



Maestro 80/2 RCH Maestro 80/3 RCH

G20/G25/G25.3 (Natural gas), G30 (Butane) and G31 (Propane)



English



Store this document in a safe place



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1. Step-by-step installation plan

The major steps of the installation are described below,
Perform these steps and tick them once they have been performed correctly.

 Carefully read the installation manual before installing the appliance.

- Check that the correct type of appliance has been delivered (see table 4-1).
- Check that the gas type and gas pressure is correct on the location where the appliance is placed.
- Check that the supplied parts are present (see table 6-1).
- Check the appliance for damages.
- Make sure that the total installation complies with the applicable national, local and architectural regulations.
- Make sure that there is a gas tap present that is always accessible and meets the legal regulations.
- Ensure that the placement meets the applicable requirements concerning fire safety.
- Make sure that the configuration of the concentric system with roof or wall duct corresponds with the imposed requirements (see section 7.3).
- Make sure the chimney breast meets the fire safety requirements. (see section 7.4).
- Make sure the chimney breast meets the minimum dimensions (see section 7.4).
- Make sure the chimney breast is sufficiently ventilated (see section 7.4).
- Make sure that the control hatch with gas control is placed correctly (see section 7.5).
- Make sure that the restrictor slide and air inlet guides are correctly adjusted (see section 8.2).
- Ensure a correctly placed wood, pebble set or broken glass set with accessories (see section 8.3).
- Make sure the remote control is made ready for use (see section 9.4).
- Check all gas connections for gas tightness (see section 10.1).
- Make sure that the appliance is first ignited without the glass pane (see section 10.3.1).
- Ensure a cleaned glass pane in accordance with the instruction, before the atmospheric fire is ignited with the glass pane for the first time (see chapter 12).
- Check the appliance with installed glass pane for a correct ignition and a correct flame transfer of the main burner(s) when igniting for the first time (see section 10/3/2).
- Familiarise the user with the appliance (see chapter 11).

The appliance is now (after the above-mentioned steps) ready for use and the consumer is familiar with the possibilities for using the appliance.

2. Introduction

DRU, a manufacturer of gas-fired heating appliances, develops and produces products that comply with the highest possible quality, performance and safety requirements. This appliance has a CE label, which means that it complies with the essential requirements of the European Gas Appliance Directive. The appliance is supplied with an installation manual and a user manual. Installation and maintenance of the appliance should be performed by a professional certified expert with a proven knowledge and demonstrable competence in this field.

A professional expert takes all technical aspects such as heat output, gas connection and electricity into account, as well as the flue gas discharge requirements. The information in this installation manual will ensure the appliance is installed in such a way that it will function properly and safely. If the installation instruction is not clear, national/local regulations must be observed.

This manual discusses the installation of the appliance and the regulations that apply to the installation. In addition, the appliance's technical data are shown and information is provided about maintenance, possible malfunctions that might occur and their possible causes.

Fully and carefully read and use this installation manual, before installing the appliance. When using the DRU Powervent system* or DRU CM system*, the accompanying installation manual should also be read completely and carefully, before installation work begins.

The following symbols are used in the manual to indicate important information:

- Work to be performed
 - 💡 Suggestions and recommendations
 - ⚠ You will need these instructions to prevent problems that might occur during installation and/or use.
 - ⚠ You need these instructions to prevent fire, personal injury or other serious damages.
- After final delivery, the manuals should be handed over to the user.

3. CE declaration

DRU declares that company internal measures guarantee that appliances produced by DRU meet the essential requirements and guidelines of the regulation concerning gas-fired appliances and the accompanying standards. This declaration loses its validity if changes are made to the appliance without written permission from DRU. The instructions in the manuals must also be observed at all times. A copy of the CE test certificate can be downloaded via www.druservice.com.

Product:	Atmospheric gas-fired heating appliance
Type:	Maestro 80/2 RCH, Maestro 80/3 RCH
Product identification number:	0063CQ3299
Conformity assessment body:	Kiwa Netherlands B.V. (0063) Wilmersdorf 50 Postbus 137 7300 AC, Apeldoorn
EC regulation:	2016/426/EU
Applicable EEC directives:	2014/35/EU, 2014/30/EU
Standards:	EN 613:2000, EN 613:2000/A1:2003, EN 613:2000/PrA2:2002 EN 60335-1:2012, EN 60335-2-102:2016, EN 55014-1:2007 EN 55014-2:2015, EN 61000-3-2:2014, EN 61000-3-3:2013

DRU Verwarming B.V.
Postbus 1021, NL-6920 BA Duiven
Ratio 8, NL-6921 RW Duiven
www.drufire.com

Duiven, 09-02-2018



R.P. Zantinge, Managing director

4. Technical data

Check the technical data based on the table below.

Table 4-1: Technical data						
Model identifier(s)	Maestro 80/2 RCH Maestro 80/3 RCH					
Type of appliance	Built-in					
Combustion	Closed combustion					
Type	C11, C31, C91, C12, C32*****					
Categorie	I _{2E} / I _{2E+} / I _{2EK} / I _{2ELL} / I _{2Hr} / I _{2H3+} / I _{2E+3+} / I _{2H3B/P} / I _{2E3B/P} / I _{2EK3B/P}					
Concentric appliance connection	200/130					
Applicable concentric systems	DRU LAS ES-I 200/130, DRU LAS ES-E 200/150/100, DRU LAS ES-I 150/100, DRU PV-I 100/60					
Flame protection version	Separated ignition / ionization plugs					
Atmosphere safety	No					
Explosion hatch	Yes					
Max. temp. outer tube concentric system	160°C					
Radiation range safe distance (front/side)	800 mm					
Ventilation hole chimney breast	V-in: 80 cm ² / V-out: 200 cm ²					
Gastype:	Symbol	G25/G25.3*	G20	G30	G31	Unit
Indirect heating functionality		No	No	No	No	
Direct heat output		8,6	9,0	9,0	7,8	kW
Indirect heat output		-	-	-	-	kW
Space heating emissions NO _x		111,0	118,4	110,7	91,0	mg/kWh _{input} (GCV)
Heat output						
Nominal heat output	P _{nom}	8,6	9,0	9,0	7,8	kW
Minimum heat output (indicative)	P _{min}	1,3	1,4	1,6	1,4	kW
Technical data						
Nominal heat input (Hs)		11,4	12,0	12,7	11,2	kW
Nominal heat input (Hi)		10,3	10,8	11,7	10,3	kW
Consumption max		1223	1140	358	415	L/h
Consumption min		209	218	69	80	L/h
Burner pressure max		18,7	14,7	26,5	26,9	mbar
Burner pressure min		4,2	4,7	10,1	10,4	mbar
Main burner injector		2x Ø1,65 1x Ø1,55	2x Ø1,65 1x Ø1,55	2x Ø1,10 1x Ø1,00	2x Ø1,10 1x Ø1,00	mm
Low setting injector		A****	A****	A****	A****	mm
Efficiency class (EN613)		1	1	1	1	
Useful efficiency (NCV)**						
Useful efficiency at nominal heat output	η _{th,nom}	91,6	93,0	89,6	88,6	%
Useful efficiency at minimum heat output (indicative)	η _{th,min}	71,4	72,0	88,5	88,3	%
Auxiliary electricity consumption						
At nominal heat output	e _{l,max}	0,0236	0,0236	0,0236	0,0236	kW
At minimum heat output	e _{l,min}	0,0125	0,0125	0,0125	0,0125	kW
In standby mode	e _{l,SB}	0,0026	0,0026	0,0026	0,0026	kW
Permanent pilot flame power requirement						
Pilot flame power requirement (if applicable)	P _{pilot}	-	-	-	-	kW
Energy efficiency						
Energy efficiency index	EEl	91	93	89	89	
Energy efficiency class		A	A	A	A	
Type of heat output / room temperature control						
Single stage heat output, no room temperature control						No
Two or more manual stages, no room temperature control						No
With mechanic thermostat room temperature control						No
With electronic room temperature control						Yes
With electronic room temperature control plus day timer						Yes
With electronic room temperature control plus week timer						Yes
Other control options						
Room temperature control, with presence detection						Yes***
Room temperature control, with open window detection						Yes***
With distance controle option						Yes

* This appliance is suitable for G25.3 with the composition according NTA 8837.

** System efficiency.

*** To be used by means of home automation.

**** Adjusting screw.

***** Categories C12 and C13 only in combination with DRU PV-1 100/60 (PowerVent®).

5. SAFETY

5.1 General

- ⚠ - Observe the generally applicable regulations and precautions/safety instructions in this manual.
- First check that the technical execution of the appliance to be installed is correct (see table 4-1).
- Read this manual carefully to ensure the proper and safe installation of the appliance.
- Observe the regulations/instructions in this manual.

5.2 Regulations

Please install the appliance in accordance with the applicable national, local and constructional (installation) regulations.

5.3 Safety instructions

Carefully observe the following precautions/safety instructions:

- ⚠ The appliance may only be installed and maintained by recognised installers who are skilled in the field of gas heating and electricity.
- ⚠ Do not make any changes to the appliance.
- ⚠ When installing a built-in appliance:
 - Use non combustible and heat-resistant materials for the chimney breast, including the top of the chimney breast, the material in the chimney breast and the back wall against which the appliance will be placed. For this you can use both sheet material and stone-like materials.
 - Take sufficient measures to prevent temperatures of a wall behind the chimney breast becoming too high, including the materials and/or objects behind the wall.
 - Comply with the minimum required internal dimensions of the chimney breast.
 - Ventilate the chimney breast by means of ventilation holes (see table 4-1).
 - Use heat resistant electrical connectors.
 - Place heat-resistant electrical wiring away from the appliance and as low as possible in the chimney breast. This has to do with the temperature development in the chimney breast.
 - Only use the flue gas discharge / combustion air supply system (concentric system) supplied by DRU.
- ⚠ When installing a free-standing appliance: place the appliance at the indicated minimum distance from the back wall, as indicated further down in the text.
- ⚠ Do not cover the appliance and/or do not wrap it in an insulation blanket or any other material.
- ⚠ Keep combustible objects and/or materials outside the appliance's radiation range (see table 4-1).
- ⚠ Only use the accompanying set, such as the wood or pebble set, and place it exactly as described.
- ⚠ Leave space around the ionisation pin and spark electrode and never place glow material around these pins.
- ⚠ Make sure there is no dirt in gas pipes and connections.
- ⚠ Place a gas tap in accordance with applicable regulations.
- ⚠ Check the complete installation for gas tightness prior to commissioning.
- ⚠ Prevent the explosion hatch(es) on the top of the appliance (if present) from getting clogged and check that they properly fit on the sealing surface, before the appliance is built in.
- ⚠ Do not ignite the appliance until it is fully installed when it comes to the gas connections, discharge system and electrical components.
- ⚠ Do not use the appliance when a pane is broken and/or cracked, until it has been replaced.
- ⚠ The appliance was designed for atmospheric and heating purposes. This means that all visible surfaces, including the glass pane, can become hotter than 100°C. It is recommended to always place a protective grating in front of the appliance when there are children, elderly people or handicapped persons in the same room as the appliance. If it is possible that vulnerable people are regularly present in the room with no supervision, a fixed guard should be mounted around the appliance.

6. Preparation

6.1 Unpacking

Note the following items when removing the packaging:

- Remove all packaging materials.
- Remove all supplied components in, on and/or at the appliance.
- Check the appliance and accessories for damages (during transport).
- If necessary, contact your supplier.
- Never install an appliance that is damaged!
- Remove any screws that are used to fix the appliance to a platform or pallet.
- ⚠ The glass pane(s) is/are made of a ceramic material. Very small irregularities in the glass panes cannot be avoided, but are within the required quality standards.
- ⚠ Keep plastic bags away from children.

Table 6-1 indicates which components should be available after removing the packaging.

- Contact the supplier if you find that not all components have been supplied.
- Packaging must be disposed of in accordance with the regulations.

Table 6-1: Parts included with the delivery

Part	Number
Installation manual	1x
User manual	1x
Wood set (including: chips, vermiculite and ash)	1x
Glow material	1x
Restrictor slide	1x
Air inlet guide	1x
Remote control	1x
Mains cable	1x
Control hatch	1x
Wall bracket	1x
Assembly set platform	Separately available
Mantle iron	Separately available
Back-up self-tapping screw for benefit of glass pane assembly	nx
Key bolt M8 (including: Hexagonal nut M8 and Washer M8)	4x
Compression fitting 15 mm x G3/8"	1x
Socket spanner 8 mm	1x
Allen key 2.5 mm	1x
Suction cup (only Maestro 80/2 RCH)	1x

6.2 Type of gas

The data plate indicates for which type of gas, gas pressure and for which country this appliance is intended.

The data plate can be found on the appliance or can be attached to a chain to which it should remain attached.

- ⚠ Check whether the appliance is suitable for the type of gas and the gas pressure used at the location.

6.2.1 Gas type conversion

In order to convert this appliance to a different type of gas, please contact DRU's service department and ask for the possibilities. The conversion should be performed by a recognised gas installer.

6.3 Gas connection

Place a gas tap in the gas pipe in accordance with the applicable regulations. The gas connection on the gas control is located next to the receiver (fig. 6-1 (G_{in})).

- ⚠ - Make sure there is no dirt in the gas pipes and connections.
- No soldering may take place at the flexible gas hose(s), as this could cause leaks.

The following requirements apply to the gas connection:

- Use a gas pipe with the correct dimensions, so that no pressure loss can occur.
- The gas tap must be approved (in the EU this will be the CE mark).
- You should always be able to reach the gas tap.

6.3.1 Gas hose for gas connection

In many cases, a gas hose for a gas connection according to EN14800 can be ordered together with the appliance. The gas hose is mounted to the appliance and has been checked for leak-tightness. This gas hose is available in different lengths.

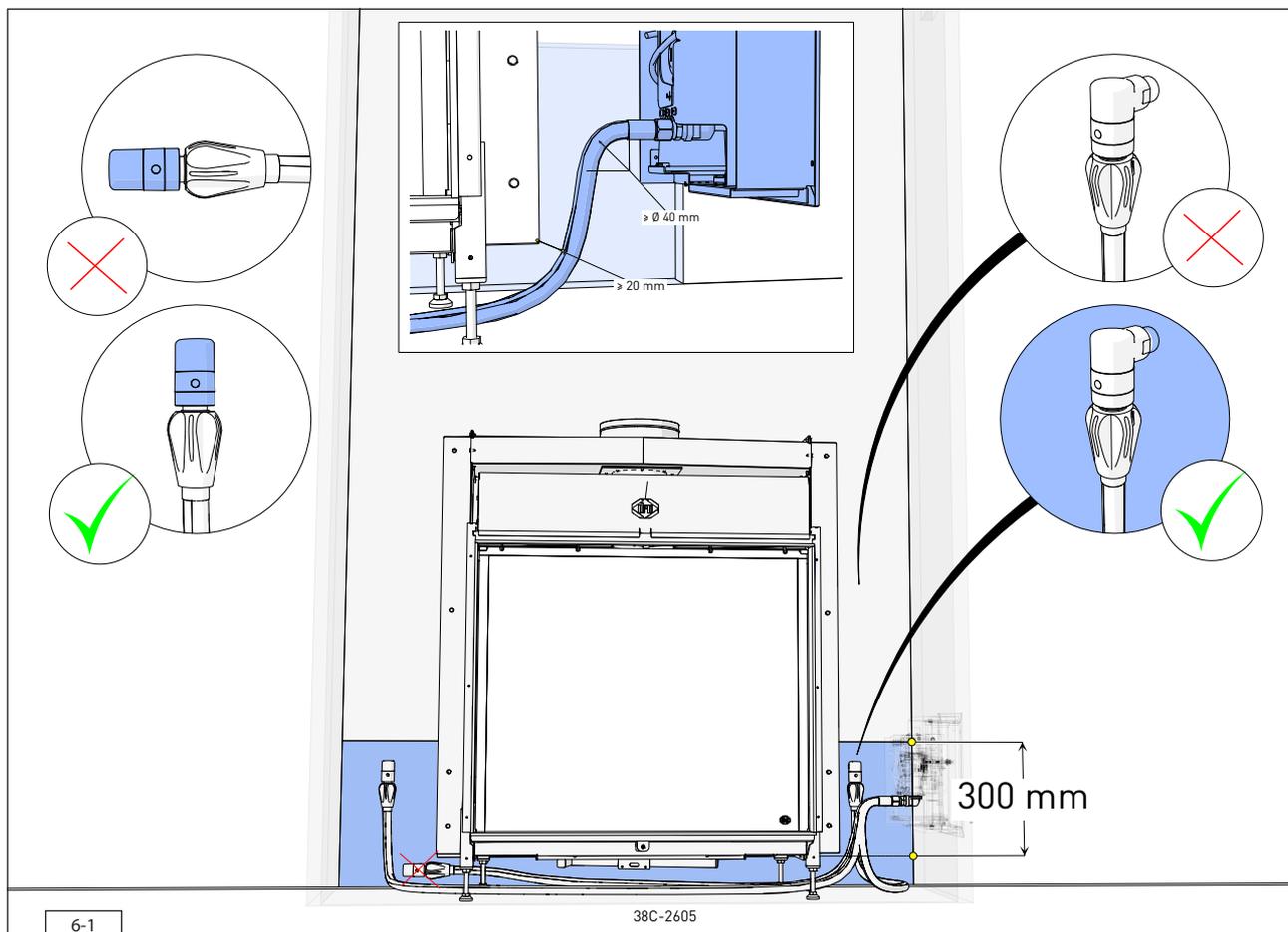
Take the following into account when installing the gas connection and the appliance (see fig. 6-1):

- The gas connection must always be accessible to be able to shut off the gas supply.
- The gas connection may only be mounted vertically, so that the gas hose can be connected vertically at the bottom.
- The gas connection is permitted in a zone (blue hatched area in fig. 6-1). To the left and right of the appliance to a height of 30 cm above the bottom side of the appliance (the bottom side is the end of the adjustable feet holder, without the feet). Under the appliance in the area between the legs.
- The gas connection and gas hose should not be placed behind the appliance.
- The gas hose may not get above the bottom side of the appliance (the bottom side is the end of the foot without the adjustable feet)
- The minimum bend radius of the hose is 40 mm.
- The hose should be placed as low as possible, must have a minimum distance from the appliance of 20 mm and, if possible, should not be placed under the burner.
- The entrance of the gas control in which the hose is mounted faces the appliance. Due to the bend radius, the chimney breast width becomes larger on the side of the control hatch. The minimal depth of the control hatch is 270 mm.

6.4 Electric connection

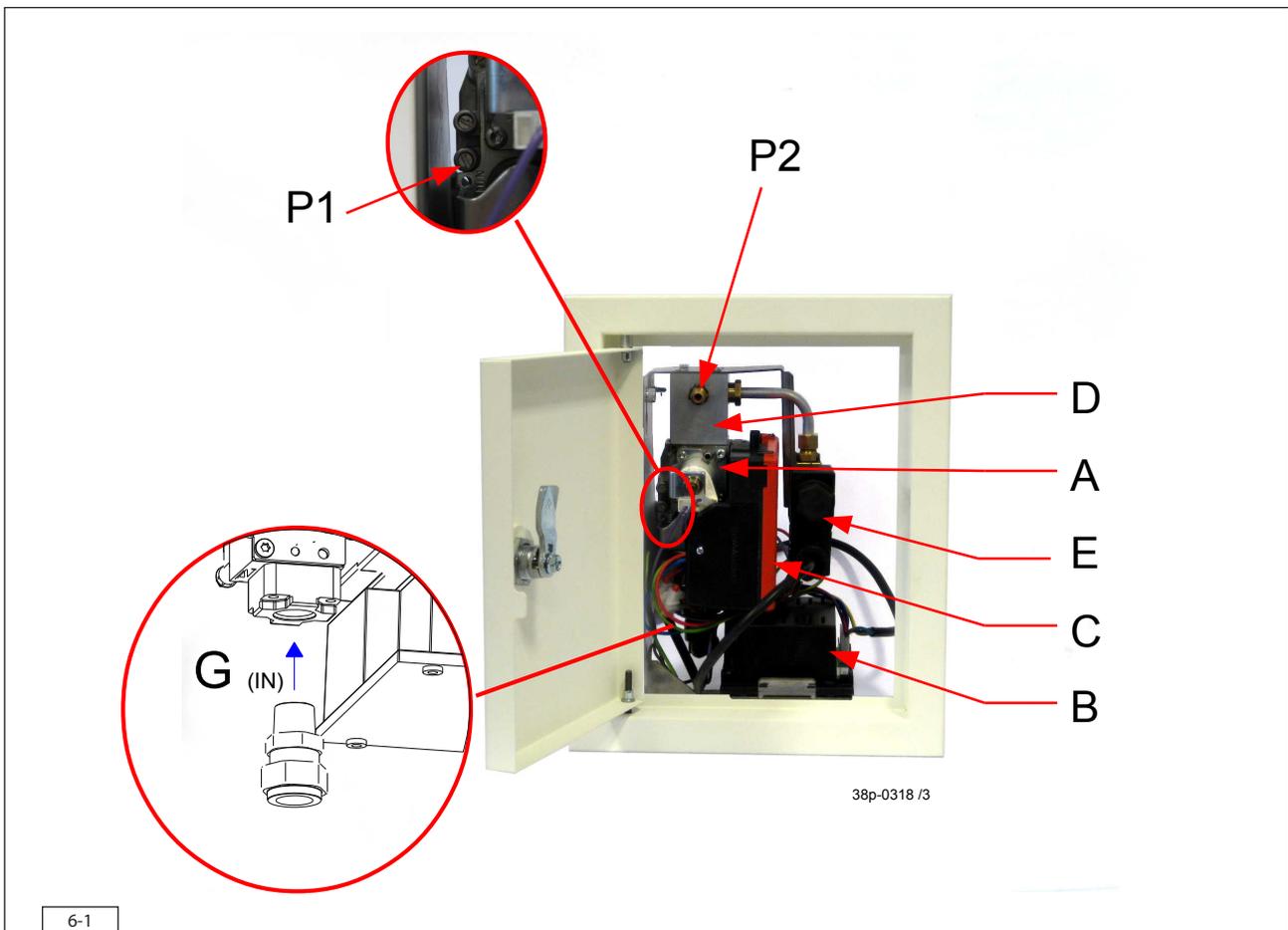
In case of an electrical connection of 230 Volts, always provide sufficient earthing. Place this electrical connection away from the appliance, as low as possible in the chimney breast. Make sure the electrical connection is within reach. This has to do with the temperature development in the chimney breast.

- ⚠ Make sure that it is easy to disconnect the appliance from the power supply after installation: By disconnecting the plug or by means of a 2-core switch installed by a recognised installer in accordance with current regulations.
- ⚠ - Protect the gas control and electric components, hereafter referred to as the gas control, against building dust and moisture!
- In the case of appliances made with the CM system*, observe the instructions in the supplied manual for connecting the receiver and control panel.



6.5 Components appliance control

This section states the components that are used to control the appliance (see fig. 6-2).



