

# WARMTH OF HEART AND HOME

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**DEFRO**  
home

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operating manual  
fireplace firebox

**DEFRO HOME CASE S**

**DEKLARACJA ZGODNOŚCI WE**  
**EC DECLARATION OF CONFORMITY**

**nr DH 25/P1/01/2023**

**DEFRO R. Dziubęła spółka komandytowa**

26-067 Strawczyn, Ruda Strawczyńska 103A

**DEKLARUJE / DECLARES**

z pełną odpowiedzialnością, że produkt / *with all responsibility, that the product*

**Kaseta kominkowa / Fireplace cassette**

**DEFRO HOME CASE S**

(typ/type DEFRO HOME CASE S)

**została zaprojektowana, wyprodukowana i wprowadzona na rynek zgodnie z następującymi dyrektywami:**  
*has been designed, manufactured and placed on the market in conformity with directives:*

**Rozporządzenie Parlamentu Europejskiego 305/2011 / Regulation of the European Parliament 305/2011**

**Dyrektywa ErP 2009/125/WE / Directive ErP 2009/125/EC**

**Rozporządzenie Delegowane Komisji (UE) 2015/1186 / Commission Delegated Regulations (EU) 2015/1186**

**Rozporządzenie Komisji (UE) 2015/1185 / Commission Regulation (EU) 2015/1185**

**i niżej wymienionymi normami zharmonizowanymi:**

*and that the following relevant Standards:*

PN-EN 13229:2002

dokumentacja techniczna / technical documentation

Wyrób oznaczono znakiem:

*Product has been marked:*



Ta deklaracja zgodności traci swą ważność, jeżeli w kasecie kominkowej DEFRO HOME CASE S wprowadzono zmiany, została przebudowana bez naszej zgody lub jest użytkowana niezgodnie z instrukcją obsługi. Niniejsza deklaracja musi być przekazana wraz z urządzeniem w przypadku odstąpienia własności innej osobie.

*This Declaration of Conformity becomes invalid if any changes have been made to the DEFRO HOME CASE S fireplace cassette, if its construction has been changed without our permission or if the fireplace cassette is used not in accordance with the operating manual. This Declaration shall be handed over to a new owner along with the title of ownership of the device.*

**Kaseta kominkowa DEFRO HOME CASE S jest wykonywana zgodnie z dokumentacją techniczną przechowywaną przez:**

*DEFRO HOME CASE S Fireplace cassette has been manufactured according to technical documentation kept by:*

**DEFRO R. Dziubęła spółka komandytowa, 26-067 Strawczyn, Ruda Strawczyńska 103a.**

**Imię i nazwisko osoby upoważnionej do przygotowania dokumentacji technicznej: Mariusz Dziubęła**

*Name of the person authorized to compile the technical documentation: Mariusz Dziubęła*

**Imię i nazwisko oraz podpis osoby upoważnionej do sporządzenia deklaracji zgodności w imieniu producenta: Robert Dziubęła**

*Name and signature of the person authorized to compile a declaration of conformity on behalf of the manufacturer: Robert Dziubęła*

**Dwie ostatnie cyfry roku, w którym oznakowanie zostało naniesione: 23**

*Two last digits of the year of marking:*

**Ruda Strawczyńska, dn. 19.06.2023**

**miejsce i data wystawienia**

*place and date of issue.*

**Robert Dziubęła**  
prezes zarządu / CEO

## Dear customer,

We would like to inform you that we make every effort to offer products of quality fulfilling the most restrictive standards and warranting operational safety. All devices are produced in accordance with the requirements of relevant EU directives and have a CE safety mark confirmed by the Declaration of Conformity EC.



We appreciate all your comments and proposals regarding our level of service. We appreciate your comments and proposals regarding our devices and the level of service provided by our Partners and Technical Support and Service.

**DEFRO R. Dziubeta sp.k.**

## Dear customer,

We would like to thank you for choosing the high-quality DEFRO product which will ensure your safety and operational reliability.

As our customers, you can always count on the help of the DEFRO Service Centre, which is ready to ensure the continuous efficiency of your equipment.

Please note that in order to use the equipment safely and efficiently, it is crucial to get familiar with the following directions.

- Read and follow this Operating Manual - useful remarks concerning the proper operation of the equipment can be found there.
- Determine if all parts have been delivered or if the fireplace was not damaged during transport.
- Check the data on the rating plate against the warranty card.
- Prior to starting the device, check the flue connection against connection recommendations included in this manual and appropriate national regulations.

Basic usage rules are to be obeyed while using the equipment. Do not open the doors during the operation of the device.

DEFRO Service Centre or Authorized DEFRO Service should be always contacted when any intervention is necessary because only these parties have original spare parts and are properly trained within the scope of installation and operation of DEFRO equipment.

For your safety and equipment use convenience please get acquainted with this operating manual and send back a correctly filled copy of the Warranty Card to the following address:



**DEFRO R. Dziubeta sp.k. - Centrum Serwisowe**  
**Ruda Strawczyńska 103a**  
**26-067 Strawczyn**



**serwis@defro.pl**

By sending back your Warranty Card, you will be registered in our DEFRO products users' database, and we will be able to provide you with quick and professional technical support.

If you do not send back a correctly filled in Warranty Card and the equipment quality and completeness receipt within the period of up to two weeks after the date of installation but no longer than within six months, after purchasing, the warranty will become invalid! This results in delays with repairs and the necessity of covering costs of service and travelling expenses.

Thank you for understanding.

Yours sincerely,

**DEFRO R. Dziubeta sp.k.**

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## 1. INFORMATION

The operating manual is an integral and essential part of the product and must be forwarded to the user also in case when the product is handed over. Users should carefully read the manual and save it for the future because all remarks included there are important guidelines concerning safety during installation, usage and maintenance.

Installation of the equipment must be carried out in accordance with the mandatory standards in the country of destination, according to the guidelines of the manufacturer and by qualified personnel. Improper installation of the device may be a reason for personal injuries and damage to property for which the manufacturer is not liable.

The equipment can be used only for the purpose it was explicitly intended. Any other use should be treated as inappropriate and in consequence as dangerous.

In the case of error during installation, usage or maintenance works caused by non-observance of the legislation, applicable regulations or instructions contained in this manual (or others, delivered by the manufacturer) the manufacturer rejects any contractual or non-contractual liability for resulting damages and the warranty for the device becomes void.

All illustrations, pictures and photos are only indicative.

### Versions of the publication

Due to the continuous improvement of the product, DEFRO reserves the right to update this publication without prior notice.

The content of this Operating Manual is a property of DEFRO. Any copying, duplicating, or publishing of content of this User's Manual without the prior written consent of DEFRO is forbidden.

### Manual storage and browsing of its contents.

We recommend taking care of this manual and storing it in an easily and quickly available location. If this manual has been lost, damaged or destroyed you should request a copy in the sales outlet or directly from the Manufacturer providing identification data of the product. All the most important information included in the operating manual is marked with "bold" and has symbols pointing out the user's attention to hazards which can be present during the operation of the equipment. The symbols used in the text are explained below:



#### **Danger!**

*A direct threat to life and health! Non-compliance with the recommendations marked in this way and misuse may result in death or major injuries.*



#### **Danger!**

*Danger from electrical voltage! Incorrect installation and incorrect electrical connections may cause danger to life by electric shock.*



#### **Note!**

*A warning symbol indicating that you should read carefully and understand the given information, to which it relates. Non-compliance with these recommendations may result in major damage to the equipment and create a hazard for the user or the environment.*



#### **Danger!**

*A direct threat to health! Non-compliance with the recommendations distinguished in this way may cause a fire or burns.*




#### **Hint!**

*Informative symbol. Useful information and hints are marked in this way*

## 2. BASIC SAFETY RULES

### 2.1. Safety warnings



- The national and local provisions should be met.
  - The equipment should be installed in compliance with the legal standards applicable in the given location, region or country.
  - The equipment should be used by persons (including children) of impaired physical, sensory, and mental capabilities and by persons without experience and required knowledge provided that such operation is not carried out under their supervision or after proper instruction by a person responsible for their safety.
  - You should always observe the guidelines given in the operating manual to ensure the correct use of the equipment and to prevent accidents.
  - Operation and adjustment should be carried out by adults. Errors and incorrect settings can cause hazardous situations and/or incorrect operation.
  - Prior to any operations the user (or any person operating the equipment) should read and understand the whole contents of this manual. Equipment should be used only as intended. Each other use is considered as misuse and hazardous as a consequence.
  - The equipment should not be used as a ladder or object to lean against.
  - Prior to installation, you should make sure that the substrate will resist the force of the equipment considering its weight. The equipment should be installed in a location ensuring good ventilation and supply of air for combustion.
  - In the case of disturbances in operation, the equipment can be restarted only when the occurred problem has been removed and the equipment is brought back to its original condition.
  - The user is fully responsible for misuse of the product and relieves DEFRO from any civil and criminal liability.
  - All types of modifications or replacement of equipment parts with non-original components or without authorization may present a risk for the operator and relieves DEFRO from any civil and criminal liability.
  - Incorrect installation or maintenance (incompatible with the contents of this manual), can cause injuries to people, animals or property damage. Then DEFRO shall be relieved of any civil or criminal liability.
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- Part of the equipment surface is very hot (doors, handle, window panel, flue gas discharge pipe, etc.). You should avoid direct contact with such components without suitable protective clothing or protective equipment such as e.g. heat-resistant gloves.
  - Do not touch the window panel after heating up of the equipment.
  - Keep children away from the equipment when it is operating because each hot surface can cause burns.
  - It is forbidden to use the equipment when the glass is cracked.
  - Do not place and dry the underwear on the equipment. Possible dryers for hanging underwear or similar should be

located at an adequate distance from the equipment - fire hazard.

