

Pepetools

DC Plater Rectifier

Power supply operation manual

Model reference 0UFX-029-200-00

Technical version 1.1



18 V DC / 80 A / 950 W

Installation, operation, maintenance and troubleshooting

Read this manual before installing or operating the equipment.

Keep it available for operators and service personnel.

Contents

This manual explains how to install, operate and maintain the Pepetools DC Plater rectifier. Read the safety instructions before connecting the unit or using any operating mode.

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Check the equipment identification

Before using this manual, check the model, revision and serial number on the equipment nameplate. This manual applies only to the model and associated revisions identified for the unit. Review any change pages supplied with your equipment. Contact Pepetools if the identification differs or applicability is unclear.

How to use the controls

Menu labels appear in **bold** and follow the wording shown on the display. Turn the rotary encoder to move through items or change a value. Press briefly to select an item. Press and hold for **more than 3 seconds** to return to the main menu and stop the plating output.

Safety

WARNING Hazardous voltages can cause serious injury or death. Line voltage remains inside the cabinet when the unit is switched OFF. Lethal voltages may also be present in connected or nearby equipment.

Before any service, inspection or maintenance, switch the power supply OFF and isolate and lock out the external power source. Follow approved lockout/tagout procedures so that no one can accidentally energize the equipment.

Operator and service responsibilities

- Read and understand the entire manual before operating the unit. Operators are responsible for taking all required safety precautions; this manual does not replace training.
- Only qualified personnel trained in the equipment and familiar with the technology may operate the system.
- Only authorized personnel may install, assemble, inspect, maintain, troubleshoot or service the equipment. Contact Pepetools support before servicing the unit. Unauthorized troubleshooting or repair voids the warranty.
- Do not disassemble the device. Ensure that all external wiring complies with applicable codes.
- Use the equipment only as described in this manual. Other uses may impair its protective features and damage the unit.
- Observe every warning and use sound judgment. Failure to follow the warnings may cause equipment damage, serious injury or death.

Safe placement and handling

- Keep the power supply dry. Do not expose it to rain or moisture.
- Keep ventilation openings clear. Leave at least **10 cm** between the power supply and walls for airflow.
- Place the unit on a flat, stable surface. Do not stand on it or place heavy objects on it.
- Do not jerk or pull sharply on the power cord.
- Disconnect the AC cord when the unit will not be used for an extended period.

Installation and startup

WARNING Inspect the equipment before installation. Shipping damage may cause improper operation or create a hazardous condition that can result in injury or death. Do not operate a damaged unit.

Unpack and inspect

The power supply is inspected and tested before packing. Unpack it carefully and inspect the cabinet, controls, cables and connections for visible shipping damage before attempting to operate it.

If you find damage, immediately file a claim with the responsible transport service and contact your Pepetools sales representative. The carrier is responsible for shipping damage, including concealed damage.

Install the power supply

1. **Choose a suitable location.** Use a flat, stable surface in a dry area. Keep ventilation openings unobstructed and maintain at least 10 cm clearance from walls. Check the environmental limits on page 8.
2. **Complete the incoming inspection.** Confirm that the unit and accessories are undamaged and that the model and revision match the equipment documentation.
3. **Connect accessories and the plating load.** With power isolated, make any required accessory or system connections and connect the plating equipment to the power supply outputs. Installation and wiring must be performed by authorized personnel.
4. **Check the AC supply.** Confirm that the line voltage and frequency are within the input ranges on page 7, and check the AC cord connection before energizing the unit.
5. **Switch the unit ON.** The main menu appears. Review the controls, select the required operating mode, and check the settings before starting the plating output.

Radio interference

This is a Class A product. It is not intended for installation in a residential environment. It may cause radio interference in residential, commercial or light industrial environments. Where commercial or light industrial installations connect to the public mains supply, the user may need to take appropriate measures to reduce interference.

Installation assistance

Contact Pepetools technical support if you need help with installation or commissioning. Support contact details are on page 16.