Legend:

- A = Gas control; controls the gas to the burners
- B = Receiver; communicates with the transmitter
- C = Processor (ESYS); controls the gas control
- D = Distribution block; connection of the burners
- E = Valve 2nd burner; opens and closes the gas supply to the 2nd burner (if applicable)
- P1 = Pressure gauge nipple 1; line-pressure
- P2 = Pressure gauge nipple 2; burner pressure
- G (IN) = Gas connection; connection from the gas control to the gas network

7 Installation

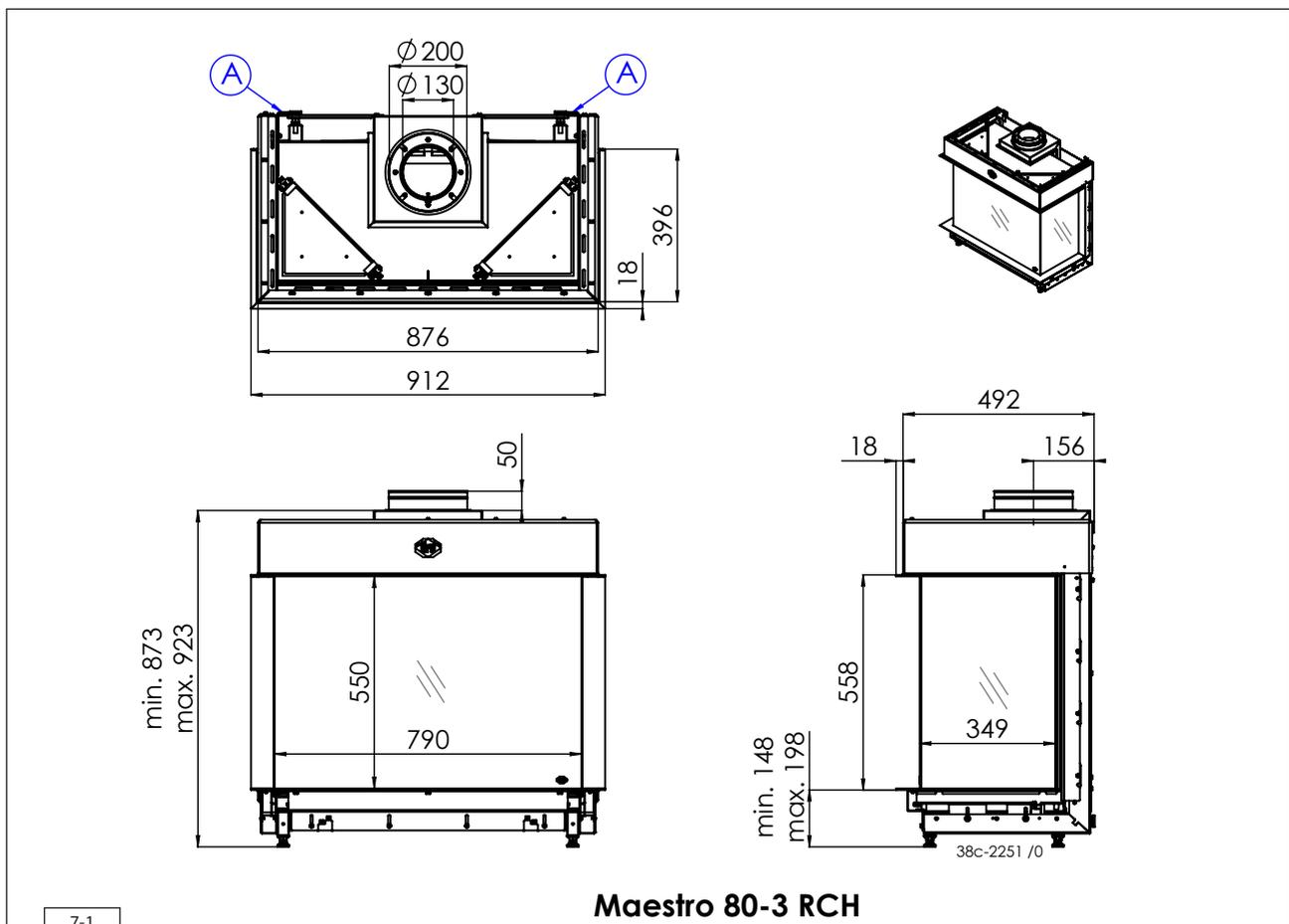
7.1 Placing the appliance

Separate sub-sections describe different ways of placing the appliance. The general description below for placing the appliance applies to all these sub-sections:

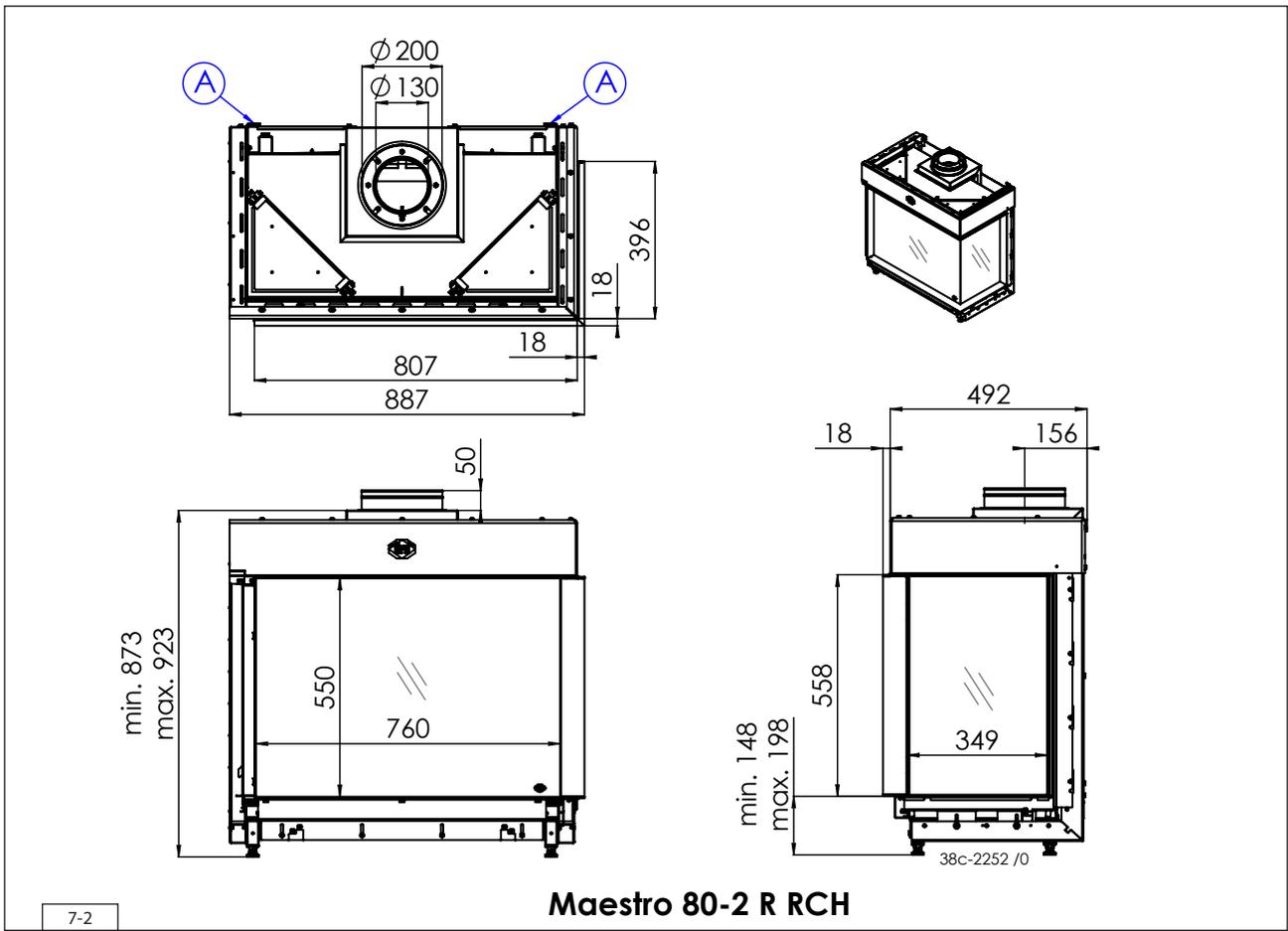
- Place the appliance where it will be installed and observe the following:
 - The construction dimensions of the appliance (see fig. 7-1 and 7-2).
 - The minimum chimney breast dimensions (see section 7-4).
 - The length of the cables and pipes (see section 7-4).
 - Place the appliance in front of a heat-resistant and non combustible wall. The wall brackets on a built-in appliance ensure that the minimum distance to the wall is maintained (see fig. 7-1 (A)).
 - Take sufficient measures to prevent temperatures of a possible wall behind the chimney breast becoming too high, including the materials and/or objects behind the wall.
 - Make sure there are no combustible objects or materials within the radiation range (see table 4-1 and fig. 7-12) of the fire.
 - Place the concentric system in such a way that no fire hazard can ever be created (see section 7.3).
 - Do not cover the appliance and/or do not wrap it in an insulation blanket or any other material.
 - Make sure that the appliance to be installed has a stable position. Fasten possible extending legs with the self-tapping screws.

Proceed as follows:

- Loosen the bracket with the gas control by loosening the self-tapping screws and screw the self-tapping screws back in the appliance.
- Place the bracket with the gas control, together with the wiring of the ignition/ionization cable(s), the flexible gas hose(s) and the data plate with chain in the direction of the control hatch (see section 7.5)..
- ⚠ - Do not lay the cables of the ionisation and ignition pins along metal parts, wiring and other components.
- The data plate should remain attached to the chain.



7-1



7-2

Maestro 80-2 R RCH

7.1.1 Standing installation of the appliance

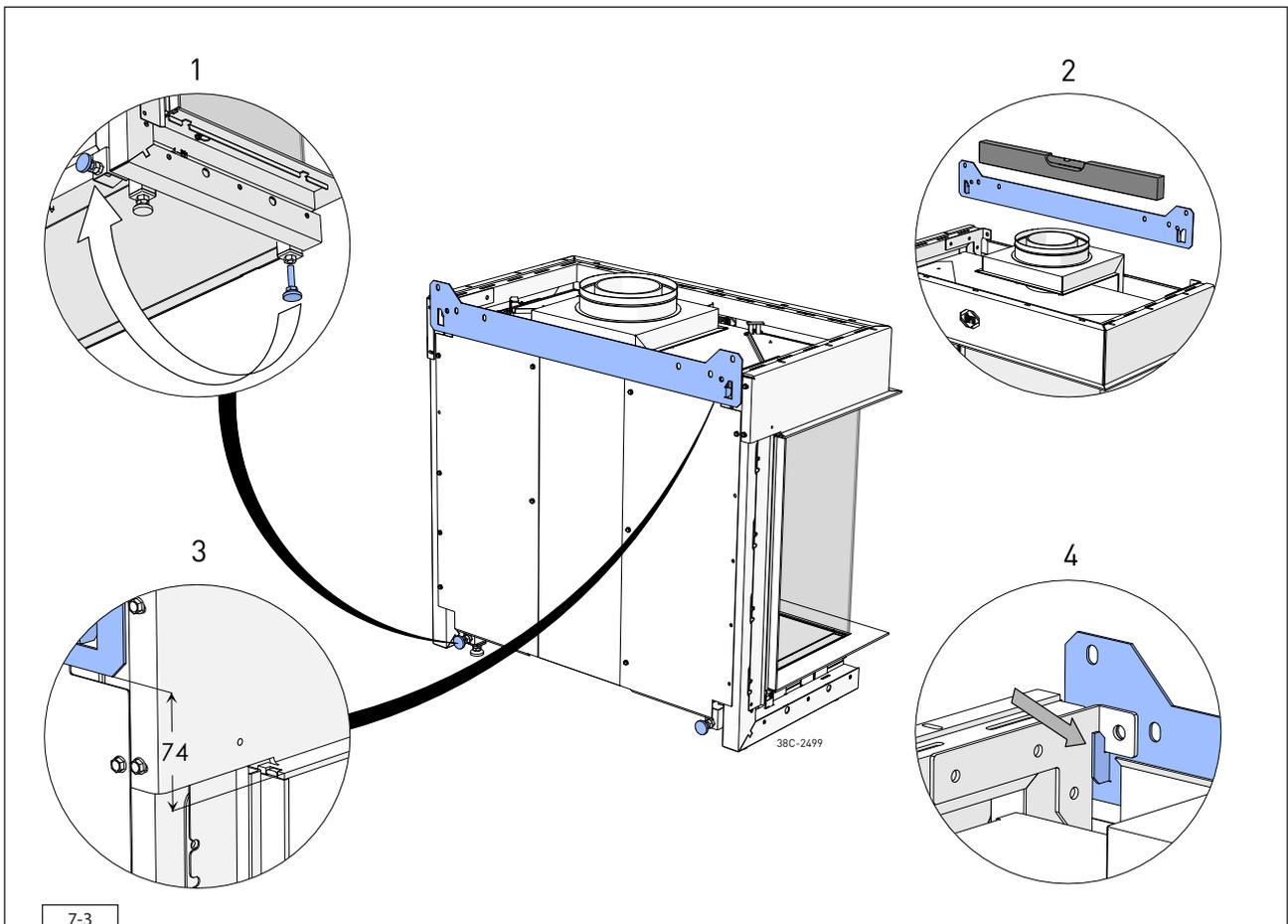
In case of a standing installation of the appliance, observe the following instructions:

- Set the height of the appliance using the adjustable feet and level the appliance.
- Attach the appliance to the wall using wall brackets (see fig. 7-1 (A) or 7-2 (A)).

7.1.2 Suspended installation of the appliance

In case of a suspended installation of the appliance, observe the following instructions:

- Determine the location and height of the appliance (see fig. 7-1 or 7-2) and the control hatch (see fig. 7-14)).
- Attach the suspension bracket to the wall using the supplied key bolts (see fig. 7-3).
- ⚠ Attach the appliance to a vertical wall of solid, non combustible and heat-resistant material.
- Use the slotted holes of the suspension bracket to level the appliance.
- Unscrew the 2 adjustable feet (1) with lock nut from under the appliance and place them in the rear of the appliance.
- Place the appliance in the suspension bracket. Wall bracket hangs in the suspension bracket (see fig. 7-3(4)).
- Use the adjustable feet (1) to level the appliance vertically and lock them with the nut.



7.2 Additional installation options

The appliance can be placed with a platform. This can be done in combination with a lower decorative strip or with the platform connecting to the glass. The accompanying chimney breast can be used with or without a false wall (see fig. 7-4 and 7-5).

It is also possible to have the interior plate of the appliance continue to the outside. In that case, the chimney breast or other heat-resistant materials can be placed up to the side pane(s) (see fig. 7-6).

- ⚠ Do not allow the weight of the platform to rest on the appliance, use the assembly set instead. It can be ordered separately.

7.2.1 Platform combined with lower decorative strip

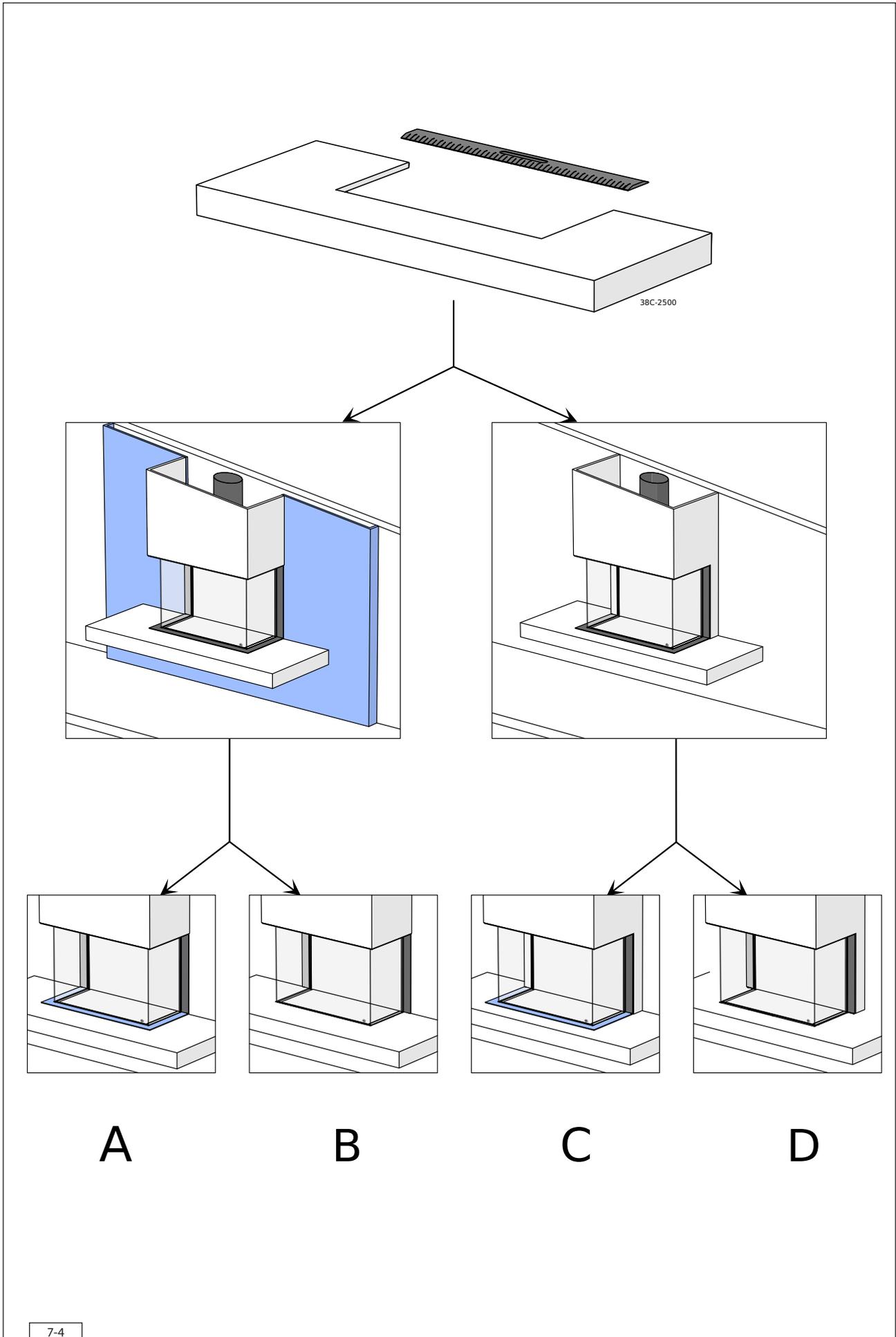
(see fig. 7-4 (A and C) and 7-5 (A and C))

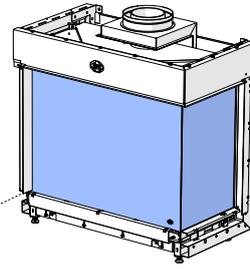
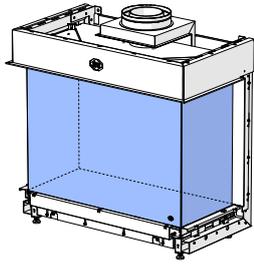
- Create a recess in the platform, in which the appliance will be placed. If a false wall is used, the recess will be less deep.
- Mutually adjust the height of the appliance and assembly set, so that the top side of the platform connects to the bottom side of the lower decorative strip.

7.2.2 Platform connecting to the glass

(see fig. 7-4 (B and D) and 7-5 (B and D))

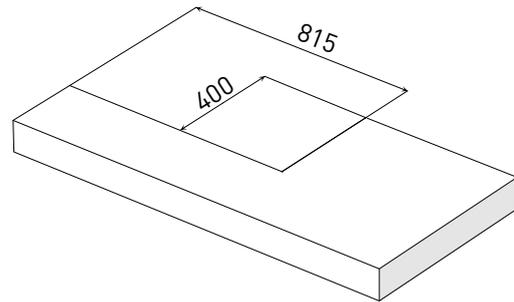
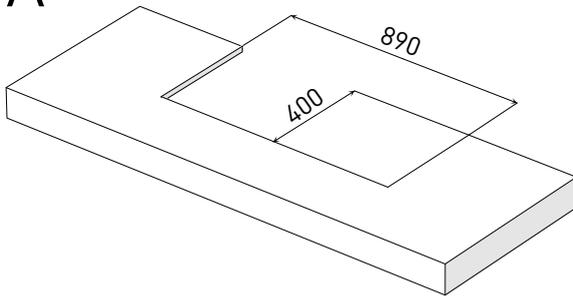
- Create a recess in the platform, in which the appliance will be placed. If a false wall is used, the recess will be less deep. Maximum material thickness is 30 mm.
- Remove the lower decorative strip (see fig. 7-6) by sliding it forward and taking it out. It will not be placed back.
- Remove the centring cam at the bottom of the decorative strip by cutting into it at the front and breaking it off. Make sure the bottom side of the decorative strip remains flat and resistant to corrosion.
- Loosen the nuts of the adjustable profiles by a few turns and adjust the profiles to the correct height. The height depends on the material thickness of the platform. For material thickness 20 mm and 30 mm, indicators have been applied. Re-tighten the nuts (see fig. 7-6).
- Mutually adjust the height of the appliance and assembly set, so that the bottom side of the platform connects to the adjustable profiles.
- ⚠ - Do not allow the weight of the platform to rest on the appliance and/or the adjustable profile.
- Make sure there is sufficient space between the platform and the springy glass pane strip in order to be able to remove/place the front glass pane. Use the end stops on both sides of the appliance.



