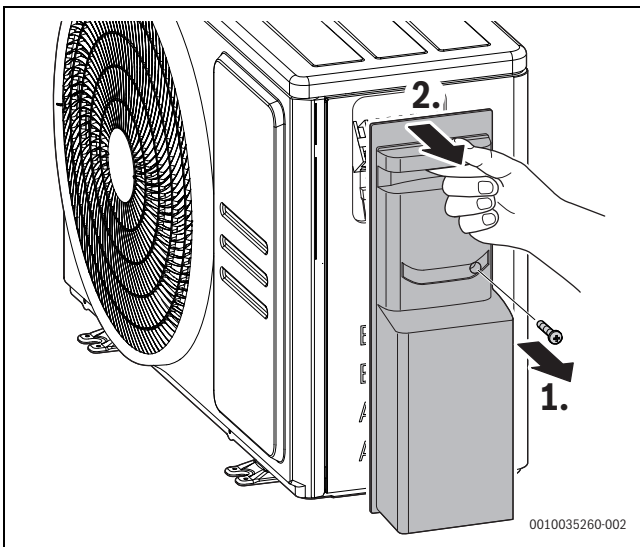
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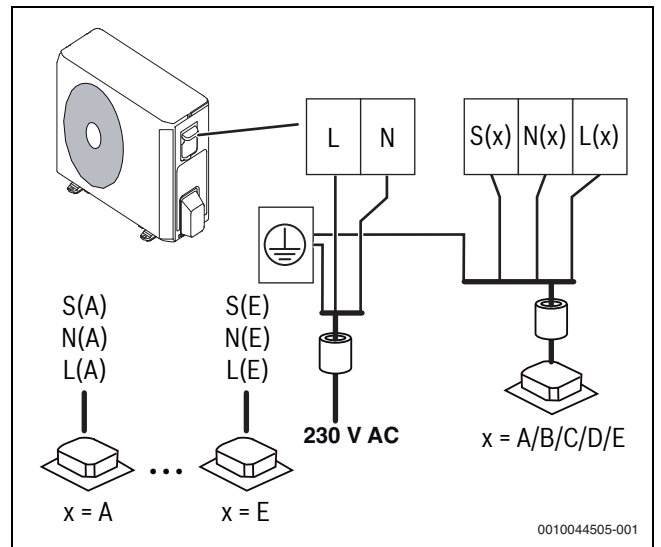
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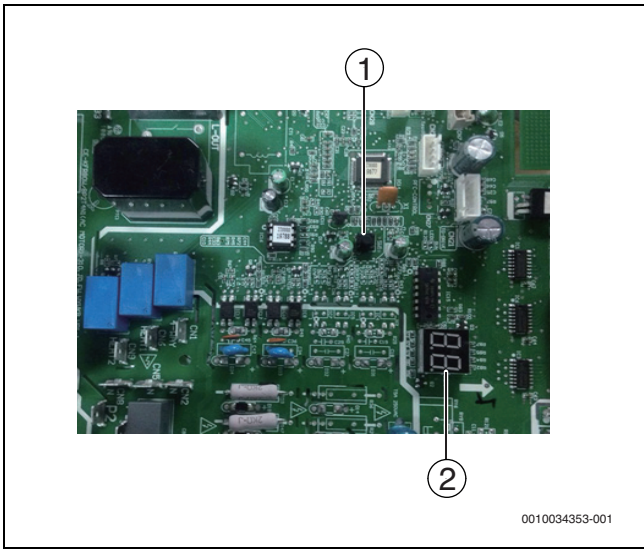
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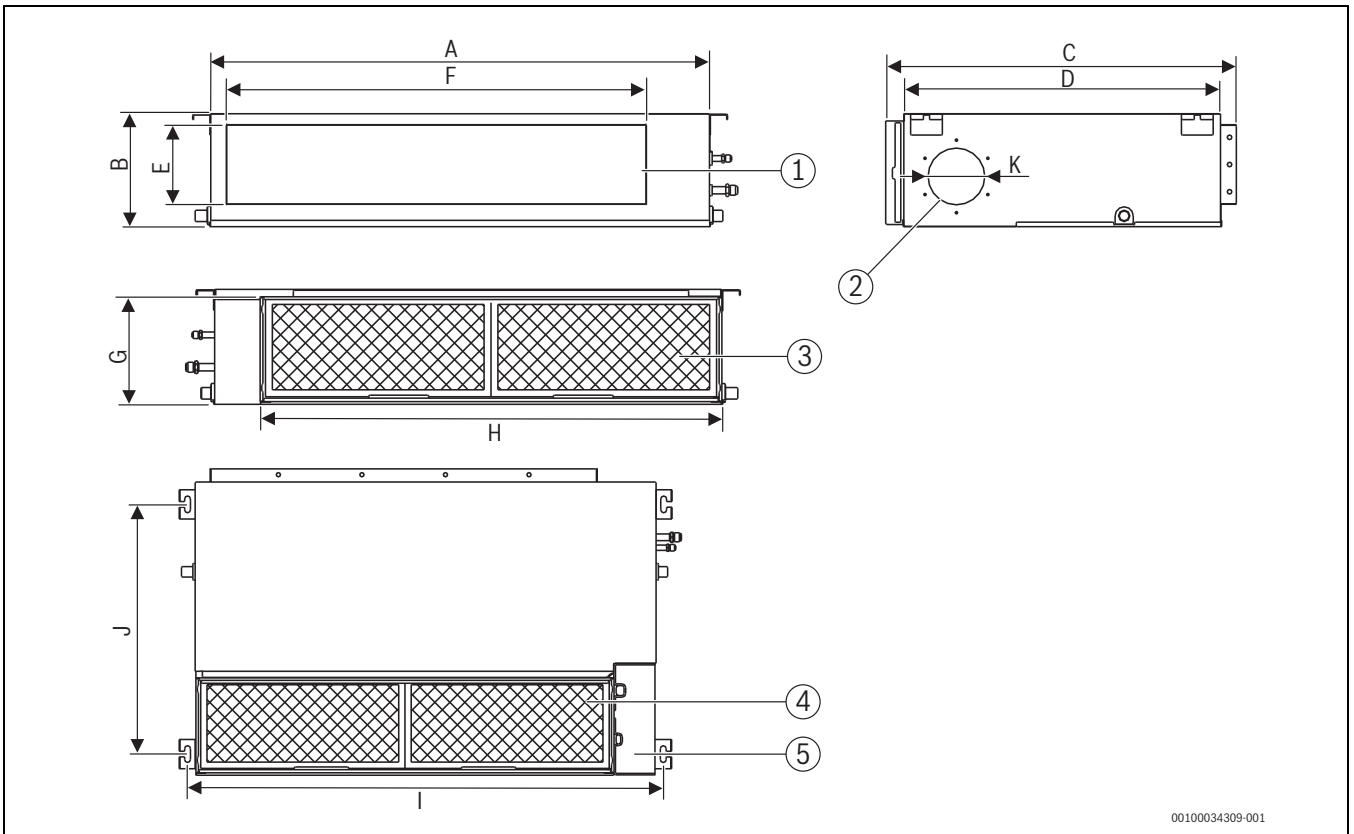
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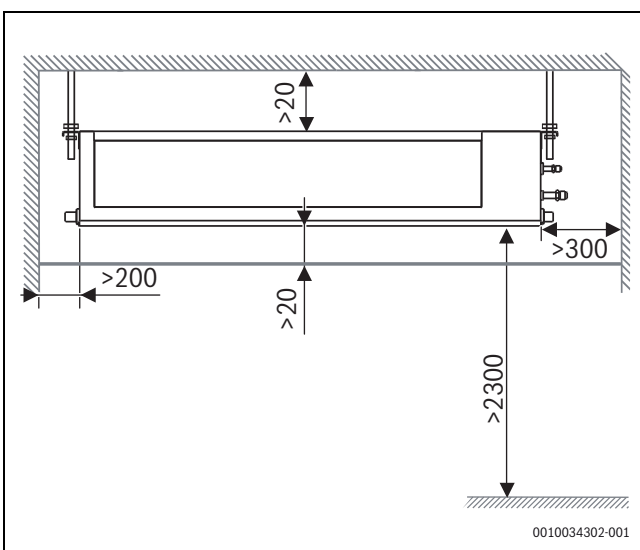
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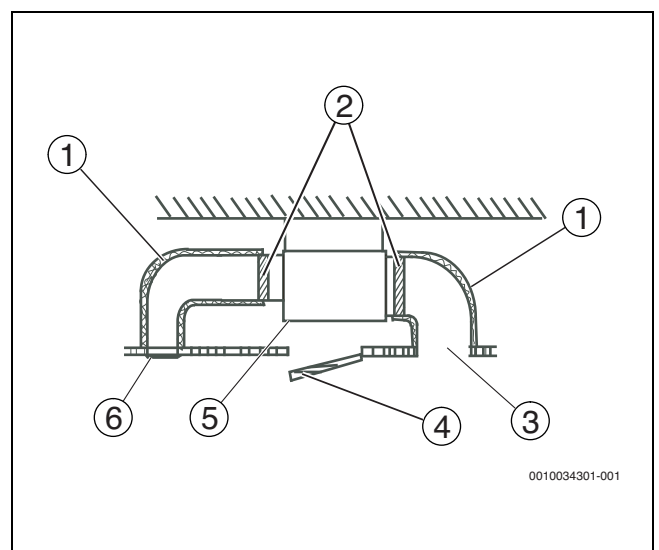
89

	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	J [mm]	K [mm]
CL5000iMD 21E	700	200	506	450	152	537	186	599	741	360	Ø 92/113
CL5000iMD 26 E	700	200	506	450	152	537	186	599	741	360	Ø 92/113
CL5000iUD 35 E	700	200	506	450	152	537	186	599	741	360	Ø 92/113
CL5000iUD 53 E	880	210	674	600	136	706	190	782	920	508	Ø 125/160
CL5000iUD 70 E	1100	249	774	700	175	926	228	1001	1140	598	Ø 125/160

