

<b>Dantherm S.p.A.</b> Via Gardesana 11, -37010- Pastrengo (VR), Italy	<b>Dantherm S.p.A.</b> Виа Гардесана 11, 37010 Пастренго (Верона), Италия
<b>Dantherm Sp. z o.o.</b> ul. Magazynowa 5A, 62-023 Gądk, Poland	<b>Dantherm Sp. z o.o.</b> ул. Магазинова, 5А, 62-023 Гадки, Польша
<b>Dantherm LLC</b> ul. Transportnaya - 22 ownership 2, 142802, STUPINO, Moscow region, Russia	<b>ООО «Дантерм»</b> Ул. Транспортная, владение 22/2, 142802, г.Ступино, Московская обл., РФ
<b>Dantherm China LTD</b> Unit 2B, 512 Yunchuan Rd., Shanghai, 201906, China	<b>Dantherm China LTD</b> Юньчуань роад, 512, строение 2В, Шанхай, 201906, Китай
<b>Dantherm SP S.A.</b> C/Calabozos, 6 Polígono Industrial, 28108 Alcobendas (Madrid) Spain	<b>Dantherm SP S.A.</b> Ц/Калабозос, 6 Полигоно Индустриал, 28108 Алкобендас (Мадрит) Испания



**MASTER**  
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MANUAL DE INSTRUCCIONES PARA EL USO Y MANTENIMIENTO	<b>es</b>
MANUEL D'UTILISATION ET DE MAINTENANCE	<b>fr</b>
HANDLEIDING VOOR GEBRUIK EN ONDERHOUD	<b>nl</b>
MANUAL DE USO E MANUTENÇÃO	<b>pt</b>
VEJLEDNING OM BRUG OG VEDLIGEHOLDELSE	<b>da</b>
KÄYTTO- JA HUOLTO-OHJE	<b>fi</b>
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ПАЙДАЛАҢУ ЖӨНЕ ТЕХНИКАЛЫҚ ҚЫЗМЕТ КӨРСЕТУ ЖЕТЕКШІЛІГІ	<b>kk</b>

**BV 471S - BV 471SR - BV 691S - BV 691T - BV 691TR**






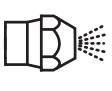




NOTE:


**TECHNICAL DATA TABLE - TABELLA DATI TECNICI - TECHNISCHE DATENTABELLE - TABLA DE DATOS TÉCNICOS - TABLEAU DES DONNÉES TECHNIQUES - TABEL TECHNISCHE GEGEVENS - TABELA DE DADOS TÉCNICOS - TEKNISK DATATABEL - TEKNISTEN TIETOJEN TAULUKKO - TABELL FOR TEKNISKE DATA - TABELL MED TEKNISKA EGENSKAPER - TABELA DANYCH TECHNICZNYCH - ТАБЛИЦЕ ТЕХНИЧЕСКИХ ДАННЫХ - TABULKA TECHNICKÝCH ÚDAJŮ - MŰSZAKI ADATOK TÁBLÁZATA - TEHNIČNI PODATKI - TEKNİK VERİLER TABLOSUNDA - TABLICI S TEHNIČKIM PODACIMA - TECHNINIŲ DUOMENŲ LENTELĖJE - TEHNISKO DATU TABULA - TEHNILISTE ANDMETE TABEL - TABELUL CU DATE TEHNICE - TABULKA TECHNICKÝCH ÚDAJOV - ТАБЛИЦА ТЕХНИЧЕСКИ ДАННИ - ТАБЛИЦІ ТЕХНІЧНИХ ДАНИХ - TABELI SA TEHNIČKIM PODACIMA - ΠΙΝΑΚΙΔΑ ΤΩΝ ΤΕΧΝΙΚΩΝ ΣΤΟΙΧΕΙΩΝ - 技术参数 - ТЕХНИКАЛЫҚ КӨРСЕТКІШТЕР КЕСТЕСІ**

	<b>BV 471S</b>	<b>BV 471SR</b>	<b>BV 691S</b>
 <b>MAX</b>	136 kW-кВт 116.900 kcal/h-ккал/ч 464.000 Btu/h-БТЕ/ч	136 kW-кВт 116.900 kcal/h-ккал/ч 464.000 Btu/h-БТЕ/ч	225 kW-кВт 193.500 kcal/h-ккал/ч 768.000 Btu/h-БТЕ/ч
	8.500 m³/h-м³/ч	8.500 m³/h-м³/ч	12.800 m³/h-м³/ч
	10,8 kg/h-кг/ч	10,8 kg/h-кг/ч	17,9 kg/h-кг/ч
	DIESEL-KEROSENE дизель-керосин	DIESEL-KEROSENE дизель-керосин	DIESEL-KEROSENE дизель-керосин
	~220-240 V-B (-15%÷10%) 50 Hz-Гц 6,9 A 1,5 kW-кВт	~220-240 V-B (-15%÷10%) 50 Hz-Гц 16 A 3,7 kW-кВт	~220-240 V-B (-15%÷10%) 50 Hz-Гц 12,6 A 2,8 kW-кВт
	2,5 gal/h 60°W DELAN	2,5 gal/h 60°W DELAN	4,5 gal/h 60°W DELAN
	1.250 kPa-кПа 12,5 bar-бар	1.250 kPa-кПа 12,5 bar-бар	1.000 kPa-кПа 10 bar-бар
	250 Pa-Па	400 Pa-Па	250 Pa-Па
	0,1 mbar-мбар	0,1 mbar-мбар	0,1 mbar-мбар
	270 kg-кг	300 kg-кг	380 kg-кг