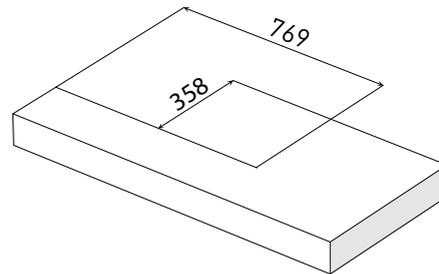
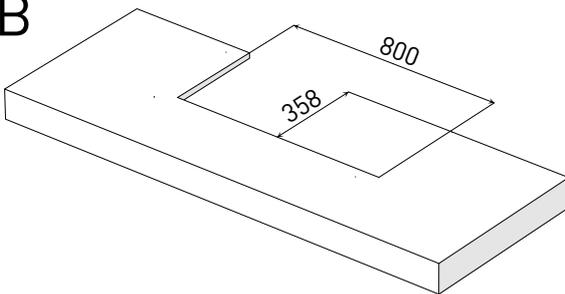


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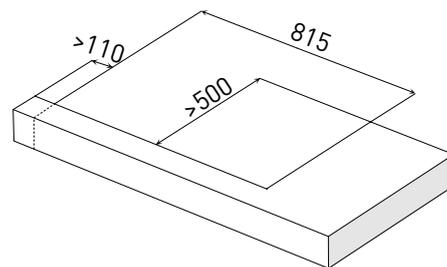
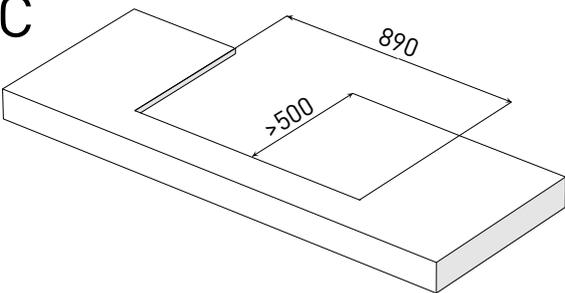
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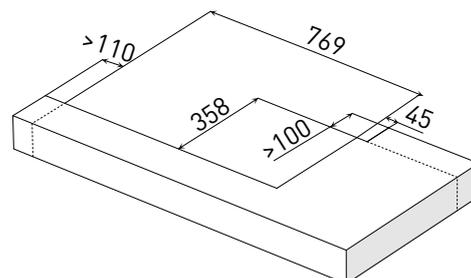
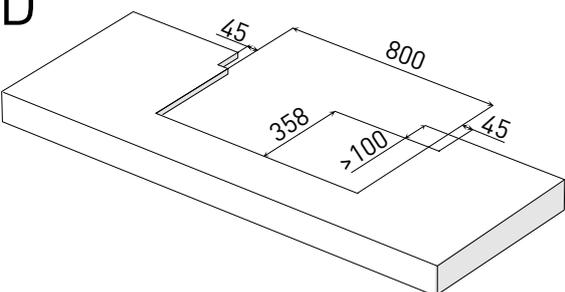
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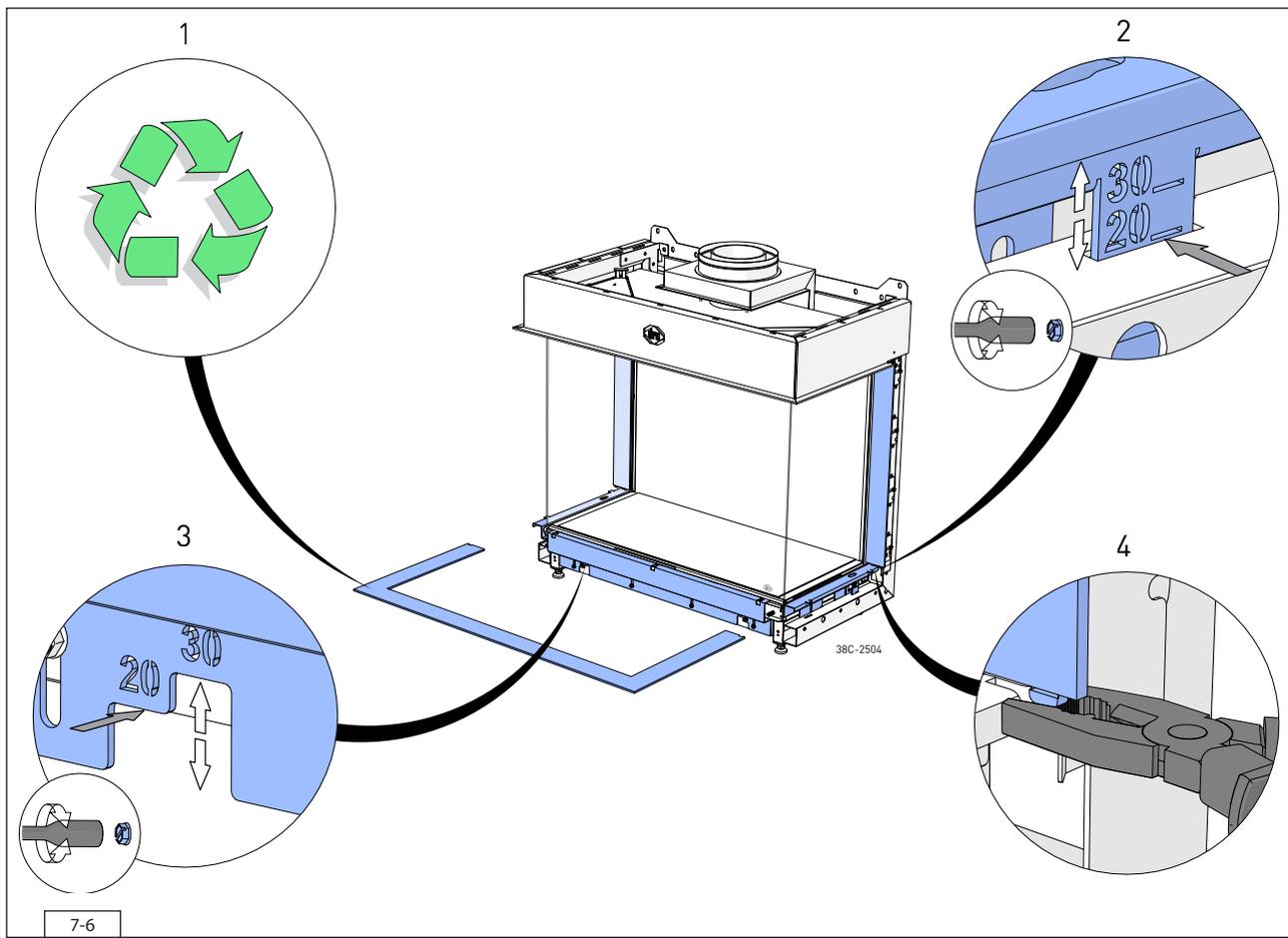
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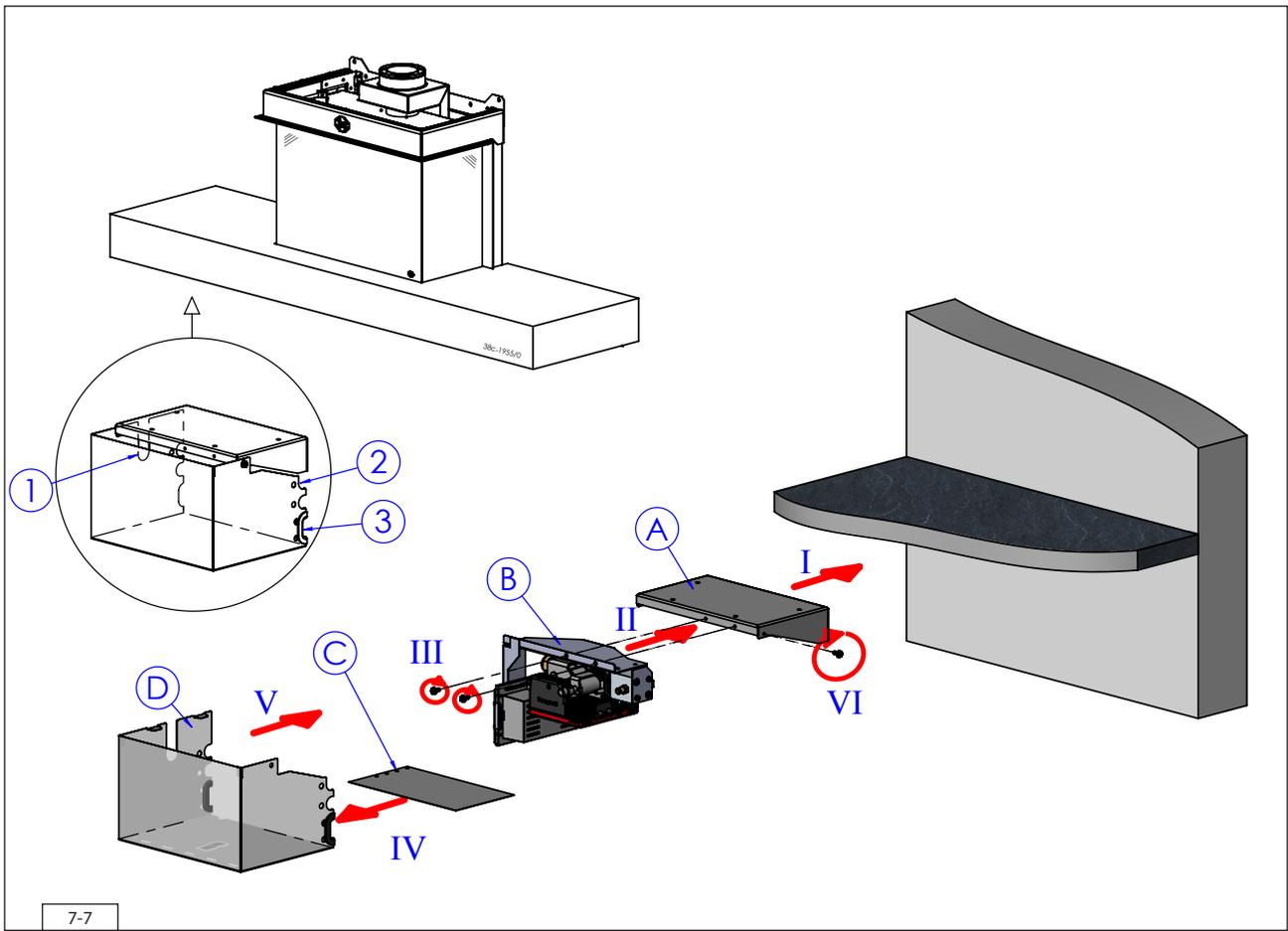


7-5



7.2.3 Placement of bracket with gas control and accessories below the platform

- ⚠ If, when placing with a platform, there is no room for the control hatch, the bracket with gas control must be placed directly under the platform using the 'electricity protective cabinet' accessory.
- Place the bracket with gas control and accessories below the platform using the supplied protective cabinet (see fig. 7-7).
- Place the attachment bracket (A) against the back wall using suitable fastening materials. Make sure the top of the bracket connects to the platform;
- ⚠ It is not allowed to place the bracket under the appliance.
- Loosen the bracket with gas control and accessories (B) from the appliance and attach it to the attachment bracket (A) using the previously removed self-tapping screws.
- ⚠ Never allow the bracket with gas control and accessories to remain attached to the appliance and remove the transportation bracket.
- Position the gas pipe on the recess (1) in the protective cabinet, it is aligned with the connection on the gas control.
- Connect the gas pipe as described in section 6.3.
- Place the data plate (C) in the bracket in the bottom of the protective hood (D).
- Hook the protective hood into bracket (A) and fasten it with the self-tapping screw.
- Guide the flexible gas pipe that leads to the burner through the recess (2).
- Guide the cables through the protected recess (3).
- ⚠ Make sure the cables of the ionization pin and spark electrode do not make contact with metal parts. These may also not make contact with signal and voltage cables.
- Use cable ties to fasten cables and pipes.
- ⚠
 - There are 230V of mains voltage on the gas unit, and this must be guarded.
 - Carefully observe the necessary safety instructions that also apply to the control hatch (see section 7.5).

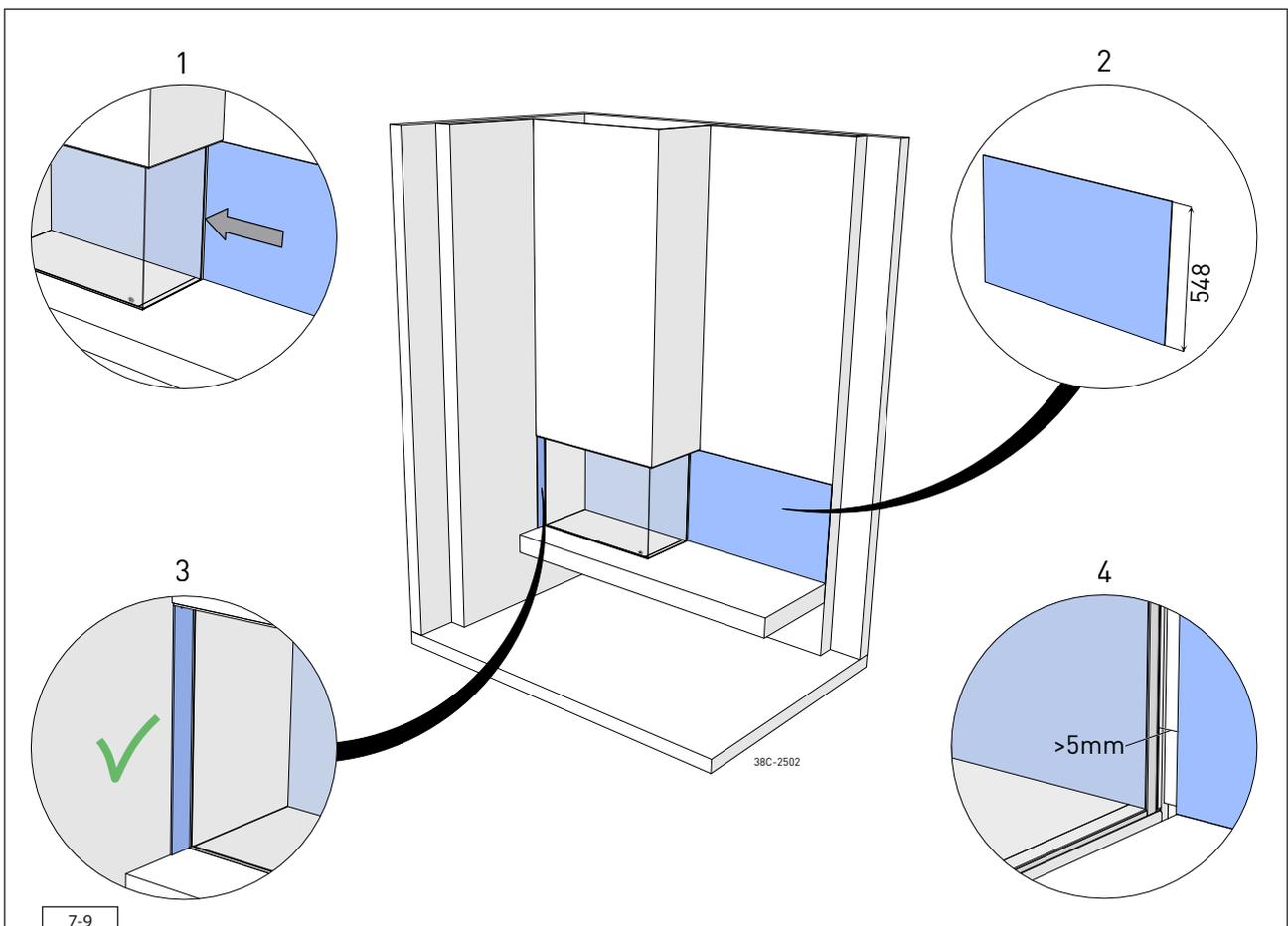
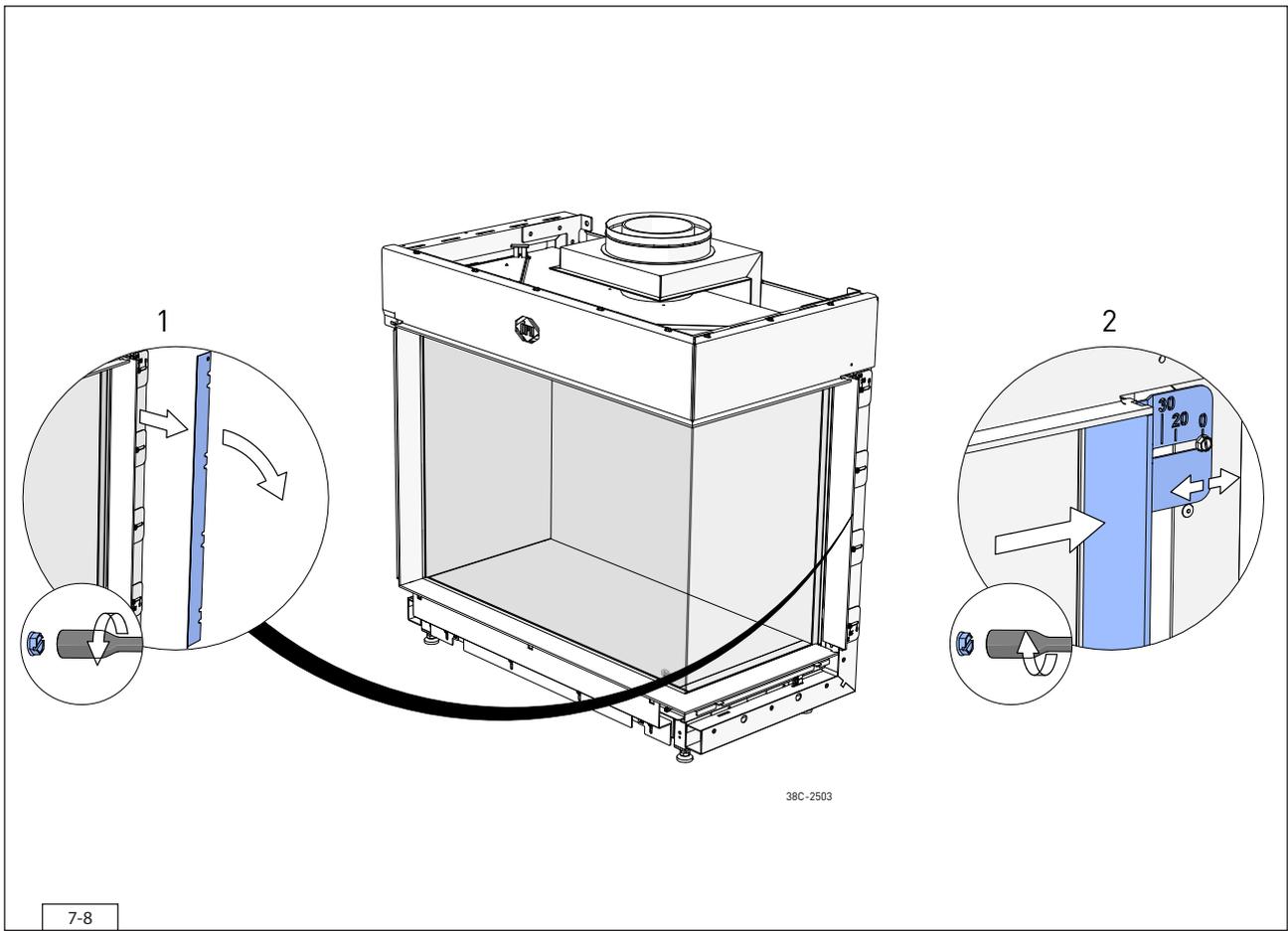


7.2.4 Back wall connecting to the glass of the side pane

(see fig. 7-8 and 7-9)

When installing the wall up to the side pane, proceed as follows:

- Make sure the back wall to be placed has the correct dimensions (see fig. 7-8).
- Loosen the self-tapping screws of the vertical decorative strip by a few turns and adjust the profiles to the correct distance. The distance depends on the thickness of the wall. For material thickness 20 mm and 30 mm, indicators have been applied. The cover plate is no longer required and can be removed. Re-tighten the self-tapping screws (see fig. 7-9).
- Maintain a 5 mm distance between the wall and the side pane.
- ⚠ - In case of a 2-sided appliance, construction on the glass of the side pane is only possible at the back wall side, not at the side wall side. It has to be possible to remove the front glass pane. For this purpose, it should be possible to remove the decorative strip.
- In case of materials up to the glass, it is important to maintain a 5 mm minimum distance from the glass!
- In case of materials up to the glass, heat-resistant material should be used that is at least able to resist a temperature of 85°C.

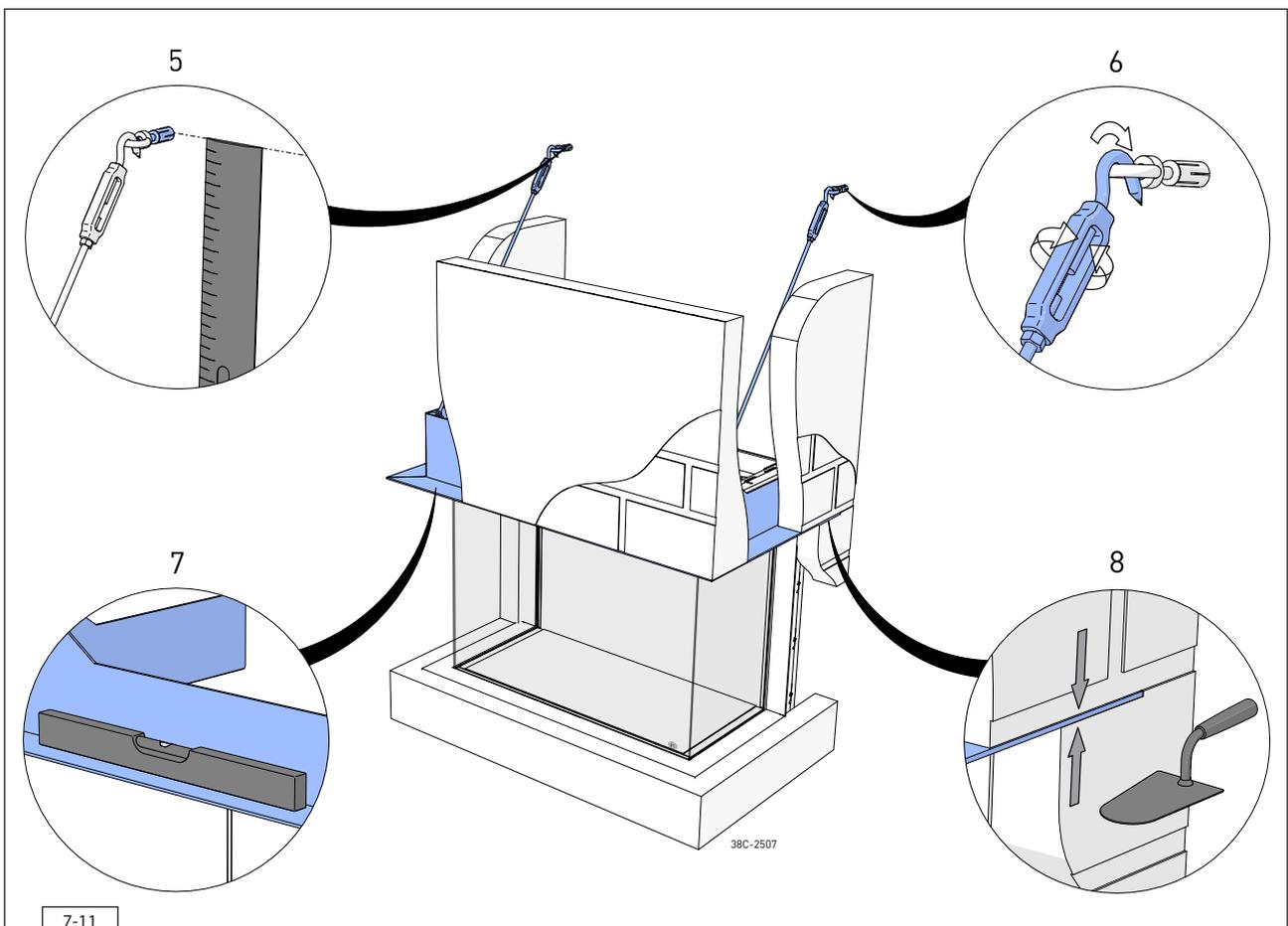
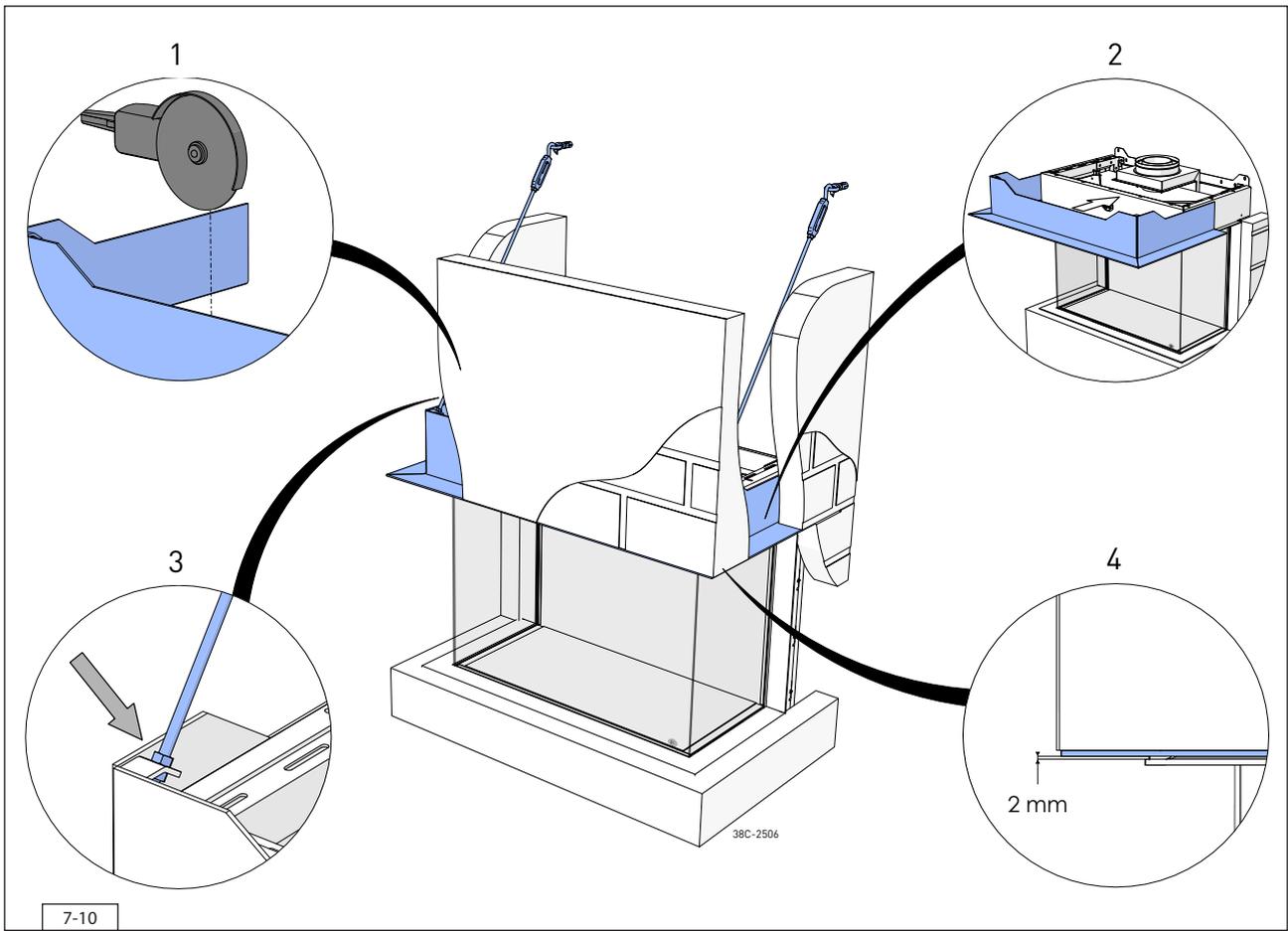