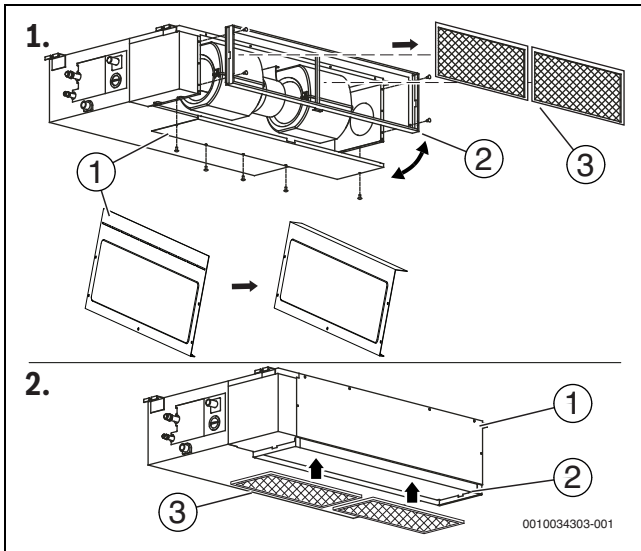
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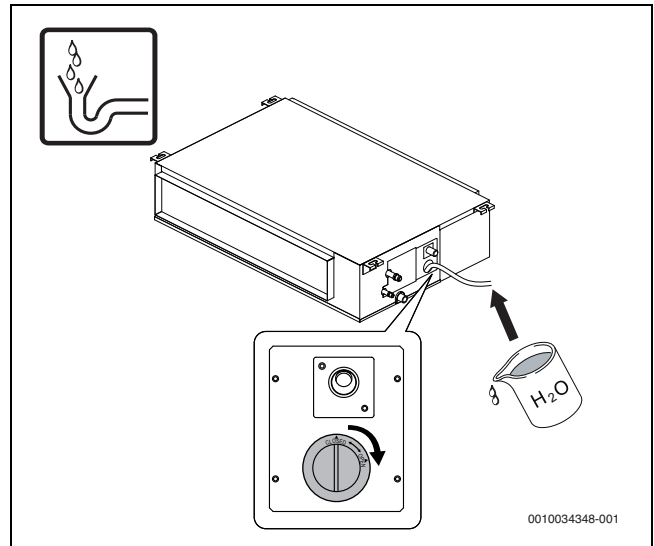
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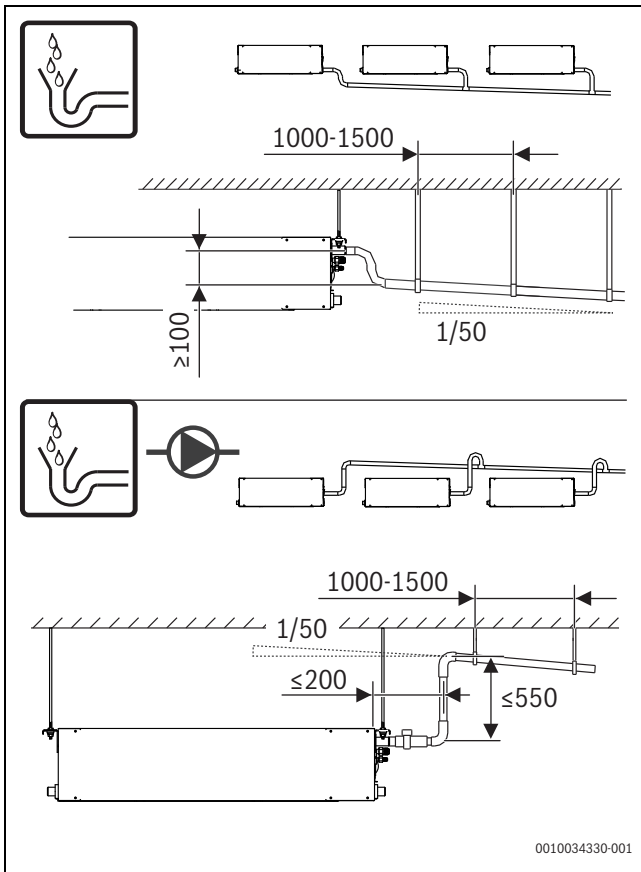
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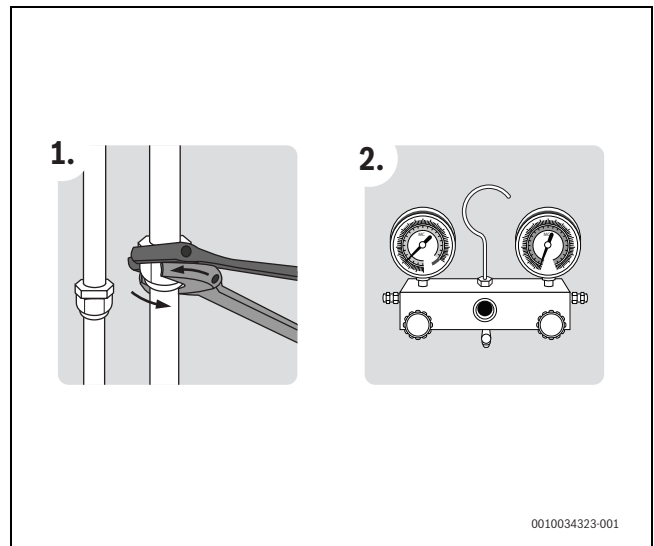
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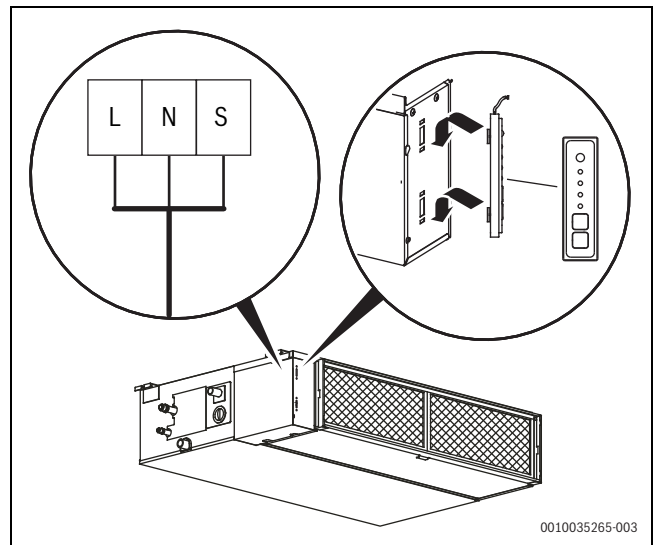
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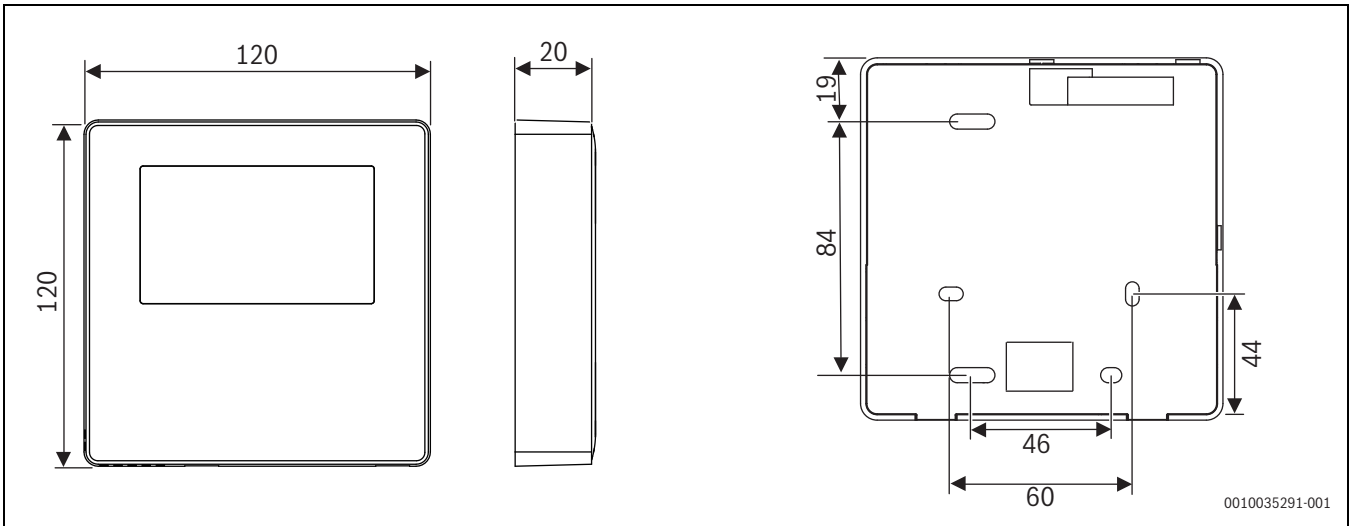
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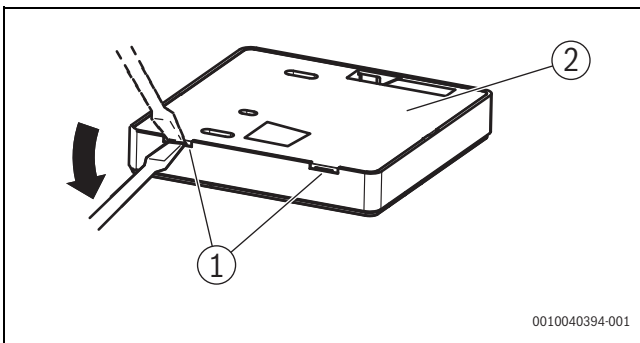
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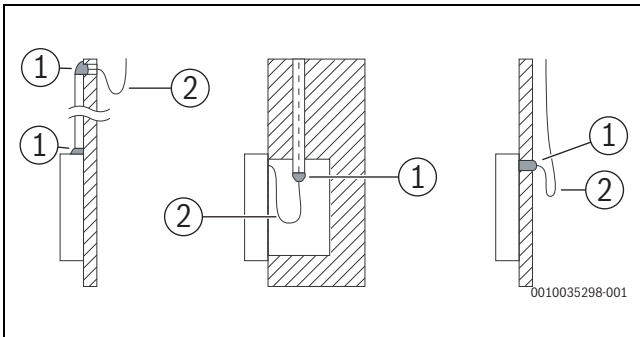
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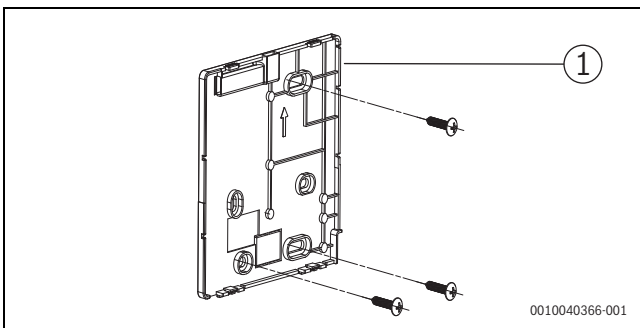
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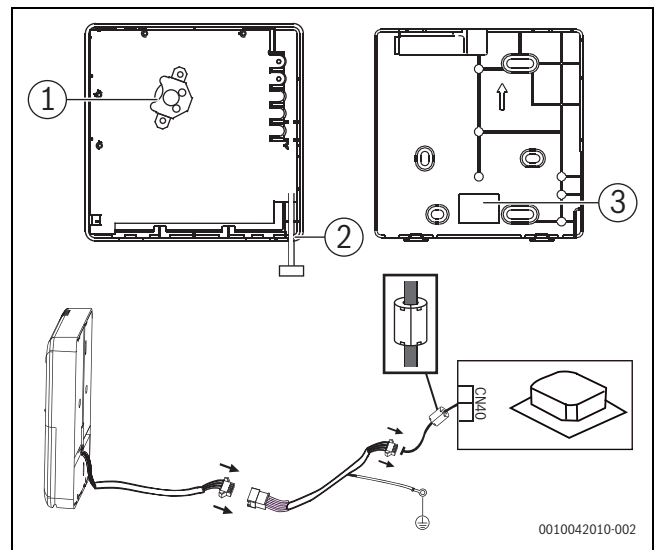
98



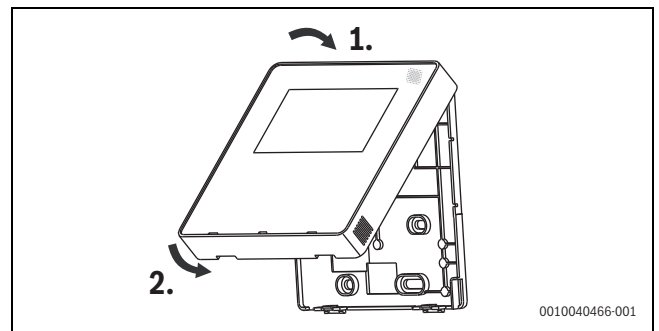
99



100

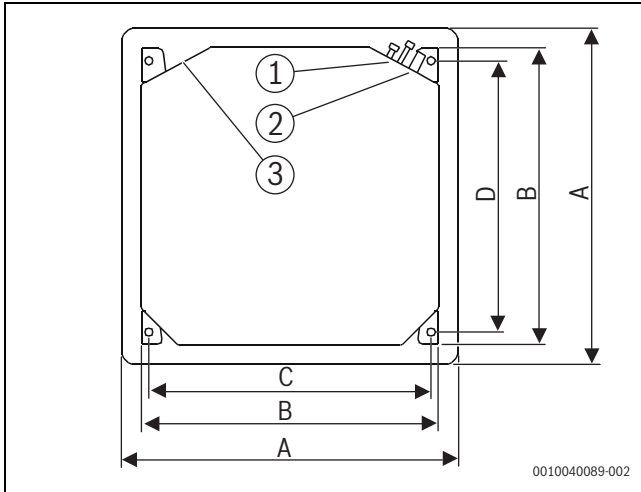


101

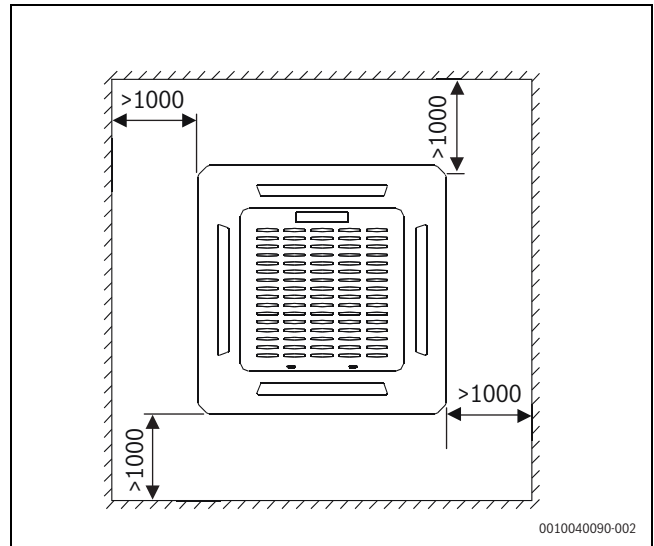


102

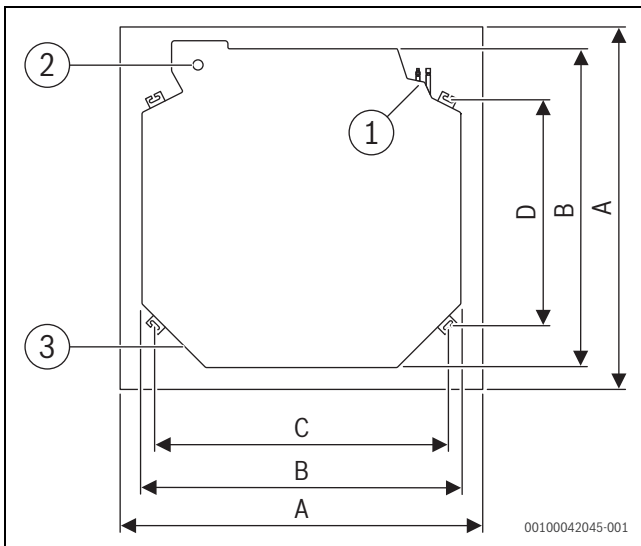
CL5000iU ... C/CC



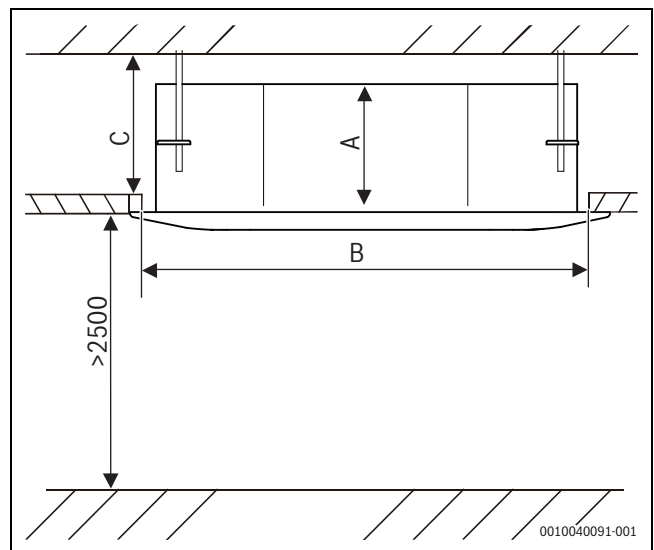
103 CL5000iU 4CC...