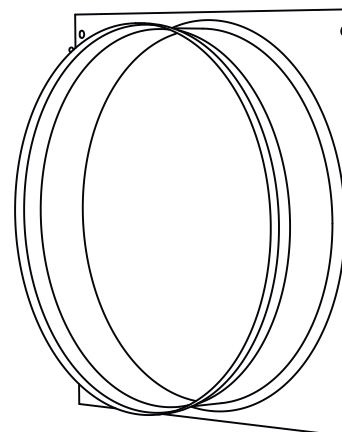
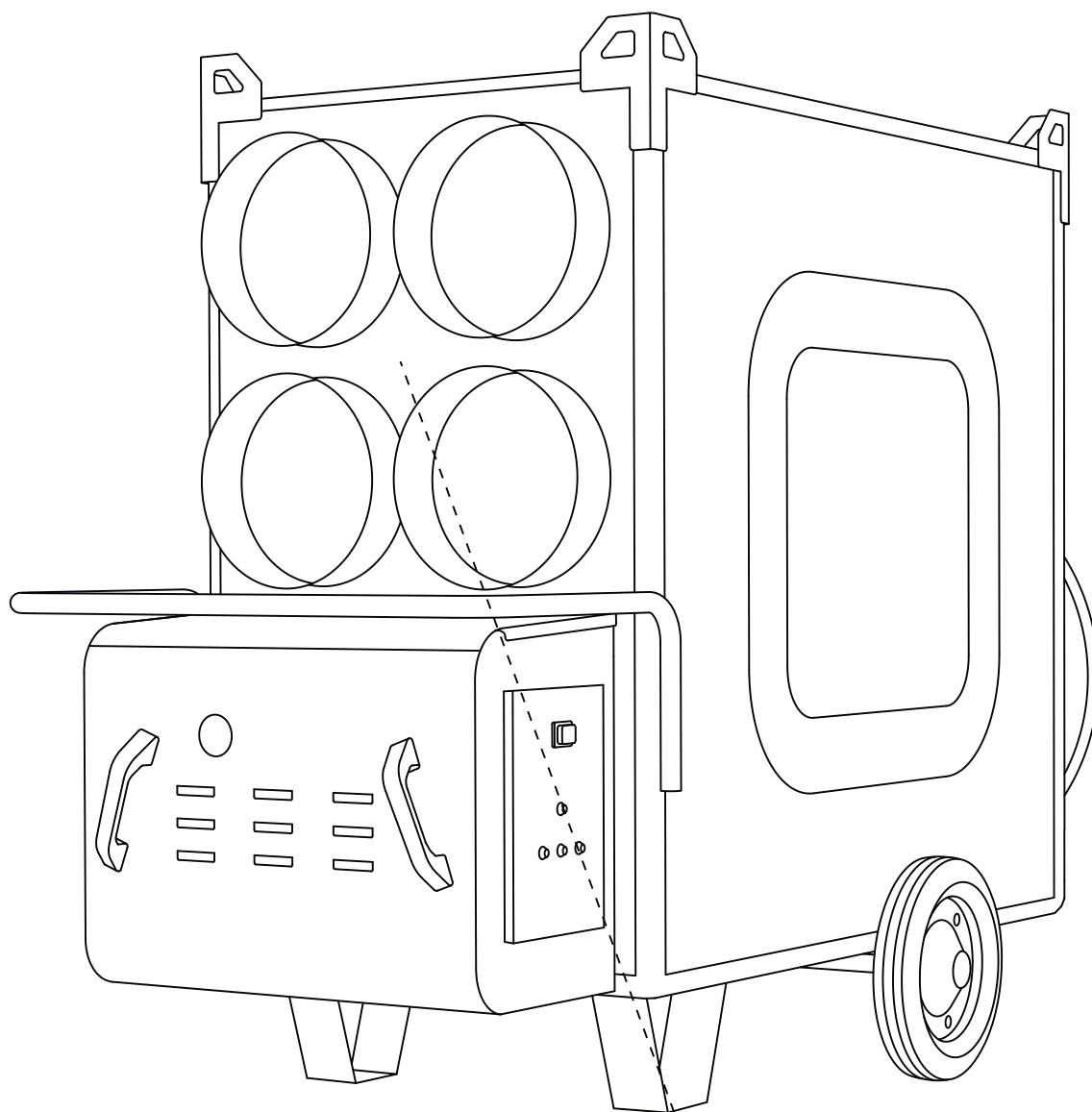
**! IMPORTANT:** In order to have a correct function you must use an electrical generator in class G3 or more (frequency variation ±1%, tension variation ±2%). The maximum power of electrical generator must be three time the nominal power of device that you must connect.


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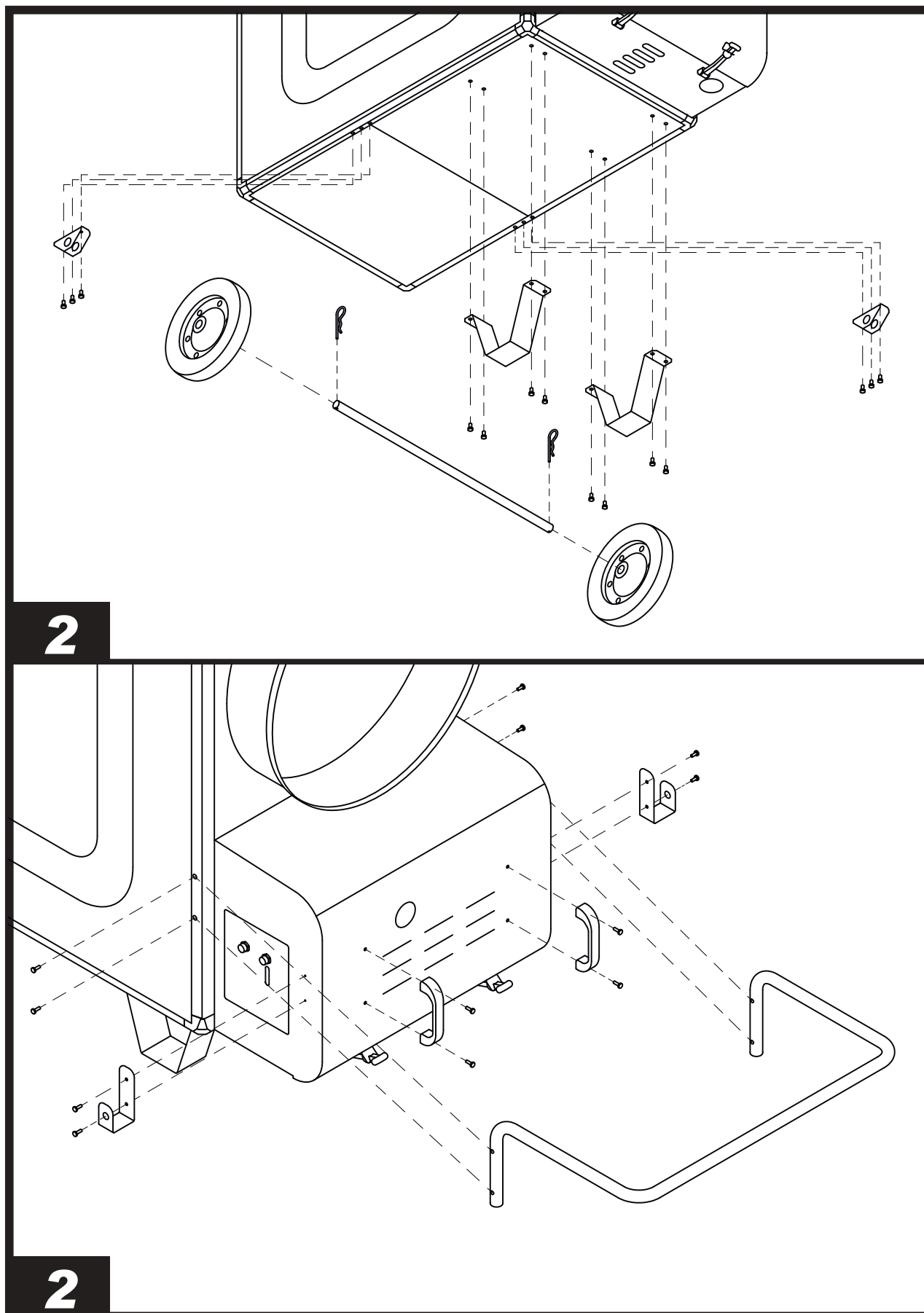
	<b>BV 691T</b>	<b>BV 691TR</b>
 <b>MAX</b>	225 kW-кВт 193.500 kcal/h-ккал/ч 768.000 Btu/h-БТЕ/ч	225 kW-кВт 193.500 kcal/h-ккал/ч 768.000 Btu/h-БТЕ/ч
	12.800 m³/h-м³/ч	12.800 m³/h-м³/ч
	17,9 kg/h-кг/ч	17,9 kg/h-кг/ч
	DIESEL-KEROSENE дизель-керосин	DIESEL-KEROSENE дизель-керосин
	3N~380-400 V-B (-15%÷10%) 50 Hz-Гц 6,5 A 2,3 kW-кВт	3N~380-400 V-B (-15%÷10%) 50 Hz-Гц 7,6 A 4,2 kW-кВт
	4,5 gal/h 60°W DELAVAN	4,5 gal/h 60°W DELAVAN
	1.000 kPa-кПа 10 bar-бар	1.000 kPa-кПа 10 bar-бар
	250 Pa-Па	400 Pa-Па
	0,1 mbar-мбар	0,1 mbar-мбар
	380 kg-кг	420 kg-кг

 **IMPORTANT:** In order to have a correct function you must use an electrical generator in class G3 or more (frequency variation ±1%, tension variation ±2%). The maximum power of electrical generator must be three time the nominal power of device that you must connect.