- It is absolutely forbidden to open the doors if the flue is on fire. Then call the appropriate services.
- It is recommended to keep a 400 mm distance between the hot parts of the equipment and medium inflammable materials; otherwise, use commercially available insulation materials. Apply this hint also for furniture, curtains etc. Minimum distances are given in point 5.2 of the operating manual.
- It is absolutely forbidden to use flammable liquid for equipment firing up.
- If the substrate, on which the equipment is located, is made of inflammable materials, such as parquet or floor lining then you should place a protective plate under it (the plate should protrude 250-300 mm from the front of the equipment).

## 2.2. Warnings related to the operation



- Equipment should be shutdown in case of failure or incorrect operation.
- Fuel used in the equipment should meet the conditions described in this manual.
- Internal parts of the equipment should not be washed with water.
- Avoid contact with water; above all do not wash any painted surfaces until they are fully cured. The coating on new devices is not an anti-corrosion coating; heat-resistant paint achieves its protective properties only after curing under the influence of heat (after several ignitions).
- Do not expose the body to the action of hot air for a long period of time. Do not heat excessively the room where you are staying and where the equipment is installed. It may have an adverse impact on physical condition and be a reason for health problems.
- Equipment should be installed in rooms with fire protection and equipped with all required components such as supply (with air) and flue gas discharge.
- Equipment and cladding made of ceramics should be stored in rooms free from moisture and they cannot be exposed to adverse effects of the weather.
- It is not recommended to place the body of the equipment directly on the floor and if the floor is made of inflammable materials, it should be properly insulated with non-combustible material.
- To facilitate possible interventions by the technical personnel you should not place the equipment inside the closed rooms and just by the walls which can also disturb air intake
- Always make sure and check whether the doors of the combustion chamber are tightly closed when the equipment is operating.
- Equipment consumes the exact amount of air that is required for the combustion process; it is recommended to connect the equipment for air intake from outside using a suitable pipe and through a special outlet located at the back of the equipment.
- It is forbidden to use the equipment equipped with fans when the fans are switched off - it will damage the firebox.

## Additional information



- You should contact the sales outlet or qualified personnel authorized by DEFRO in the case of any problems. Request original spare parts if the repair is necessary.
- Use only fuel with properties compatible with the recommendations of this operating manual.
- Check and clean flue gas discharge ducts (connecting piece to flue) periodically.
- Store this manual carefully because it should be available for a whole period of equipment operation. In the case of sale or giving the equipment to the other user you should always make sure whether the product has the manual enclosed.
- Request a new copy from the authorized sales outlet in the DEFRO company if it has been lost.

## 3. INTENDED USE

DEFRO HOME CASE S series fireplace firebox is intended for adapting the open fireplace as a fireplace with the closed furnace, without having to remove and reinstall it.

The housing of the fireplace should not be permanently bonded with the firebox. You should have the option to disassemble it.

The DEFRO HOME CASE S fireplace firebox is intended for combustion of hardwood e.g. beech, hornbeam, oak, acacia, maple, birch etc. with moisture content below 20%. It is intended for the heating of houses and spaces where it is installed. It can be also used as an additional source of thermal power.

The DEFRO HOME CASE S fireplace firebox, according to PN-EN 13229:2002, is classified as 1c, the fireplace firebox is a heater with periodical combustion

## 4. TECHNICAL SPECIFICATION

### 4.1. Design

Body (1) of the DEFRO HOME CASE S fireplace firebox is a steel jacket, with a combustion chamber located inside.

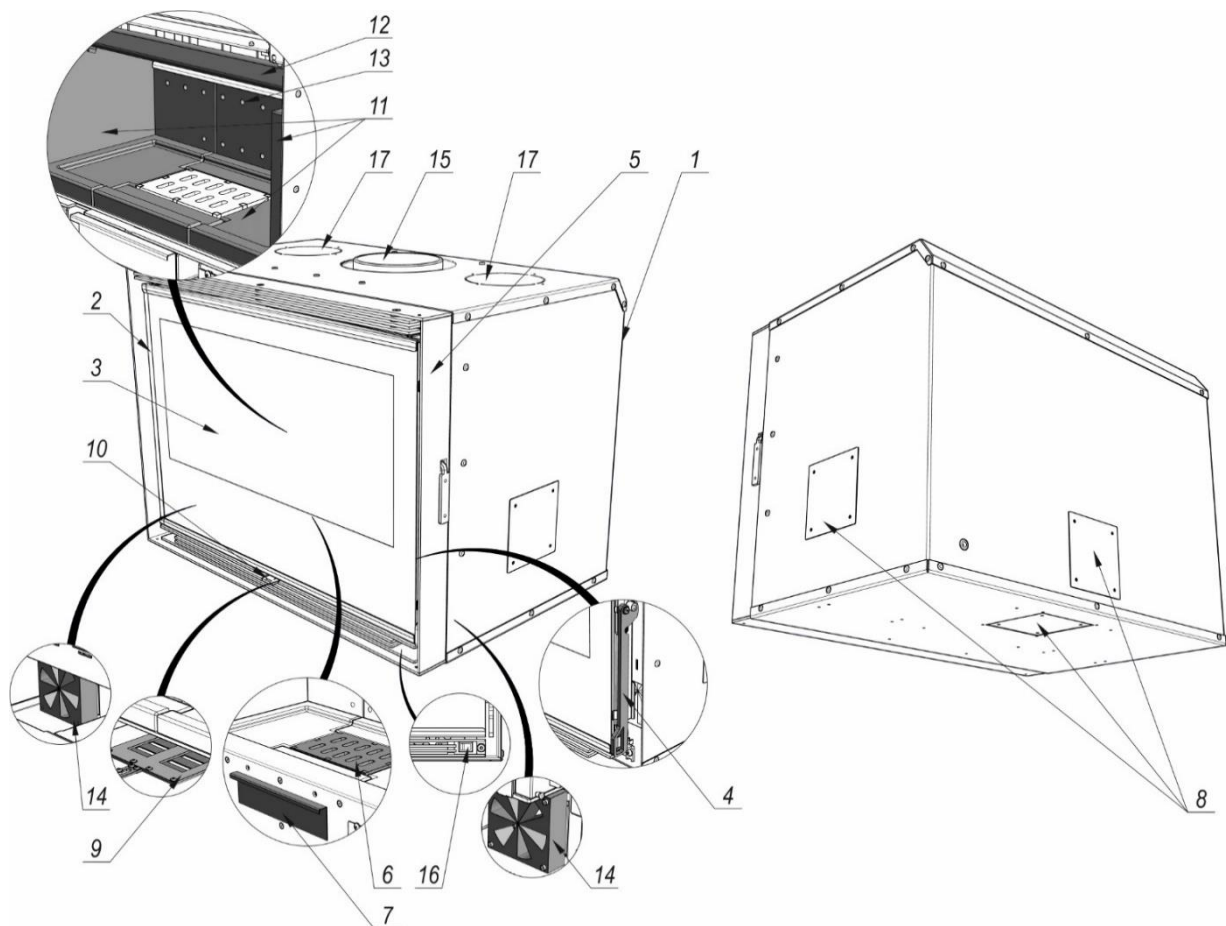
The rear wall and side walls of the combustion chamber are lined with claddings made of concrete insulating refractory (11). The front wall of the combustion chamber is restricted by steel doors (2) with heat-resistant window panel (3) and lock (4). Fuel is combusted on the grate (6) installed on the base. Ash-pan container (7) is located under the grate. The deflector (12) is located over the combustion chamber. It directs flue gas flow and improves the degree of heat exchange.

Air necessary for the combustion process is supplied through an air intake socket (8) equipped with an adjustment mechanism (9). The location of the intake vent allows connecting the fireplace firebox in any configuration of the air intake. Openings for the flue gas afterburning system (14) are additionally located in the rear wall of the furnace chamber.

Two forced draught fans (14) are located in the front part of the firebox, under the floor of the combustion chamber. The fans increase the rate of radiated heat and protect the fireplace firebox against overheating. The fans start and switch off automatically when the temperature in the firebox reaches the set value.

Flue gases are removed to the chimney through a flue (15) located in the upper wall of the fireplace firebox. Furthermore, the DGP connectors are located in the top wall.