105 [mm]



104 CL5000iL 4C...



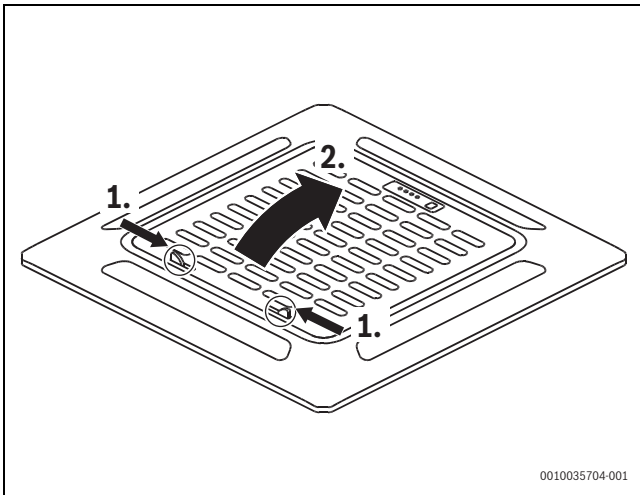
106 [mm]

	A [mm]	B [mm]	C [mm]	D [mm]
CL5000iM 4CC 21 E	647	570	545	523
CL5000iM 4CC 26 E	647	570	545	523
CL5000iU 4CC 35 E	647	570	545	523
CL5000iU 4CC 53 E	647	570	545	523
CL5000iU 4C 70 E	950	830	770	670

879

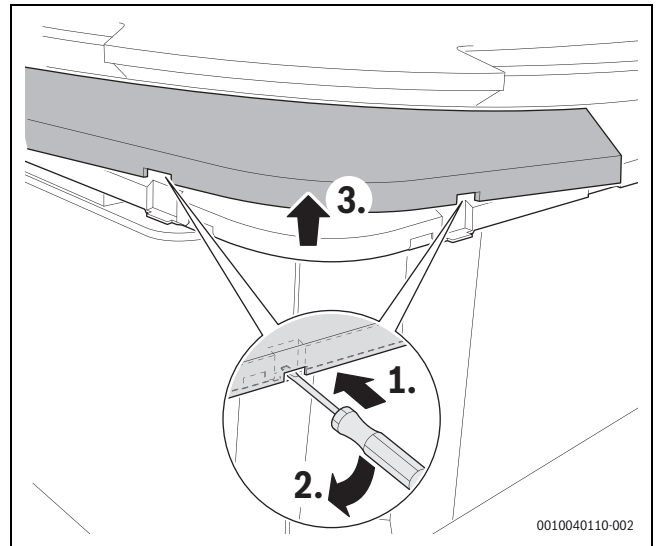
	A [mm]	B [mm]	C [mm]
CL5000iM 4CC 21 E	260	600	> 290
CL5000iM 4CC 26 E	260	600	> 290
CL5000iU 4CC 35 E	260	600	> 290
CL5000iU 4CC 53 E	260	600	> 290
CL5000iU 4C 70 E	205	880	> 235

880



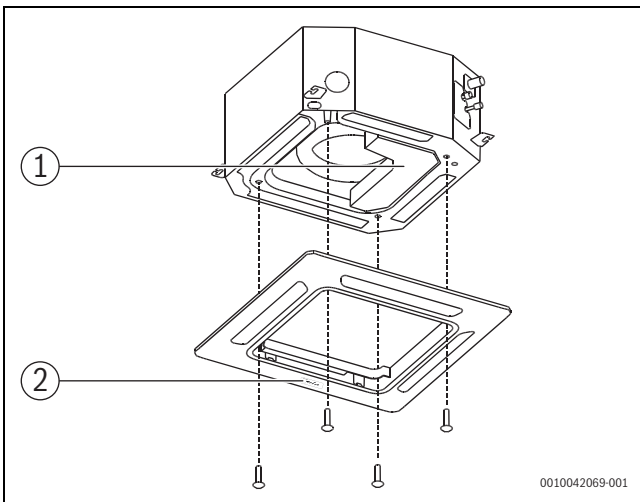
107 CL5000iU 4CC...

0010035704-001



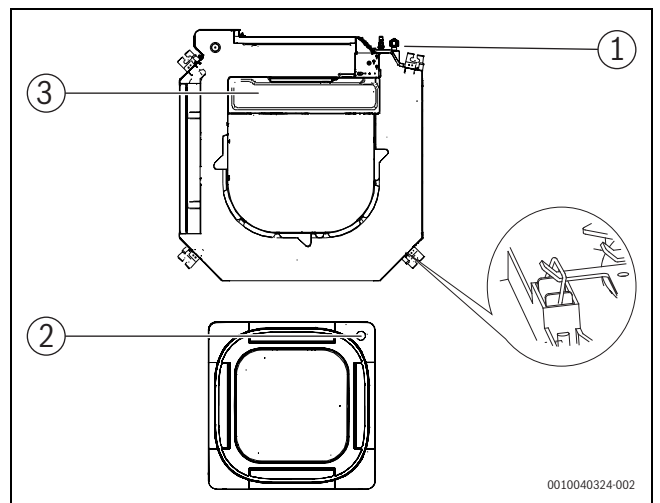
110 CL5000iL 4C...

0010040110-002



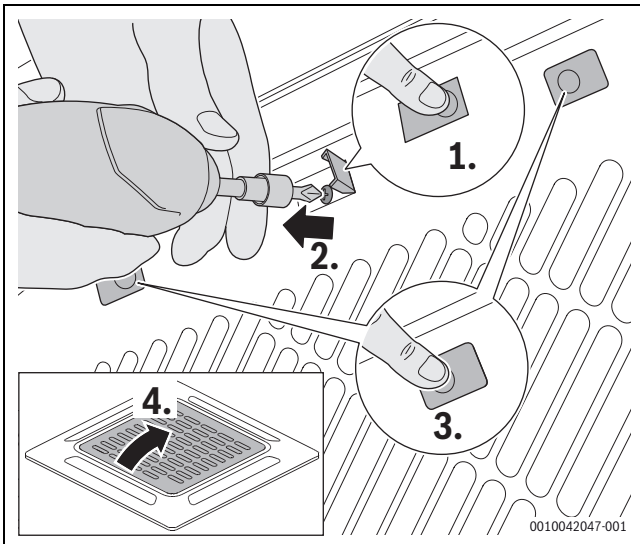
108 CL5000iU 4CC...

0010042069-001



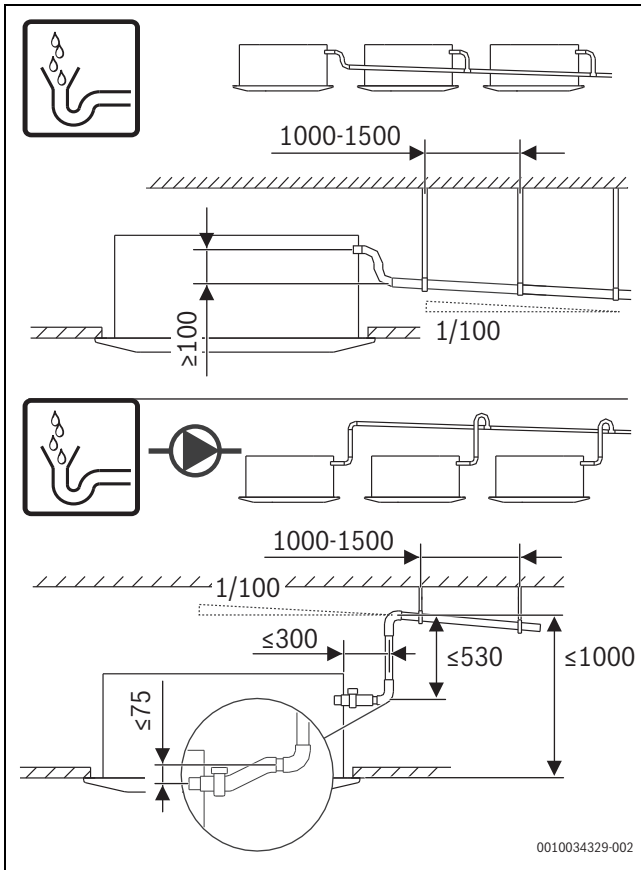
111 CL5000iL 4C...

0010040324-002

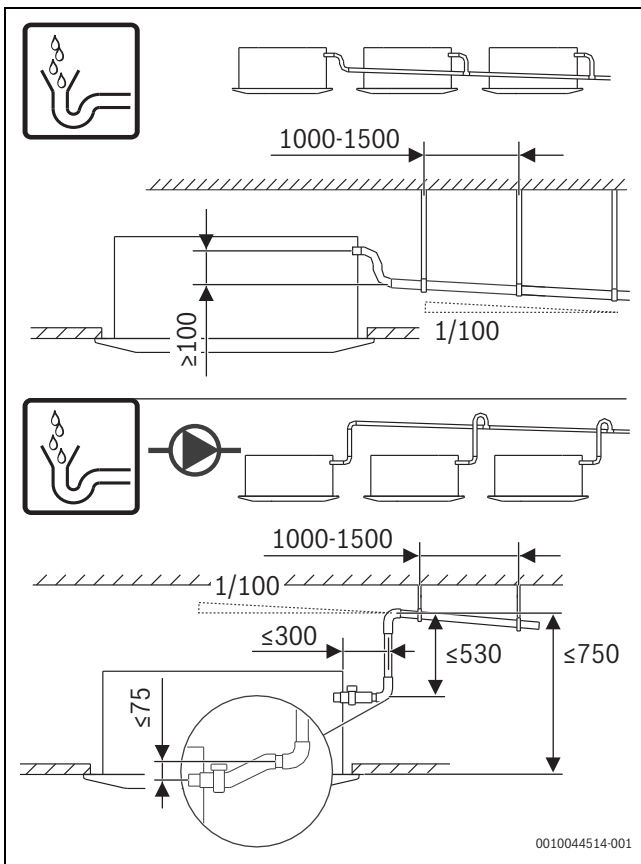


109 CL5000iL 4C...

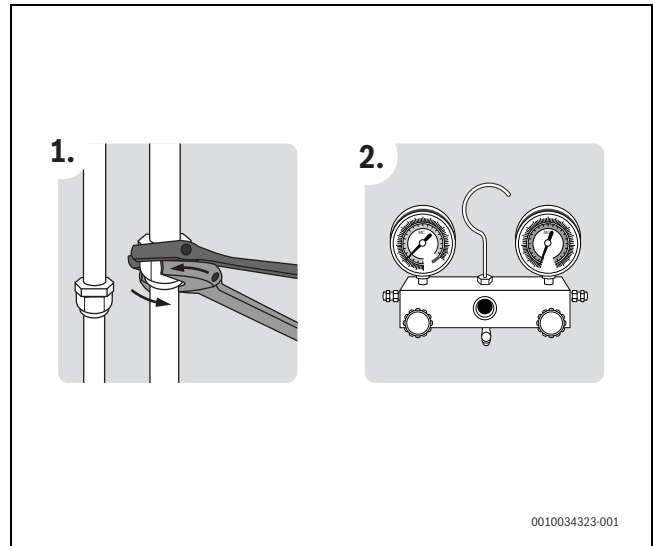
0010042047-001



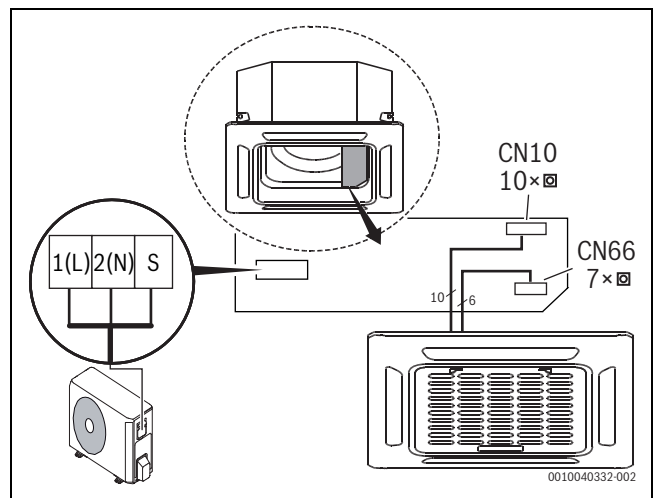
112 CL5000iL 4C...