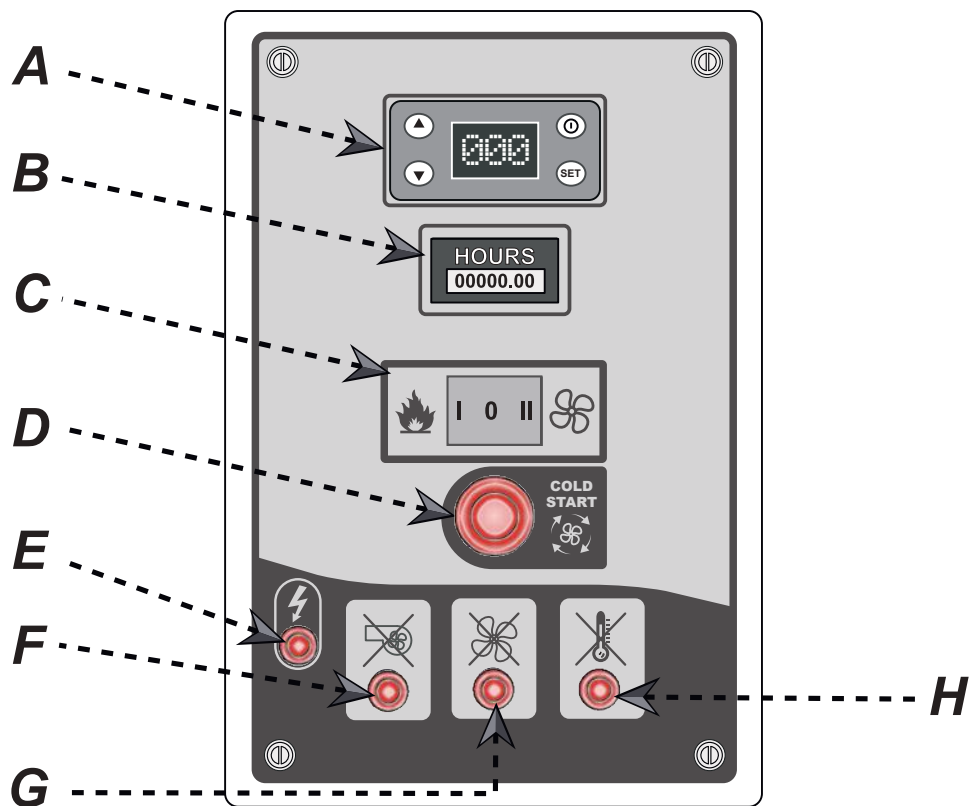




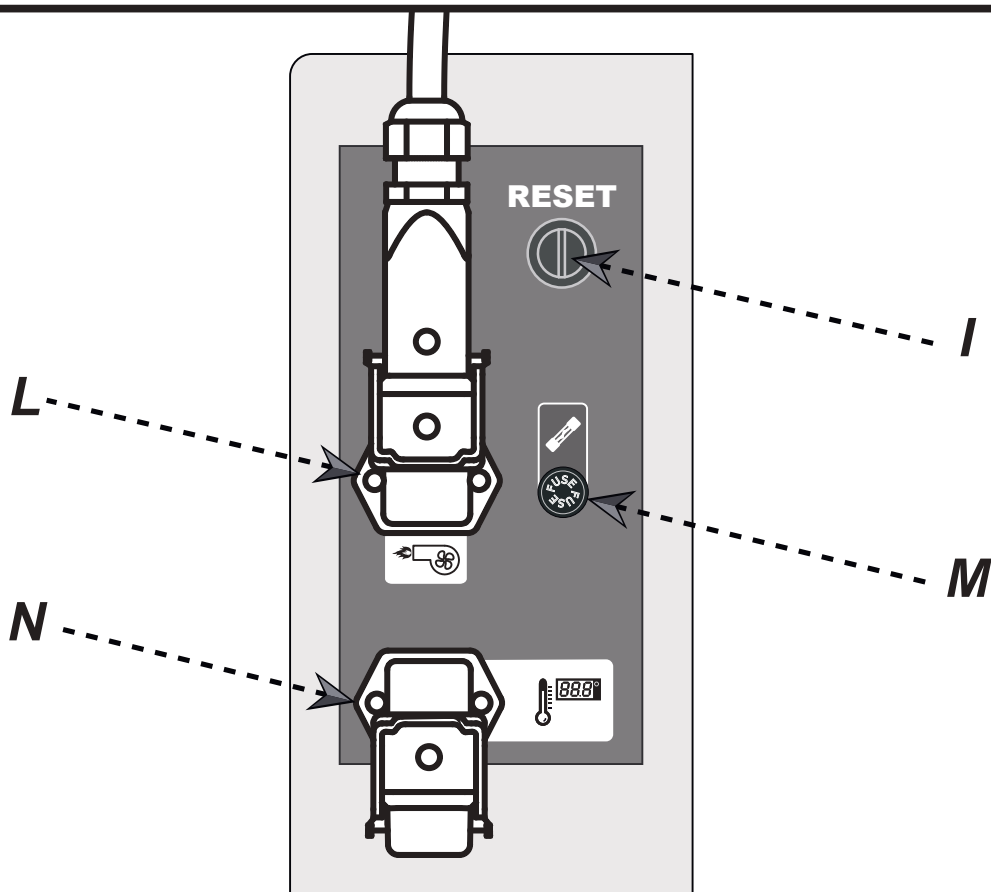
**PICTURES - FIGURE - ABBILDUNGEN - FIGURAS - FIGURES - FIGUREN - FIGURAS  
- FIGURER - KUVAT - FIGURER - FIGUR - RYSUNKI - РИСУНКИ - OBRÁZKY - ÁBRÁK -  
SLIKE - ŞEKİLLER - SLIKE - PAVEIKSLĖLIAI - ATTĒLI - JOONISED - IMAGINI - OBRÁZ-  
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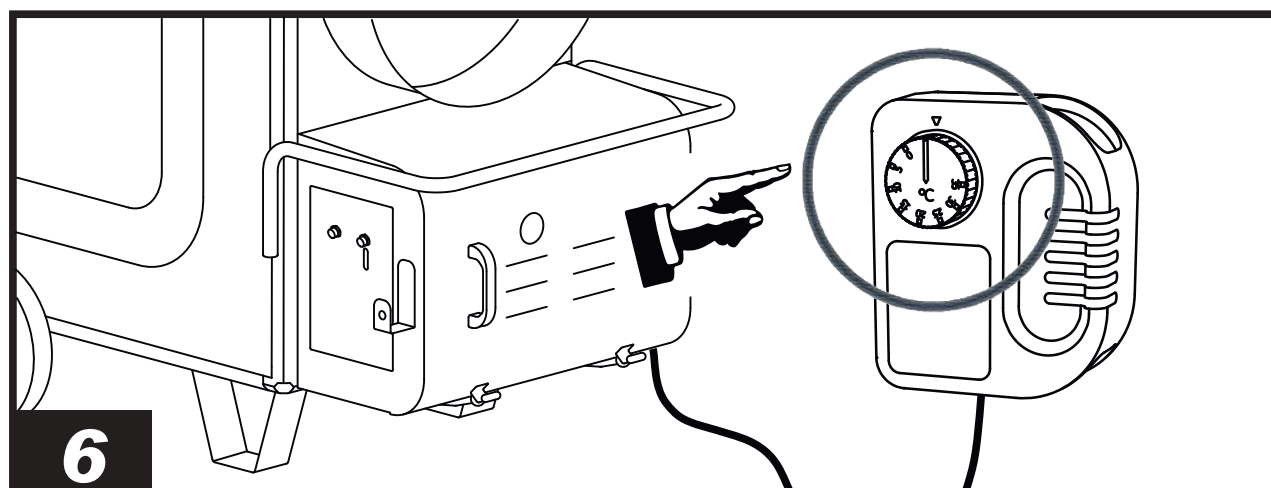
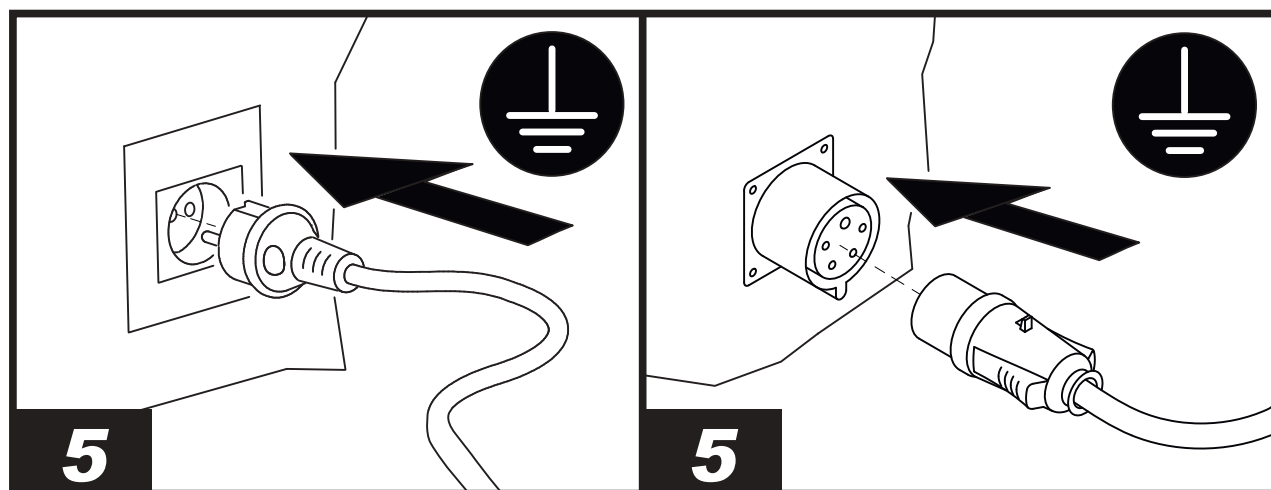
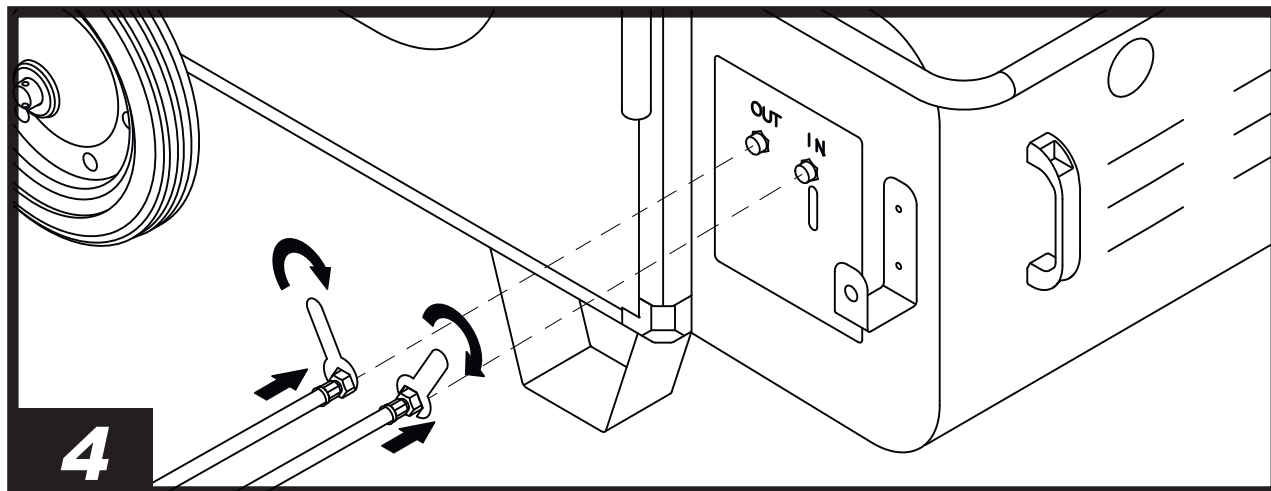