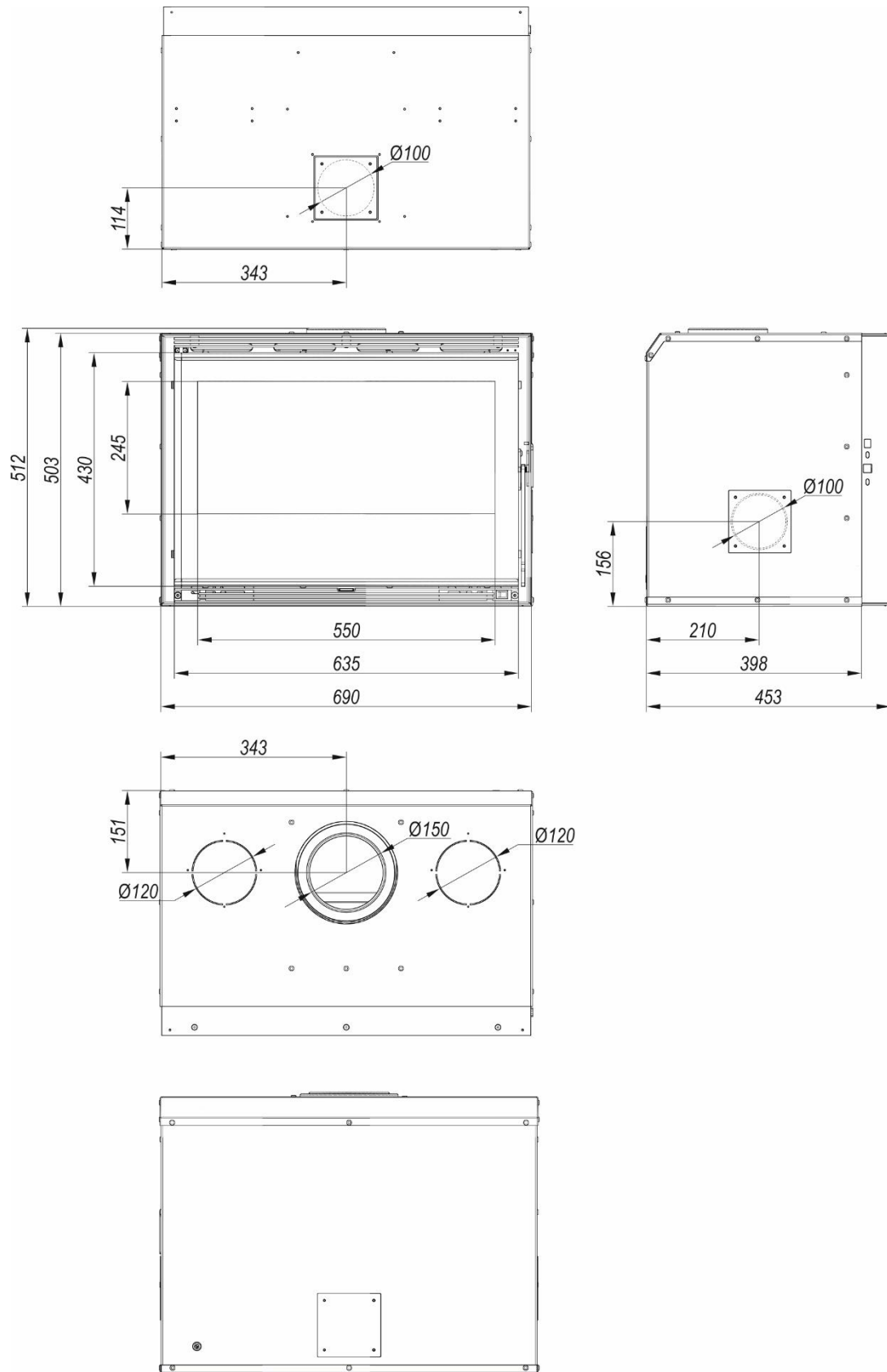
Picture 1. Design of the DEFRO HOME CASE S fireplace firebox.

1–body; 2–doors; 3–fire-proof window panel; 4–handle; 5–border of the frame; 6–grate; 7–ash-pan container; 8–air inflow socket; 9–adjustment of air inflow; 10–slider for adjustment of air inflow; 11–claddings made of fire-proof concrete; 12–deflector of furnace chamber; 13–openings from flue gas afterburning system; 14–fan; 15–flue; 16–switch; 17– DGP connectors;

Table 1. Technical data of the DEFRO HOME CASE S fireplace firebox.

Parameters	unit	DEFRO HOME CASE S
Rated power	kW	8
Direct power transferred to the environment	kW	8,3
Flue size	mm	150
Diameter of air intake socket	mm	100
Efficiency	%	82,7
Seasonal energy efficiency	%	73
CO emission for 13% O <sub>2</sub>	% (mg/m <sup>3</sup> )	0,0903 (1129)
Flue gas temperature	°C	264
Flue gas stream for nominal power	g/s	6,2
Minimum draught at rated power	Pa	12±2
Fuel consumption	kg/h	~2,4
Recommended single charge	kg	~1.8 (2 slivers with a length of 300 mm and with a circumference of 300 mm)
Recommended length of chunks	mm	300
Weight	kg	~140
Electric supply	V/Hz	~230 V / 50Hz
Consumption of electrical energy	W	22
Fuel type		dry hardwood - birch (max. 20% of moisture content)
Type of heating stove		of periodic combustion

#### 4.2. Technical data



Picture 2. Dimensions of the DEFRO HOME CASE S fireplace firebox.



### 4.3. Equipment

The fireplace firebox is delivered on a pallet, foil-wrapped and is fully assembled. The scope of delivery can include additional components and subassemblies, according to the order. Components that are standard equipment are specified in Table 2

Table 2. Equipment of fireplace firebox

Standard equipment	unit	Quantity
Operating manual of fireplace firebox	pcs.	1
Warranty book	pcs.	1
Ceramic lining of furnace chamber	set	1
DH sponge	pcs.	1

### 4.4. Fuel parameters

The fireplace firebox is intended for the combustion of wood from deciduous trees (oak, hornbeam, ash, beech, birch) with moisture content below 20% (wood seasoned in proper conditions for at least 2 years). The recommended length of chunks is given in table no. 1.

It is not allowed to use wet wood (extensive contamination of fireplace and soot emission and decrease of energy efficiency of the device).

It is forbidden to use all other fuels, min. coal, softwood from coniferous trees, wood from tropical trees and any liquid fuels.

It is forbidden to burn any type of litter and wood waste. Firing with inadmissible materials in the fireplace may result in damage to the fireplace and life and health hazard to the users (toxic flue gas from chemicals).



**Use of bad quality fuel or incompatible with the above-mentioned recommendations would cause irregularities in the operation of the equipment and can lead to loss of warranty and decline of the liability for the product.**

*Fireplace is not equipment intended for combustion of wastes and forbidden fuels cannot be combusted in it.*

*Wood should be seasoned minimum of two (2) years. Firing with wet wood, with low calorific value, decreases the efficiency and has an adverse influence on the dry stove's lifetime.*

*It is not recommended to use softwood and resinous woods as fuel. It causes intensive smoke concentration and the necessity to clean the equipment and flue more often.*

*It is forbidden to combust coal, wood from tropical trees, chemical products, liquid fuels etc., e.g. oil, alcohol, petrol, naphthaline, laminated, impregnated boards etc., paper, cardboard, old clothes, wastes.*

*It is forbidden to exceed the recommended amount of charged fuel, because it may cause overheating of the equipment.*

*DEFRO R. Dziubela sp.k. does not accept liability for damages caused or improper burning of fuel if the fuel used is prohibited.*

### 4.5. Spare parts

To obtain information on the availability of spare parts for equipment or inquiries about equipment servicing please contact the DEFRO Service Center or the Authorized DEFRO Service.



DEFRO R. Dziubela sp.k.  
Centrum Serwisowe  
Ruda Strawczyńska 103a  
26-067 Strawczyn



serwis@defro.pl

## 5. TRANSPORT AND INSTALLATION

### 5.1. Transport and storage

The fireplace firebox is delivered on a pallet, foil-wrapped and fully assembled. It is recommended to transport the equipment, in such packing condition, as close as the possible target location for installation, which will minimize the possibility of damage.

All remaining parts of the packing should be removed in such a way that it will not pose any hazard to people and animals.



**The equipment is to be transported in a vertical position!**

Appropriate lifts are to be used for lifting and lowering the fireplace firebox. For transport, the equipment is to be secured against moving and tilting on a vehicle's platform by means of belts, wedges and wooden blocks.

The equipment is to be stored in a non-heated room, under a roof and with efficient ventilation.