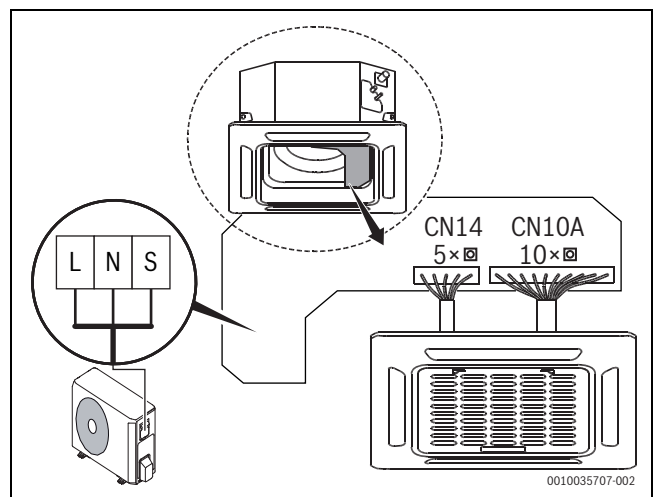
113 CL5000iU 4CC...



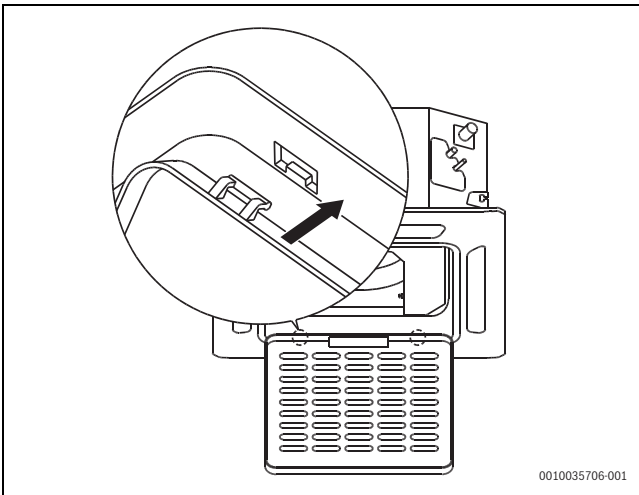
114



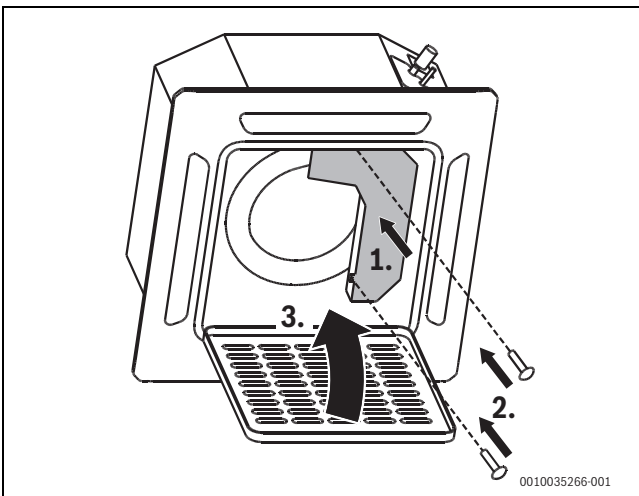
115 CL5000iL 4C...



116 CL5000iU 4CC...

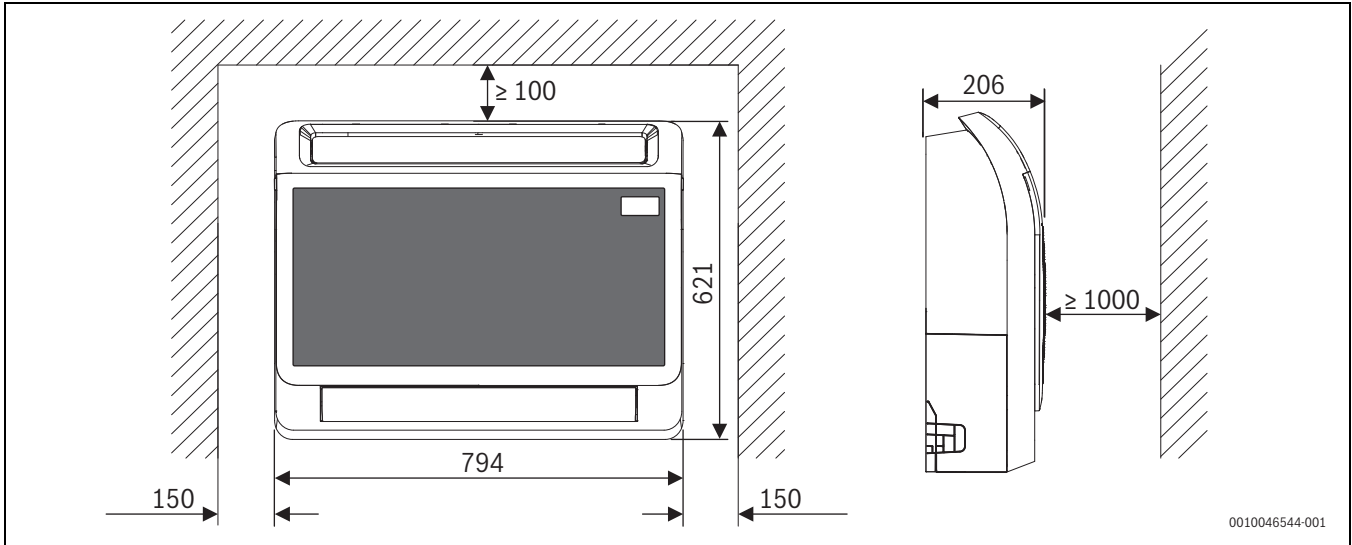


117



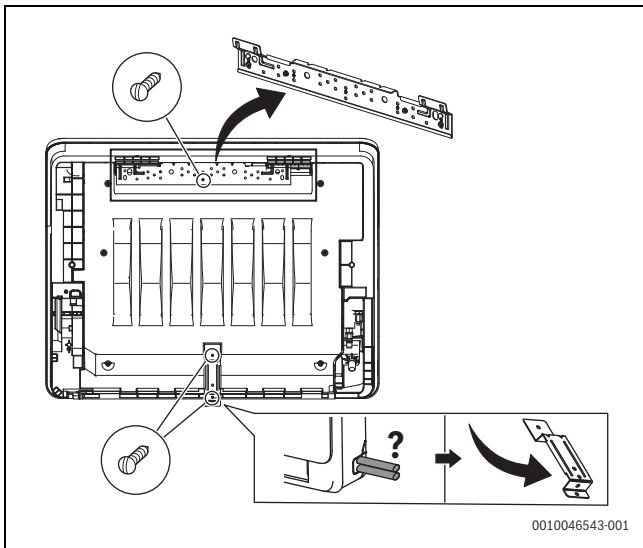
118 CL5000iU 4CC...

CL5000iU CN...



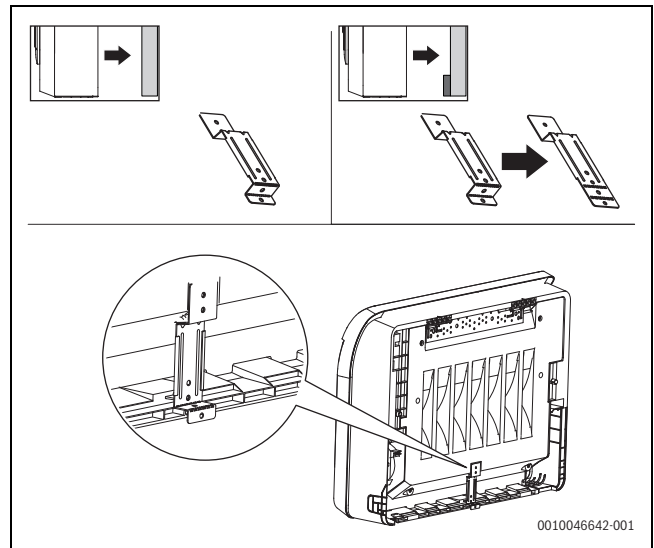
0010046544-001

119 [mm]