Equipment and controls

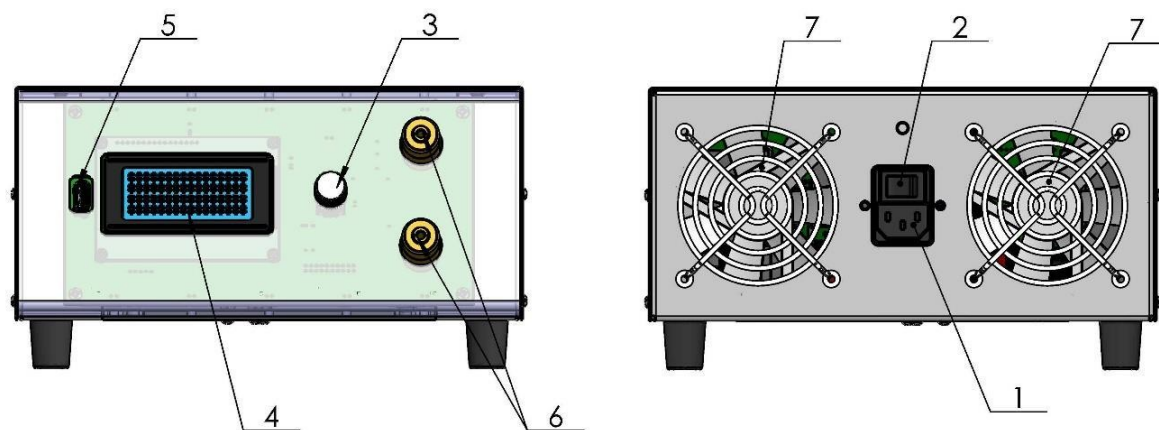


Figure 1. Front and rear views with component reference numbers.

Item	Component	Purpose
1	AC power entry	Connection for the AC power cord.
2	ON/OFF switch	Switches the power supply on or off.
3	Rotary encoder	Turn and press to navigate menus and edit settings.
4	Control panel display	Shows menus, operating values and status.
5	USB port	For firmware upgrades only.
6	Plating output terminals	Connections to the plating load.
7	Cooling fans	Provide forced-air cooling.

Using the rotary encoder

Action	Result
Turn	Move between menu items or adjust the selected value.
Press briefly	Open a submenu, select or deselect a value in edit mode, or activate the highlighted control.
Hold for more than 3 seconds	Return to the main menu, place the unit in standby and switch off the plating output.

WARNING Standby does not isolate AC power. Before inspection, maintenance or service, switch OFF and lock out the external power source.

Status indicators and main menu

Green panel backlight

Indication	Meaning
Off	The unit is in standby.
On	The plating output is on.
Blinking	An error is present.

Rotary encoder indicator

Indication	Meaning
Off	Standby.
Purple	The plating output is on and the 950 W power limit has been reached.
Yellow	The output current limit has been reached.
Blinking red	A device fault is present.

Main menu

When the power supply is switched on, the main menu appears. Turn the encoder to highlight an option, then press briefly to open it.

```
> START PROGRAM
  PROGRAM SETUP
  MANUAL MODE
  SERVICE
```

Figure 2. Main menu.

Menu	Use
START PROGRAM	Select and run one of five programs or a program sequence.
PROGRAM SETUP	Edit program settings or arrange a sequence of up to five steps.
MANUAL MODE	Control output voltage, current limit, polarity and plating directly.
SERVICE	View temperatures and charge information, adjust available service settings, or view device information.

Note: Available menu items depend on the unit configuration. Options that are disabled, absent or unused, such as heating on configurations without that feature, are not displayed.

Electrical specifications

AC input

Parameter	Rating or condition
Nominal input	110 V AC / 220 V AC; 50/60 Hz; automatic range switching
Permitted input range	105-132 V AC / 200-248 V AC; 50/60 Hz
Efficiency	At least 88% at full power

Output limits and voltage regulation

Parameter	Rating or condition
Maximum output voltage	18 V DC
Maximum output current	80 A
Maximum output power	950 W, power limited
Voltage accuracy	At most 0.2%
Voltage adjustment step	10 mV (0.01 V)
Voltage ripple and noise	At most 1% under maximum load
Output terminal voltage instability	At most 1%, with time and external factors

Current regulation

Parameter	Rating or condition
Load current adjustment range	0.35-80 A
Current accuracy	At most 1%
Current adjustment step	10 mA (0.01 A)
Current ripple and noise	At most 1% under maximum load
Load current instability	At most 1%, with time and external factors

Power limit: The 18 V and 80 A ratings are individual limits. Their product cannot exceed the 950 W output limit. The encoder indicator turns purple when the power limit is reached.