Before the installation, you should check the completeness of the delivery, its condition and **remove all transport protections!**

### 5.2. Working environment



**DEFRO HOME CASE S fireplace firebox should be installed in compliance with the requirements of the currently applicable standards and legal regulations and the detailed regulations of the target country. In Poland, these conditions are regulated by the Regulation of the Minister of Infrastructure of 12 April 2002 on technical conditions which should be fulfilled by buildings and their location. (Journal of Laws no. 75 of 2002 item 690 as amended) and Polish Standard PN-EN 13229:2002 Inset appliances including open fires fired by solid fuels. Requirements and tests.**

A fireplace firebox should be installed in a suitable location allowing the opening of the doors and carrying out regular maintenance works. The environment should be:

- adapted to operating conditions,
- equipped with a power supply of 230V/50Hz,
- equipped with a suitable flue gas exhaust system,
- equipped with an external ventilation system,
- equipped with an earthing system with a CE certificate.

The design of the system should allow easy access to adjustment and service grips, and allow assembly/disassembly without damaging the system and the equipment.

The correct setting of the firebox is necessary to obtain a satisfactory heating level for the residential unit. Prior to the assembly, it is necessary to select a suitable position for equipment installation. Check minimum safe distances from materials susceptible to heat or inflammable materials such as load-bearing walls and other walls or wooden components, furniture etc. the firebox can be installed directly into a recess if the walls are made of non-combustible materials and have a suitable thermal resistance. An exemplary installation of a fireplace firebox is presented in picture 3.

Installation of the fireplace firebox should observe the following safety rules:

- a minimum distance of 80 mm on the side and rear of the equipment body from the non-flammable materials.
- a minimum distance of 200 mm from the side and rear of the medium inflammable materials,

- a minimum distance of 800 mm from the front wall, where the medium inflammable materials cannot be located.
- objects made of highly inflammable materials should be located in a distance minimum of 2000 mm from the furnace,

If it is not possible to maintain the above-indicated distances then you should apply process and building measures to avoid fire hazards. In the case of contact with a wooden wall or wall made of other inflammable material, it is appropriate to insulate the flue gas discharge pipe.

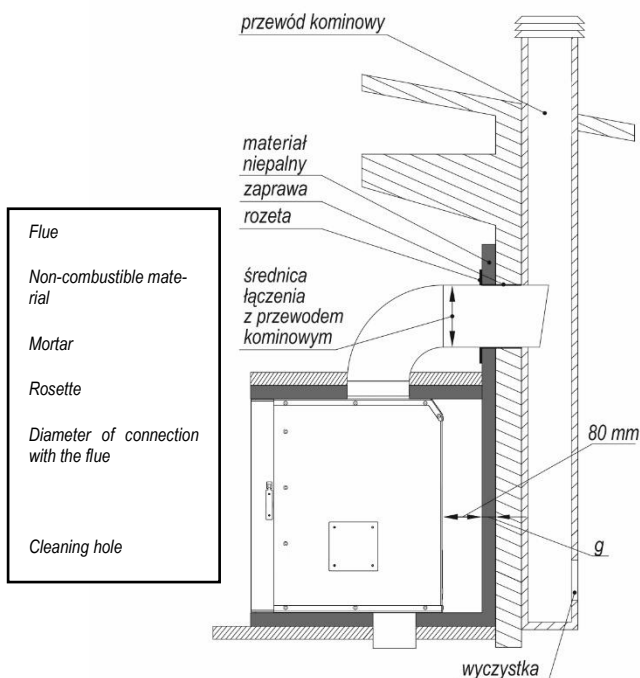
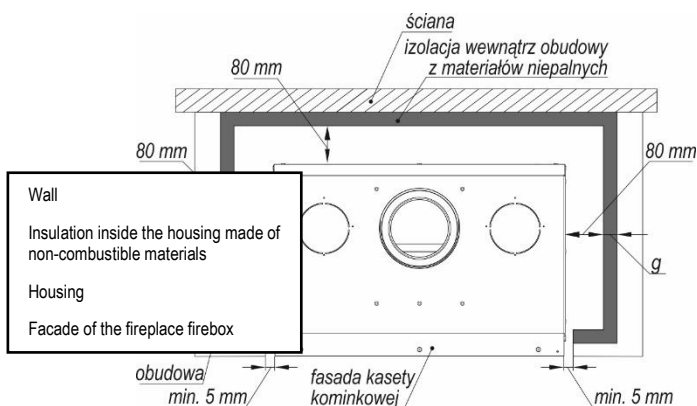
Installation of the fireplace firebox should be lined with non-combustible insulation with thermal resistance  $2 \left[ \frac{m^2 \cdot K}{W} \right]$ , while the minimum thickness of insulation should be calculated acc. to the formula:

$$g = R \cdot \lambda$$

$g$  – insulation thickness [ m ]

$\lambda$  – conduction coefficient,  $\left[ \frac{W}{m \cdot K} \right]$

$R$  – thermal resistance coefficient for a material layer,  $\left[ \frac{m^2 \cdot K}{W} \right]$



Picture 3. Exemplary installation of fireplace firebox.

**WARNING!!! Lack of expansion joint may be a reason for equipment damage. Installation of the equipment inconsistently with the minimum distances from the system results in loss of warranty!!!**

**🔥 In the case of a floor made of inflammable materials, it is appropriate to prepare a plane protecting the floor and execute protection in accordance with the standards applicable in the given country**

The fireplace firebox should be located on a substrate with suitable load-bearing capacity. In accordance with Polish Standards, each square meter of the floor slab in the single-family building should transfer a load of 150 kg. If this condition is fulfilled the equipment manufactured by DEFRO can be installed without needing to reinforce the floor slab.

Nonetheless, if you are not sure about the design of the floor slab, where the fireplace firebox is to be installed, you should absolutely contact the building designer to reinforce the floor slab or execute a special structure distributing the weight on a larger area.

**⚠️ The flooring in the room, where the fireplace firebox is to be installed, should be properly dimensioned, to maintain the load.**

To ensure correct operation of the fireplace firebox you should ensure suitable inflow of air required for combustion (it is appropriate to ensure approx. 40 m<sup>3</sup>/h) in accordance with the installation standards and standards applicable in the given country. The volume of the surrounding environment should not be less than 30 m<sup>3</sup>. You should assume that the combustion of 1 kg of wood requires ~8 m<sup>3</sup> of air.

**⚠️ If several fireboxes are to be used in one room the air demand should be met for each firebox.**

Firebox housing should ensure access of air necessary for ventilation, air circulation in the housing. You should ensure air supply openings ensuring air supply for combustion in installation. To ensure correct discharge of hot air from the hood you should install exhaust openings ended with ventilation grilles. These openings should be made in a way ensuring that they cannot be plugged. They should be ended with grilles

**🚫 Air supply openings for combustion should be ended with grilles. Check the flow capacity of the holes regularly.**

**⚠️ It is forbidden to use mechanical exhaust ventilation when the firebox is not connected to the external air intake.**

It is required to keep the expansion joint around the door frame of the fireplace, that is minimum distance not lower than 5 mm. During the designing of the system, it is required to consider also possible assembly of a frame (which is an optional component), to ensure that after its assembly the minimum expansion joint between the frame and the system will be kept.

The effective area of the inlet grilles (bottom) should be selected correspondingly to the power of the equipment. It is assumed that it should equal to 40 - 60 cm<sup>2</sup> per 1 kW of power of the equipment. Recommended active surfaces:

- equipment power to 10 kW - grille cross-section min. 500 cm<sup>2</sup>,
- equipment power to 15 kW - grille cross-section min. 700 cm<sup>2</sup>,
- equipment power over 15 kW - grille cross-section min. 800-1200 cm<sup>2</sup> and more.

The effective area of the outlet grilles (top) should be bigger by approx. 40% from the effective area of the inlet grilles.

Air can be supplied from adjacent rooms, provided that they are equipped with an external air supply and they are not intended for a bedroom and bathroom, and where fire hazard is not present, for example: garages, woodsheds, inflammable materials storage.

You should absolutely observe recommendations of the applicable standards.

The temperature over the firebox, inside the hood, is very high. Therefore, it is necessary to install a decompression relief plate inside the hood, at a distance ~40cm from the ceiling of the room. It prevents heating of the ceiling in the room, heat losses and forces installation of exhaust grilles below it emitting the heat from the relief chamber over the firebox. Relief grilles are installed alternately on both sides of the housing - below and over the relief plate.

Outlets from the exhausts, which are operated with the heating stove in the same room or in the rooms connected with ventilation, may be troublesome.

If the additional heat source is installed then it is required to ensure the supply of sufficient amount of air for combustion and ventilation.

### 5.3. Hot air distribution system

#### 5.3.1. Gravity system for hot air distribution

In the case of heating of small areas, e.g. room where the fireplace firebox is installed, and adjacent rooms, you should select a gravity system for air distribution, when the hot air will raise upwards to the chamber in heating ducts by way of thermal lifting forces.

While using the gravity system you should use properly insulated and short (not exceeding 3 m) distributing ducts. For this system, it is not recommended to distribute hot air to too many rooms. Also, the use of too long pipes (over 3 m from the flue) increases resistance and decreases airflow velocity which causes that gravitational flow is not effective.