7.2.5 Mantle iron

If the chimney breast is made of stone-like material, it is necessary to place a mantle iron. A mantle iron must be placed in order to prevent the appliance from being burdened by the weight of the materials.

When installing the mantle iron, proceed as follows (see fig. 7-10 and 7-11):

- Cut the mantle iron to the correct size.
- Position the mantle iron.
- ⚠ - Do not allow the mantle iron to rest on the construction frame.
- Maintain a minimum space of 2 mm between the mantle iron and construction frame.
- Attach the threaded rod(s) in the nut(s) on the corner(s) of the mantle iron.
- ⚠ Adjust the threaded rod(s) with tensioning nut(s) so that there is sufficient room for adjustment.
- Determine the height of the eye(s).
- Attach the eye(s) to the wall using the key bolt(s).
- Attach the hook(s) of the threaded rod(s) to the eye(s).
- Level it all, using the tensioning nut(s).



7.3 Concentric system

7.3.1 General

The appliance is connected to a flue gas discharge / combustion air supply system delivered by DRU, hereafter referred to as the concentric system. DRU has different concentric systems in its range.

In the case of a concentric system, the inner tube is used as flue gas discharge. The combustion air is supplied by the outer tube. As a result, the latter always has a relatively low temperature. For the maximum temperature of the outer tube, see the technical data in table 4-1. The concentric system has been tested in combination with the appliance. Other concentric systems are not permitted.

See the table below for the different concentric systems of DRU and their application:

Table 7-1: Concentric systems and their application		
System	Permitted for this appliance?	Remarks
LAS AG-I 150/100	No	Alu-galva tubes for use inside the building*. Diameter Ø150/100 mm. Cannot be combined with the SS systems.
LAS ES-I 150/100	Yes	SS tubes for use inside the building*. Diameter Ø150/100 mm. Using an adapter, it is possible to construct further with the insulated LAS ES-E 200/150/100 system.
LAS ES-I 200/130	Yes	SS tubes for use inside the building*. Diameter Ø 200/130. Using an adapter, if permitted, it is possible to construct further with LAS-ES-I 150/100.
LAS ES-E 200/150/100	Yes	Insulated SS tubes. Discharge diameter Ø150/100. External diameter Ø 200 mm. Intended for use inside or outside building for placement in, for example, timber frame construction, execute with 0 mm distance along combustible material etc. It is not possible to continue building with an adapter with LAS ES-I 150/100.
AS PV-I 100/60	Yes	Optional discharge system with fan for discharge up to approx. 60 metres long.

* With the exception of the components intended for that purpose, such as roof and wall terminals.

The diameter of the concentric system appliance connection can be found in table 4-1. By means of natural draft, the flue gases are discharged to the outside, this can be achieved by means of a wall terminal (C11) or a roof terminal (C31). If necessary, an existing chimney can be used (C91, see section 7.3.5).

In addition, if combined with PowerVent®, it is possible in many cases to discharge the flue gases with a smaller diameter (AS PV-I 100/60).

- Only use the concentric system supplied by DRU This system has been tested in combination with the appliance. DRU cannot guarantee a proper and safe operation of other systems and does not accept any responsibility or liability for this.
- Use a chimney kit for making a connection to the chimney; this can be supplied by DRU.
- For terminals, observe the information in table 7-2.

Table 7-2: Terminals				
System	Hole diameter and execution			
	Combustible material		Non combustible material	
	Ø (mm)	Notes	Ø (mm)	Note
LAS AG-1 150/100 LAS ES-I 150/100	≥250	The terminal hole may be covered with a rosette made of non-combustible material. This terminal hole must be ventilated. A 2 mm wide ventilation opening around the tube is sufficient. The space between the tube and the combustible material may not be filled with insulation material.	≥154	Make terminal hole all around 2mm larger than the diameter of the concentric system to prevent "ticking" and such like. The terminal hole does not require ventilation.
LAS ES-I 200/130	≥300		≥204	
LAS PV-I 100/60 (also see: installation manual PowerVent®)	≥200		≥104	
LAS ES-E 200/150/100	≥204	The distance from combustible material may be 0 mm. The terminal hole does not require ventilation. If a clip binding is placed in a terminal hole, a hole diameter of Ø230 mm must be maintained.	≥204	Make terminal hole all around 2mm larger than the diameter of the concentric system to prevent "ticking" and such like. The terminal hole does not require ventilation. If a clip binding is placed in a terminal hole, a hole diameter of Ø230 mm must be maintained.

- ⚠ - Maintain a distance of at least 50 mm between the outside of the concentric system and the walls and/or ceiling. If the system is built in (for instance) a cove, it should be made with non combustible, heat-resistant material all around it. This does not apply to the insulated concentric system (LAS ES-E 200/150/100).
- Some heat-resistant insulation materials contain volatile components that will spread an unpleasant smell for a prolonged time; these are not suitable.

The concentric system is constructed from (the flue spigot of) the appliance.

If, due to constructional circumstances, the concentric system is placed first, it is possible to connect the appliance by means of a telescopic pipe piece.

Place the concentric system as follows:

- Build the system up from (the flue spigot of) the appliance.
- Connect the concentric pipe pieces and, if necessary, the bend(s).
- Apply a clip binding with silicon sealing ring on each connection (does not apply to LAS ES-E 200/150/100, here the sealing ring is inside the tube).
- Use a sheet metal screw to fix the clip binding to the pipe on locations that cannot be reached after installation.
- Attach the concentric system with sufficient fastening brackets, so that the weight is not resting on the appliance. Observe the following;
 - Place the first fastening bracket 0.5 metre from the appliance, at the most.
 - Place a fastening bracket maximum 0.1 metre from each bend, if the bends are more than 0.25 metre away from each other. If two bends are closer to one another than 0.25 metre, 1 fastening bracket between these bends will be sufficient.
 - At least every 1 metre, place a fastening bracket at slanted and horizontal sections.
 - At least every 2 metres, place a fastening bracket at vertical sections.
- Fasten a roof terminal with anchor cables, if it protrudes more than 1,5 metres above the terminal.
- Determine the remaining length for the wall or roof terminal and cut it to size, make sure the correct insertion length is maintained.
- Place the wall terminal with the (groove/folded) seam at the top. Attach the wall terminal from the outside by means of four screws.

7.3.2 Roof terminal (C31)

The roof terminal can end in a sloping and a flat roof.

The roof terminal can be supplied with an adhesive plate for a flat roof or with a universally adjustable tile for a sloping roof.

When using a roof terminal (C31), the following applies:

The construction of the chosen system has to be allowed. The working method below indicates how the permissibility is determined of a concentric system when using a roof terminal.

- Count the number of 45° and 90° bends required (15° and 30° bends are also allowed; these are not counted).
- Count the total number of whole metres of horizontal pipe length.
- Count the total number of metres of vertical and/or sloping pipe length (roof terminal excluded).
- Find the number of required bends and the total horizontal pipe length (see table 7-3, columns 1 and 2).
- Find the required total vertical and/or sloping pipe length (see table 7-3, row 1).
- A box with a letter means that the chosen concentric system is permitted.
- Determine the adjustment of the appliance (see table 7-4).
- Adjust the appliance correctly with, for instance, a restrictor slide and an air inlet guide (see section 8.2).

⚠ In the case of a roof terminal **without bends**: first connect 0.8 metres of concentric system with a diameter of 200/130 mm vertically to the appliance. After the first 0.8 metres, reduce the concentric system to a 150/100 mm diameter, including a 150/100 mm roof terminal.

⚠ In the case of a roof terminal **with bends**: first connect 0.8 metres of concentric system with a diameter of 200/130 mm vertically to the appliance. Make the concentric system with a 200/130 mm diameter up to and including the last bend, and reduce the concentric system immediately after this last bend to a 150/100 mm diameter, including 150/100 mm roof terminal.

Table 7-3: Determination of the permissibility of a concentric system with roof terminal													
G20/G25/G25.3/ G30/G31	Total number of metres horizontal pipe length	Total number of metres vertical and/or sloping pipe length											
		1	2	3	4	5	6	7	8	9	10	11	12
No bends	0	B	B	B	C	C	C	C	C	C	D	D	D
2 bends	0	A	A	B	B	B	C	C	C	C	C	C	D
	1	A	A	A	B	B	B	C	C	C	C	C	
	2	A	A	A	A	B	B	B	C	C	C		
	3	A	A	A	A	A	B	B	B	C			
	4	A	A	A	A	A	A	B	B				
3 bends	0	A	A	A	B	B	B	C	C	C	C	C	C
	1	A	A	A	A	B	B	B	C	C	C	C	
	2	A	A	A	A	A	B	B	B	C	C		
	3	A	A	A	A	A	A	B	B	B			
	4	A	A	A	A	A	A	A	B				
4 bends	0	A	A	A	A	B	B	B	C	C	C	C	C
	1	A	A	A	A	A	B	B	B	C	C	C	
	2	A	A	A	A	A	A	B	B	B	C		
	3	A	A	A	A	A	A	A	B				
	4		A	A	A	A	A	A	A				
5 bends	-			A	A	A	A	A					

 Situation is not permissible

Table 7-4: Conditions for setting the appliance when using a roof terminal			
G20/G25/G25.3/G30/G31			
Situation	Air inlet guide	Restrictor slide (Distance in mm)	Flue gas distribution plate
A	NO	NO	NO
B	YES	NO	YES
C	YES	62	YES
D	YES	42	YES

7.3.3 Wall terminal (C11)

When using a wall terminal (C11), the following applies:

The construction of the chosen system has to be allowed.

- Check that the vertical pipe length falls within the minimum length (see table 7-5).
- Check that the horizontal pipe length (wall terminal excluded) falls within the minimum and maximum length (see table 7-5).
- ⚙ In the horizontal section, 1 bend of 90° may be included. This bend counts for 2 metres. This means that the maximum allowed length is reduced by 2 metres. A 45° bend counts for 1 metre.
- Determine the correct adjustment of the appliance (see table 7-5).
- Adjust the appliance correctly with, for instance, a restrictor slide and an air inlet guide (see section 8.2).

The rosette of the wall terminal is too small to seal the opening in case of passage through combustible material. That is why a heat-resistant intermediate plate of sufficient size should first be mounted to the wall. Then, the rosette is mounted on the intermediate sheet.

- ⚠ When using a wall terminal, place the terminal with a downward slope of 1 cm / metre towards the outside, in order to prevent rain water from raining in.

Table 7-5a

Setting	Apply
Air inlet guide	✘
Restrictor slide	✘
Flue gas distribution plate	✘

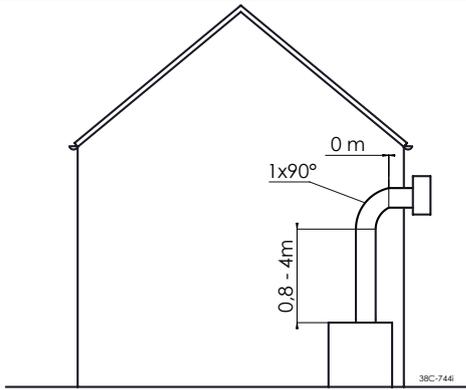
- Only use a 200/130 mm concentric system, including wall terminal.
 - In the case of this configuration, an unpainted stainless steel wall terminal must be used.
 - Factory setting: flue gas distribution plate mounted, the air inlet guides and restrictor slide are supplied separately.

Table 7-5b

Setting	Apply
Air inlet guide	✘
Restrictor slide	✘
Flue gas distribution plate	✘

- Only use a 200/130 mm concentric system, including wall terminal.
 - Factory setting: flue gas distribution plate mounted, the air inlet guides and restrictor slide are supplied separately.

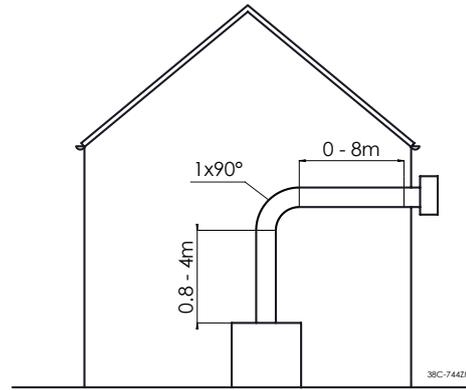
Table 7-5c



Setting	Apply
Air inlet guide	X
Restrictor slide	X
Flue gas distribution plate	V

- Only use a 200/130 mm concentric system, including wall terminal.
- Factory setting: flue gas distribution plate mounted, the air inlet guides and restrictor slide are supplied separately.

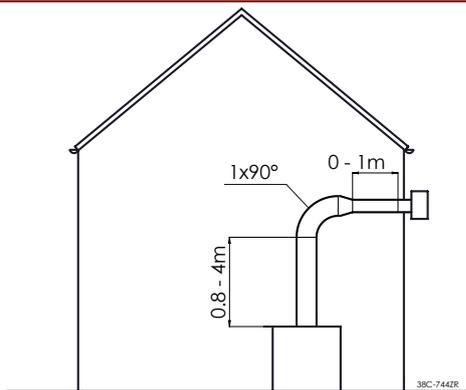
Table 7-5d



Setting	Apply
Air inlet guide	X
Restrictor slide	X
Flue gas distribution plate	X

- Only use a 200/130 mm concentric system, including wall terminal.
- Factory setting: flue gas distribution plate mounted, the air inlet guides and restrictor slide are supplied separately.

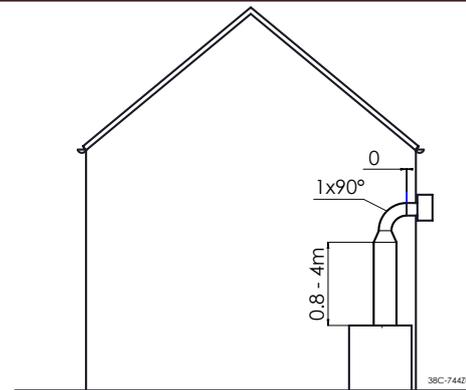
Table 7-5e



Setting	Apply
Air inlet guide	X
Restrictor slide	X
Flue gas distribution plate	X

- Use the vertical length including bend 200/130 mm concentric system, immediately after the bend reduce the concentric system to 150/100 mm.
- Use wall terminal of 150/100 mm (maximum 1 metre horizontal).
- Factory setting: flue gas distribution plate mounted, the air inlet guides and restrictor slide are supplied separately.

Table 7-5f



Setting	Apply
Air inlet guide	X
Restrictor slide	X
Flue gas distribution plate	X

- Use the vertical length 200/130 mm concentric system, immediately before the bend reduce the concentric system to 150/100 mm.
- Use bend and wall terminal of 150/100 mm (no horizontal length permitted).
- Factory setting: flue gas distribution plate mounted, the air inlet guides and restrictor slide are supplied separately.

7.3.4 Connection to an existing chimney

The appliance can be connected to an existing chimney (C91). A 100 mm diameter flexible SS pipe is placed in the chimney for discharging flue gases. The surrounding space is used as combustion air supply. Use the DRU spacer here. Place this spacer every three metres.

In case of an appliance connection of $\varnothing 200/130$ mm, 0.8 metres of concentric system must first be connected vertically. Reduce the concentric system after the first 0.8 metres to a diameter of 150/100 mm. The concentric system of 150/100 can be connected to an existing chimney.

The following requirements apply when connecting to an existing chimney:

- Only allowed when used in combination with the special DRU chimney kit.
- The internal dimensions should be at least 150 x 150 mm.
- The vertical length has a maximum of 12 metres.
- The total horizontal pipe length may have a maximum length (see table 7-3).
- The existing chimney has to be clean.
- The existing chimney has to be tight.

For adjusting the appliance, the same conditions/instructions apply as for the concentric system described above.

7.4 Placing the chimney breast

For a good heat discharge and operation of the appliance, there should be sufficient space around the appliance. The chimney breast should be ventilated sufficiently by means of ventilation holes (incoming and outgoing).

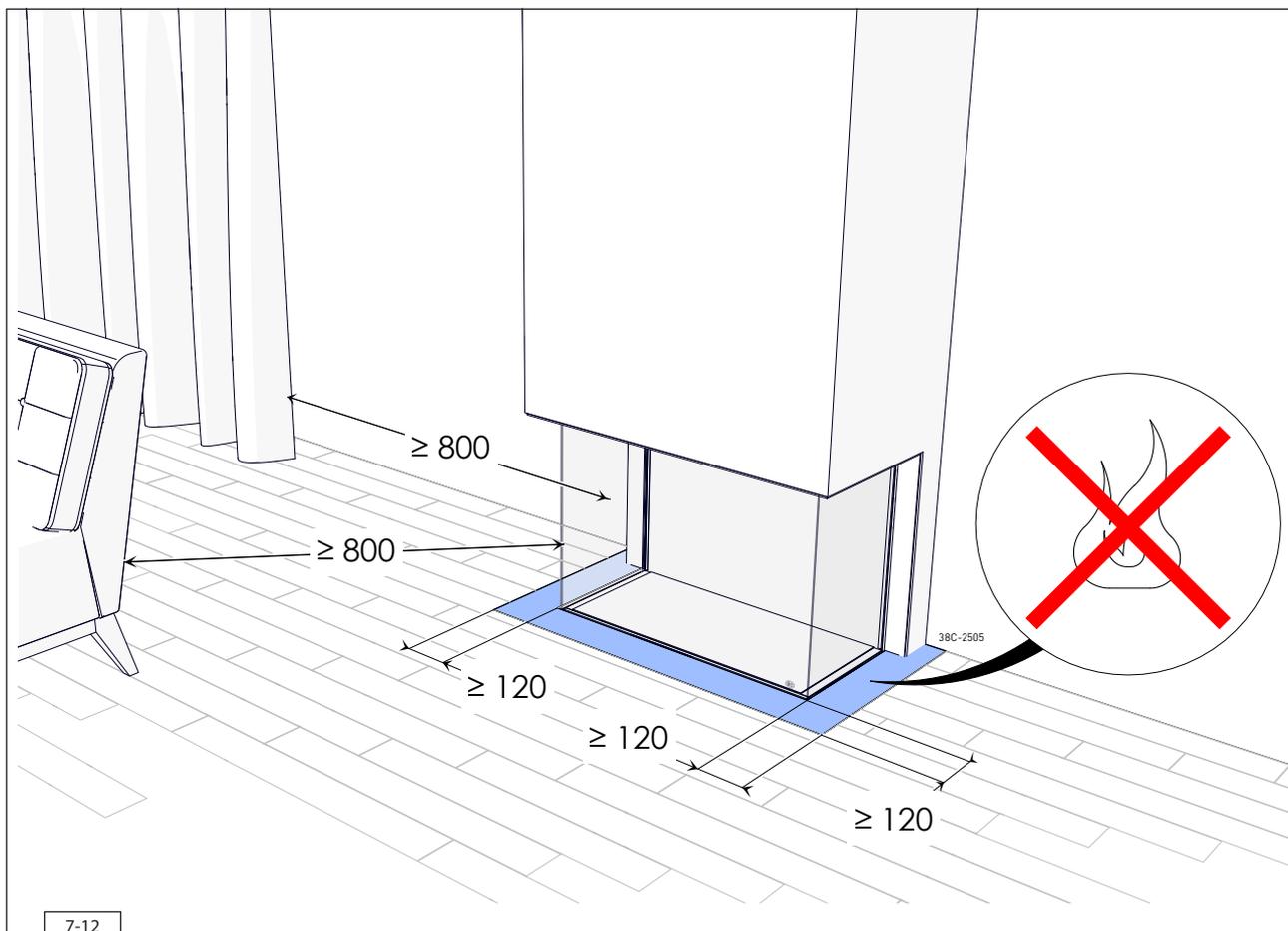


- When an appliance is built in the floor, please take into account the minimum distances from the floor/ground in front of the appliance (see fig. 7-12).
- Use non combustible and heat-resistant material for the chimney breast, including the top of the chimney breast, the material inside the chimney breast and the back wall of the chimney breast.
The appliance is not a support structure. Make sure the appliance does not have to bear the weight of the chimney breast for example.
- The passage of the ventilation holes (outgoing) is stated in table 4-1. If it is not possible to use a control hatch in the chimney breast, an air supply of at least 80 cm² must be placed as low as possible, but not above the burner surface. If a control hatch can be used, the control hatch will suffice as air supply (see section 7.4).