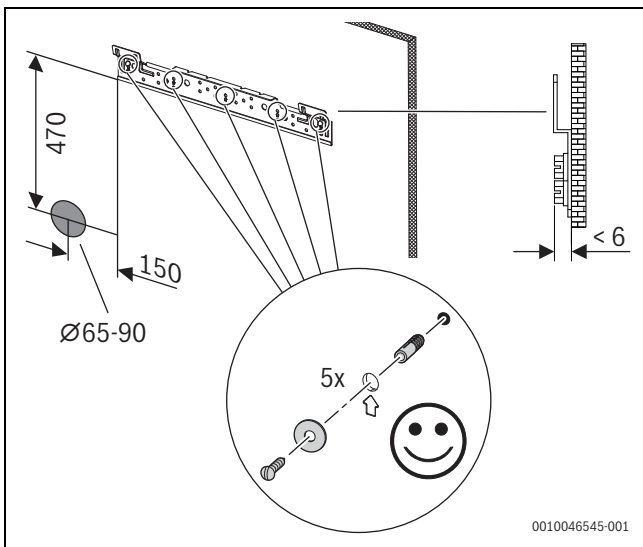
0010046543-001

120



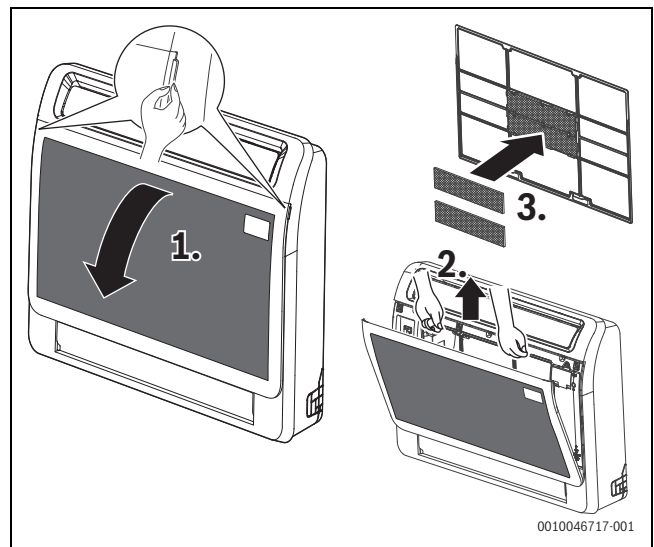
0010046642-001

122



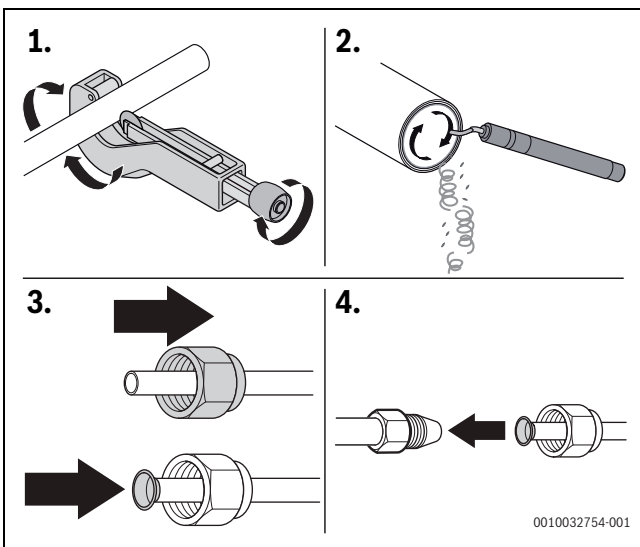
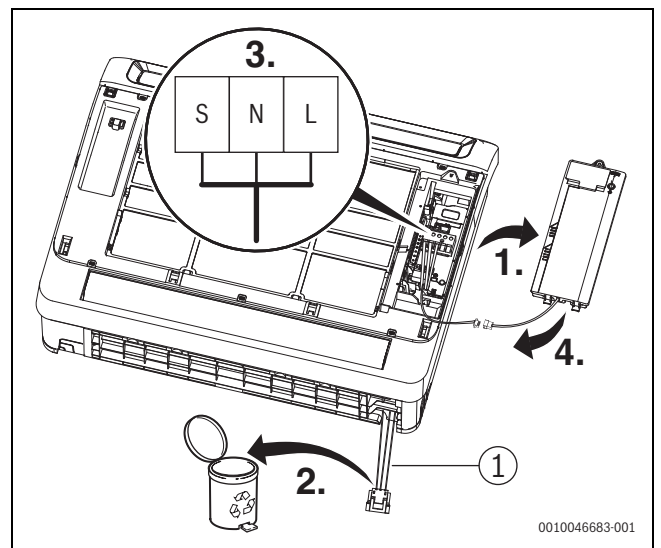
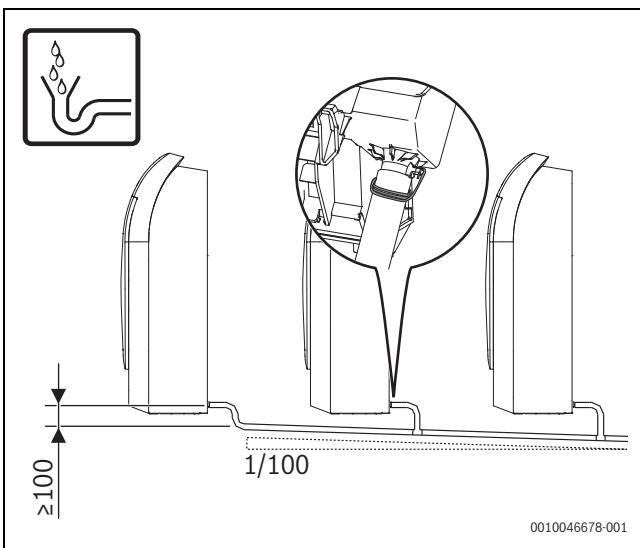
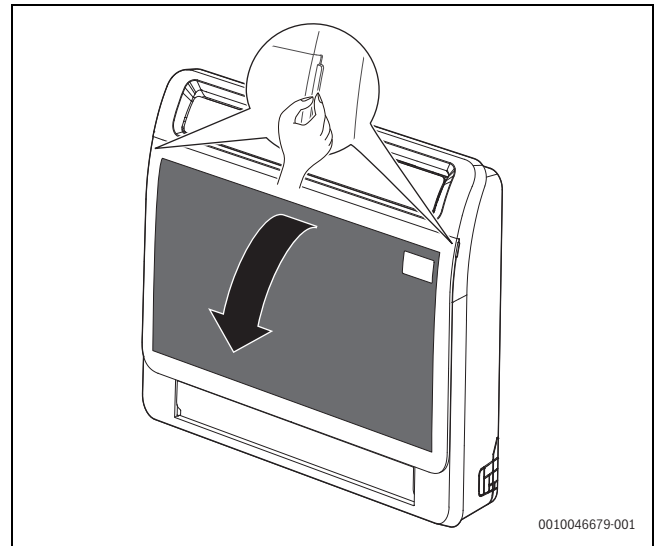
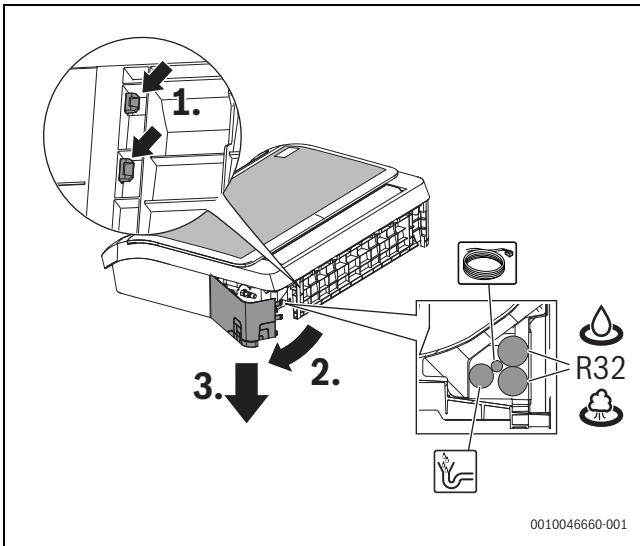
0010046545-001

121

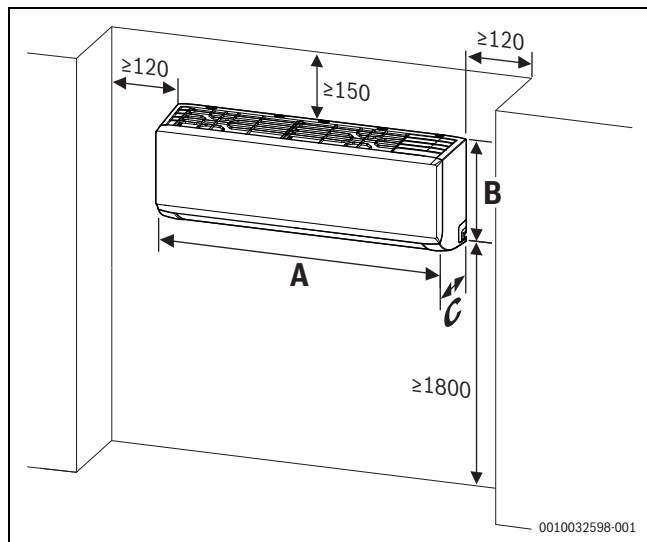


0010046717-001

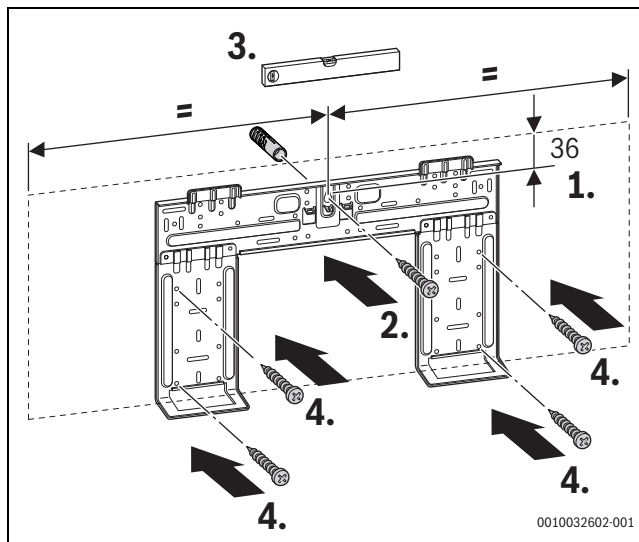
123



CL2000 UW... E/CL3000iU W ... E/CL5000iU W ... E/CL6000iU W ... E



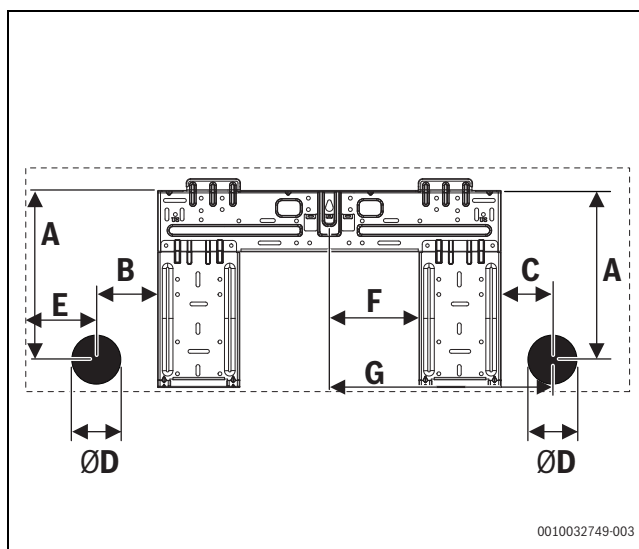
129



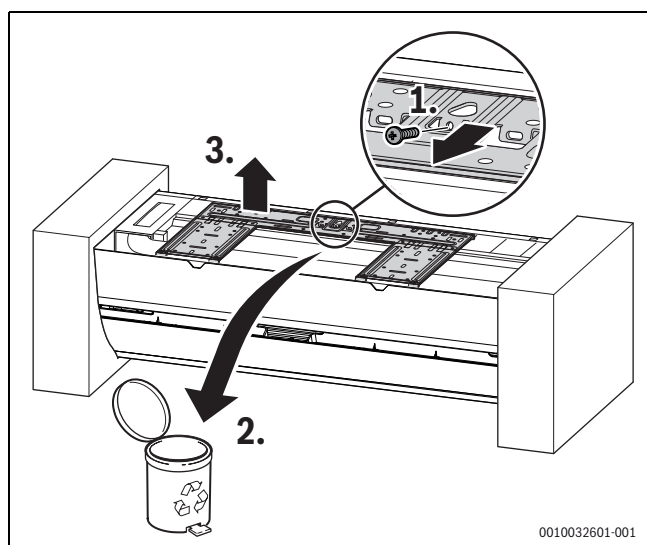
131

	A [mm]	B [mm]	C [mm]
CL2000iU W 26 E	805	285	194
CL2000iU W 35 E	805	285	194
CL2000iU W 53 E	957	302	213
CL2000iU W 20 E	1040	327	220
CL3000iU W 20 E	729	292	200
CL3000iU W 26 E	729	292	200
CL3000iU W 35 E	802	295	200
CL3000iU W 53 E	971	321	228
CL3000iU W 70 E	1082	337	234
CL5000iU W 26 E	802	295	200
CL5000iU W 35 E			
CL6001iU W 26 E	795	295	225
CL6001iU W 35 E			
CL6001iU W 53 E	965	319	239
CL6001iU W 70 E	1140	370	275