Note: The current regulation specification is 0.35-80 A. Program and manual menus allow a current limit setting of 0-80 A. A selectable limit below 0.35 A does not establish a regulated operating range below the stated specification.

Timing and operating conditions

Timing specifications

Parameter	Rating	Adjustment step
Maximum plating time	Up to 9 h 59 min	1 second
Positive and negative pulse duration	0.1-90 min	1 second
Reverse time in PROGRAM SETUP	0 to 1:29:59	1 second
Delay after plating ends	0-300 seconds	1 second

Note: The pulse specification and the PROGRAM SETUP reverse-time range are stated separately. Use the range displayed by the installed firmware; contact Pepetools if your application depends on an endpoint of either range.

Protection and environment

Parameter	Rating or condition
Heat sink overtemperature protection	60 °C threshold; the fault is described for a heat sink temperature above 60 °C while plating is on
Operating temperature	+5 °C to +40 °C
Storage temperature	-20 °C to +65 °C
Operating and storage humidity	0-95% RH, noncondensing
Cooling	Forced air

Physical data

Parameter	Value
Listed dimensions	240 × 385 × 125 mm
Weight	6.1 kg
Minimum clearance from walls	10 cm

The mechanical drawing on page 17 contains additional dimensions, including 394 mm, 245.4 mm and 134 mm. Confirm the dimensions of the actual unit before planning a fitted installation, and retain the required ventilation clearance.

Program setup

Store settings in any of five programs. Each program defines reverse time, plating time, voltage, current limit and the delay at the end of plating.

1. From the main menu, open **PROGRAM SETUP**.
2. Highlight **Program** and press the encoder. When the field blinks, turn the encoder to select the program to edit. Press to finish the selection.
3. Highlight each setting, press to select it, turn to change the value, and press again to finish editing.
4. Select **EXIT** to return to the main menu.

Field	Function and available settings
Program	Choose program 1-5. The sixth selection, Sequence, opens the sequence configuration described on page 10.
Rev.	Reverse time: 0 to 1 hour, 29 minutes, 59 seconds (1:29:59), in 1-second steps.
Plate	Plating time: 0 to 9 hours, 59 minutes, in 1-second steps.
Voltage	Plating voltage: 0.35-18 V, in 0.01 V steps.
Current	Plating current limit: 0-80 A, in 0.01 A steps.
Dly.EOP	Delay after the plating process ends: 0-300 seconds, in 1-second steps.
EXIT	Return to the main menu.

```

> Program      4
  Rev.        0:01:47
  Plate       0:00:19
  Voltage     8.00V

  Voltage     8.00V
  Current     5.00A
  Dly.EOP     3s
> EXIT

```

Figure 3. Example program settings, shown at two scroll positions.

Note: The example values illustrate the display. Select settings appropriate to the plating process. Menu options may vary with the installed configuration.

Sequences and starting a program

Build a program sequence

A sequence runs up to five programs in the order you specify. Configure the individual programs before arranging the sequence.

1. Open **PROGRAM SETUP**, highlight **Program**, and press the encoder.
2. When the field blinks, turn the encoder to select **Sequence** (shown as **Seq**).
3. Assign a program to **Step 1**. Up to four additional step rows then become available. Set **Step 2** through **Step 5** as required.
4. Select **EXIT** to return to the main menu.

```
> Program      Seq
Step 1         2
Step 2         1
Step 3         3

Step 3         3
Step 4         5
Step 5         5
> EXIT
```

Figure 4. Example sequence: programs 2, 1, 3, 5 and 5.

Select and start a program

1. Open **START PROGRAM** from the main menu.
2. Highlight **Select prog**, press the encoder, and select one of the five programs or the sixth option, **Sequence**.
3. Highlight **Start program** to open the program screen. Review the selected program and its displayed settings.
4. Press the encoder briefly on the program control screen to start or stop the program. To stop the output and return to the main menu, hold the encoder for more than 3 seconds.

```
> Start program
Select prog    3
EXIT
```

Figure 5. Start program menu.