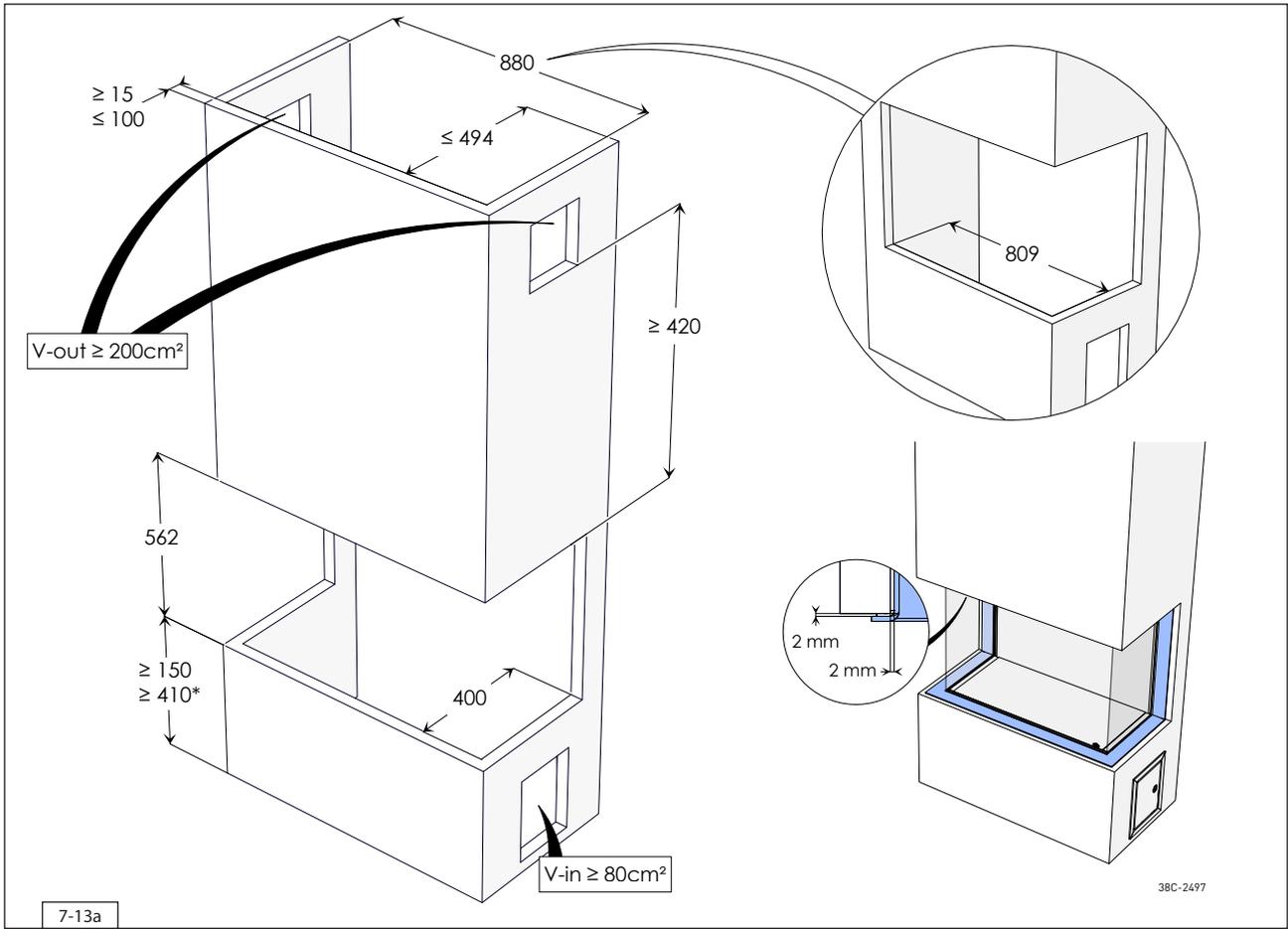
- ⚠ When placing the chimney breast, you should take the following into account (see fig. 7-13):
 - The location of the control hatch: this must be placed as low as possible.
 - The distance of the control hatch up to the side of the appliance.
 - The dimensions of the control hatch (see section 7.5).
 - The location of the ventilation holes (V-out).
 - A minimum 30 cm distance between the top of the ventilation hole (outgoing) and the ceiling of the house.
 - The dimensions of the glass pane, so that it can be placed/removed after placing the chimney breast.
 - The protection of the gas control and the pipes against cement and plaster.
 - Placement of decorative strips, frames and such like; if possible, place them after the performance of any structural work. Prevent the use of painter's tape. If this is not possible: use good quality painter's tape and remove this tape immediately after plastering or painting work (prolonged use of painter's tape may cause damages).
- ⚠ You should preferably apply the ventilation holes (outgoing) on both sides of the chimney breast. Use the DRU ventilation elements.

Check the following items, before the chimney breast is fully closed:

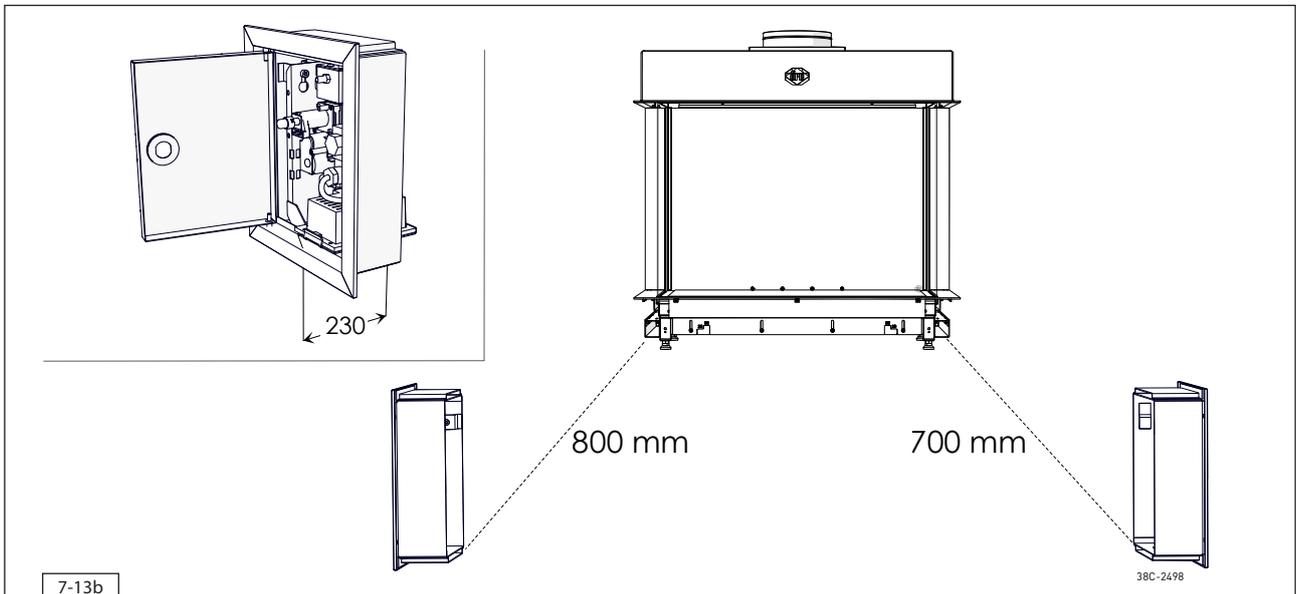
 - Is the discharge / concentric system placed correctly?
 - Have the channels, fastening brackets and possible clip bindings, that become inaccessible later, been secured with self-tapping screws?
 - Has no plastering work been performed on or across the edges of the construction frame? This due to the fact that:
 - the heat of the appliance could cause cracks;
 - It will no longer be possible to remove/place the glass pane.
 - When using stone-like materials and or plaster finishing, allow the chimney breast to dry for at least six weeks prior to taking the appliance into operation in order to prevent cracks.



7-12



* Taking into account the control hatch, placed as indicated.

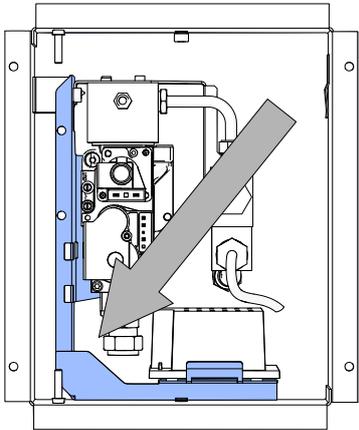


7.5 Placing the control hatch

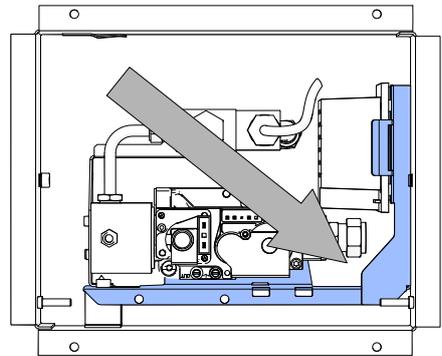
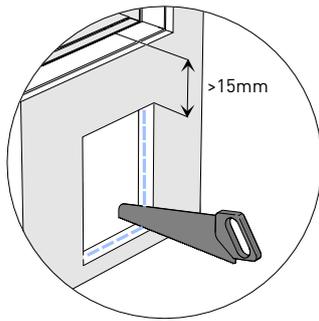
A number of components are placed in the control hatch, such as data plate, gas control and, if applicable, components belonging to the DRU Powervent System*.

The control hatch was designed in such a way, that all components as well as adjustment, measurement and regulating provisions are within optimum reach and the components work optimally. A control hatch placed and furnished on the side of the chimney breast ensures an optimum transmission and reception strength of the remote control and receiver. The control hatch also ensures sufficient aeration of the chimney breast. For that reason, the use of a control hatch is not without significance. Not using a control hatch could may void the warranty.

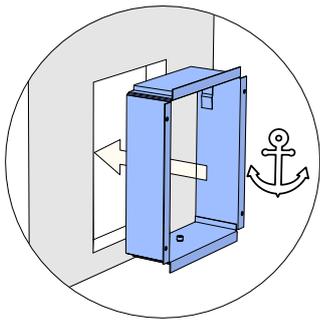
- ⚠ - The bottom of the control hatch may not be placed higher in the appliance than the burner surface.
 - Place the control hatch and bracket with gas control only indoors, on a dry spot!
- Place the control hatch as follows (see fig. 7-14):
- Make an opening in the chimney breast as described in the manual for the control hatch (1).
 - 💡 The opening in the chimney breast may be made horizontal and vertical.
 - Place the inner frame. For this, first remove the outer frame with door (2).
 - ⚠ The inner frame should be placed in the correct way. Two positions are possible. Placing the inner frame with a rotation of 180° is not allowed.
 - 💡 When the chimney breast is made of bricks, the inner frame can be built with bricks at the same time. In case of a different material, the inner frame can be glued or fastened with four countersunk screws.
 - Fix the outer frame with door (3) to the inner frame using two Allen screws.
 - 💡 The outer frame can be placed in such a way that the door turns to the left or right.
 - Attach the bracket with gas control to the inner frame. Proceed as follows:
 - Unwind the cables. This will, amongst other things, prevent a poor operation of the ignition (4).
 - Unwind the flexible gas pipe(s).
 - Mount the bracket with gas control to the inner frame. The slotted hole falls in Allen screw; the hole at the bottom falls over the head of Allen screw.
 - Fix the bracket with Allen screw.
 - ⚠ - Avoid kinks in the pipes (4).
 - Do not lay the cables of the ionisation pin and spark electrode along metal parts, wiring and other components.
 - Connect the gas pipe with gas tap (6) (also see section 6.3).
 - Bleed the gas pipe (7).
 - 💡 If the gas tap is closed, the bracket with gas control can be easily removed by loosening the clamp coupling under the gas control and loosening the Allen screw (C) by a few turns. The bracket with the gas control can now be lifted and removed towards the front out of the control hatch.
 - Place the data plate in its intended clamp (8).
 - Connect the 230V mains voltage with protective earth using the correct type of plug. The other side of the power cable can be easily connected to the universal 230V plug in the control hatch. Use this universal 230V plug to disconnect the appliance from the power supply, if necessary.
- ⚠ If the 230V power cable is damaged, replace it by a similar power cable or a power cable that is available from your dealer.
- ⚠ Always close the control hatch with the lock (10), because of the electricity behind the door (230V). The lock is operated by means of a fitting flat object.



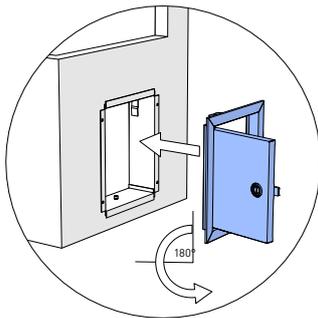
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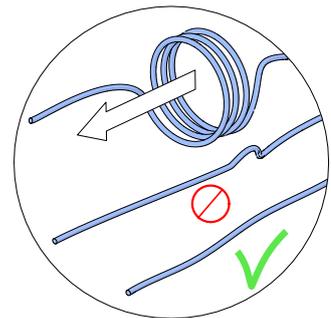
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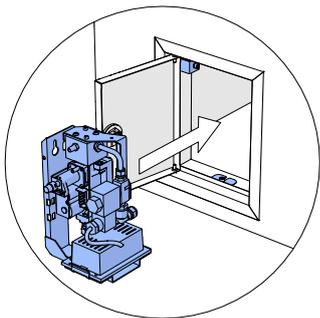
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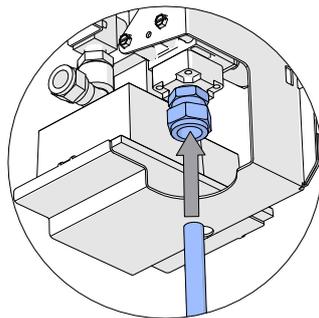
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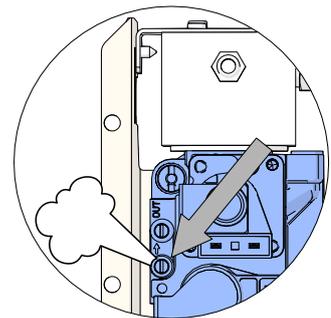
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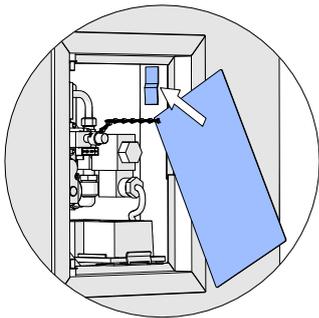
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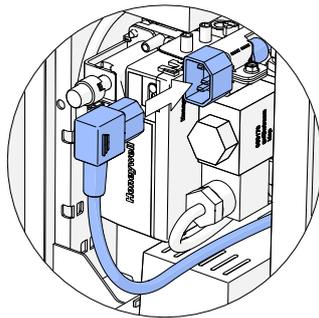
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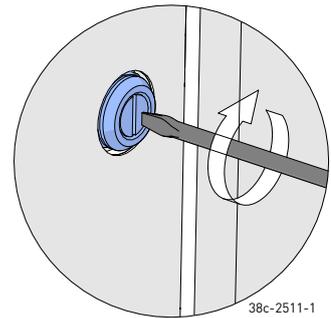
8



9



10



38c-2511-1

8 Appliance

8.1 Glass panes

After placement of the wood set (see section 8.3), it is possible to place the glass panes:

- ⚠ - Avoid damaging the glass panes during removal/placing.
- Use the socket spanner supplied for loosening/tightening the self-tapping screws.
- If applicable, use the supplied Allen key for loosening / fastening the Allen screws.
- Avoid/remove fingerprints on the glass panes, as they will burn into the glass.

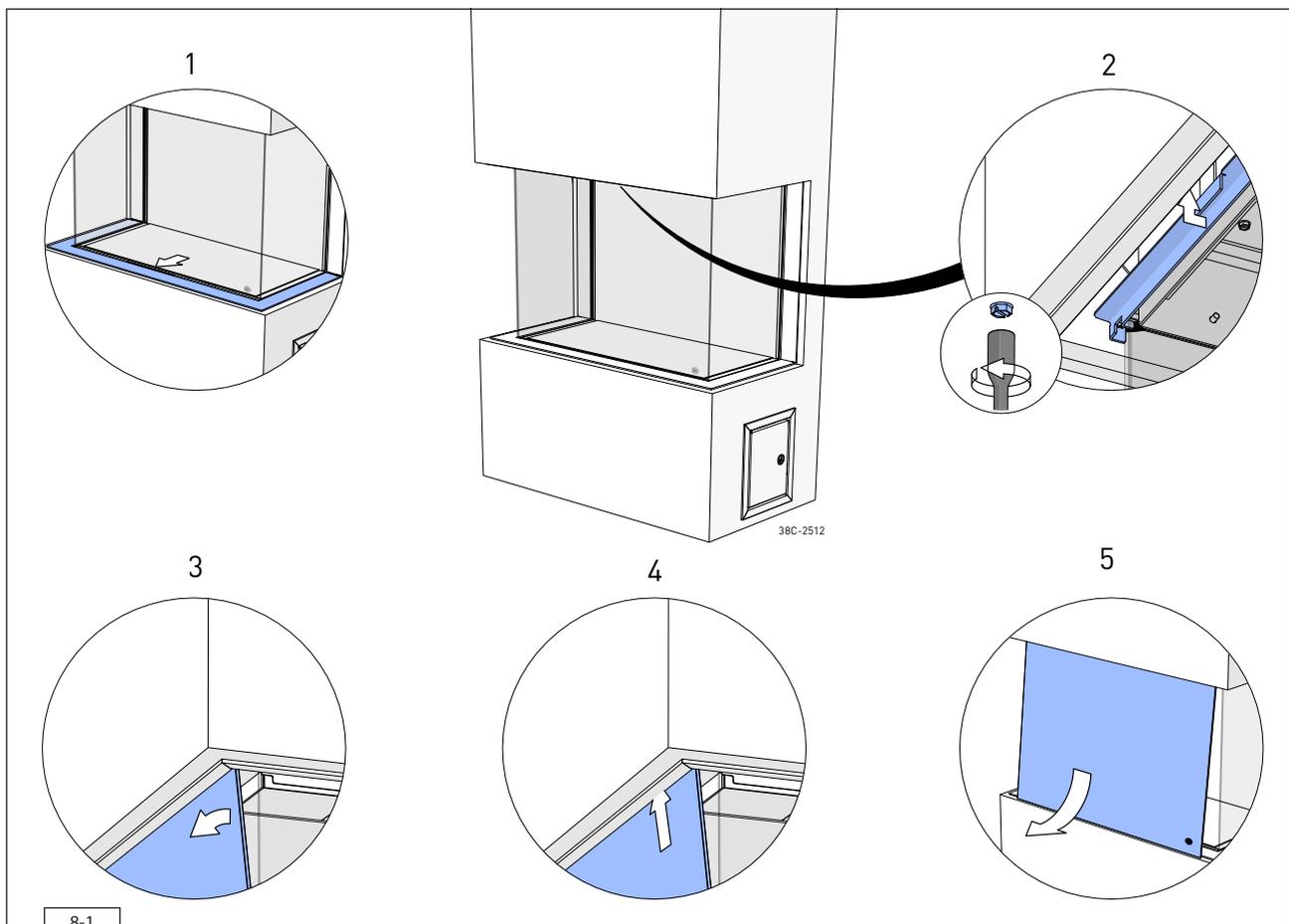
8.1.1 Removing the front glass pane

For removing the front glass pane, please observe the following steps.

8.1.1.1 Appliance with glass on 3 sides:

(see fig. 8-1)

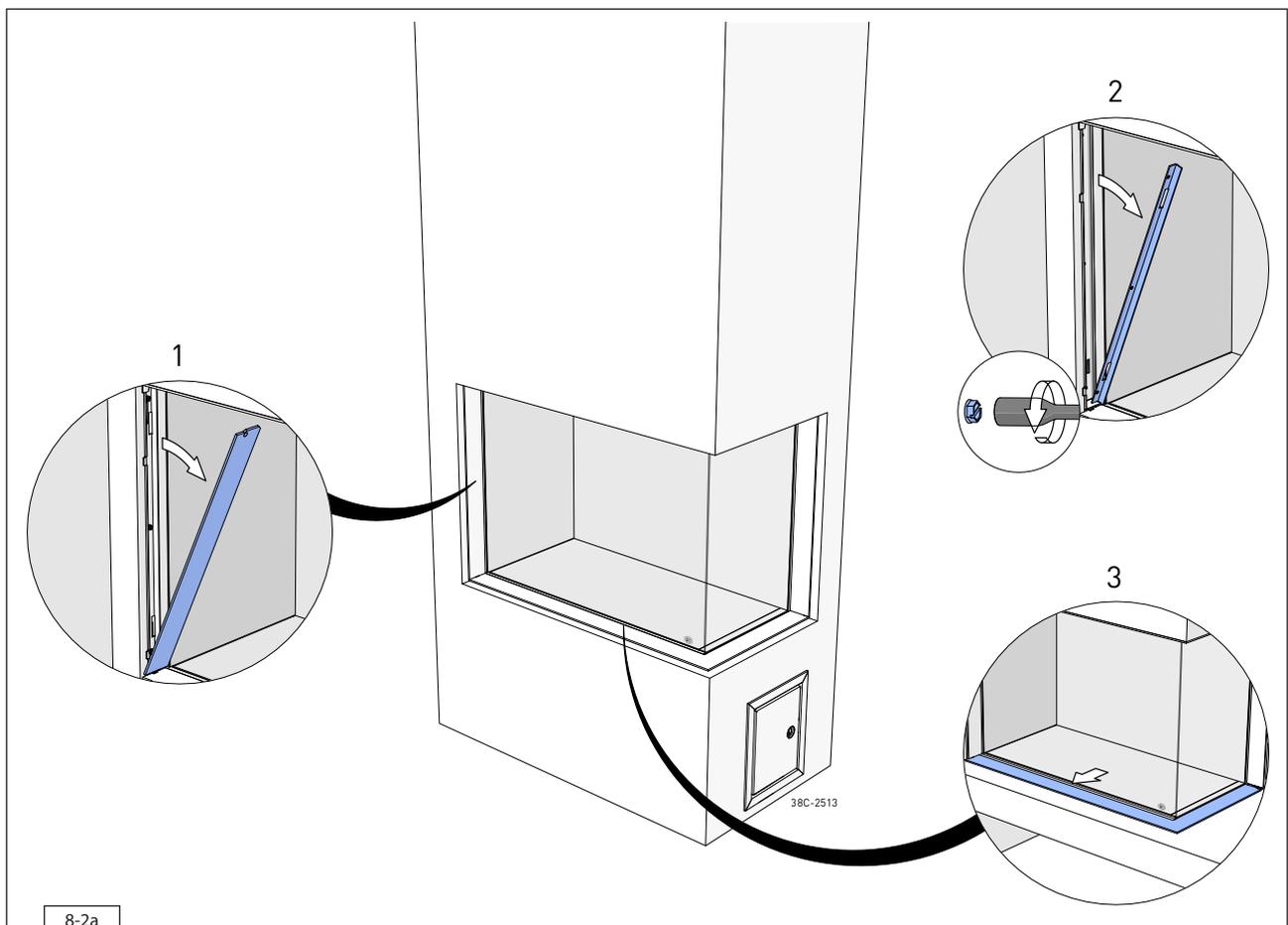
- If applicable, slide the lower decorative strip (1) towards the front. It is not necessary to remove it.
 - Remove the lock bolts from the springy glass pane strip at the top (2).
 - Take the springy glass pane strip (2) at its handles and place it on the higher brackets.
 - Grab the glass pane at both sides, tilt the top of the glass pane a little away from the appliance (3) and lift up the glass pane at an angle (4).
 - Tilt the bottom of the glass pane away from the appliance and remove the glass pane (5).
- ⚠ Prevent the glass pane from getting damaged.