881



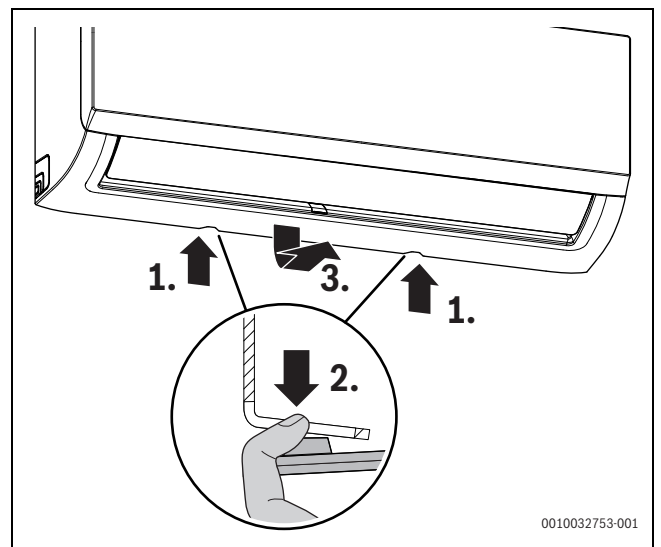
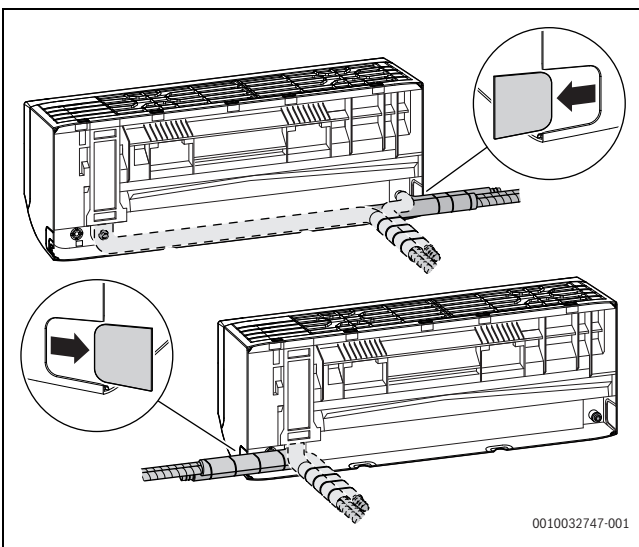
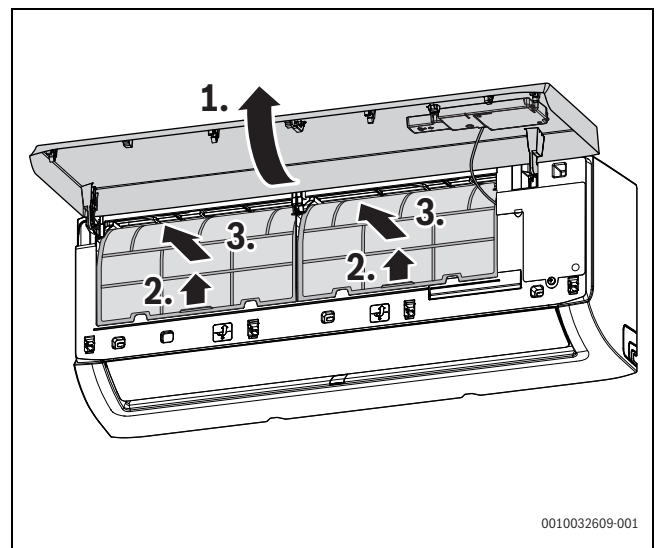
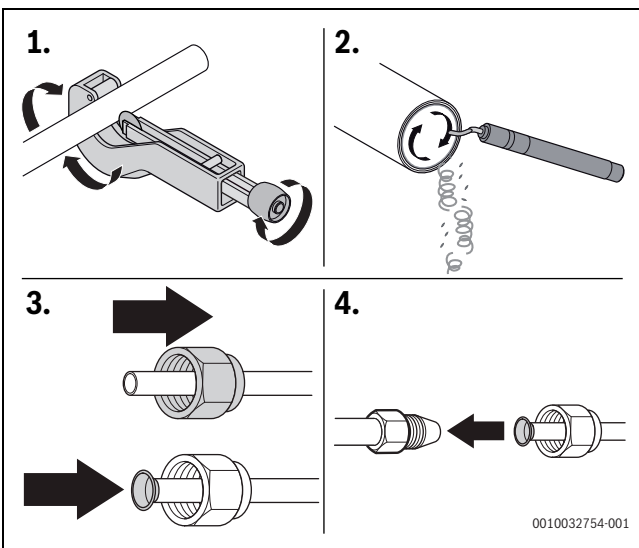
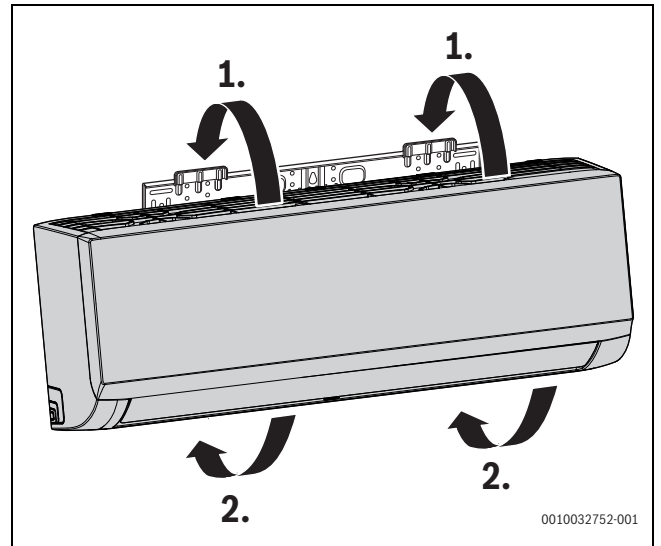
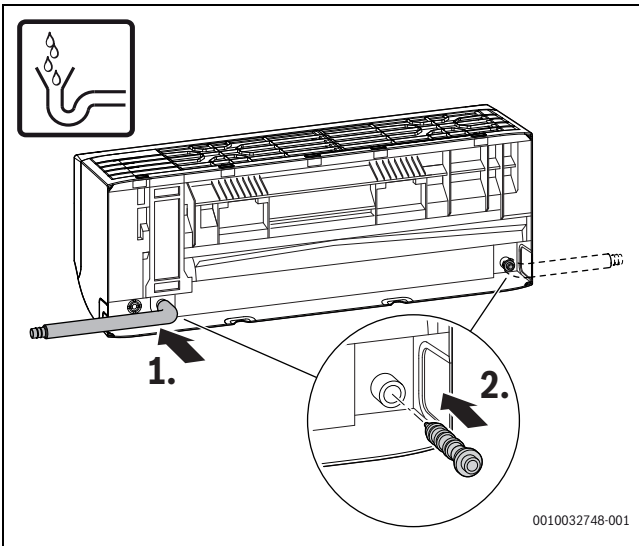
132

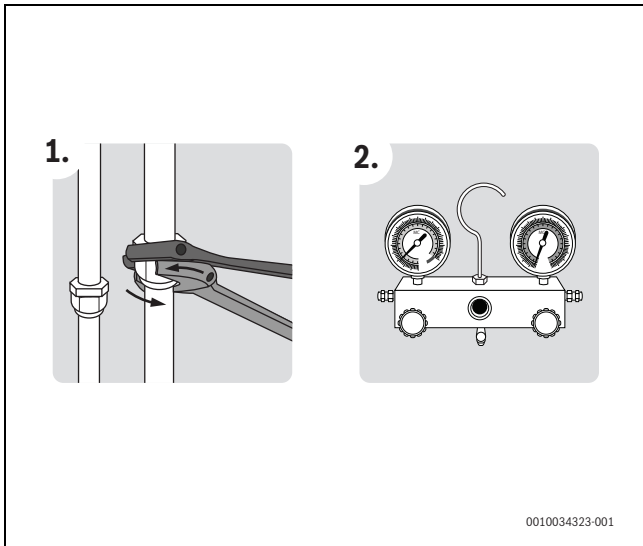


130

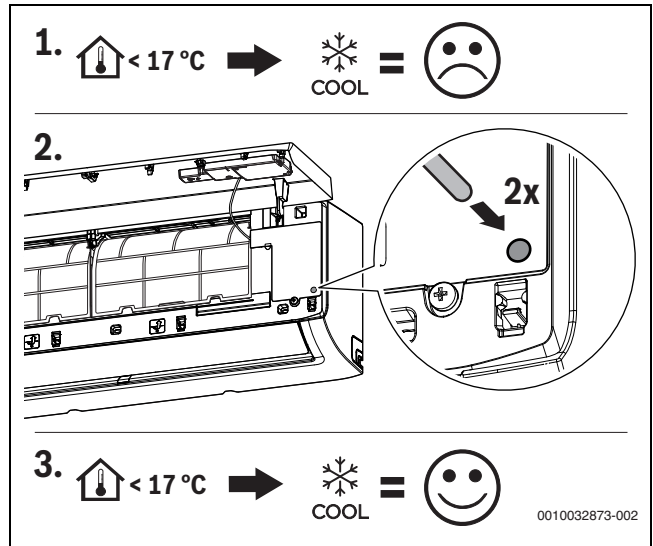
	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]
CL2000iU W 26 E	790	720	452	270	495	255	790
CL2000iU W 35 E	790	720	452	270	495	255	790
CL2000iU W 53 E	874	805	511	330	554	317	874
CL2000iU W 20 E	955	890	663	342	673	354	955
CL3000iU W 20 E	215	44	79	65	104	118	305
CL3000iU W 26 E	215	44	79	65	104	118	305
CL3000iU W 35 E	225	133	64	65	43	118	290
CL3000iU W 53 E	244	60	103	65	59	261	420
CL3000iU W 70 E	240	83	137	90	69	261	454
CL5000iU W 26 E	225	133	64	65	43	118	290
CL5000iU W 35 E							
CL6001iU W 26 E	227	50	120	65	93	121	347
CL6001iU W 35 E							
CL6001iU W 53 E	251	50	95	65	103	214	418
CL6001iU W 70 E	281	50	70	65	92	205	498

882

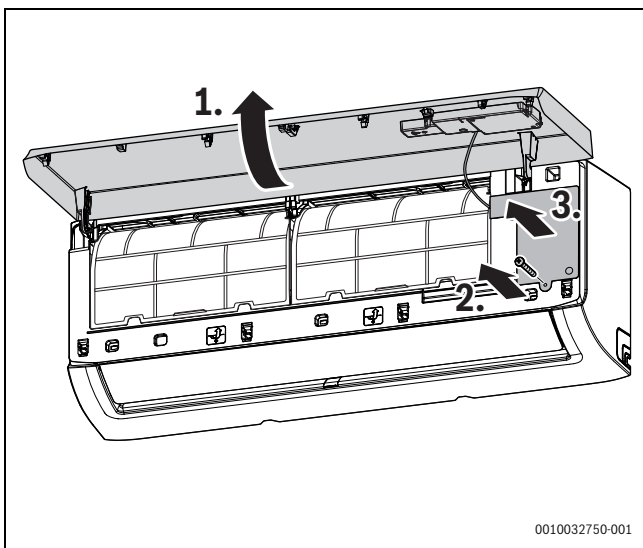




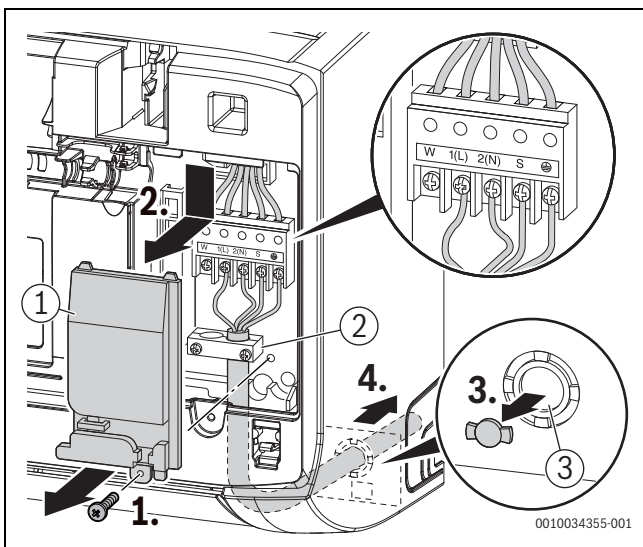
139



142



140



141

2 × CL...W/C/CC/D/CN

CL5000M 41/2 E + 2 × CL...W/C/CC/D/CN

P _A +P _B [kBTU]	P _{A...P_B} [kBTU]	
	A	B
14	7	7
16	7	9
18	9	9

883 CL5000M 41/2 E + 2 × CL...W/C/CC/D/CN

CL5000M 53/2 E + 2 × CL...W/C/CC/D/CN

P _A +P _B [kBTU]	P _{A...P_B} [kBTU]	
	A	B
14	7	7
16	7	9
19	7	12
24/25	7	17/18
18	9	9
21	9	12
26/27	9	17/18
24	12	12

884 CL5000M 53/2 E + 2 × CL...W/C/CC/D/CN

CL5000M 62/3 E + 2 × CL...W/C/CC/D/CN

P _A +...+P _B [kBTU]	P _{A...P_B} [kBTU]	
	A	B
14	7	7
16	7	9
19	7	12
24/25	7	17/18
18	9	9
21	9	12
26/27	9	17/18
24	12	12

885 CL5000M 62/3 E + 2 × CL...W/C/CC/D/CN

CL5000M 79/3 E + 2 × CL...W/C/CC/D/CN

P _A +...+P _B [kBTU]	P _{A...P_B} [kBTU]	
	A	B
14	7	7
16	7	9
19	7	12
24/25	7	17/18
18	9	9
21	9	12
26/27	9	17/18
24	12	12
29/30	12	17/18

886 CL5000M 79/3 E + 2 × CL...W/C/CC/D/CN

CL5000M 82/4 E + 2 × CL...W/C/CC/D/CN

P _A +...+P _B [kBTU]	P _{A...P_B} [kBTU]	
	A	B
14	7	7
16	7	9
19	7	12
24/25	7	17/18
18	9	9

P _A +...+P _B [kBTU]	P _{A...P_B} [kBTU]	
	A	B
21	9	12
26/27	9	17/18
24	12	12
29/30	12	17/18
35/36	18	17/18

887 CL5000M 82/4 E + 2 × CL...W/C/CC/D/CN

CL5000M 105/4 E + 2 × CL...W/C/CC/D/CN

P _A +...+P _B [kBTU]	P _{A...P_B} [kBTU]	
	A	B
14	7	7
16	7	9
19	7	12
24/25	7	17/18
31	7	24
18	9	9
21	9	12
26/27	9	17/18
33	9	24
24	12	12
29/30	12	17/18
36	12	24
35/36	18	17/18

888 CL5000M 105/4 E + 2 × CL...W/C/CC/D/CN

CL5000M 125/5 E + 2 × CL...W/C/CC/D/CN

P _A +...+P _B [kBTU]	P _{A...P_B} [kBTU]	
	A	B
16	7	7
16	7	9
19	7	12
24/25	7	17/18
31	7	24
18	9	9
21	9	12
26/27	9	17/18
33	9	24
24	12	12
29/30	12	17/18
36	12	24
35/36	18	17/18
42	18	24