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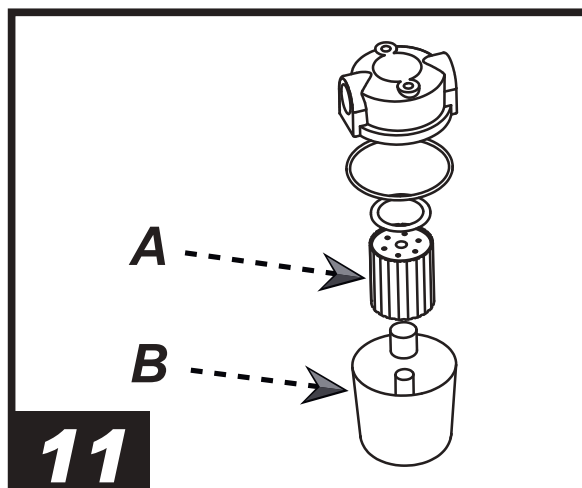
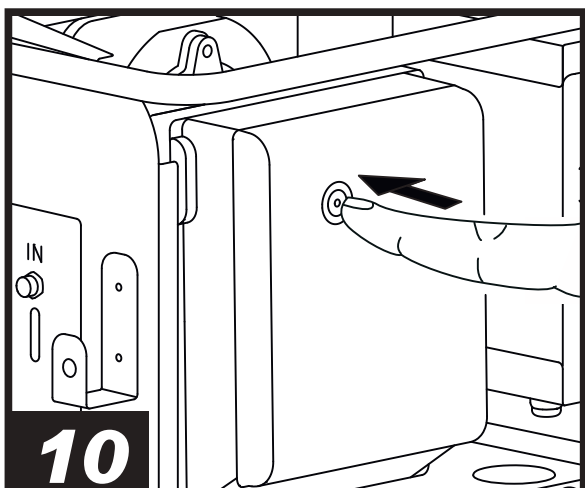
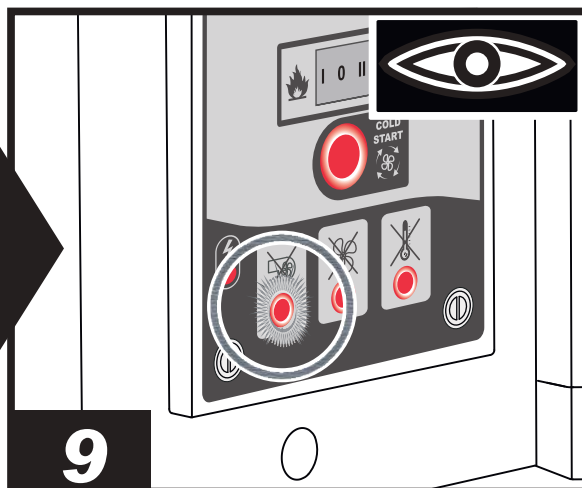
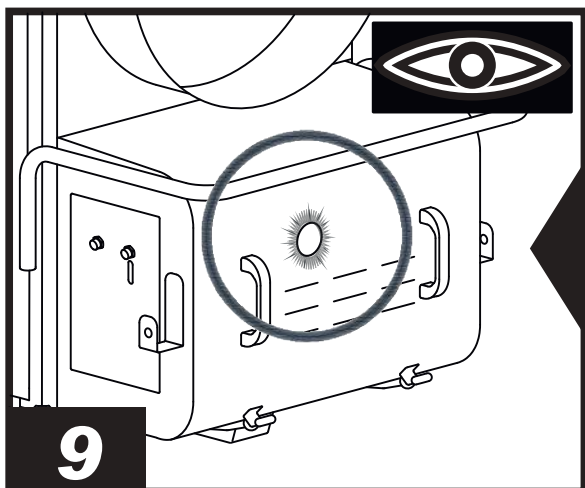
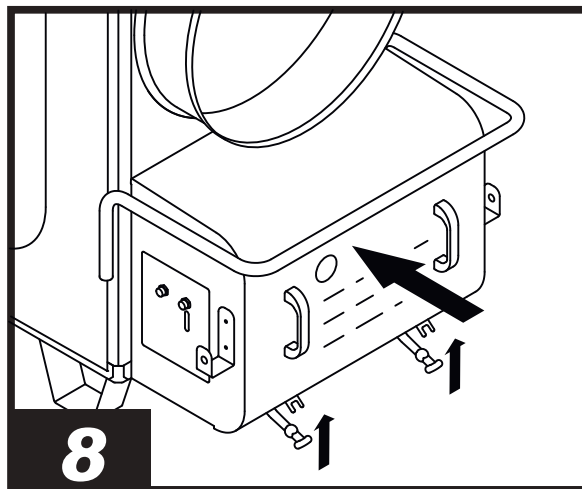
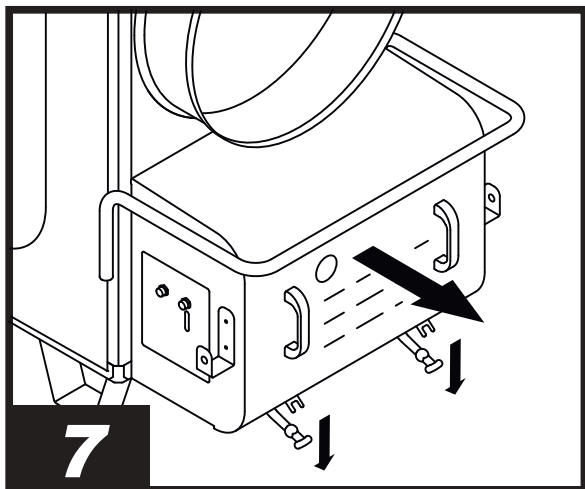