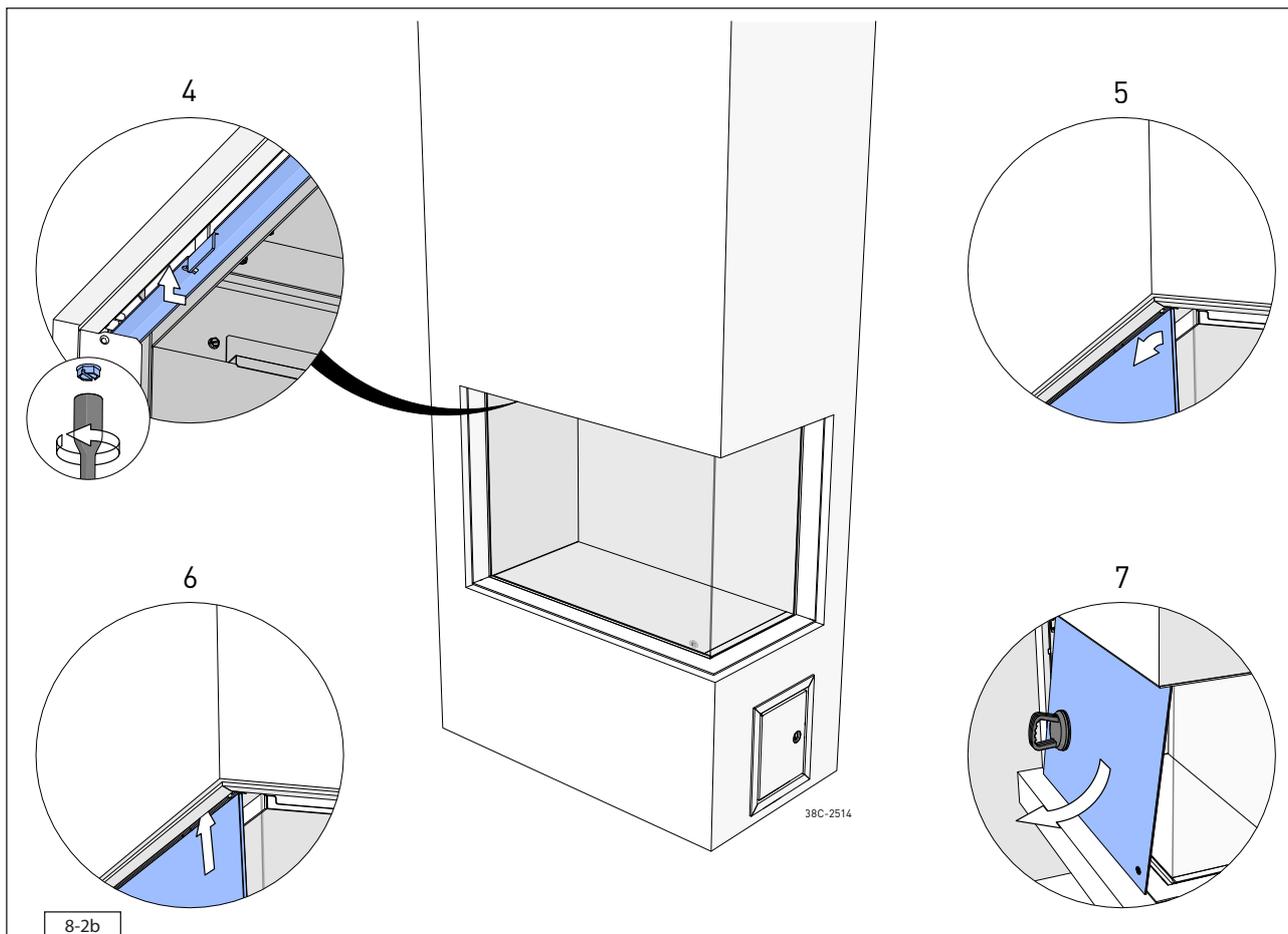
8.1.1.2 Appliance with glass on 2 sides:

(see fig. 8-2)

- Grab the vertical decorative strip (1) at the top, tilt the vertical decorative strip and remove it.
 - Unscrew the self-tapping screws from the vertical glass strip (2) and remove the vertical glass strip.
 - If applicable, slide the lower decorative strip (3) towards the front. It is not necessary to remove it.
 - Remove the lock bolts from the springy glass pane strip at the top (4).
 - Take the springy glass pane strip at its handles and place it on the higher brackets.
 - Place the suction cup on the front pane on the closed side of the appliance.
 - Grab the pane at the suction cup and side and slightly tilt the top towards you (5).
 - Lift the glass pane (6) and move it towards the side.
- ⚠ Prevent the glass pane from getting damaged.
- Tilt the bottom of the glass pane towards the front and remove the glass pane (7).



8-2a



8.1.2 Placing the glass pane

Placing the glass pane will take place in reverse order of removing the glass pane, as described above:

- ⚠ - Avoid/remove fingerprints on the glass pane, as they will burn into the glass.
- The self-tapping screws should not be over-tightened, since otherwise they could break or strip the thread.
- Place the glass pane with the logo at the bottom right.
- ⚠ - Make sure the front glass pane makes full contact with the side pane (there may be no opening between the side pane and front pane).
- Make sure the groove of the springy glass pane strip in which the glass pane is placed, is free from dirt prior to placing the glass pane.

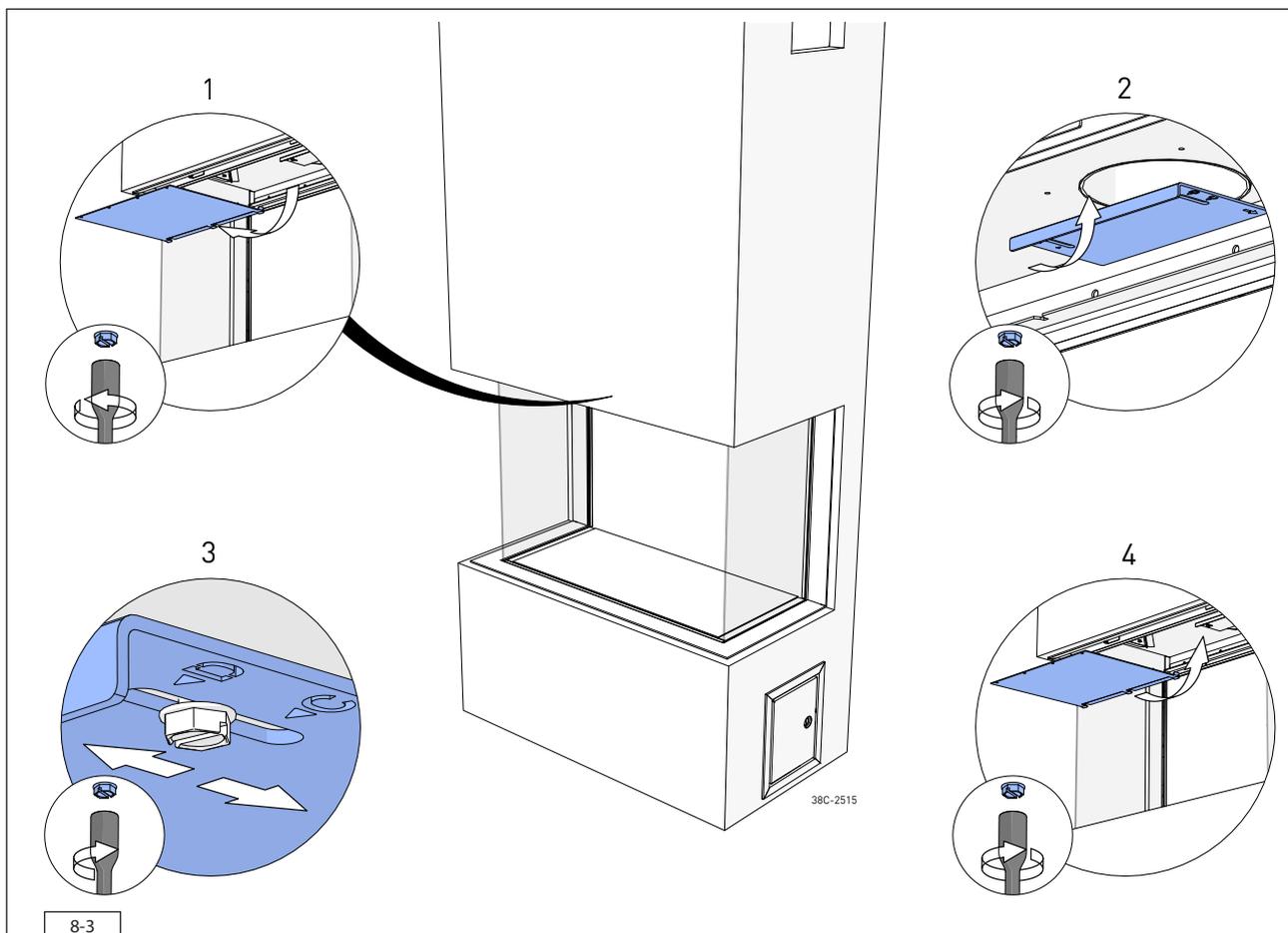
8.2 Setting the appliance

The appliance has to be set in such a way that it works correctly in combination with the discharge system. For that purpose, a restrictor slide is placed, the middle plate in the top is removed and/or the air inlet guide is removed. The conditions for using a wall terminal and roof terminal can be found in tables 7-1 to 7-3. If applicable, section 8.2.3 explains how this appliance should be adjusted for PowerVent®.

8.2.1 Restrictor slide and flue gas distribution plate

The restrictor slide is supplied separately. It is mounted as follows (see fig. 8-3):

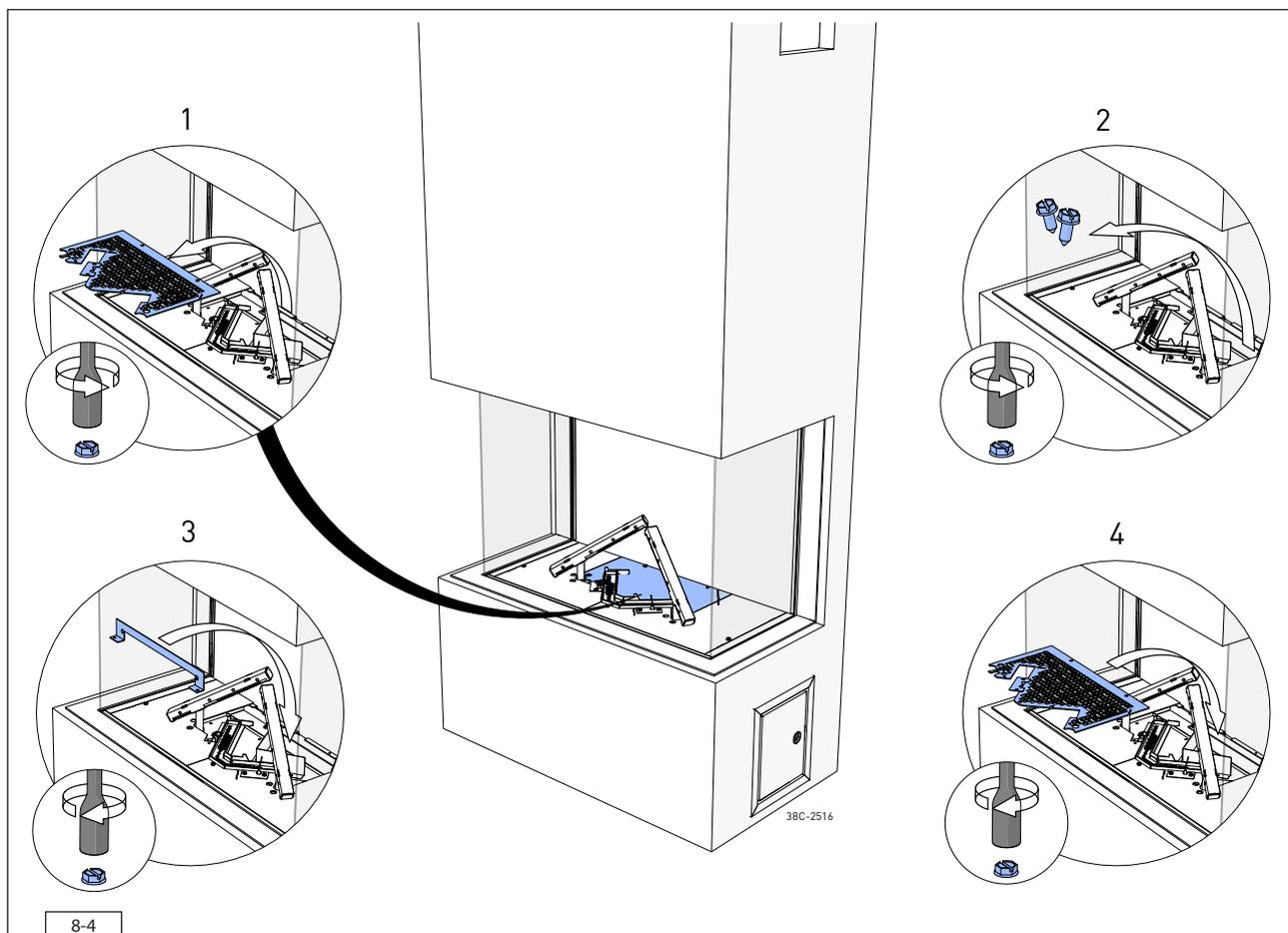
- Remove the flue gas distribution plate (1).
- Install the restrictor slide (2). The restrictor slide falls over part of the exhaust pipe hole, do not yet tighten the self-tapping screws.
- ⚠ When fastening, the arrow on the restrictor slide should point away from you.
- Adjust the position of the restrictor slide using situations C and D (see table 7-2 (3)).
- The letter of the position on the restrictor slide corresponds with the letter of the situation (see table 7-2).
- Make sure that the point of the triangle belonging to the position that you want and the centre of the self-tapping screw are exactly aligned.
- Tighten the 2 self-tapping screws.
- Place back the flue gas distribution plate (4).



8.2.2 Air inlet guide

The air inlet guide is supplied separately. In order to place it, you must remove the middle vermiculite plate. For placing the air inlet guide, proceed as follows (see fig. 8-4):

- Unscrew the self-tapping screws from the middle vermiculite plate (1) and remove them.
- Unscrew the pre-mounted self-tapping screws (2).
- Place the air inlet guide in accordance with the figure and fasten it with the self-tapping screws (3).
- Screw back the middle vermiculite plate (4).

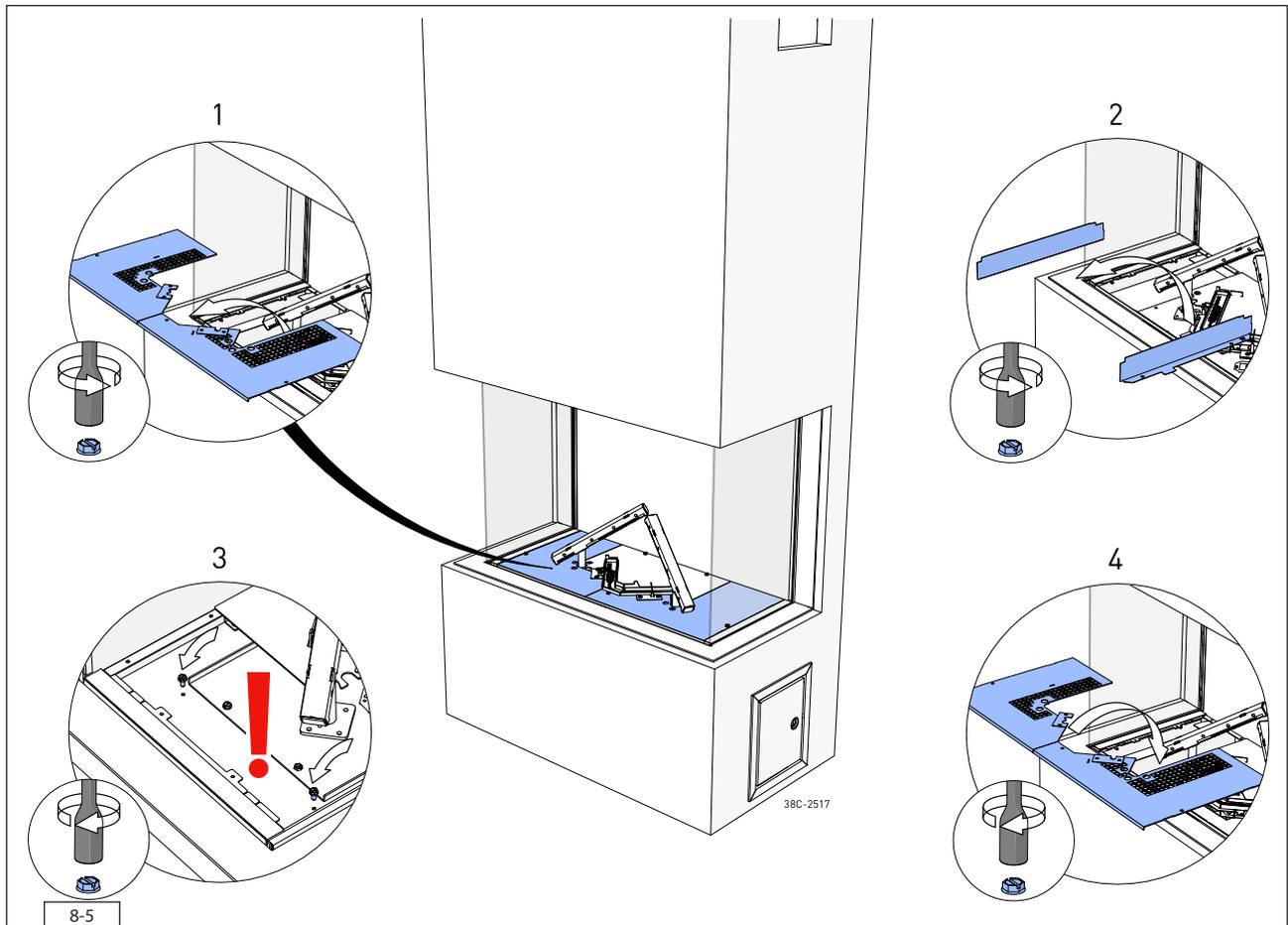


8.2.3 PowerVent®

(if applicable)

This appliance is suitable for PowerVent®. If this appliance is supplied with the bracket with PowerVent® control components mounted, the appliance is already properly adjusted ex factory. If not, check the following settings before consulting the installation manual of the PowerVent® and, if necessary, perform the following steps (see fig. 8-5):

- Unscrew the self-tapping screws from the plates and remove these plates from the appliance. Lift the plates by approximately 1 centimetre and slide them out of the appliance from underneath the standing burners (1).
- Unscrew the self-tapping screws from the partitions and remove them (2). Screw back the self-tapping screws in the combustion chamber (3).
- Unscrew the self-tapping screws from the plate and remove them (4).
- Check whether more work should be performed under the plates. If not, place these plates back in the appliance and fasten them with the self-tapping screws (4).
- For more information, please consult the PowerVent installation manual.



8.3 Wood set

The appliance is supplied with a wood set.

⚠ The figures do not always show the correct colours.

⚠ Observe the instructions below to prevent unsafe situations:

- Only ever use the supplied wood set.
- Place the wood set exactly as described.
- Make sure the ionization and spark electrodes and the surrounding space remain free (see fig. 8-6 and 8-7).
- Make sure there is no vermiculite dust on the burner.

⚠ Place the logs exactly as described, otherwise:

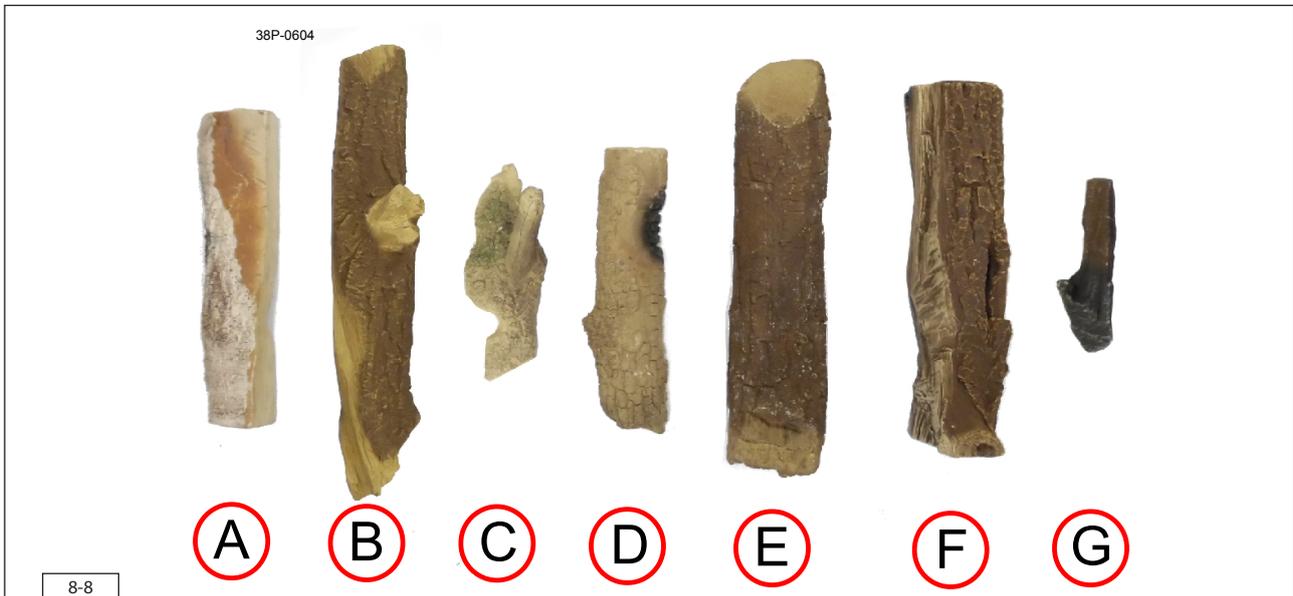
- the main burner will not ignite properly; which could result in unsafe situations.
- the appliance will become filthy more quickly, as a result of soot.
- the flame picture will be affected.