889 CL5000M 125/5 E + 2 × CL...W/C/CC/D/CN

3 × CL...W/C/CC/D/CN**CL5000M 62/3 E + 3 × CL...W/C/CC/D/CN**

$P_{A+...+P_C}$ [kBTU]	$P_{A...P_C}$ [kBTU]		
	A	B	C
21	7	7	7
23	7	7	9
26	7	7	12
25	7	9	9
28	7	9	12
27	9	9	9

890 CL5000M 62/3 E + 3 × CL...W/C/CC/D/CN

CL5000M 79/3 E + 3 × CL...W/C/CC/D/CN

$P_{A+...+P_C}$ [kBTU]	$P_{A...P_C}$ [kBTU]		
	A	B	C
21	7	7	7
23	7	7	9
26	7	7	12
31/32	7	7	17/18
25	7	9	9
28	7	9	12
33/34	7	9	17/18
31	7	12	12
27	9	9	9
30	9	9	12
33	9	12	12
36	12	12	12

891 CL5000M 79/3 E + 3 × CL...W/C/CC/D/CN

CL5000M 82/4 E + 3 × CL...W/C/CC/D/CN

$P_{A+...+P_C}$ [kBTU]	$P_{A...P_C}$ [kBTU]		
	A	B	C
21	7	7	7
23	7	7	9
26	7	7	12
31/32	7	7	17/18
25	7	9	9
28	7	9	12
33/34	7	9	17/18
31	7	12	12
36/37	7	12	17/18
27	9	9	9
30	9	9	12
35/36	9	9	17/18
33	9	12	12
36	12	12	12

892 CL5000M 82/4 E + 3 × CL...W/C/CC/D/CN

CL5000M 105/4 E + 3 × CL...W/C/CC/D/CN

$P_{A+...+P_C}$ [kBTU]	$P_{A...P_C}$ [kBTU]		
	A	B	C
21	7	7	7
23	7	7	9
26	7	7	12
31/32	7	7	17/18
38	7	7	24

$P_{A+...+P_C}$ [kBTU]	$P_{A...P_C}$ [kBTU]		
	A	B	C
25	7	9	9
28	7	9	12
41/42	7	9	17/18
40	7	9	24
31	7	12	12
36/37	7	12	17/18
43	7	12	24
41-43	7	17/18	17/18
27	9	9	9
30	9	9	12
35/36	9	9	17/18
42	9	9	24
33	9	12	12
38/39	9	12	17/18
45	9	12	24
43-45	9	17/18	17/18
36	12	12	12
41/42	12	12	17/18
48	12	12	24
46-48	12	17/18	17/18

893 CL5000M 105/4 E + 3 × CL...W/C/CC/D/CN

CL5000M 125/5 E + 3 × CL...W/C/CC/D/CN

$P_{A+...+P_C}$ [kBTU]	$P_{A...P_C}$ [kBTU]		
	A	B	C
21	7	7	7
23	7	7	9
26	7	7	12
31/32	7	7	17/18
38	7	7	24
25	7	9	9
28	7	9	12
41/42	7	9	17/18
40	7	9	24
31	7	12	12
36/37	7	12	17/18
43	7	12	24
41-43	7	17/18	17/18
27	9	9	9
30	9	9	12
35/36	9	9	17/18
42	9	9	24
33	9	12	12
38/39	9	12	17/18
45	9	12	24
43-45	9	17/18	17/18
36	12	12	12
41/42	12	12	17/18
48	12	12	24
47-48	12	17/18	17/18
63/64	12	17/18	24
48-51	17/18	17/18	17/18

894 CL5000M 125/5 E + 3 × CL...W/C/CC/D/CN

4 × CL...W/C/CC/D/CN

CL5000M 82/4 E + 4 × CL...W/C/CC/D/CN

P _A +...+P _D [kBTU]	P _A ...P _D [kBTU]			
	A	B	C	D
28	7	7	7	7
30	7	7	7	9
32	7	7	7	12
32	7	7	9	9
35	7	7	9	12
34	7	9	9	9
37	7	9	9	12
42/43	7	9	9	17/18
36	9	9	9	9

895 CL5000M 82/4 E + 4 × CL...W/C/CC/D/CN

CL5000M 105/4 E + 4 × CL...W/C/CC/D/CN

P _A +...+P _D [kBTU]	P _A ...P _D [kBTU]			
	A	B	C	D
28	7	7	7	7
30	7	7	7	9
32	7	7	7	12
38/39	7	7	7	17/18
45	7	7	7	24
32	7	7	9	9
35	7	7	9	12
40/41	7	7	9	17/18
47	7	7	9	24
38	7	7	12	12
43/44	7	7	12	17/18
48-50	7	7	17/18	17/18
34	7	9	9	9
37	7	9	9	12
42/43	7	9	9	17/18
49	7	9	9	24
40	7	9	12	12
45/46	7	9	12	17/18
50-52	7	9	17/18	17/18
43	7	12	12	12
36	9	9	9	9
39	9	9	9	12
44/45	9	9	9	17/18
51	9	9	9	24
42	9	9	12	12
47/48	9	9	12	17/18
45	9	12	12	12
48	12	12	12	12

896 CL5000M 105/4 E + 4 × CL...W/C/CC/D/CN

CL5000M 125/5 E + 4 × CL...W/C/CC/D/CN

P _A +...+P _D [kBTU]	P _A ...P _D [kBTU]			
	A	B	C	D
28	7	7	7	7
30	7	7	7	9
32	7	7	7	12
38/39	7	7	7	17/18
45	7	7	7	24

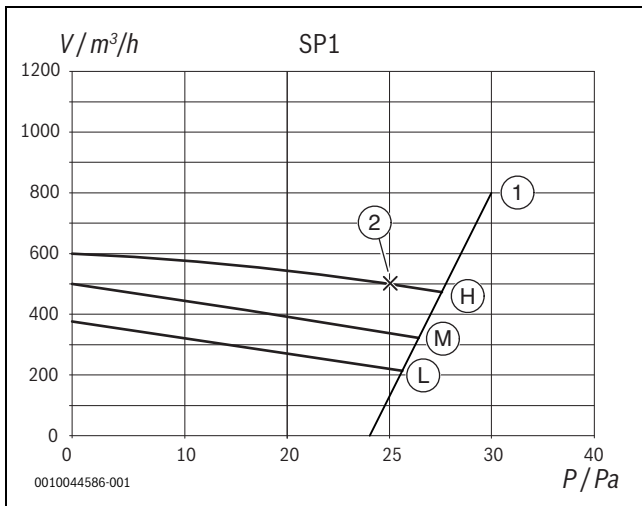
P _A +...+P _D [kBTU]	P _A ...P _D [kBTU]			
	A	B	C	D
32	7	7	9	9
35	7	7	9	12
40/41	7	7	9	17/18
47	7	7	9	24
38	7	7	12	12
43/44	7	7	12	17/18
50	7	7	12	24
48-50	7	7	17/18	17/18
55/56	7	7	17/18	24
34	7	9	9	9
37	7	9	9	12
42/43	7	9	9	17/18
49	7	9	9	24
40	7	9	12	12
45/46	7	9	12	17/18
52	7	9	12	24
50-52	7	9	17/18	17/18
43	7	12	12	12
48/49	7	12	12	17/18
53-55	7	12	17/18	17/18
36	9	9	9	9
39	9	9	9	12
44/45	9	9	9	17/18
51	9	9	9	24
42	9	9	12	12
47/48	9	9	12	17/18
54	9	9	12	24
52-54	9	9	17/18	17/18
45	9	12	12	12
50/51	9	12	12	17/18
48	12	12	12	12
53/54	12	12	12	17/18

897 CL5000M 125/5 E + 4 × CL...W/C/CC/D/CN

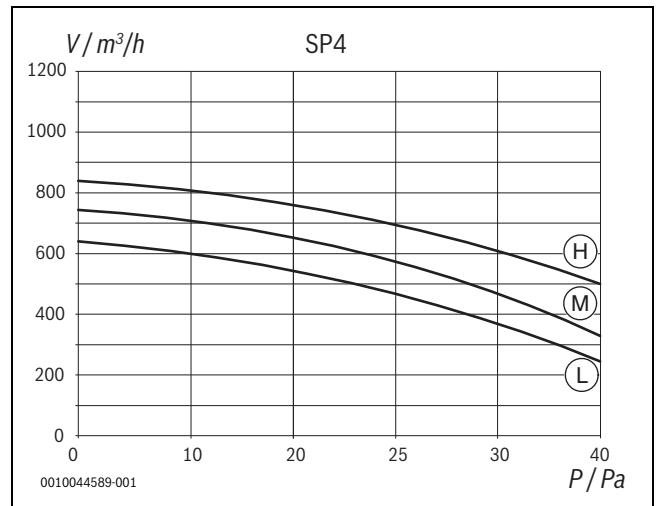
5 × CL...W/C/CC/D/CN**CL5000M 125/5 E + 5 × CL...W/C/CC/D/CN**

P _A +...+P _E [kBTU]	P _A ...P _E [kBTU]				
	A	B	C	D	E
35	7	7	7	7	7
37	7	7	7	7	9
40	7	7	7	7	12
45/46	7	7	7	7	17/18
52	7	7	7	7	24
39	7	7	7	9	9
42	7	7	7	9	12
47/48	7	7	7	9	17/18
54	7	7	7	9	24
45	7	7	7	12	12
50/51	7	7	7	12	17/18
41	7	7	9	9	9
44	7	7	9	9	12
49/50	7	7	9	9	17/18
56	7	7	9	9	24
47	7	7	9	12	12
52/53	7	7	9	12	17/18
50	7	7	12	12	12
55/56	7	7	12	12	17/18
43	7	9	9	9	9
46	7	9	9	9	12
51/52	7	9	9	9	17/18
49	7	9	9	12	12
54/55	7	9	9	12	17/18
52	7	9	12	12	12
55	7	12	12	12	12
45	9	9	9	9	9
48	9	9	9	9	12
53/54	9	9	9	9	17/18
51	9	9	9	12	12
54	9	9	12	12	12

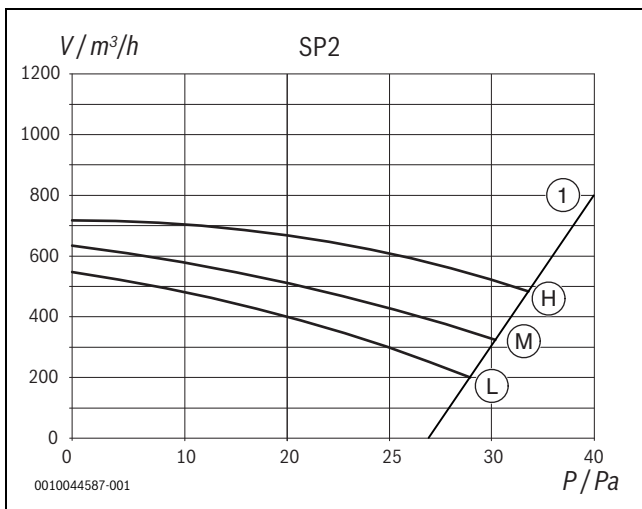
898 CL5000M 125/5 E + 5 × CL...W/C/CC/D/CN



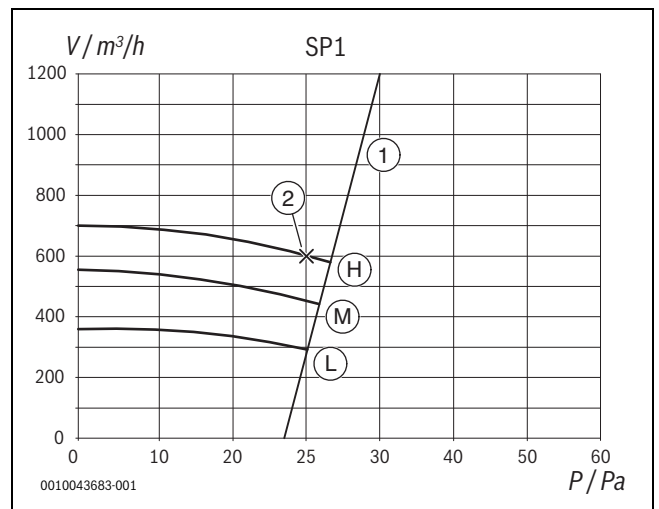
143 ESP CL5000iMD 21E/CL5000iMD 26 E - SP1



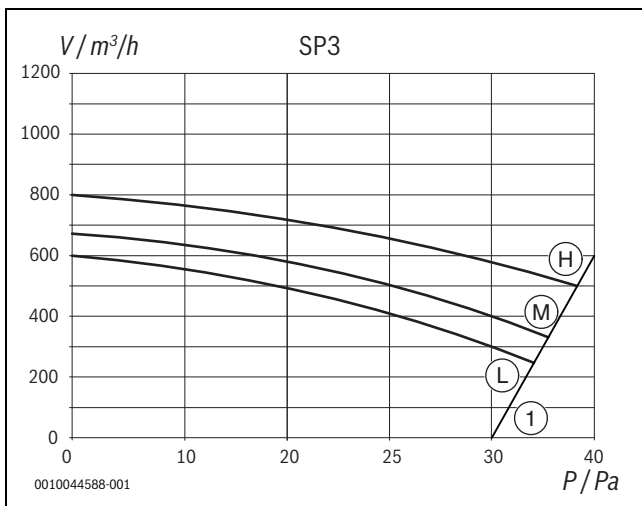
146 ESP CL5000iMD 21E/CL5000iMD 26 E - SP4