#### 5.3.2. Forced system for hot air distribution.

A hot air distribution system (DGP) allows using the convection heat generated by the equipment for heating of other rooms. Various solutions are used depending on the equipment power and conditions of installation.

The fireplace firebox allows connecting the DGP system from the top. It is required to cut out the parts of the top cover during assembly - see pic. 1, item 17. Assembly of pipes is made using special pipe couplings with 120 mm in diameter.

**i** *Installation of the DGP system should be entrusted to a specialized company, which will check heat demand for the given area and will correctly design the connection system and arrangement of the individual parts.*

#### 5.4. Connection to the external air intake

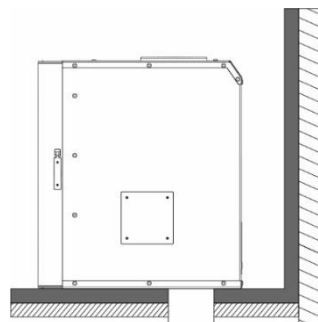
The room, where the fireplace firebox is installed, should be equipped with the inflow of air in the minimum amount required for the correct combustion process and for room ventilation. This can be done by executing fixed vents in walls directed to the outside or through independent or common ventilation ducts.

The external wall near the fireplace firebox should have a through opening, protected with a grille on the internal and external sides, for this purpose.

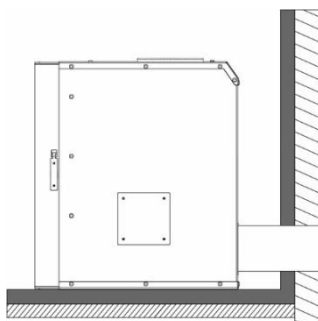
Furthermore, the air intake should be:

- directly connected to the room, where the fireplace firebox is to be installed,
- protected with a grille, metal net or suitable cover not restricting minimum cross-section,
- located in a way preventing plugging it
- located with consideration of proper distances preventing swirling of air (e.g. with respect to the windows).

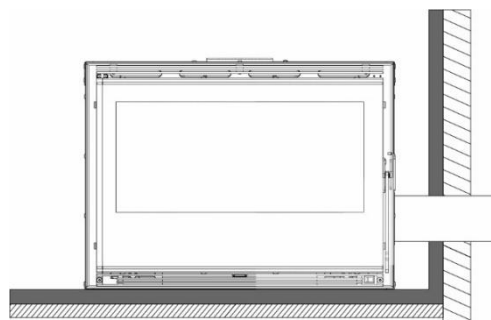
a)



b)



c)



Picture 4. Connection of fireplace firebox to external air intake: a) from the bottom, b) from the back, c) from the side.

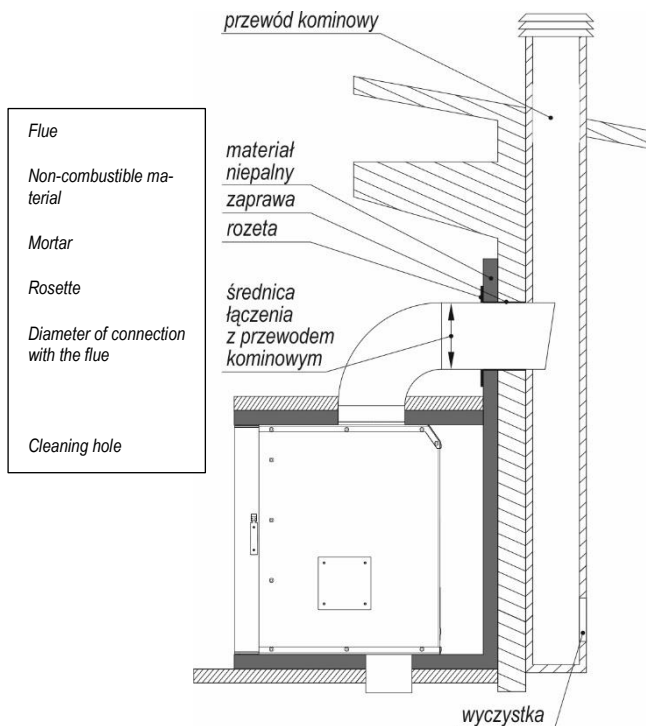
#### 5.5. Installation to the flue

The fireplace firebox should be connected to individual (flue gas) flue. The size of the chimney draught should equal.

- minimum draught -  $6 \pm 1$  Pa,
- average, recommended draught -  $12 \pm 2$  Pa,
- maximum draught -  $15 \pm 2$  Pa.

During the execution of the opening for the flue gas discharge pipe, you should consider the possible occurrence of inflammable materials. If the opening will pass through the wooden wall or wall made of material sensitive to heat then you should obligatorily maintain a minimum distance from flammable material (value given on the certification label of the pipe), with possible additional insulation using proper materials (thickness 1.3 - 5 cm, heat conductivity min. 0.07 W/m °K).

As an alternative it is recommended to use insulated industrial pipe, which can be also used outdoors, to avoid the occurrence of condensate.



Picture 5. Connection of fireplace firebox to the flue.

For correct operation connector between the fireplace firebox and flue or smoke duct should be executed acc. to the below recommendations:

- horizontal sections should have a minimum slope of 3% towards the top,
- length of the horizontal section should be minimum and should not exceed 2/3 metre,
- number of changes of directions, inclusive of the use of the "T" component, should not exceed 4.

Chimney or individual smoke duct should meet the following requirements:

- be resistant to combustion products, water-proof and suitably insulated, in compliance with conditions of use,
- be made of materials resistant to normal mechanical stresses, heat, the action of combustion products and possible condensate,
- be vertical with the change of axis direction not exceeding 45°,
- be adequately separated with void space or suitable insulation from combusted and inflammable materials,
- have preferably circular internal cross-section: square or rectangular cross-section should have rounded corners with a radius not smaller than 20 mm,
- internal cross-section should be constant, free and independent,
- have a rectangular cross-section with a maximum ratio between two sides equal to 1.5.

**!** *It is forbidden to use mechanical exhaust ventilation when the firebox is not connected to the external air intake.  
The fireplace firebox should not be used if the chimney draught is too low.*

## 6. USAGE AND OPERATION

### 6.1. Introductory remarks

Before installation of the fireplace firebox, it is recommended to perform several test start-ups to check the operation of the mechanical systems of the equipment.

During the initial period after installation, the equipment should be operated with power equal to approx. 30% of rated power and increase temperature gradually. It allows the gradual removal of internal stresses preventing the occurrence of thermal shocks. Furthermore, such a method of operation improves the durability of the equipment.

The equipment is subject to expansion and shrinkage during the warming and cooling down stage which may cause slight squeaks. This is an absolutely normal phenomenon because the structure of the equipment is made of rolled steel and this phenomenon shall not be considered a defect.

Do not stay near the stove during several first fire-ups. It is also required to vent the room. Smoke, the odour of paint, silicone and other materials used for the execution of the installation will disappear after several fire-ups. However, we remind you that they are not harmful to health.

**i** *It is good practice to ensure efficient ventilation during the first firing-up because a small amount of smoke and odour or paint and other materials will be emitted from the fireplace firebox.*

**!** *Do not use a non-installed fireplace firebox. Test firing up is an exception.*

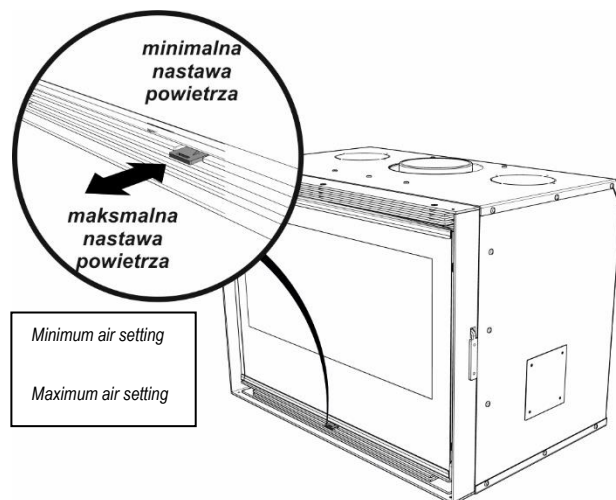
### 6.2. First start-up and operation

Firing from the top is a recommended method of firing of the equipment. Prior to firing up you should set a slider of air inflow adjustment to maximum opening (marking on the handle, presented in picture 6). Then open the doors of the firebox and place fuel on the grate as follows: place split thick chunks at the bottom, then another layer of thinner chunks. Place small slivers at the top, where you may additionally place eco-friendly kindling.

It is important to ensure free space (approx. 1 cm) between each of the chunks.

The recommended single fuel charge is given in Table 1.

**⊘** *It is forbidden to use other materials than described in this manual for firing up, in particular flammable chemicals such as: oil, petrol, solvents and others.  
It is forbidden to use the equipment equipped with fans when the fans are switched off - it will damage the firebox.*



Picture 6. Setting of the slider for air inflow adjustment.