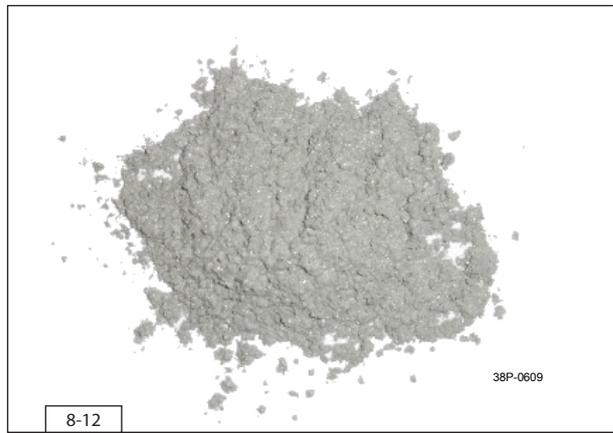
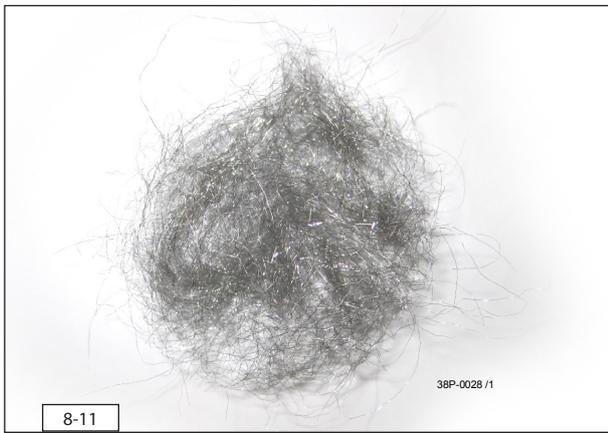
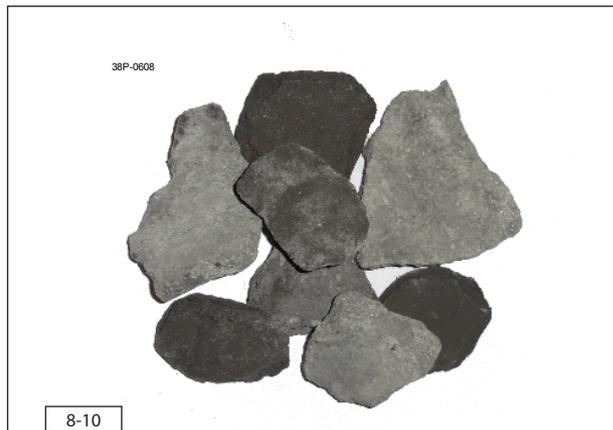


8.3.1 Placing the wood set

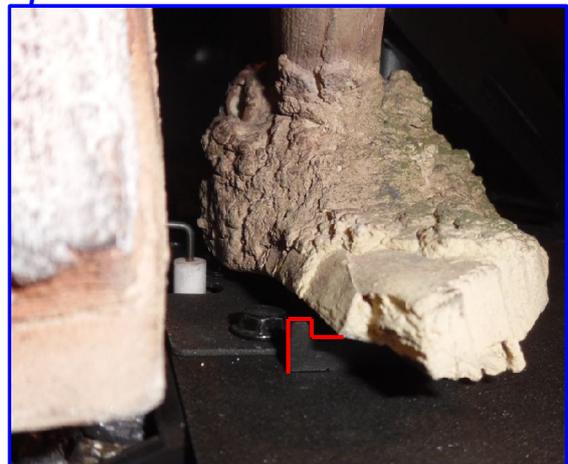
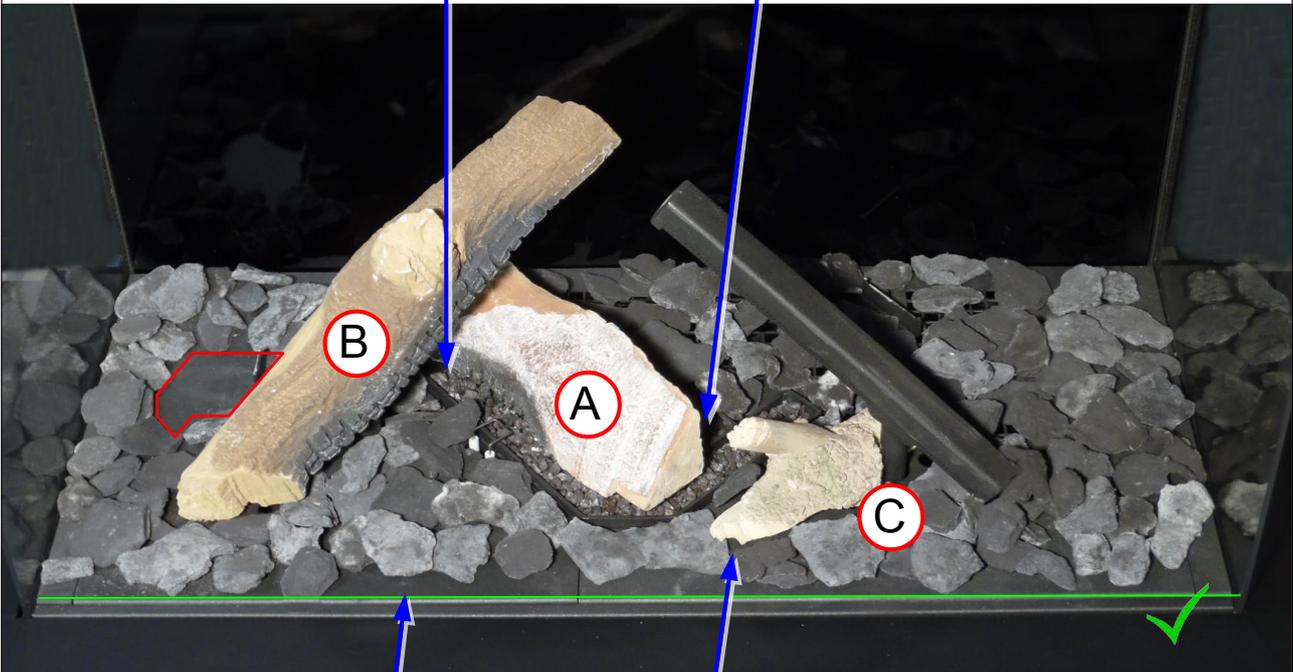
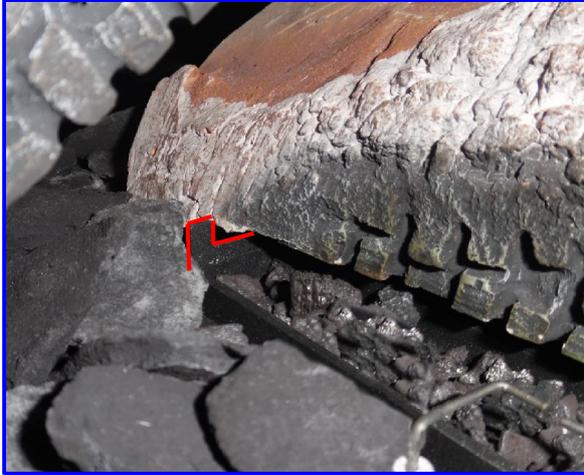
The wood set consists of a number of logs (see fig. 8-8), vermiculite (see fig. 8-9), chips (see fig. 8-10), glow material (see fig. 8-11) and ash (see fig. 8-12).

- Fill the V-shaped burner with vermiculite; evenly spread the vermiculite (see fig. 8-13).
The vermiculite may not get higher than the edge of the burner.



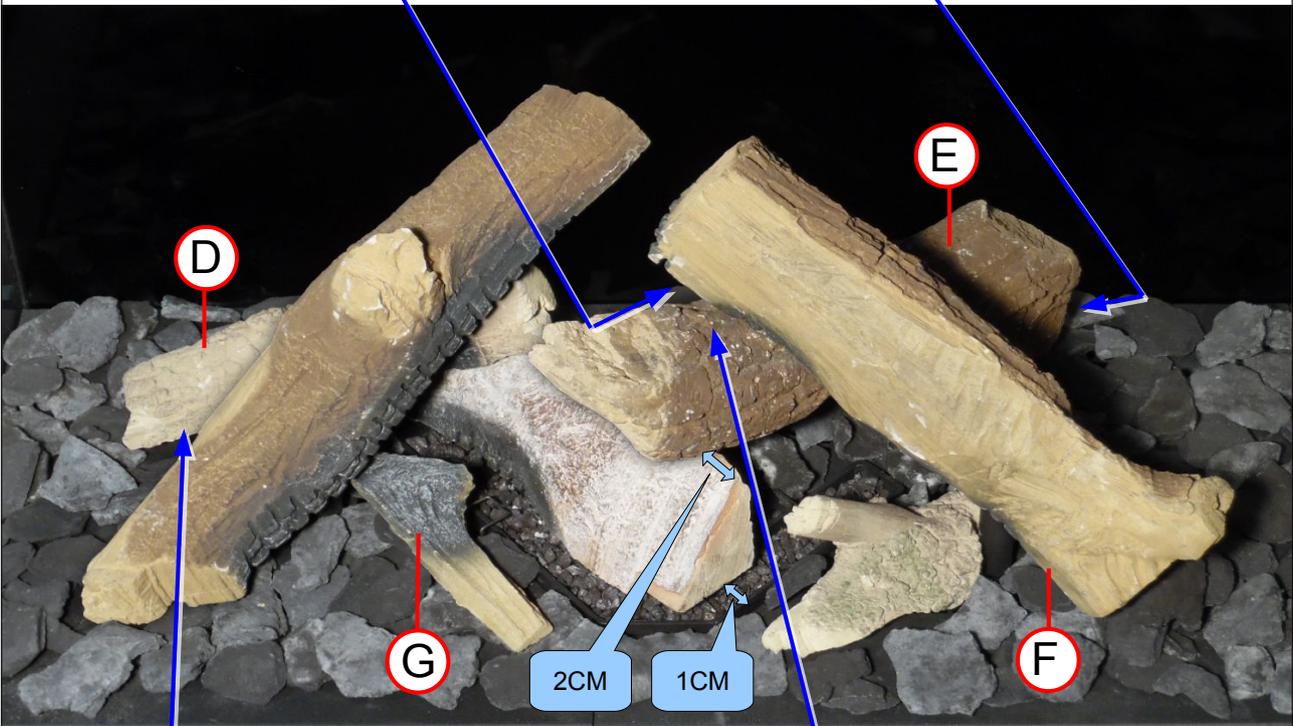
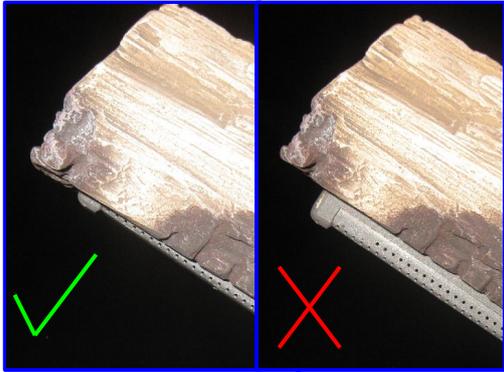


- You can influence the flame picture by moving the vermiculite,
 - The vermiculite may not get higher than the edge of the burner.
 - The burner deck has to remain covered with vermiculite in order to prevent reduction of the burner's life span.
- Identify logs A to G (see fig. 8-8).
- Use the burn stains on the logs for identification.
- ⚠ Place log A on top of the V-shaped burner in the position cams, the log may not cover the burner pattern (see fig. 8-13).
- Place log B over the left standing burner.
- Place log C against the tube of the left standing burner and in the position cam.
- Fill the vermiculite plates with chips, spread the chips evenly. Keep the front free from chips, so that no chips can get under the glass pane when the glass pane is closed. Keep a section to the left free for placing log D (see fig. 8-13).
- ⚠ The vermiculite plates are provided with square holes, these holes supply air. Do not place more than one layer of chips over these holes.
- Place log D on the position cam to the left and on log A to the right (see fig. 8-14 for G20/G25/G25.3 and fig. 8-15 for G31).
- Place log E on the position cam to the right and on log A to the left, make sure there is 1 centimetre play between log E and the standing burner to the right.
- Place log F over the standing burner to the right.
- ⚠ Make sure in case of G31 that logs B and F of the standing burners are not lying on the cams, but against the cams (see fig. 8-15).
- Place log G to the left of the ignition, on the chips.
- ⚠ Prevent chips from getting under the pane frame (see fig. 8-13).
- If necessary, distribute the glow material over the V-shaped burner and secure the glow material under the chips and/or wood set.
- ⚠ The areas around the ionization and ignition should remain free from glow material.
- If required, distribute the ash over the chips, prevent it from ending up on the burners.

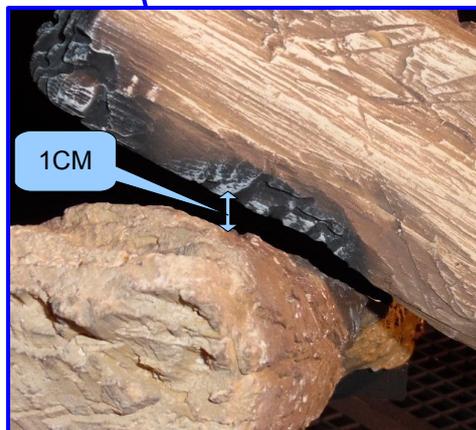


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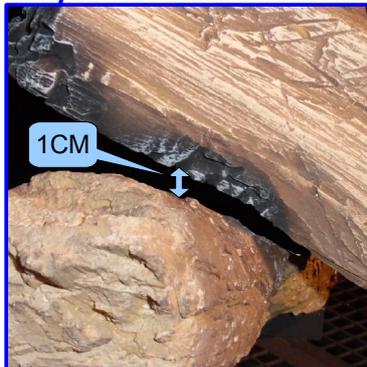
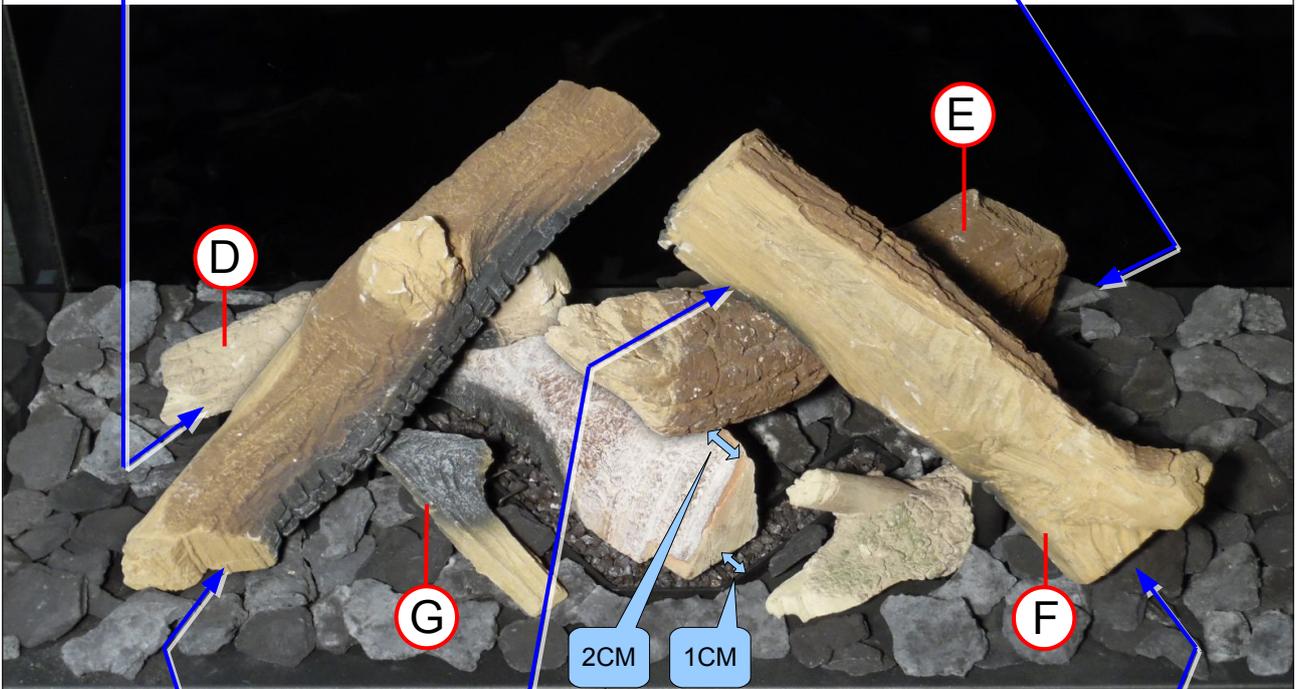
G20/G25/G25.3/~~G30/G31~~



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~~G20/G25/G25.3/G30/G31~~

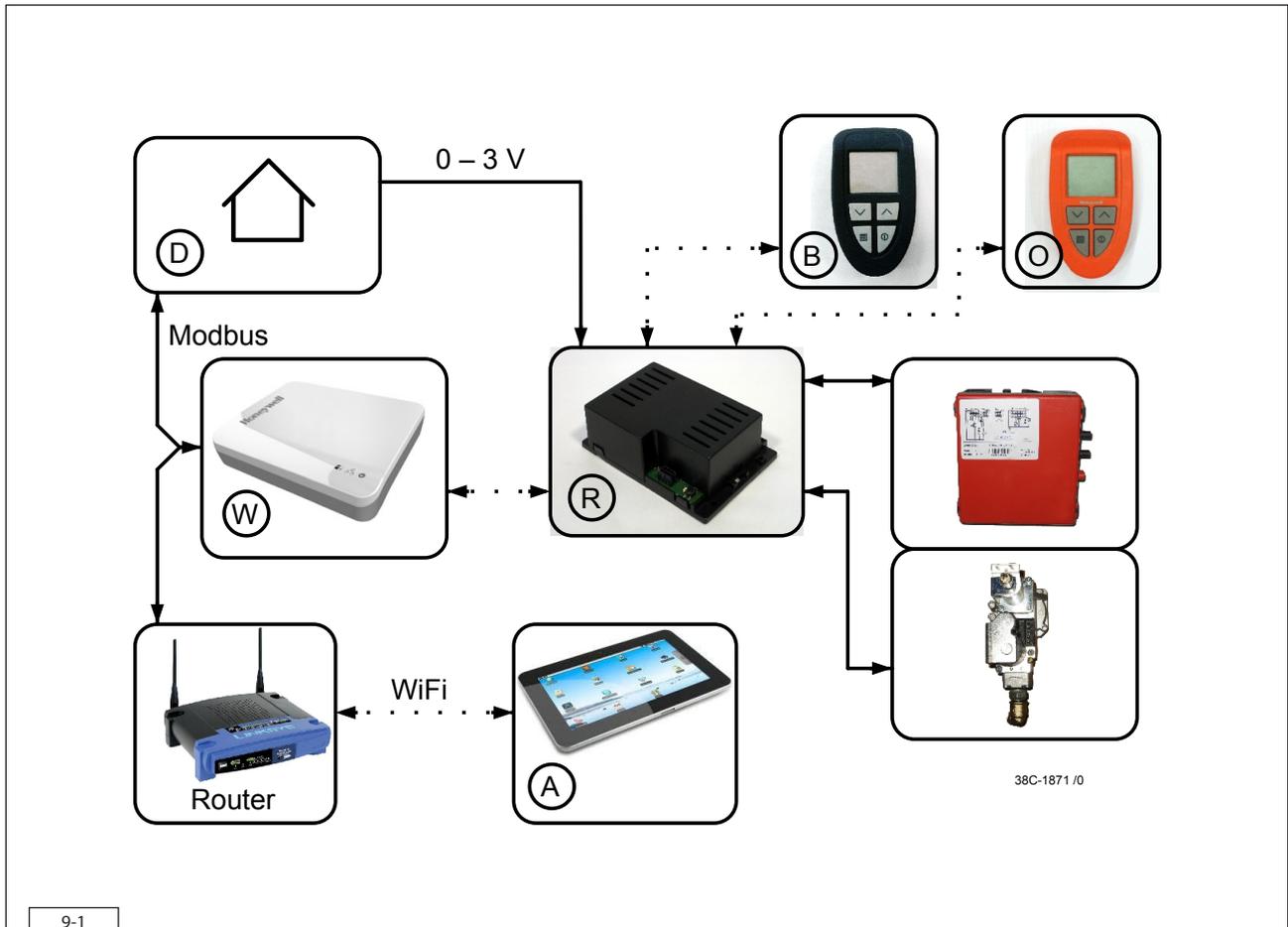


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9. Control/operation

The appliance is supplied with a wireless black remote control for the user (see fig. 9-1 (B)). As an option, an orange remote control can be supplied for the installer (see fig. 9-1 (O)). Flame height, ignition and switching off are controlled by the black remote control controlling the receiver. Some appliances can also be controlled in an alternative way. These options are described further down in this chapter. The user manual describes the operation of the appliance, including the operation of the remote control and alternative methods of operation.

- ⚠ - Do not ignite the appliance until it is fully installed when it comes to the gas connections, discharge system and electrical components.
- Chapter 6 of the manual supplied applies to an appliance equipped with the CM system.



9-1

9.1 Principle of ignition cycle

Below you will find a brief description of how this appliance is ignited. The appliance is off and will be switched on by means of the remote control. The receiver in the appliance will get a signal from the remote control to start the ignition process. This signal is passed on to the burner device, after which, if applicable, the relay for the Powervent System[®] is switched. After an 8 second interval, the ignition on the spark electrodes will start. If no Powervent System[®] is connected, only the relay will switch and the appliance will ignite immediately. The main burner will be ignited at about 50% of its capacity. This will prevent a larger amount of gas in the combustion chamber, if no ignition takes place. When the gas ignites, ionization will have to be detected. In order to make sure the flame has passed over, this will take place at the other side of the burner. When ionization is detected, the gas control will modulate to 100%. In the case of a switchable second burner, the second valve is switched after this (you will be able to hear a 'click') in order to ignite the second burner. After ignition of the second burner, the appliance will always go to full output (full capacity). This will guarantee that the second burner will actually ignite. The second burner can be switched on and off manually, by means of the remote control. In case of switching on manually, the appliance will first return to full load.