Select **EXIT** in the Start program menu to return to the main menu. See page 11 for program-screen fields and operating status.

Reading the program display

The program display identifies the selected program, its operating state, output polarity and process timing. The screen may scroll to show additional controls, including EXIT.

```
PG4      P      +  -
 8.00V   P:0:00:19
 5.00A   R:0:01:47
```

Figure 6. Example program display before starting.

```
PG4-ON P      -SS+
 8.00V   P:0:00:19
 0.00A  >R:0:01:47
```

Figure 7. Example program display with plating output on.

Display fields

Field or symbol	Meaning
PG number	Identifies the active program.
P or S on the top row	P indicates a single program; S indicates a program sequence.
+ and -	Indicate the output polarity and show when polarity is reversed.
ON and output-on symbol	Indicate that the plating output is active. The program example shows SS as the output-on symbol.
Voltage and P timer	Show output voltage and plating time.
Current and R timer	Show output current and reverse time.
>	Identifies the active process step or the selected menu item, depending on the screen.
EXIT	Returns from the program display to its submenu.

Depending on the process state, a displayed value may be a measured value, a preset value or the time remaining in the current step. The displayed voltage and current can change during plating as the selected limits take effect.

Note: Features that are disabled or unavailable in the unit configuration do not appear in the menus. The sample displays are examples, not process recommendations.

Manual operation

Manual mode provides direct control of plating voltage, current limit, output polarity and output ON/OFF. Open **MANUAL MODE** from the main menu.

Set voltage and current

1. Highlight the voltage value. Press the encoder, turn to set **0.35-18 V** in **0.01 V** steps, then press again to finish editing.
2. Highlight the current value. Press the encoder, turn to set a current limit of **0-80 A** in **0.01 A** steps, then press again to finish editing.

Set output polarity

Highlight **Polarity** and press the encoder to select output-voltage reversal. Check the **+** and **-** indicators on the top row to confirm the displayed polarity.

```
Manual      -  +
 1.49V >Polarity
13.14A Plater x
EXIT
```

```
Manual      +SS-
 1.49V Polarity
 0.02A >Plater ψ
EXIT
```

Figure 8. Manual mode with plating output off (top) and on (bottom).

Start and stop plating

1. Turn the encoder until the selection arrow points to **Plater**.
2. Press the encoder to switch the plating output ON. The output-on indication appears; the green panel backlight is on.
3. Press the encoder briefly to switch the plating output OFF. The Plater field uses **X** for the off state and the **ψ** symbol for the on state.
4. Select **EXIT** to return to the main menu. Holding the encoder for more than 3 seconds also returns to the main menu and places the unit in standby with the plating output off.

Monitor the output

The top row shows mode, polarity and output status. The next two rows show voltage, current and their controls. Readings change during plating according to the selected limits. The **>** indicator identifies the active process step or selected item.

Note: The current setting is a limit. The current regulation range and 950 W power limit remain as listed on page 7. Unavailable or disabled options are not displayed.

Service menu

Open **SERVICE** from the main menu to view operating temperatures, accumulated electric charge and device information. Turn the encoder to scroll through the available fields.

Menu item	Function
Cab.Temp.	Displays the measured cabinet temperature.
HS Temp.	Displays the measured heat sink temperature.
Temp.Unit	Selects Celsius or Fahrenheit for the temperature display.
EC	Displays accumulated electric charge transferred over time. The example uses the display notation Ah:m.
Clear EC	Resets the electric charge counter.
MaxCurr	Sets the maximum current limit. The output remains subject to the 950 W maximum power limit.
About Device	Displays device information, including model, revision and EC information.
Factory menu	Password-protected factory settings. This menu is not intended for user access.
EXIT	Returns to the main menu.

```
Cab.Temp.    26°C
HS Temp.    26°C
> Temp.Unit    °C
EC      1726.31Ah:m

Clear EC
MaxCurr  80.00A
> About Device
Factory menu
```

Figure 9. Example Service menu at two scroll positions; EXIT appears below.

About Device

```
MODEL : HA18V80AR
Rev:    0:01
EC:    1726.31h
> EXIT
```

Figure 10. Example About Device screen.