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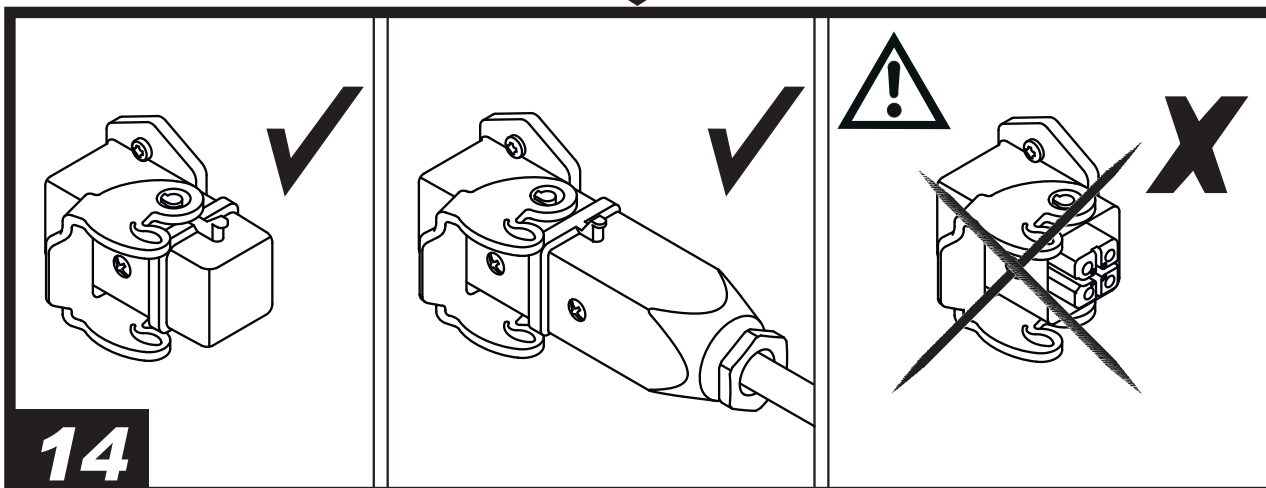
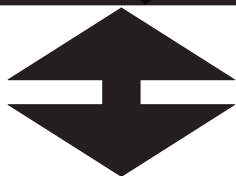
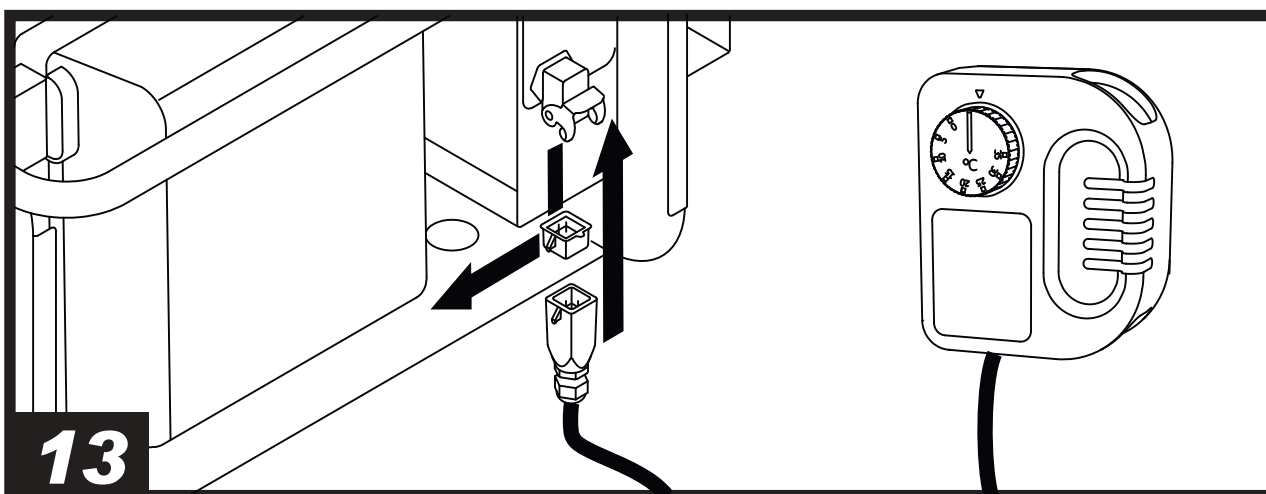
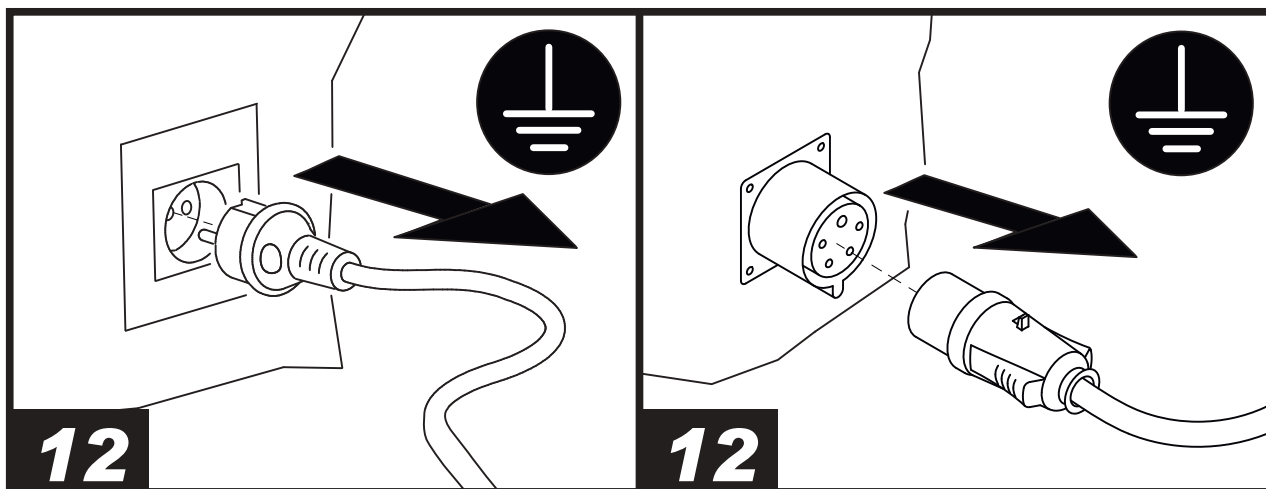
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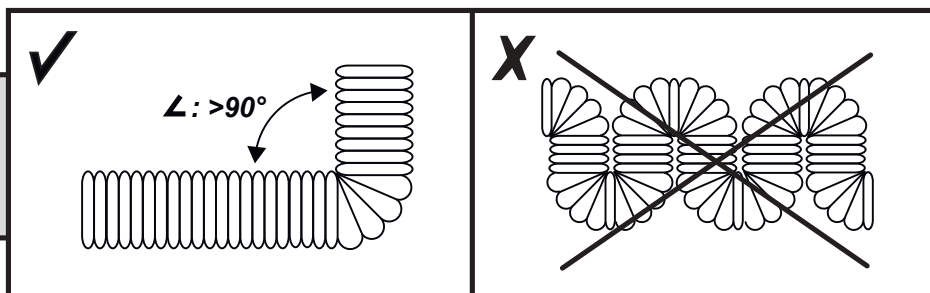
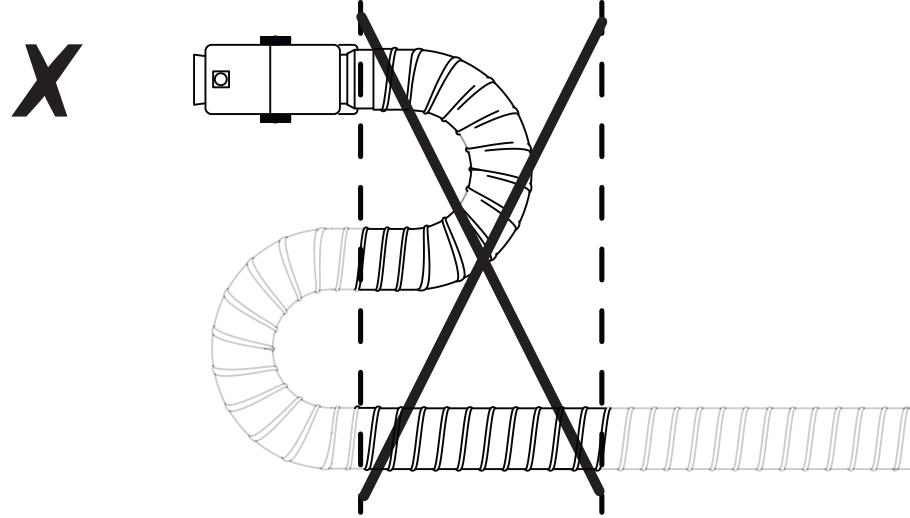
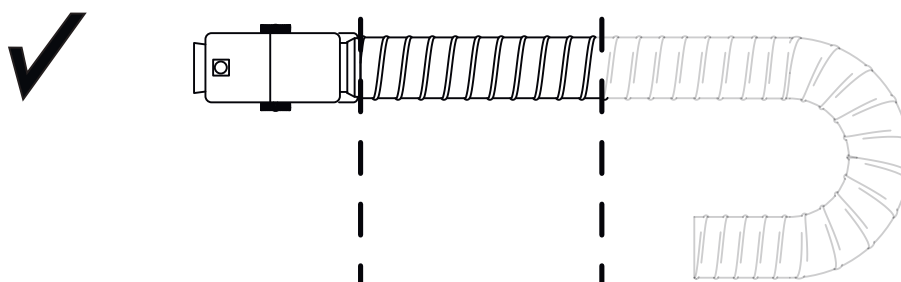
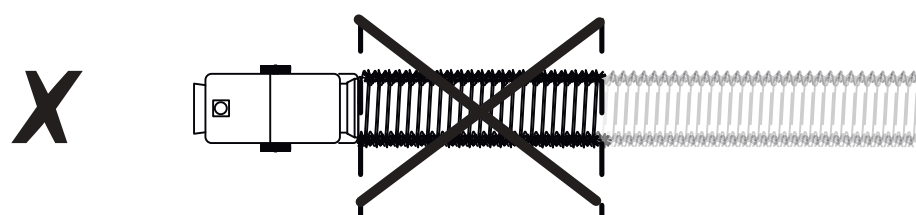
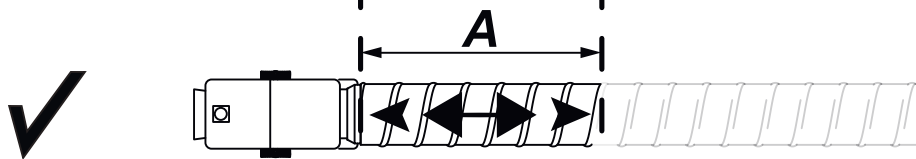