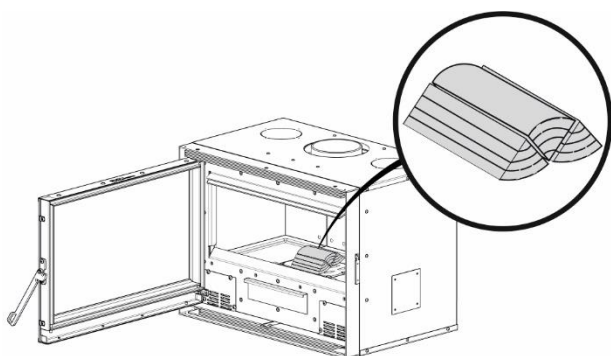
If the draught in the chimney is not sufficient then you may unseal by the minimum opening of the fireplace doors during the initial firing up stage. If the fireplace firebox is not supplied with the air from outside, then it is



required to supply a sufficient amount of the air by opening a window in the room where the equipment is located.

You should use only hardwood (recommended beech, oak, hornbeam, birch), preferably debarked, of low moisture content (below 20%).

During combustion, the doors should be opened only when the fuel is being added. Recharging should be made only when only an ignition layer, in the form of a glow, remains in the furnace. Before adding the wood, it is required to spread the remaining layer of glow and refill the combustion chamber with wood - in accordance with picture 7. The intensity of the combustion process should be set with the "air inflow adjustment slider". The correct flame should have a light-yellow colour and length of approx. 20-40 cm, depending on the power of the boiler, after approx. 2-3 minutes from charging. If there are problems obtaining the correct flame in a short time - you should increase the opening of an adjustment slider and set the target position after firing up



Picture 7. Method of fuel arrangement

**!** *Never stand in front of the equipment door while opening it. Burn risk.*

*Pay special attention to avoid damage to the ceramics during refuelling.*

The odour of paint from the body will be released during the first several hours of combustion. This is completely normal. You should strongly vent the room at that time. Check the tightness of joints once again when fuel is completely burned out and equipment has been cooled down.

**!** *Housing components will be very hot during operation. You must exercise caution.*

You should control the level of filling of the container with ash. Overfilling of the container results in a lack of cooling of the grate and limits the air supply for combustion. To empty the container, you should dampen a fireplace, close the inflow of air for combustion and wait until the surface and parts of the fireplace firebox cool down. Then open the doors and move the container out. Remove ash from the container and re-install in the body of the equipment. It is recommended to empty the ash container prior to each successive start-up of the equipment.

**i** *Only the **AUTHORIZED SERVICE** of the **MANUFACTURER** may check the correctness and integrity of the equipment connection, preparation for operation according to this manual and applicable regulation and first start-up and train the user within the scope of equipment operation and servicing*

### 6.3. Damping

Damping is executed by the closing inflow of primary air. In such a case you should wait until the fuel completely burns out in a natural way

If it is necessary to quickly dampen a flame you should charge the furnace chamber with dry sand or ash. It is not allowed to dampen a flame

by pouring it with water because it may damage components of the equipment.

**!** *After a longer break in equipment's operation you should check flow capacity of the flue*

## 7. CLEANING AND MAINTENANCE

**!** *All operations related to cleaning of all components should be carried out when the fireplace firebox is completely cold and does not operate. It is required to use protective gloves.*

*It is forbidden to clean the equipment (all painted components and gaskets) using chemicals, liquids and moist cloths, towels, industrial wipers etc. Discolourations, and sources of corrosion may occur if the mentioned rules are not observed and they are not covered by the warranty.*

**i** *It is a good practice to ensure good ventilation in the room during the cleaning of the fireplace.*

### 7.1. Basic operations and cleaning by the user

Any service and maintenance works are to be carried out with meticulous care and only by adults familiar with this manual. The fireplace firebox should not be cleaned in the presence of children.

**⊘** *Any service and maintenance works are to be carried out with meticulous care and only by adults familiarized with this manual. The equipment should not be cleaned in the presence of children.*

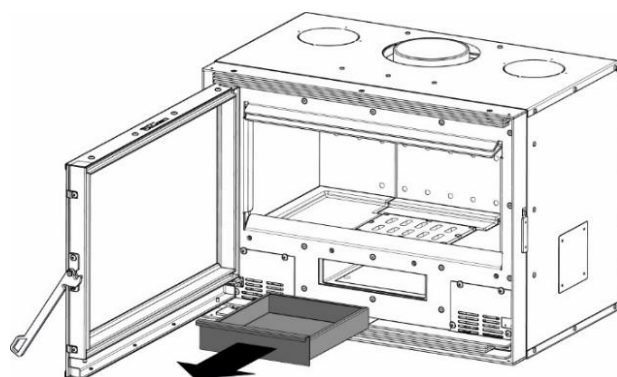
*Protective gloves, glasses and headgear are to be worn to operate the equipment.*

#### 7.1.1. Cleaning before each starting

Before each successive start-up of the equipment:

- clean the flue gas ducts
- clean and empty the ash container, handling the ash with due care. Open the doors and move the ash container out (picture below) and remove the remaining dust. Dust can be removed using a vacuum cleaner only if it is completely cold. Use a vacuum cleaner adapted to removing particles of a specified size for this purpose

Re-install the ash container after the cleaning, making sure that its position is correct



Picture 8. Removal of ash-pan for emptying purposes.

**⊘** *Absolutely, it is required to clean the flue gas ducts of the equipment before each start-up.*

*Check flow capacity of the flue gas ducts regularly.*

### 7.1.2. Window panel cleaning

The window panel may be cleaned only and exclusively when the equipment does not operate and is at room temperature.

Before each cleaning of the glass pane, it is required to protect the painted components and surfaces, and gaskets against flooding, because it has an impact on quicker wear and tear of the components.

We recommend using only the DH sponge to clean the glass panes. We do not recommend using any liquid for cleaning of glass panes or chemicals. The absence of protection of the cords surrounding the glass panes causes loss of their properties, soaking with chemicals and reactions with high temperature that results in damage to the glass pane.

The sponge is intended only to clean the glass panes, it should not be used for gaskets or metal parts. It is not suitable for cleaning glass panes with pyrolysis. The sponge may be used several times, depending on the degree of soiling of the glass pane. Use the grey side for cleaning and brush it off each time after use.

Do not use products that may scratch the glass pane. The ash may contain substances that will scratch the glass ceramics.

**!** *It is forbidden to use abrasive agents or materials, because they may scratch the glass surface.*

*It is forbidden to use chemical cleaning agents, because in case of contact with such agents, they may cause damage to the components of the fireplace firebox, that is printed on the glass pane, glass pane, gaskets, and painted surfaces.*

**⊘** *Do not open doors to clean the window panel during the operation of the fireplace. Cleaning of window panels is possible only when the equipment is cold.*

### 7.1.3. Doors/gaskets

Abrasive surfaces of doors and closing mechanisms should be occasionally lubricated with graphite grease. Carry out inspection and cleaning of the whole fireplace firebox prior to each heating season. Pay special attention to the condition of gaskets, replace them if necessary.

### 7.1.4. Furnace chamber

Clean the furnace chamber of the fireplace firebox periodically, depending on moisture content and type of wood used.

### 7.1.5. Flue

In compliance with applicable regulations, you should clean the flue twice (2) a year. Flue should be cleaned by a chimneysweep company and this fact should be documented in this manual.

**⊘** *Flue gases coming out of the blocked chimney are dangerous. The chimney and connector should be kept clean. They should be cleaned before each heating season.*

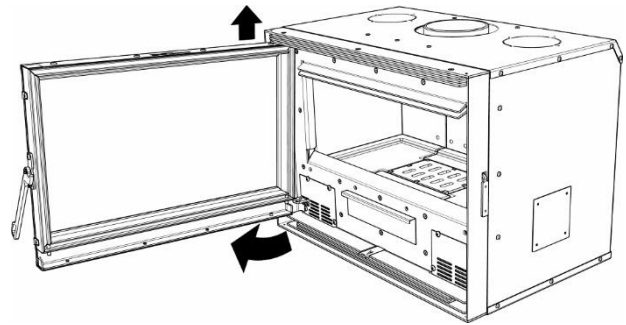
**!** *After a longer break in the equipment's operation you should check the flow capacity of the flue.*

### 7.2. Periodic inspection by authorized service

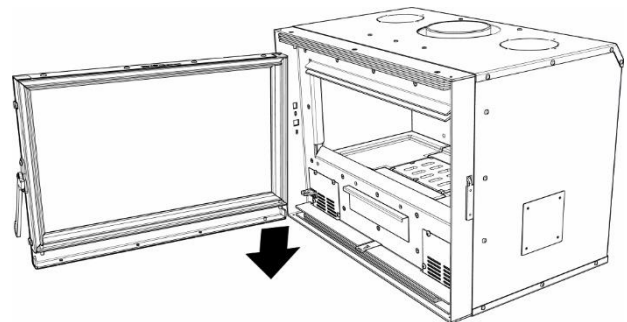
After the heating season, it is necessary to clean the chamber through which flue gas is flowing. This cleaning is obligatory and is intended to remove all combustion residues

**!** *Periodic inspection of the equipment should be carried out only by a qualified manufacturer's service.*

### 7.3. Doors disassembly



- Open the doors and lift them fully upwards to remove the bottom pin of the hinge from a sleeve. Then, tilt the doors from the bottom to the outside to ensure that the bottom pin of the hinge is outside the frame.