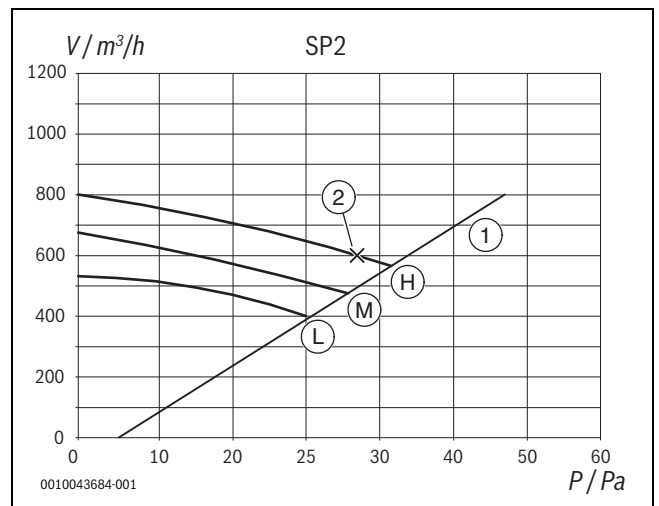
144 ESP CL5000iMD 21E/CL5000iMD 26 E - SP2



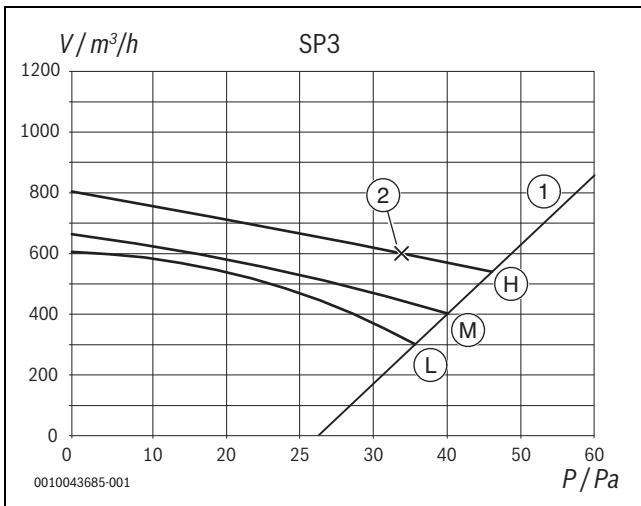
147 ESP CL5000iU D 35 E SP1



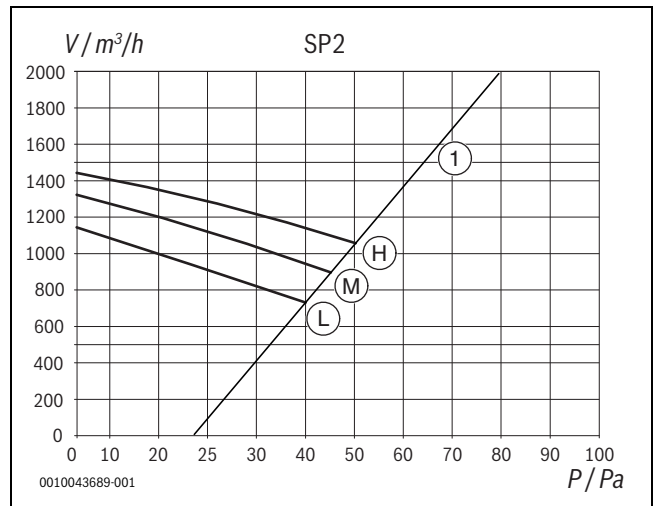
145 ESP CL5000iMD 21E/CL5000iMD 26 E - SP3



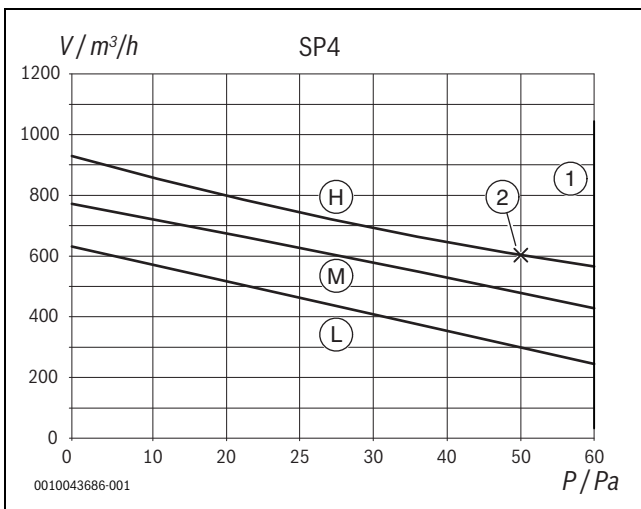
148 ESP CL5000iU D 35 E SP2



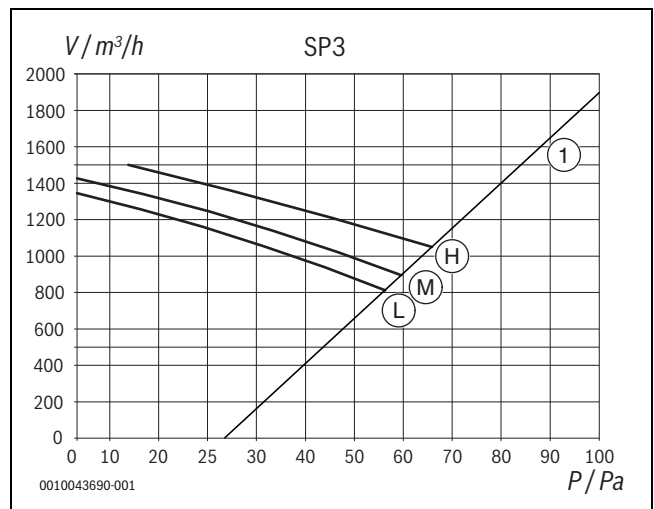
149 ESP CL5000iUD 35 E SP3



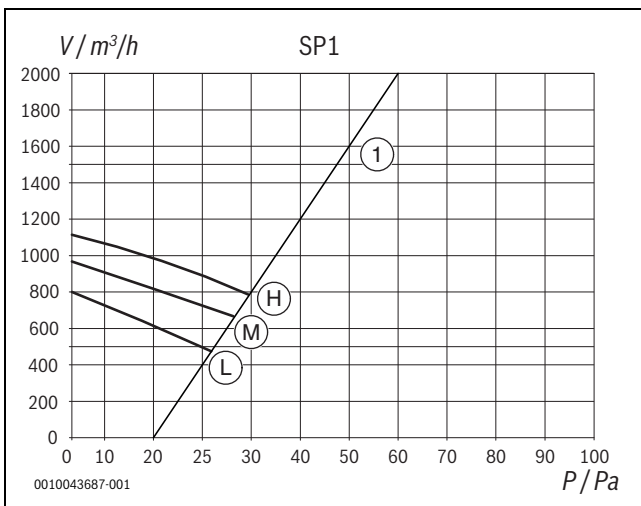
152 ESP CL5000iUD 53 E SP2



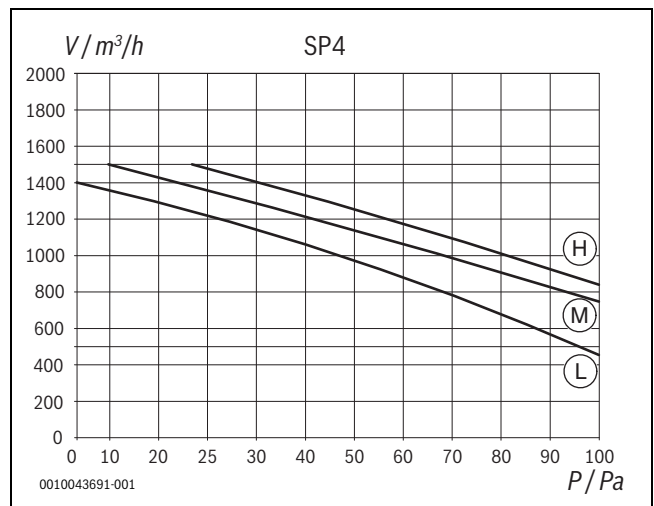
150 ESP CL5000iUD 35 E SP4



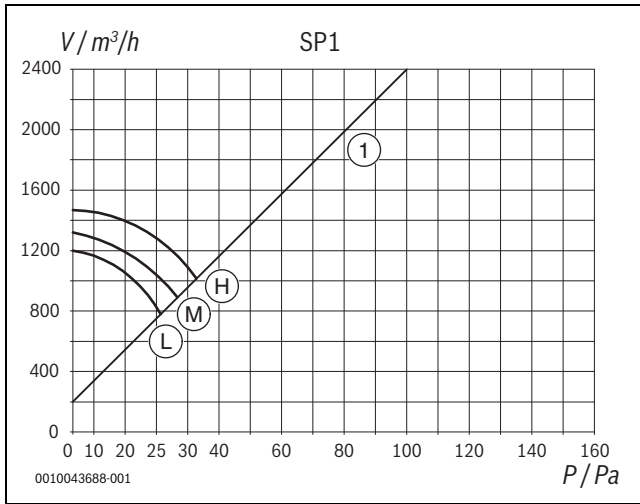
153 ESP CL5000iUD 53 E SP3



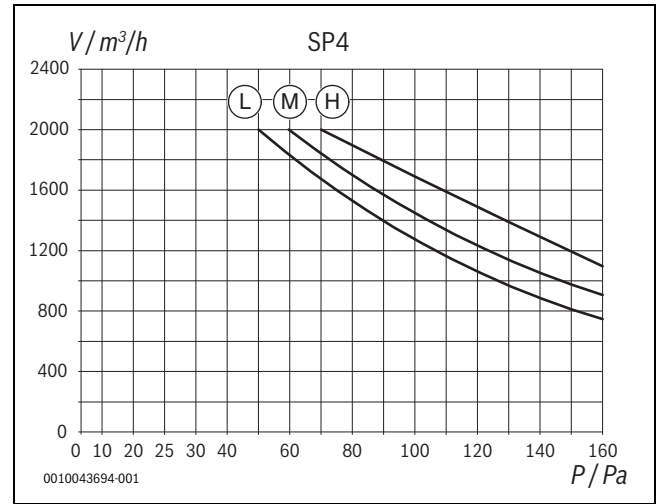
151 ESP CL5000iUD 53 E SP1



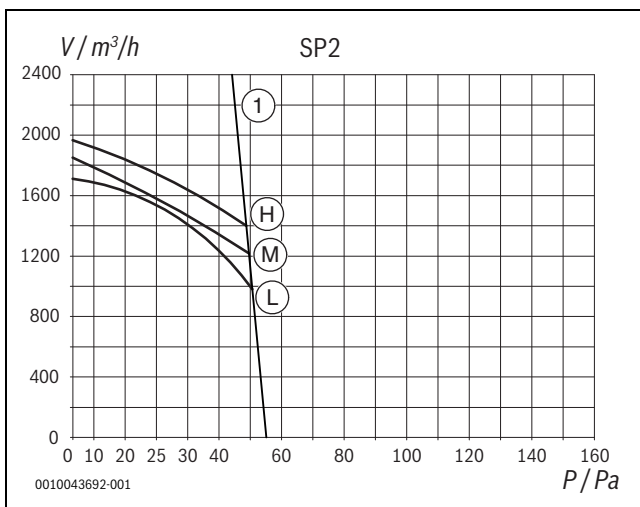
154 ESP CL5000iUD 53 E SP4



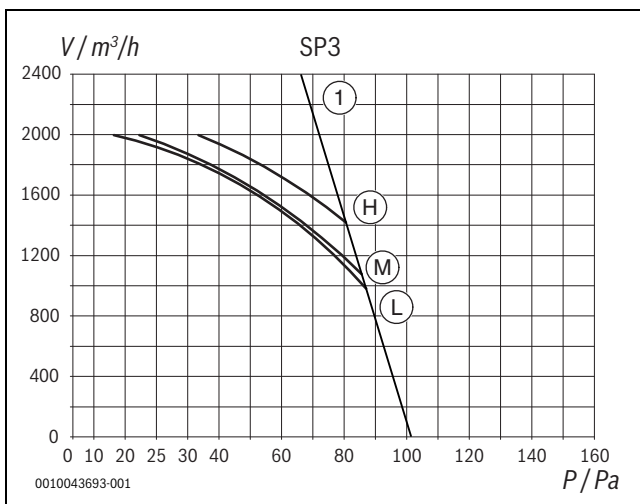
155 *ESP CL5000iUD 70 E SP1*



158 *ESP CL5000iUD 70 E SP4*



156 *ESP CL5000iUD 70 E SP2*



157 *ESP CL5000iUD 70 E SP3*

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