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[illegible]



**IMPORTANT: READ AND UNDERSTAND THIS OPERATIONAL MANUAL PRIOR TO ASSEMBLING, STARTING UP OR CONDUCTING MAINTENANCE ON THIS HEATER. USING THE HEATER INCORRECTLY CAN CAUSE SERIOUS OR FATAL INJURIES. KEEP THIS MANUAL FOR FURTHER REFERENCE.**

### ►►► 1. DESCRIPTION

This series of heaters is particularly suited to heating medium to large-sized rooms or areas.

Thanks to an internal heat exchanger, indirect heaters (PIC. 1) separate combustion gases from the hot air released into the environment. This way it is possible to have a flow of clean hot air in the area that needs to be heated up and direct combustion products outside. These heaters have been designed in line with the most recent safety, operating and duration criteria. The safety devices ensure the heater always operates correctly.

### ►►► 2. SAFETY INFORMATION

#### WARNINGS



**IMPORTANT:** This air heater has been designed for mobile and temporary professional applications. It has not been designed for domestic use nor for thermal comfort of human.



**IMPORTANT:** This appliance is not suitable for use by persons (including children) with reduced physical, sensory or mental capacities or who lack experience or knowledge unless supervised by a person responsible for their safety. Children must be supervised to make sure they do not play with the appliance.



**DANGER:** Suffocation by carbon monoxide can be fatal.

The first symptoms of suffocation by carbon monoxide are similar to those of flu with headache, light-headedness and/or nausea. These symptoms could be caused by the faulty functioning of the heater. IF THESE SYMPTOMS OCCUR, GO OUTDOORS IMMEDIATELY and have the heater repaired by the technical support centre.