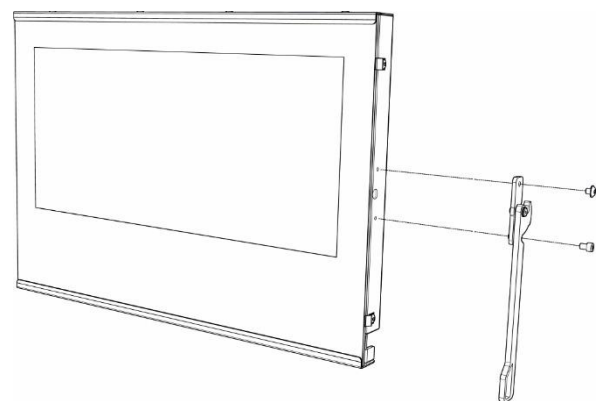


- Lower the doors to ensure that the upper pin of the hinge leaves the upper opening of the frame and remove the doors

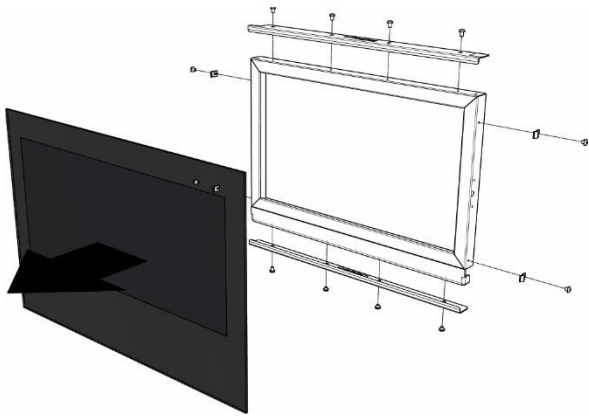
Picture 9. Doors disassembly method.

### 7.4. Window panel dismantling

It is possible to disassemble the window panel after the doors have been disassembled. The best way is to disassemble the window panel when the doors are in a horizontal position (e.g. when such doors lie on the table). Version with side window panel: first, remove the front window panel and then the side window panel.



- Remove the door handle

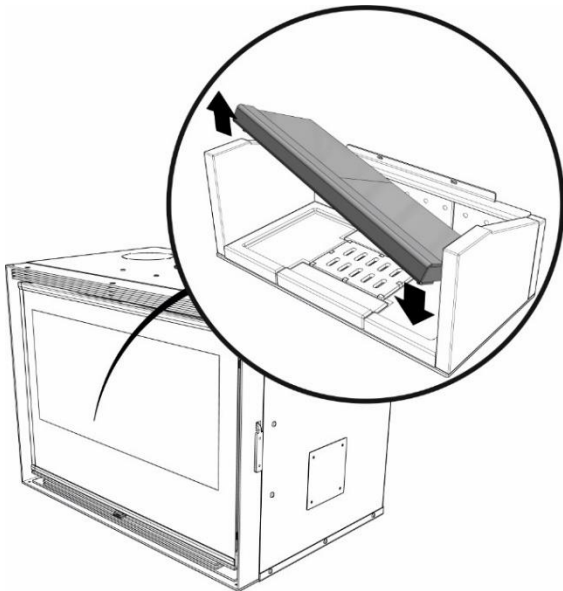


- Remove the clamps on the sides and top and bottom fixing strips.

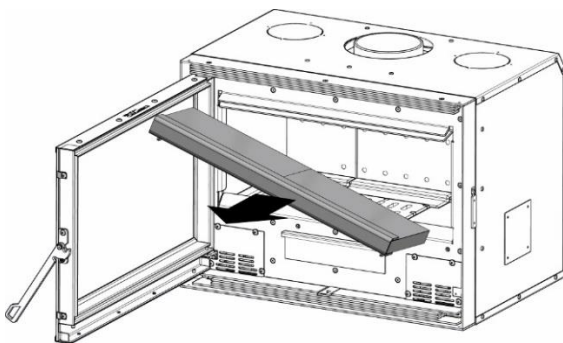
Picture 10. Window panel dismantling from doors.

### 7.5. Disassembly of deflector

The location of the deflector in the fireplace is presented in the picture



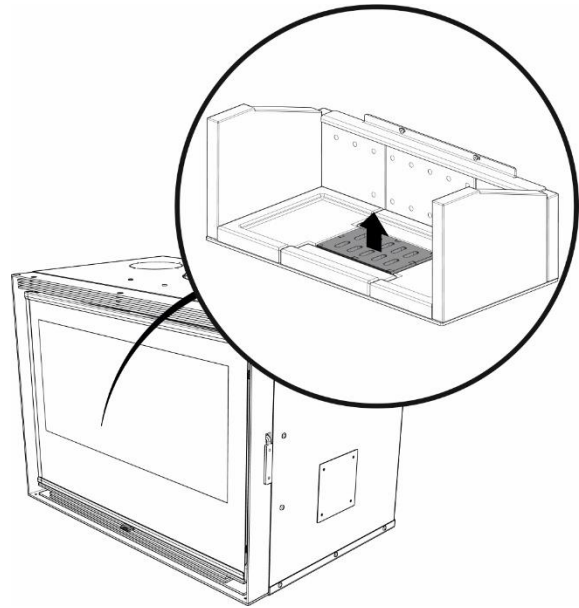
Open the doors. Lift one side of the deflector and then lift the whole deflector upwards in such a position.



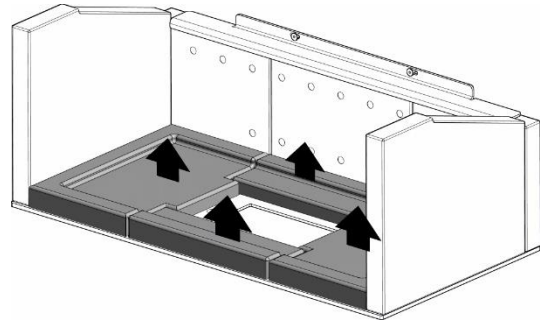
Slide it slightly to the left or right to place it in free space between the side panels. Lower the deflector in such a position and remove it through the door opening.

Picture 11. Deflector disassembly method.

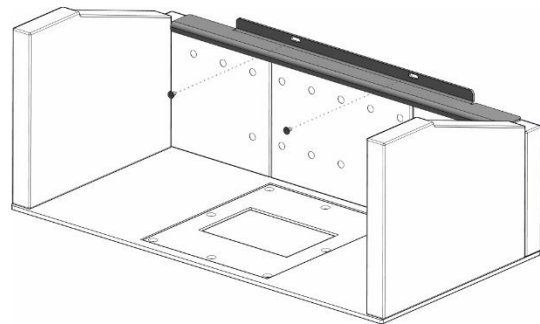
### 7.6. Disassembly of claddings made of fire-proof concrete



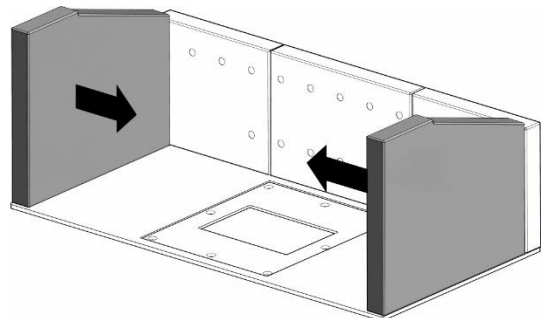
First, you should disassemble the deflector. Then, lift and remove the grate



Remove the claddings located on the sides of the grate

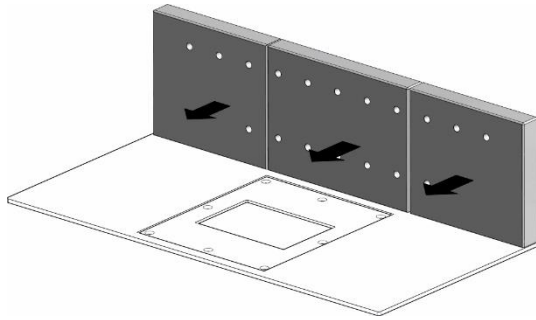


Undo screws fixing the strip



Remove side cladding first





Remove rear claddings at the end.

Picture 12. Claddings disassembly method.

### 7.7. Shutting the stove down

It is recommended completely shutdown the fireplace and clean the equipment when each heating season is finished.

## 8. TROUBLESHOOTING

Some anomalies indicating irregularities in operation can occur during the operation of the equipment. It can be caused by incorrect installation of the equipment without observation of the applicable building regulations or provisions of this manual or by external causes e.g. natural environment.