Note: The sample About Device screen uses a different EC suffix from the Service screen. Use the displayed unit on your equipment and contact Pepetools if you need confirmation of the counter format. Use the rear nameplate when reporting model, revision and serial number for service.

Inspection and maintenance

The power supply is designed for continuous service with minimal maintenance. Set inspection frequency according to the operating environment, usage and experience with the equipment.

WARNING Isolate and lock out the external power source before inspection, maintenance or service. Switching the unit OFF alone does not remove line voltage from the cabinet. Follow approved lockout/tagout procedures.

Qualified personnel

Only qualified, authorized personnel who have read and understood the safety precautions may perform inspection and maintenance. Contact Pepetools support before servicing the equipment.

Daily or weekly inspection

- Visually inspect the unit, wiring and connections for damage or changes in condition.
- Report any change in performance to the responsible personnel so that potential problems can be investigated.

Monthly inspection and cleaning

1. Check that all wiring connections are secure. Inspect cabling for wear.
2. Check that enclosure hardware has not loosened.
3. Remove debris around the fan inlet with a cloth or vacuum cleaner. **Compressed air is not recommended.**
4. Wipe the control panel with a damp cloth to remove dirt, fingerprints and smudges.
5. Wipe the enclosure with a damp cloth or a cleaner compatible with the painted finish.

If a problem is found

Do not attempt unauthorized repairs or disassemble the unit. Use the troubleshooting guidance on page 15 for the listed symptoms. If the fault remains, contact Pepetools with the information listed on page 16.

Troubleshooting

Use the checks below for the listed symptoms. Inspection, electrical checks and service must be performed by qualified, authorized personnel. Isolate and lock out the external supply before inspecting cables or connections.

The power supply does not start

1. Check that the supplied line voltage and frequency are within the specified input ranges: **105-132 V AC or 200-248 V AC, 50/60 Hz.**
2. Check the condition of the AC cable and its connection to the power supply.

The current display reads 0.00 A

Check the connection between the power supply and the load.

Overtemperature protection

This fault occurs when plating is ON and the heat sink temperature exceeds **60 °C**.

1. Wait for the unit to cool down.
2. Clear the fault by exiting the submenu using **EXIT**.

Overcurrent protection

This fault indicates that the output current has exceeded the maximum safe operating limit.

Clear the fault by exiting the submenu using **EXIT**.

Faults that remain or return

If the unit still fails to operate, or a fault recurs, contact Pepetools technical support. Do not repeatedly restart the equipment without investigating the cause. A blinking green panel backlight or blinking red encoder indicator signals an error or device fault.

WARNING Do not open the cabinet to troubleshoot the unit. Contact Pepetools before servicing. Repairs must be handled by authorized personnel.

Technical support and document information

If the unit fails in service, contact Pepetools promptly. Service should be performed by the manufacturer or an authorized service representative.

Have this information ready

- Model and revision from the label on the back of the unit.
- Serial number from the label on the back of the unit.
- AC line voltage and frequency.
- A detailed description of the fault, the connected load and the ambient temperature when the fault occurred.
- The checks or corrective actions already taken, and the approximate time the unit has been in service.
- Your name, company and contact information so support can reach you.

Contact Pepetools

Phone +1 405 745 4054

Email support@pepetools.com

Fax +1 405 745 4335

Web pepetools.com/pages/contact-us

Pepetools International Headquarters
7601 S.W. 34th Street
Oklahoma City, OK 73179, USA

Before returning a unit, obtain repair authorization and shipping instructions from Pepetools. Include the repair authorization number (RA#) with the return if one is issued. Ask support about available repair arrangements if remote assistance does not resolve the problem.

Document notices

This manual is a reference for trained personnel. Information and specifications may change without notice. Pepetools makes no warranty regarding this material and assumes no responsibility for errors in the manual.

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Technical revision history

Version	Date	Equipment revision	Change	Author
1.0	Dec 2021	A10	First release	M. Nikolova
1.1	Jan 2022	A10	EC notation Ah:m	M. Nikolova

Mechanical dimensions

All dimensions in the drawing are in millimeters. The views show the side and top of the power supply.