#### ►►► 2.1. REFUELLING:

- 2.1.1. Personnel appointed to carry out refuelling must be qualified and fully familiar with the manufacturer's instructions and current regulations on how to refuel heaters safely.
- 2.1.2. Only use the type of fuel specified on the heater's identification plate.
- 2.1.3. Before refuelling, turn off the heater and wait for it to cool down.
- 2.1.4. The tanks used to store the fuel must be stored in a separate place.
- 2.1.5. Fuel tanks must be kept at a minimum distance from the heater, in accordance with current standards.

- 2.1.6. The fuel must be stored in an area where the floor does not allow it to penetrate or drip onto flames underneath it, which may ignite the fuel.
- 2.1.7. The fuel must be stored in accordance with current regulations.
- ► 2.2. SAFETY:
- 2.2.1. Never use the heater in areas with petrol, paint solvents or other highly flammable vapours.
- 2.2.2. Comply with all local legislation and current regulations when using the heater.
- 2.2.3. Heaters used near tarpaulins, curtains or other similar covering materials must be a safe distance from them. It is advised to use fire-proof covering material.
- 2.2.4. Only use in well-ventilated areas. Set-up a suitable opening in line with current standards, with the purpose of introducing fresh air from outdoors.
- 2.2.5. Power on the heater only with a current which has the voltage and frequency values specified on the identification plate.
- 2.2.6. Only use suitably earthed extension cables.
- 2.2.7. Recommended safety distances between the heater and flammable substances: front output 2.5 m; on the side, at the top and at the back = 1.5 m.
- 2.2.8. Avoid fire hazards by placing the hot or functioning heater on a steady level surface.
- 2.2.9. Keep animals at a safe distance from the heater.
- 2.2.10. Disconnect the heater from the mains power supply when not in use.
- 2.2.11. When it is controlled by a thermostat, the heater can turn on at any time.
- 2.2.12. Never use the heater in frequently used rooms nor in bedrooms.
- 2.2.13. Never block the heater's air vent or the air outlet.
- 2.2.14. Never move, handle, refuel or conduct maintenance on the heater when it is hot, connected to the mains or in operation.
- 2.2.15. Only use original kits to direct the air coming in and/or going out (where applicable).
- 2.2.16. Keep the hot parts of the heater at a suitable distance from inflammable or thermolabile materials (including the power supply cable).
- 2.2.17. If the power supply cable is damaged, it must be replaced by a technical support centre to prevent any risk.
- 2.2.18. During operation, make sure that the fire-fighting devices are ready for use.
- 2.2.19. Use original spare parts when replacing the burner, strictly complying with indications regarding capacity, type of nozzles and pump

**pressure. An increase in burner power could damage the heater.**

### ▶▶▶ **3. UNPACKING**

**WARNING: THE PACKAGING MATERIAL IS NOT A TOY. KEEP THE PLASTIC BAG OUT OF REACH OF CHILDREN; DANGER OF SUFFOCATION!**

- ▶ 3.1. Remove all packaging materials used to package and ship the heater. Dispose of them in compliance with current standards.
- ▶ 3.2. If the heater is placed on the platform, lower it gently using suitable devices and instruments, in accordance with national regulations and current standards. It can be lifted with the forklift truck, by using suitable chains and suspension hooks (the heater is equipped with eyebolts).
- ▶ 3.3. Check for any damage incurred during transport. If the heater appears damaged, immediately inform the dealer from whom it was purchased.

### ▶▶▶ **4. ASSEMBLY**

(PIC. 2)

These heaters are equipped with handles, brackets, supports, etc. depending on the model. These parts, which come with the relative nuts and bolts, are in the heater's packaging.

### ▶▶▶ **5. FUEL**

**WARNING: THE HEATER ONLY WORKS WITH DIESEL OR KEROSENE.**

Only use diesel or kerosene to avoid any fire or explosion hazard. Never use petrol, naphtha, solvents for paints, alcohol or other highly inflammable fuels. Use non-toxic, anti-freeze additives in case of very low temperatures.

It is recommended to use winter diesel oil below 5°C.

### ▶▶▶ **6. OPERATING PRINCIPLES**

The burner pump draws the fuel from the tank and sends it to the pressurised nozzle where it is nebulised and mixed with comburent air in the combustion chamber. A spark triggers combustion while the waste fumes are expelled from the chimney. A series of sensors constantly checks the correct operation of the heater, stopping the cycle in the case of a fault. The fan, located at the rear of the heater, cools the combustion chamber and the flue gas pass, transferring the heat from the latter into the environment.

### ▶▶▶ **7. CONTROL PANEL**

(PIC. 3)

- A. Electronic regulator.
- B. Hour meter.
- C. Power switch.
- D. Ventilation control button.
- E. Electric voltage presence light.
- F. Burner block alarm light.
- G. Ventilation block alarm light.
- H. Overtemperature alarm light.

- I. Overtemperature thermostat reset.
- L. Burner connector.
- M. Fuse.
- N. Room thermostat remote connector.

### ▶▶▶ **8. OPERATION**

**WARNING: CAREFULLY READ THE "SAFETY INFORMATION" BEFORE SWITCHING ON THE HEATER.**

#### ▶▶ 8.1. IGNITING THE HEATER:

- ▶ 8.1.1. Follow all the safety instructions.
- ▶ 8.1.2. Connect the fuel pipes respecting the correct inlet and outlet connections (PIC. 4).
- ▶ 8.1.3. Check if there is any fuel in the tank.
- ▶ 8.1.4. Connect the supply plug to the power mains (PIC. 5) (SEE VOLTAGE IN THE "TECHNICAL DATA TABLE").
- ▶ 8.1.5. Set the "ON/OFF" switch to "FLAME" (C PIC. 3). The heater should turn on within a few seconds. If the heater does not start, refer to paragraph "TROUBLESHOOTING".
- ▶ 8.1.6. The heater can be used in ventilation mode, which is activated by setting the ON/OFF switch to "FAN" (C PIC. 3).
- ▶ 8.1.7. The heater has a ventilation control button (D PIC. 3).
  - BUTTON ON: The ventilation works continuously (ideal for extreme conditions of use).
  - BUTTON OFF: The ventilation works automatically (normal operation).
- ▶ 8.1.8. For models with a room thermostat, check the set temperature (PIC. 6).

**NOTE: IF THE HEATER SWITCHES OFF DUE TO LACK OF FUEL, TOP UP THE TANK AND RESET THE HEATER (SEE PAR. "RESET THE HEATER").**

**IMPORTANT: IN INDIRECT MODELS, COMBUSTION PRODUCTS CAN BE DIRECTED OUTSIDE VIA THE DUCTS. CARRY OUT THE DUCTING IN ACCORDANCE WITH CURRENT REGULATIONS AND FOLLOW THE INSTRUCTIONS IN THE RELEVANT SECTION OF THE MANUAL.**

#### ▶▶ 8.2. TURNING OFF THE HEATER:

Turn the "ON/OFF" switch to "0" (C PIC. 3). The flame turns off and the fan keeps on working until the combustion chamber has fully cooled down. Do not pull out the electrical plug until the cooling cycle has ended.

### ▶▶▶ **9. RESET THE HEATER**

In the event of an anomaly during the normal operation, the heater switches off.

To restart the heater, identify and eliminate the cause that caused the stop (for instance, obstruction of the air intake and/or outlet, fan stop, lack of fuel, etc.). If it is not possible to eliminate the problem that caused the stoppage, contact a support centre for technical assistance.