Below you will find the most frequent causes of incorrect operation of the equipment with their solutions

#### **Smoke draw back when the doors are opened:**

- too rapid opening of the doors (open the doors slowly);
- if the chimney damper has been installed as a chimney draught regulator - open the chimney damper each time when the doors are opened.
- insufficient air inflow to the room, where the equipment is installed (ensure proper ventilation in the room or supply air to the combustion chamber in compliance with guidelines in the manual);
- atmospheric conditions: low pressure, mists and precipitation, sharp changes in temperature.
- insufficient chimney draught (carry out chimney sweep inspection of the flue)

#### **Insufficient heating or damping:**

- too low amount of fuel in a furnace (charge furnace in compliance with the manual);
- the too high moisture content of wood used for combustion (use wood with moisture content <20%) a large part of obtained energy lost in the water evaporation process;
- too low chimney draught (carry out chimney sweep inspection of the flue).

#### **Insufficient heating despite good combustion in the combustion chamber:**

- low calorific "soft" wood (use wood as recommended in the manual);
- too high moisture content of wood used for combustion (use wood with moisture content <20%);
- too fragmented wood, too thick chunks of wood:

#### **Excessive contamination of window panel:**

- the low intensity of combustion (combustion with a very small flame, use only dry wood as fuel);
- using resinous softwood as a fuel (use dry hardwood as a fuel foreseen in the operating manual).

#### **Lack of hot air exhaust in the firebox**

- lack of electrical supply (check the electrical supply/condition of supply cable)
- damaged fan or control system (replace the damaged component)

## 9. MEASURES IN THE CASE OF FIRE IN THE FLUE /SOOT IGNITION/.

**i** *Systematic cleaning of smoke ducts should be performed to prevent soot ignition in the chimney.*

Soot ignition in the chimney is the burning of particles deposited inside chimney (flue) channels; the deposits are formed in the course of the heating equipment's operation and were not cleaned by chimney sweeps. In the case of a soot fire in the chimney the following recommendations should be observed:

- call Fire Brigade at 998 or 112, give information about what is happening and give detailed directions on what is happening and how to get to the given building.
- damp a fire in the chimney by closing the inflow of cold air to the furnace chamber.
- close the fireplace's door and clean holes tightly to cut off the air supply (due to lack of air the fire will eventually stop);
- check the whole chimney channel for any cracks which might result in fire spreading to the rooms.
- prepare fire quenching means, e.g., fire extinguisher, fire blanket, a hose connected to the water system, water in a container.
- make rooms and necessary information available to the Fire Brigade.

**⊘** *It is strictly forbidden to pour water into the chimney - the risk of blowout.*

*Untight chimney channels can be a source of burning sparks or very hot flue gas, including insensible carbon monoxide*

**⚠** *Chimneysweep should be called after a soot fire in the chimney to perform cleaning of ducts and to inspect their technical condition..*

## 10. REMOVAL DUE TO WEAR-OUT

The fireplace firebox is made of materials neutral to the environment. After worn out of the equipment, the parts connected with screws should be disassembled by unscrewing and welded parts must be cut.

The fans with leads should be disconnected before scrapping of fireplace firebox. These leads are subject to selective collection of waste electrical and electronic equipment for utilization purposes. These parts cannot be placed with other general wastes. Collection places should be specified by the municipal or commune services.

The other elements of a fireplace firebox are subject to standard waste disposal, mostly as steel scrap. Take safety precautions during the disassembly of the fireplace firebox by using appropriate hand-held and mechanical devices as well as personal protective equipment (gloves, clothes, apron, glasses, etc.).

## 11. REMARKS ON FIREPLACE FIREBOX USAGE



*The following rules for the safe operation of the fireplace firebox should be strictly observed and introduced*

1. The fireplace firebox can be used only by adult persons, who have familiarised themselves with this operating manual and have been trained in the scope of usage.
1. It is forbidden for children to be in the neighbourhood of the fireplace firebox without adults.
2. Flammable liquids must not be used for torching the fuel; only solid fuel (e.g. tourist), paper can be used etc.
3. Flammable materials must not be placed on the fireplace firebox and in its vicinity.
4. It is forbidden to dampen a fire in a furnace with water.
5. It is forbidden to use a fireplace firebox with a cracked window panel.
6. You should use the fuel recommended by the manufacturer.
7. Never stand in front of the fireplace firebox door while opening it. Burn risk.
8. While removing ash from the stove, flammable materials cannot be located closer than 1500 mm from the fireplace firebox. Ash is to be put into heat-resistant containers with a lid.
9. After the heating season has finished, the fireplace firebox and smoke channel are to be precisely cleaned.
10. Point corrosion spots are allowed because they do not impact the correct operation of the equipment and do not reduce its performance. They may occur as a result of incorrect storage of equipment (e.g. in rooms of high moisture content).
11. A phenomenon of condensation of water steam - condensate, may occur during operation.



## PRODUCT SHEET

in accordance with the Commission Regulation no. 2015/1186  
on the execution of the Directive of the European Parliament  
and the Council 2010/30/EU and the Regulation 2017/1369

### Name and address of the equipment supplier:

DEFRO R. Dziubeła spółka komandytowa  
26-067 Strawczyn  
Ruda Strawczyńska 103A

### Equipment parameters

Supplier's model identifier	DEFRO HOME CASE S
Energy efficiency class	A+
Direct thermal output of the product	8,3 kW
Indirect thermal output	N/A
Energy efficiency Index	110
Performance at rated thermal output	82,7
Efficiency at minimal load	N/A
Special precautions	Consider guidelines included in the Service Manual delivered by the manufacturer each time before assembly, start-up or maintenance of the equipment



## PRODUCT SHEET

in accordance with the Commission Regulation 2015/1185

on the execution of the Directive of the European Parliament and the Council 2009/125/EC

### Equipment parameters

Model identifier(s): DEFRO HOME CASE S

Indirect heating functionality: [yes/no]

Direct heat output: 8,3 (kW)

Indirect heat output: N/A (kW)

Fuel	Preferred fuel (only one):	Other suitable fuel(s):	$\eta_s$ [%]:	Space heating emissions at nominal heat output				Space heating emissions at minimum heat output			
				PM	OGC	CO	NO <sub>x</sub>	PM	OGC	CO	NO <sub>x</sub>
				mg/Nm <sup>3</sup> (13 % O <sub>2</sub> )				mg/Nm <sup>3</sup> (13 % O <sub>2</sub> )			
Wood logs with moisture content ≤ 25 %	yes	no	73	18	75	1129	98	n/a	n/a	n/a	n/a
Compressed wood with moisture content < 12 %	no	no									
Other woody biomass	no	no									
Non-wooden biomass	no	no									
Anthracite and dry steam coal	no	no									
Hard coke	no	no									
Low temperature coke	no	no									
Bituminous coal	no	no									
Lignite briquettes	no	no									
Peat briquettes	no	no									
Blended fossil fuel briquettes	no	no									
Other fossil fuel	no	no									
Blended biomass and fossil fuel briquettes	no	no									
Other blend of biomass and solid fuel	no	no									

## Characteristics when operating with the preferred fuel only

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Heat output</b>				<b>Useful efficiency (NCV as received)</b>			
Nominal heat output	$P_{nom}$	8,3	kW	Useful efficiency at nominal heat output	$\eta_{th,nom}$	82,7	%
Minimum heat output (indicative)	$P_{min}$	n/a	kW	Useful efficiency at minimum heat output (indicative)	$\eta_{th,min}$	n/a	%
<b>Auxiliary electricity consumption</b>				<b>Type of heat output/room temperature control (select one)</b>			
At nominal heat output	$e_{l,max}$	0,022	kW	single stage heat output, no room temperature control		yes/no	
At minimum heat output	$e_{l,min}$	n/a	kW	two or more manual stages, no room temperature control		yes/no	
In standby mode	$e_{l,SB}$	n/a	kW	with mechanic thermostat room temperature control		yes/no	
<b>Permanent pilot flame power requirement</b>				with electronic room temperature control		yes/no	
Pilot flame power requirement (if applicable)	$P_{pilot}$	-	kW	with electronic room temperature control plus day timer		yes/no	
				with electronic room temperature control plus week timer		yes/no	
				<b>Other control options (multiple selections possible)</b>			
				room temperature control, with presence detection		yes/no	
				room temperature control, with open window detection		yes/no	
				with distance control option		yes/no	

## Contact details/ Name and address of the manufacturer or its authorised representative.

DEFRO R. Dziubela spółka komandytowa  
26-067 Strawczyn  
Ruda Strawczyńska 103A

Robert Dziubela – president of the management board







**DEFRO R. Dziubela spółka komandytowa**

26-067 Strawczyn  
Ruda Strawczyńska 103A  
tel.: 41 303 80 85  
biuro@defro.pl  
www.defrohome.pl

Service hotline

509 702 720

509 577 900