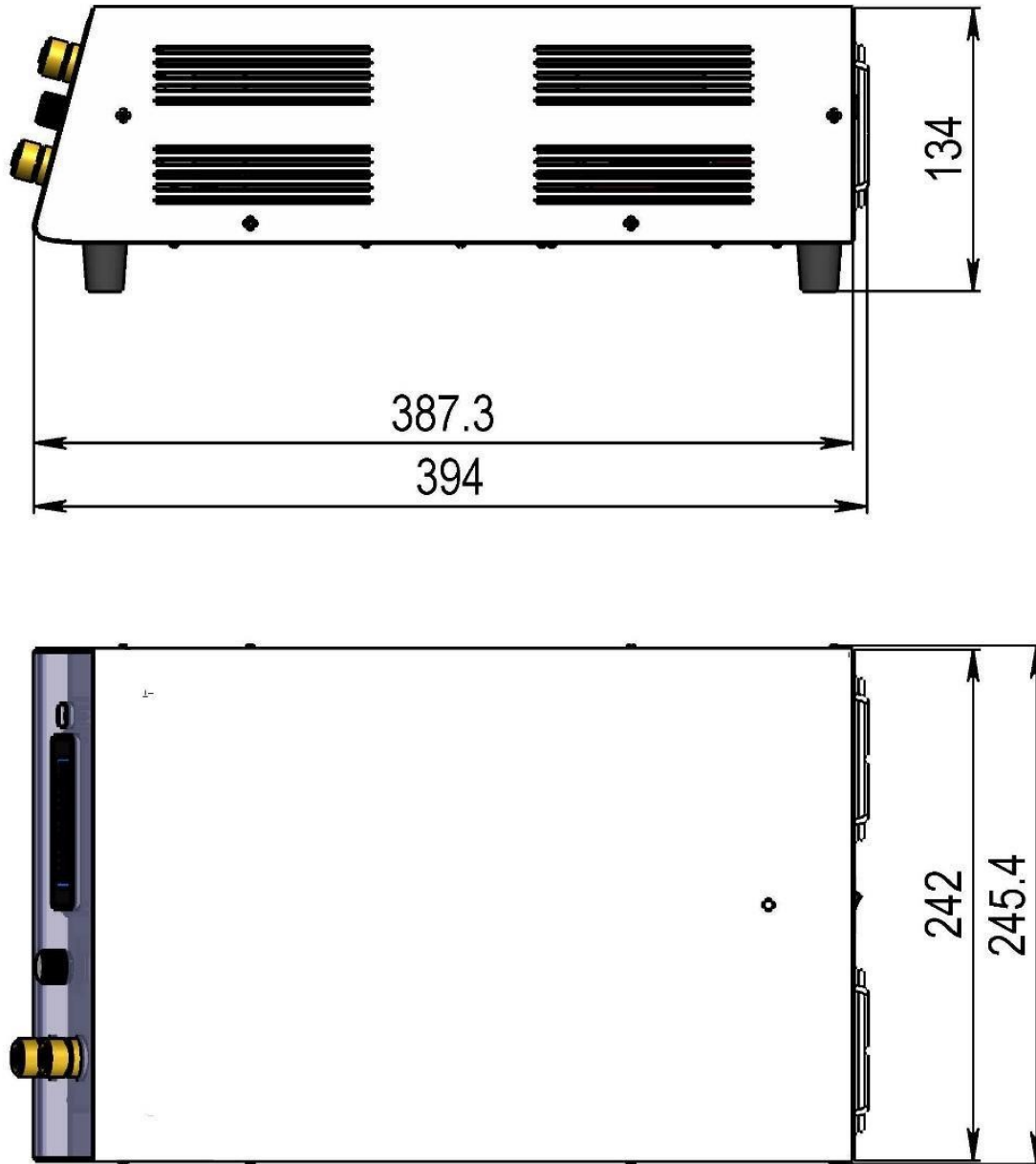


Figure 11. Power supply mechanical drawing with original dimension callouts.

Side view: 387.3 mm and 394 mm length callouts; 134 mm height.

Top view: 242 mm and 245.4 mm width callouts.

The specification table lists **240 × 385 × 125 mm**. Confirm the actual unit dimensions before planning a fitted installation. Keep at least **10 cm** clearance from walls and do not obstruct ventilation openings.