In order to reset the heater, we recommend following the procedure below (follow all safety-related instructions):

- ▶ **OVERTEMPERATURE THERMOSTAT RESET** [Light on (H PIC. 3)]: The heater has reached the

maximum operating temperature. To reset the heater, eliminate the cause of the block (if necessary, contact the support centre), remove the cover (PIC. 7), loosen the plug and press the button all the way (I PIC. 3). Then tighten the plug again and restore the cover (PIC. 8).

- ▶ **RESET THE BURNER** [Light on (F PIC. 3) (PIC. 9)]: The burner has had an operation anomaly. To reset the burner, eliminate the cause of the block (if necessary, contact the support centre), remove the cover (PIC. 7) and fully press the button for a few seconds (PIC. 10). Then restore the cover (PIC. 8).
- ▶ **RESET THE VENTILATION MOTOR** [Light on (G PIC. 3)]: The ventilation motor is blocked or works abnormally. To reset the heater, turn the "ON/OFF" switch to "0" (C PIC. 3), eliminate the cause of the block (if necessary, contact the support centre) and switch the heater on again.

## ▶ ▶ ▶ **10. ELECTRONIC REGULATOR CONFIGURATION**

**IMPORTANT:** THE ELECTRONIC REGULATOR (ALREADY SET UP BY THE MANUFACTURER), IF IT IS NOT RE-SET UP, DOES NOT COMPROMISE THE CORRECT OPERATION OF THE HEATER.

The electronic regulator (A PIC. 3) controls the start-up and shutdown of the ventilation in the preheating and post-ventilation stages of the heater.

Depending on the room temperature (very cold weather or very hot weather, SEE TAB. "CONFIGURING THE ELECTRONIC REGULATOR"), it may be required to change the reference parameter.

Configuration procedure:

- ▶ 10.1. Make sure that the on/off switch is at "0" and the power plug is connected to the power mains.
- ▶ 10.2. Perform the following key sequence:
  - Press the "SET" key.
  - Display "SP2" by scrolling with the "▼" / "▲" keys.
  - Press the "SET" key to access.
  - Set the desired temperature using the "▼" / "▲" keys.
  - Press the "SET" key to confirm.

**IMPORTANT:** THE ELECTRONIC REGULATOR DOES NOT HAVE THE ROOM THERMOSTAT FUNCTION.

## ▶ ▶ ▶ **11. CLEANING THE FILTERS**

▶ ▶ 11.1. INTAKE FILTER, DEPENDING ON THE MODEL:  
(PIC. 11)

The filters may need to be cleaned depending on the quality of the fuel used:

- ▶ 11.1.1. Remove the cup (A).
- ▶ 11.1.2. Take out the filter (B) from the cup. Make sure you preserve the gaskets.
- ▶ 11.1.3. Clean the filter (B) with clean fuel; make sure you do not damage it.
- ▶ 11.1.4. Put the filter (B) back into the cup.
- ▶ 11.1.5. Put the glass (A) back, make sure you reassemble the gaskets correctly.

## ▶ ▶ 11.2. FUEL PUMP FILTER:

See the preventive maintenance schedule.

## ▶ ▶ ▶ **12. STORAGE AND TRANSPORT**

**WARNING:** BEFORE ANY MOVEMENT, STOP THE HEATER (SEE PAR. "TURNING OFF THE HEATER"), DISCONNECT THE POWER SUPPLY BY REMOVING THE PLUG FROM THE POWER SOCKET (PIC. 12) AND WAIT FOR THE HEATER TO COOL DOWN COMPLETELY. KEEP THE HEATER IN A LEVEL POSITION WHEN MOVING IT.

In order to keep the heater in the best possible conditions, we recommend following the procedure below (follow all safety-related instructions):

- ▶ 12.1. It can be lifted with the forklift truck, by using suitable chains and suspension hooks (the heater is equipped with eyebolts).
- ▶ 12.2. In order to keep the heater in the best conditions possible, we recommend placing it in a dry place away from potential external damage.

## ▶ ▶ ▶ **13. CONNECTING THE ROOM THERMOSTAT**

In models with a room thermostat connection, remove the plug connected to the heater and connect the room thermostat (optional) (PIC. 13-14).

## ▶ ▶ ▶ **14. TIPS FOR DUCTING**

(PIC. 15)

**IMPORTANT:** ONLY USE ORIGINAL KITS TO DIRECT THE AIR COMING IN AND/OR GOING OUT (WHERE APPLICABLE).

In order to avoid heater operating problems or harm to people, pay attention to the layout of the air ducting pipes. To reduce the air flow resistance, we recommend positioning the ducting pipes reducing the number of curves and avoiding bends with sharp corners. The first meters must be without curves.

**WARNING: BEFORE PERFORMING ANY MAINTENANCE OR REPAIRS, DISCONNECT THE POWER SUPPLY CABLE FROM THE MAINS AND MAKE SURE THAT THE HEATER IS COLD.**

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### ► ► ► 15. PREVENTIVE MAINTENANCE SCHEDULE

COMPONENT	MAINTENANCE FREQUENCY	MAINTENANCE PROCEDURE
Filters	Clean or replace once a year or as required (make sure they are intact)	Clean the filters (SEE PAR. "CLEANING THE FILTERS")
Fuel pump filter	Clean or replace once a year or as required (make sure they are intact)	Contact a support centre
Electrodes	Clean as required	Contact a support centre
Fan	Clean as required	Contact a support centre
Combustion chamber	Clean as required	Contact a support centre

### ► ► ► 16. TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
The heater does not start or does not remain on	<ol style="list-style-type: none"> <li>"ON/OFF" switch at "0"</li> <li>No power supply</li> <li>Interrupted power cable</li> <li>Electronics need to be reset or are faulty</li> <li>Incorrect setting of the room thermostat (if applicable)</li> <li>No fuel</li> <li>Foreign substances in the fuel circuit</li> <li>Temperature set on the digital thermostat too high</li> <li>Electronics blocked</li> </ol>	<ol style="list-style-type: none"> <li>Set the "ON/OFF" switch to "FLAME" (C PIC. 3)</li> <li>2a. Plug the power cable into the mains socket (PIC. 5)</li> <li>2b. Check your system is powered correctly</li> <li>Contact a support centre</li> <li>4a. Reset the heater (SEE PAR. "RESET THE HEATER")</li> <li>4b. Contact a support centre</li> <li>Set the room thermostat to a temperature higher than the temperature of the working environment (PIC. 6)</li> <li>6. Refuel and, if necessary, reset the heater (SEE PAR. "RESET THE HEATER")</li> <li>7a. Empty and fill the tank with clean fuel</li> <li>7b. Clean the filters (SEE PAR. "CLEANING THE FILTERS")</li> <li>7c. Contact a support centre</li> <li>8. Lower the set temperature of the digital thermostat (SEE PAR. "ELECTRONIC REGULATOR CONFIGURATION")</li> <li>9. Reset the electronics (SEE PAR. "RESET THE HEATER")</li> </ol>
The heater generates smoke during operation	<ol style="list-style-type: none"> <li>Foreign substances in the fuel circuit</li> <li>Obstruction of inlet air vent</li> </ol>	<ol style="list-style-type: none"> <li>1a. Empty and fill the tank with clean fuel</li> <li>1b. Clean the filters (SEE PAR. "CLEANING THE FILTERS")</li> <li>1c. Contact a support centre</li> <li>2. Remove all possible obstructions from the air vent</li> </ol>
The heater does not switch off	<ol style="list-style-type: none"> <li>Temperature set on the digital thermostat too low</li> <li>Electronics are faulty</li> </ol>	<ol style="list-style-type: none"> <li>1. Raise the set temperature of the digital thermostat (SEE PAR. "ELECTRONIC REGULATOR CONFIGURATION")</li> <li>2. Contact a support centre</li> </ol>