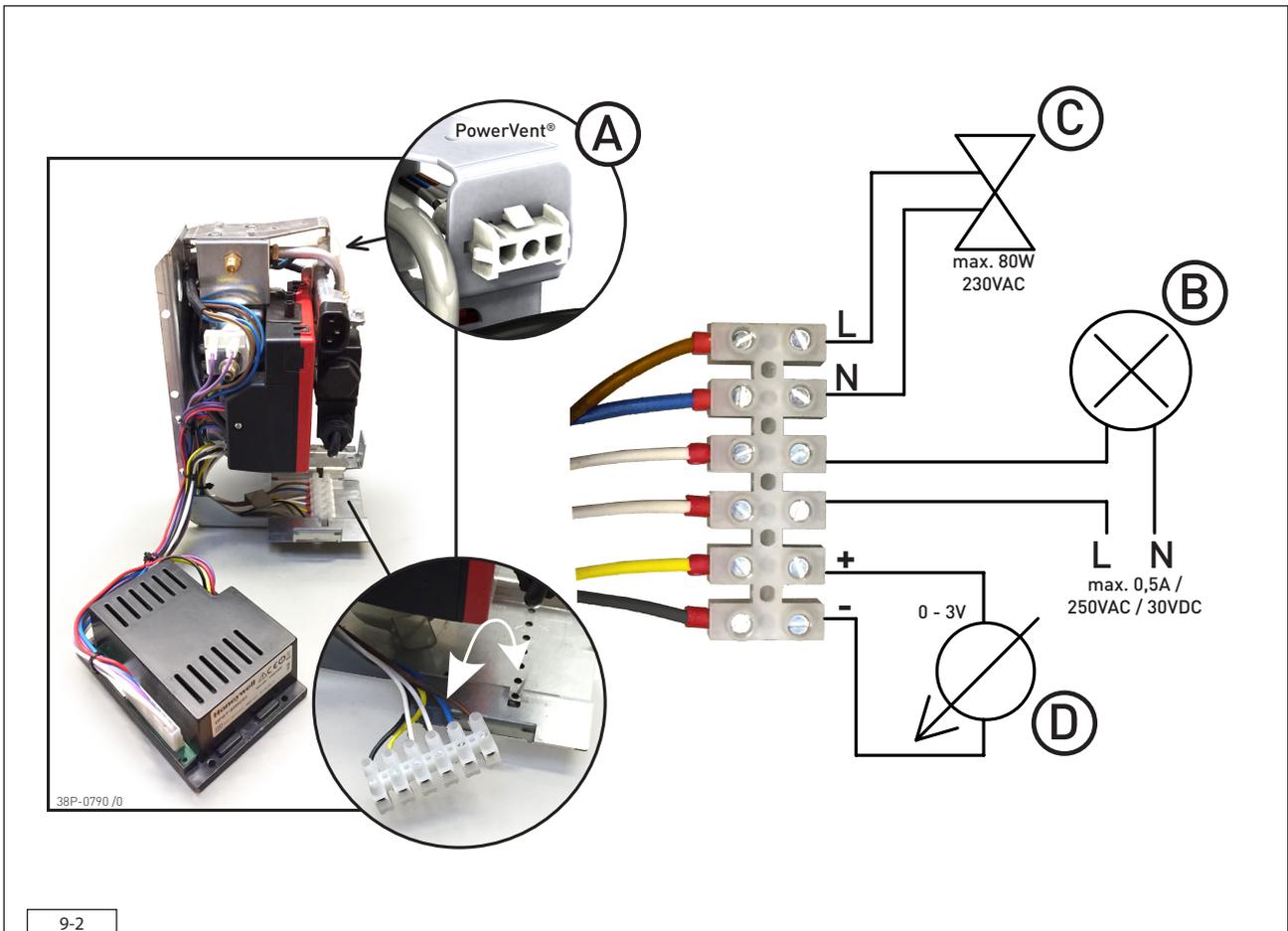


The control unit of the appliance meets strict safety demands. It is possible that the burning appliance switches off automatically and then switches back on again. This is not a failure, but a check. The moment the appliance's control unit is connected to mains voltage, the control unit will perform this check every 24 hours. If the appliance is burning at that time, the appliance will extinguish and then start again immediately. This can be prevented by removing the plug from the socket and immediately inserting it again at a time when the appliance is never or hardly ever burning.

9.2 Connecting the switch contact

(if applicable)

It is possible to operate one or more lamps (in case of several lamps, a maximum of 0,5A/250VAC/30VDC) via the remote control of the appliance. You could think of the lamps of Dru's lux elements. For this, you can use switch contact B on the receiver (see fig. 9-2). The switch contact is not polar sensitive.



9-2

9.3 Connection extra power supply (max. 80W, 230VAC)

(if applicable)

This connection is ideal for possible lighting or a ventilation system in the chimney breast and can be operated by means of the remote control (see Fig. 9-2 (C)). The power supply of this connection is identical to the mains voltage and it can be subjected to a maximum load of 80 Watts.

9.4 Remote controls

9.4.1 Black remote control for the user

Proceed as follows to make the black remote control ready for use:

- Place the two penlite batteries (AA) in the battery holder of the remote control.
- Make sure the voltage of the appliance is not switched off for longer than 5 minutes.
- If the remote control is not on 'BND', you must proceed as follows:
- Press the 'menu' button (button with square symbol) on the remote control for at least 10 seconds and then press a few times until 'BND' appears on the screen with the receiving symbol.
- Press the 'arrow up' and 'arrow down' buttons briefly and simultaneously, so that a (flashing) warning triangle and an hourglass appear in the screen as well.
- As soon as logging on is finished, the start screen will appear

💡 All functions are extensively explained in the supplied user manual.

9.4.2 Orange remote control for the installer

By means of the optionally available orange remote control, it is possible to read all information stored in the receiver. In this way, the last 20 error messages can be retrieved, and it will also be possible to read how many times an error occurred. Moreover, this remote control can also be used to adjust the basic settings and to read the magnitude of the ionization current. This remote control is also necessary for a wired home automation control.

9.5 Alternative operation

(if applicable)

In addition to the remote control, it is also possible to operate the appliance via an external source. For this purpose, a home automation system can be connected to the receiver. This can be both wired and wireless (see sections 9.5.1. and 9.5.2).

9.5.1 Wired

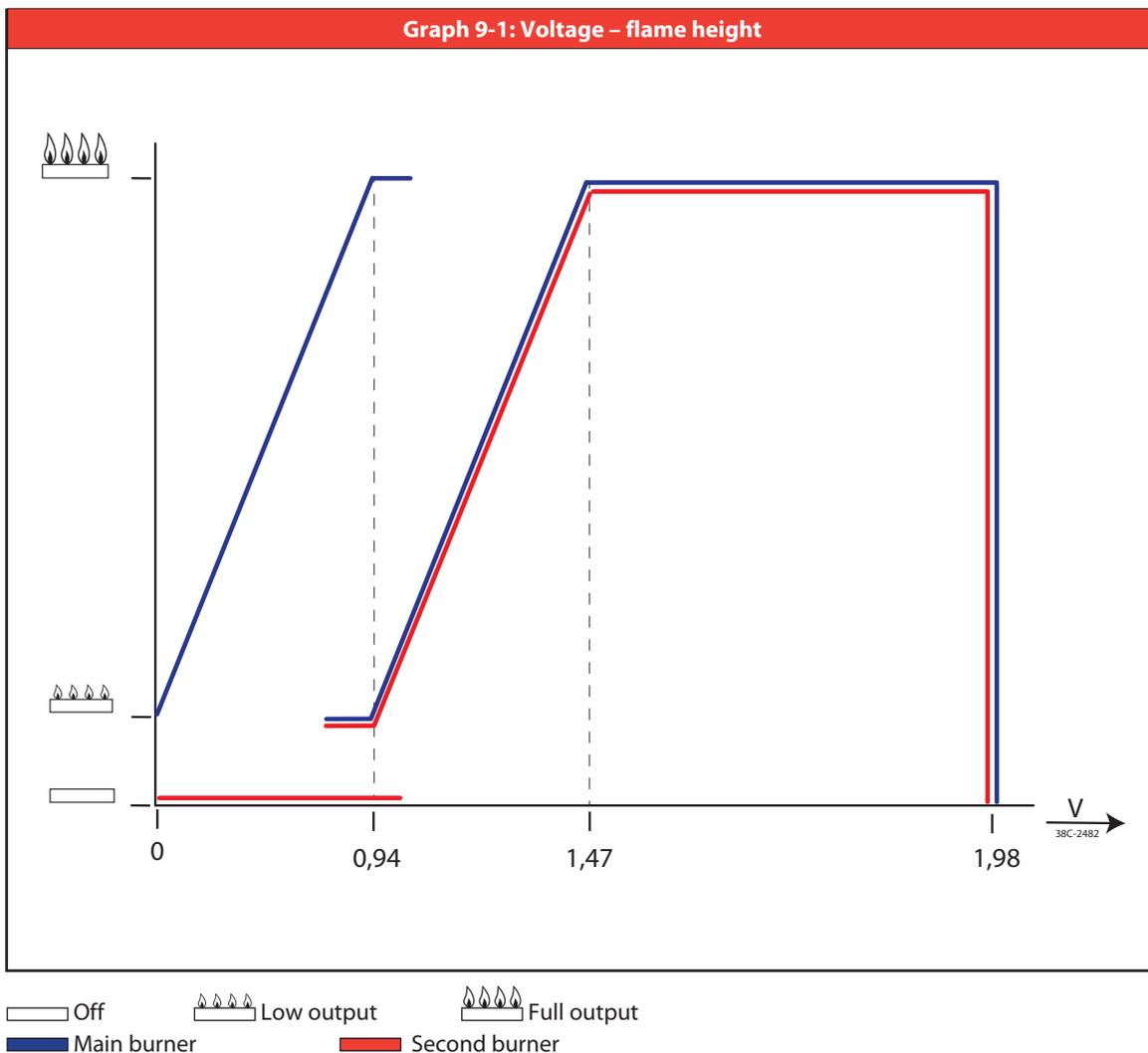
Wired connection of the home automation system to the receiver takes place via a 0-3VDC direct current (see fig. 9-2 (D)).

- ⚠ A higher voltage than 3V will damage the receiver and is therefore not permitted.
- 💡 In case of home automation systems with an output voltage of 0-10V, you should switch the voltage back to 0-3VDC. Use a voltage distributor made of resistors. For example, 2200 ohms and 680 ohms. The voltage above 680 ohms resistance can be used on the input of the 0-3VDC. Low ohmic resistors must be used.

By controlling the height of the voltage, the receiver will be able to calculate the position of the appliance. Graph 9.1 shows the relationship between the voltage, the height of the flame and the number of burners (1 or 2).

Proceed as follows when connecting the home automation system to the receiver:

- Connect the 0-3VDC signal to the connector, to which a black and yellow wire are connected (see fig. 9-2 (D)).
- Use the orange remote control to set the option for wired connection: go to position 8 in the first menu and select option 2 for an appliance with one burner and option 3 for an appliance with two burners. For this, read the manual for the orange remote control.
- ⚠ The yellow wire is the + pole, the black wire is the - pole. Always connect '- to -' and '+ to +'.



9.5.2 Wireless

The wireless connection is divided into 2 types:

- Connection via a 'modbus' protocol.
- Control via an application.

⚠ Only 1 type of wireless connection is possible on the communication module.

9.5.2.1 Connection via 'modbus' protocol

Wireless connection of a home automation system to the receiver is possible via a connection according to the 'modbus' protocol. Such a connection can only be established with a communication module (see fig. 9-1 (W)). This module can be ordered from DRU. This communication module translates the 'modbus' protocol from the home automation system into a wireless signal to the receiver.

When connecting a home automation system via the communication module to the receiver, proceed as follows:

- Use the remote control to test whether the location where the communication module will be placed is within the reach of the receiver.
- Place the remote control on this location and test the reception sensitivity (RSSI).
- Press the 'on/off' button and 'down arrow' at the same time. The value that is now visible, must be between -20 and -70 (see User Manual, "Reception Sensitivity"). If needed, hold the remote control closer to the appliance in order to improve the reception.
- Connect the communication module by means of an RJ45 plug, according to the instructions in the manual that is supplied with this module.
- Now follow the steps described in the 'modbus' protocol manual. It is available from the supplier of the home automation system.

9.5.2.2 Control via application

Also when operating the appliance via a tablet provided with the DRU Control App (iOS or Android), you will need a communication module. This module can be ordered from DRU.

In order to control the application via the DRU Control App, proceed as follows:

- Use the remote control to test whether the location where the communication module will be placed is within the reach of the receiver.
- Place the remote control on this location and test the reception sensitivity (RSSI).
- Press the 'on/off' button and 'down arrow' at the same time. The value that is now visible, must be between -20 and -70 (see User Manual, "Reception Sensitivity"). If needed, hold the remote control closer to the appliance in order to improve the reception.
- Connect the communication module by means of an RJ45 plug, according to the instructions in the manual that is supplied with the communication module.
- Use the instructions for the application in order to install it.

- ⚠ - The DRU Control app functions in accordance with the multicast and communication protocol. Ensure the router is equipped with this. For this, consult the router's installation manual.
- If the DRU Control app is used, the thermostat function no longer applies. The 'DRU Control' application is available from the Appstore, via GooglePlay or the DRU website: www.drufire.com

10. Final inspection

For a good and safe operation of the appliance, the following checks must be performed prior to commissioning.

10.1 Gas tightness

- ⚠ All connections must be gas tight. Check the connections for gas tightness. The gas control can be subjected to a maximum pressure of 50 mbar.

10.2 Gas pressure/line-pressure

The burner pressure is set at the factory; see data plate.

- ⚠ The line-pressure in house installations must be checked, because it can be wrong.
- Check the line-pressure. See fig. 6-1 (P1) for the measuring nipple on the gas control.
 - Contact the gas company if the line-pressure is too high.
 - If the line-pressure is too low, check this at the gas meter. Contact the gas company if the line-pressure is also too low at the gas meter.

10.3 Ignition main burner

For igniting the main burner, see the User Manual.

10.3.1 First ignition of the appliance after installation or adjustments

- ⚠ After installation, or after work has been performed, you should ignite the appliance for the first time without the glass pane. If necessary, bleed the gas pipe.

Proceed as follows:

1. Remove the glass pane from the appliance (see chapter 8).
2. Start the ignition procedure as described in the User Manual.

The appliance ignites on the main burner with 50% of the full output. Once the flame has passed over the main burner to the ionization and a flame has been detected, the appliance will modulate to 100%. This detection will have to take place within 15 seconds, or else the appliance will enter error mode. If the appliance has a second, separately switchable burner and the main burner continues to burn, the second valve will switch in order to ignite the second burner. Here, you can hear a clear 'click' sound. (Go to step 11 if the burner continues to burn).

If the main burner does not ignite:

3. Reset the system by pressing the buttons 'arrow up' and 'arrow down' simultaneously.
4. Repeat the ignition procedure until the main burner ignites.

- ⚠ The system can be reset and re-ignited two times in a row at maximum. Then the system will enter a hard lock-out and you will have to wait half an hour, before you can make a new attempt. Never use more than 3 attempts to ignite the appliance, as this could lead to an accumulation of gas within the appliance. Make sure that there is no more gas in the appliance before making 3 new ignition attempts.

- If you do not succeed after a few attempts, consult the diagram with error messages (see appendix 1: Malfunctions).

5. Check the flame transfer on the main burner and check whether the main burner continues to burn (go to step 11 if the burner continues to burn).

If the main burner does NOT continue to burn:

6. Mount the glass pane.
7. Reset the system by pressing the buttons 'arrow up' and 'arrow down' simultaneously.
8. Now ignite the main burner and check whether it continues to burn (go to step 12 if the burner continues to burn).

- ⚠ Limit the ignition attempts with mounted glass pane to a MAXIMUM of 1 ignition attempt.

If the main burner again does NOT continue to burn:

9. Switch off the appliance.
10. Consult the diagram with error messages (see appendix 1: Malfunctions) (Go to step 1 once the malfunction has been remedied).

If the main burner DOES continue to burn:

11. Clean the glass pane before using it for the first time, as described in the user manual. Then mount the glass pane as described in chapter 8.

12. Repeat the ignition procedure a few times and perform the checks described in section 10.3.2.

13. From now on, the main burner should ignite smoothly and continue to burn.

14. Clean the glass pane after burning for the first time, as described in the user manual.

⚠ Always wait 5 minutes before re-igniting the appliance.

10.3.2 Procedure for igniting the main burner

- ⚠ - The ignition electrode should ignite the main burner(s) within a couple of seconds and without popping.
- The main burner(s) must pass over fluently without popping, covering the entire burner, and continue to burn.
- If the appliance does not ignite after 2 restarts and enters hard lockout, it may never be reset by disconnecting the appliance from the power supply. If a restart is necessary after all: remove or open the glass pane and make sure the gas is able to escape from the appliance. After this, the appliance may be disconnected from the power supply for 10 sec. After these 10 sec., the power supply may be reconnected.

Ignite the appliance in the same way as the first ignition, as indicated in section 10.3.1.

➤ Check operation of the main burner from a cold condition.

➤ If sparks are determined between the ignition electrodes, the main burner should burn within a few seconds.

⚠ If NO sparks are determined, it is NOT permitted to continue the procedure.

Consult the diagram with error messages (appendix 1: (Malfunctions) if the ignition of the main burner does not comply with the above-mentioned requirements.

💡 The flame picture and a good flame transfer can only be properly judged if the glass pane is installed or closed.

10.4 Flame picture

The flame picture can only really be assessed when the appliance has been burning for several hours. Volatile components from paint, materials, etc., which evaporate in the first hours, will affect the flame image.

➤ Check that the flame picture is in order.

➤ Consult the diagram with error messages (appendix 1: Malfunctions) if the flame picture is not in order.

11. Delivery

Familiarise the user with the appliance. Provide the user with instructions on putting it into operation, the safety measures, the operation of the remote control and annual maintenance (see the User Manual).

- ⚠ - Tell the user to close the gas tap immediately and contact the installer in case of malfunctions/poor operation. This to prevent unsafe situations.
- Chapter 9 of the manual supplied applies to an appliance equipped with the CM system.
- Indicate the location of the gas tap.
- Point out the precautions in the User Manual against unintended ignition by other wireless remote controls such as car keys and garage door openers.
- Point out the 230 Volt connection.

- Instruct the user about the appliance and the remote control.
- When taking the appliance into operation, point out the following:
 - In order to prevent cracks, a chimney breast made of stone-like materials or finished with plaster, must dry at least 6 weeks prior to taking the appliance into operation.
 - Chapters 10 and 11 of the manual supplied apply to an appliance equipped with the CM system.
 - Volatile components from paint, materials, etc., evaporate when burning the appliance for the first time (read chapter 3 of the User Manual!).
 - During evaporation, preferably set the appliance to the highest position.
 - Make sure the room is properly ventilated.
 - Cleaning the glass pane(s).

- Give the manuals to the user (all manuals should be stored near the appliance).

12. Maintenance

Once per year, the appliance must be checked, cleaned and, if necessary, repaired by a competent installer in the field of gas heating and electricity. At least check that the appliance is working properly and safely.

- ⚠ - Always close the gas tap during maintenance work.
- Check the gas tightness after repair.
- Make sure there is no voltage on the appliance.
- **SS-absolutely do not clean the concentric system (internally) with a steel brush or metal sponge, for example.**
This will damage the oxide skin and could lead to leaks in the system as a result of pitting corrosion.

- Clean the glass pane(s), if necessary.

- ⚠ Only clean a glass pane once it has reached room temperature.

- ⚠ - Avoid damage to the glass pane(s).
- Avoid/remove fingerprints on the glass pane(s), since otherwise they will burn into the surface.
- Clean the pane(s) as described in the user manual.
- Regularly remove accumulated dirt, as it can burn into the glass.
- Do not use the appliance when a glass pane is broken and/or cracked, until it has been replaced as described from section 8.1.

- Inspect the flue gas discharge system.

- ⚠ You must always perform a final inspection.

- Perform the inspection as described in chapter 10.

12.1 Parts

Components that have to be replaced are available at the supplier.

Appendix 1: Malfunctions

Malfunctions			
Error code	Problem	Possible cause	Remedy
F01	Communication loss between receiver and burner device	Communication cable does not make contact	Make sure the connectors of the communication cable make proper contact
		Communication cable defective	Replace communication cable
F02	Receiver overheated (60° above room temperature)	Poor ventilation at receiver	Improve ventilation at receiver
		Receiver makes contact with hot parts	Move receiver in such a way that there is no more contact with hot parts
F03	Internal (receiver) NTC sensor does not work correctly	Receiver defective	Replace the receiver
F04	External NTC sensor, does not work correctly.	External NTC sensor or cabling defective.	Replace NTC sensor or replace cabling.
F05	Internal safety error	Receiver defective	Replace the receiver
F06	Communication loss between transmitter and receiver	Transmitter is out of the receiver's range	Make sure the transmitter is near the receiver
		Obstacles between transmitter and receiver that could interfere with the signal	Remove possible obstacles between transmitter and receiver
		Transmission strength is too weak	Check transmission strength (see User Manual chapter 10)
F08	No ionization	No sparks	Make sure the distance between the electrodes is 3-4 mm
			Replace the spark electrodes
		No gas	Check whether there is gas
			When using PowerVent, check that the gas valve opens
		Poor flame transfer main burner	Check position of blocks/chips
			If necessary, remove dust from burner openings
		No good flame under ionization pin (suffocating flame)	Glass pane strips not placed correctly
			Check restriction and air inlet guide setting
			When using PowerVent, check pressure setting
		Ionization pin placed incorrectly	Place it on the right location.

Malfunctions			
Error code	Problem	Possible cause	Remedy
F08 (Continued)		Ionization pin blocked (measure ionization current when > 0 and $< 1.8 \mu\text{A}$)	Remove any vermiculite or chips from the burner.
		Ionization pin defective (measure ionization current when 0)	Replace the ionization pin
F12	ESYS is not released	ESYS is in hard-lock	Wait half hour until ESYS resets itself
F13/F14	ionisation Flame Loss when only the main burner (F13) is on or both burners (F14) are on	Ionisation pin short-circuited	Remove chips, vermiculite or glow material lying against the ionisation pin
		Ionisation current too critical ($0.8 \leq \text{ionisation} < 1.8 \mu\text{A}$)	Increase ionisation current to $\geq 1.8 \mu\text{A}$ by rearranging vermiculite and removing chips and dust from the burner openings
		Suffocation due to poor flue gas channel	Check the concentric system
			Check the setting of the appliance
		Suffocation when using PowerVent	Check the pressure setting of the PowerVent system
		24 hour check control (only in case of F13)	Reset with remote control (consult Powervent manual)
		Gas has fallen away	Check gas supply
		Gas control defective (see "A" in appendix 3, fig. 38)	Replace the gas control
	No burner device (see "C" in appendix 3, fig. 38)	Burner device came loose	Attach the burner device
		Burner device incorrectly mounted	Mount the burner device correctly
F15		Pins on the connector on the gas control are bent	Bend them straight
	High limit error	High limit bridge defective	Check High limit bridge ESYS
	Hardware Error ESYS	ESYS defective (burner device)	Replace ESYS (burner device)
	Disable contact is closed	Window is open (if this contact is present)	Close window
		A bridge has been created over the Disable contact	Remove bridge on ESYS (burner device)
F16			
F17			

