

TABLE OF CONTENTS

Warning before use	4
Description of the cooker	5
Technical data	6
Installing the cooker	7
Disadvantages of the chimney	8
Ignition and lighting	9
Handling the cooker operation	11
Authomatic regulation of stove's operation	12
Installing the cooker into the sistem for water heating	13
Installation on closed central heating system	13
Installation on opened central heating system	15
Cleaning and maintenance	17
General recommandation	18
Advices for environment protection	19

Dear Customer,

We appreciate your trust vested in us and decision to use TIM SISTEM product.

You have invested in energy-efficient and high-quality product - NORTH HYDRO wood burning cooker.

Your purchase will provide you long-term clean and comfortable heating with minimal maintenance.

Please read these instructions carefully and completely.

It's purpose is to inform you about the installation, operation and maintenance of your stove. Keep it handy and refer to it as needed. You will find in it information that will be useful now and in the years to come.

Make sure that when installing the stove all security standards have been respected and that all gas pipes, connections between tubes and pipes and walls are connected properly.

Disregarding these standards and negligence during installation can damage your property or put your health and life in danger!

Set your cooker to a safe place, away from the frequent passages and doors, somewhere near chimney and chimney connection.

We wish you many pleasant moments with NORTH HYDRO.

TIM SISTEM d.o.o.

WARNING BEFORE USE

To keep your cooker working properly, it is important to read this manual and strictly stick to the instructions for use and handling.

For combustion use solid fuels such as wood and wood briquettes. It is forbidden putting explosive devices and materials combustion chamber or the limited thermal furnace. It is forbidden to keep flammable materials near the stove.

For proper combustion and regular operation of the stove, draft in the chimney should be 12-17PA. If the draft is greater than 17Pa, the regulatory valve should be installed in the chimney.

Room where the cooker is positioned must be vented regularly because of the fresh air needed for combustion.

Some parts of cooker heat up during operation and it takes appropriate precaution when handling it. Do not allow children to handle and play near the cooker.

Only spare partes reccomended and allowed by the manufacturer should be installed on the cooker. You must not make any changes on the cooker.

During the first firing there might show a lighter smoke, especially from the plate's surface. It is a common appearance that occurs due to combustion deposits on the plate's surface(corrosion protection, paint, dust,). The room where the cooker is should be vented during the first firing.

It's not reccomended connecting the cooker to the common chimney because it can adversely affect the required draft.

Device that uses gas as fuel must not be connected to same chimney.

During firing, use protection gloves because the door handles get heated.

National and local regulations for the installation of the furnace must be respected.

In a case of non-copliance with instructions given in this manual, manufacturer does not take any kind of responsibility for caused damage.

DESCRIPTION OF THE COOKER

Storey stove **NORTH HYDRO** it's manufactured and tested according to European standard EN 12815. On the figure 1 is shown the appearance of the stove with all it's components important for handling.

Storey stove NORTH HYDRO has a boiler (figure 1, position 12), 16l volume made of boiler tin-plates, tickness prescribed by standards. This kind of a manufacture prolongs life of the boiler. Water connections are 1.

Working surface of the cooker is made of a tin hotplate (figure 1, position 14) with a cast smoke drain connection (Figure 1, position 1) which is installed on the cooking surface with two screws. Firebox door (Figure 1, position 10) are made of tin, with interior thermosetting transparent glass.

The sealing elements are made of materials that do not contain asbestos.

Components:

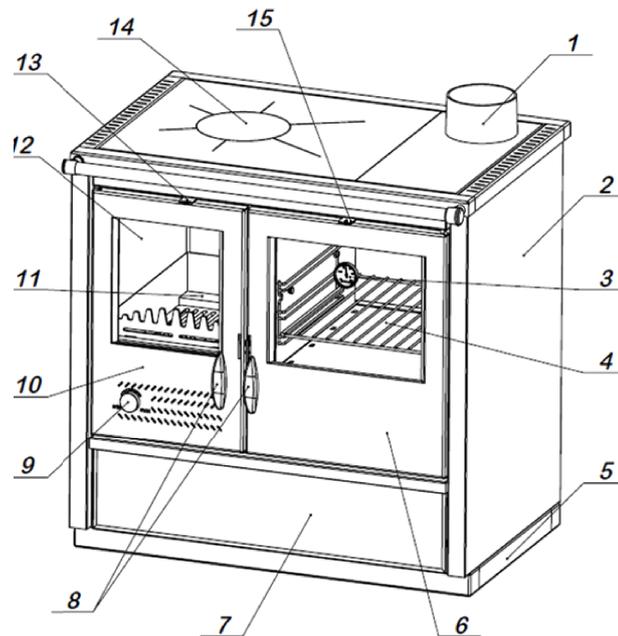


Figure 1

- | | |
|-----------------|--|
| 1. Smoke drain | 8. Handles |
| 2. Lateral side | 9. Regulation of primary air (Rathgeber) |
| 3. Thermometar | 10. Firebox |
| 4. Oven | 11. Firebox door |
| 5. Stand | 12. Boiler |
| 6. Oven door | 13. Secondary air lever |
| 7. Drawer | 14. Hot plate |
| | 15. Draft regulation lever |

TECHNICAL DATA

Fuel		Wood, wood briquet
Nominal power	kW	16
Efficiency	%	85
Thermal power delivered to water	kW	7,2
Thermal power delivered to room	kW	8,3
Dimensions of the cooker WxLxH	mm	900 x 600 x 850
Dimensions of the fire place WxLxH	mm	290 x 450 x 270
Dimensions of the oven WxLxH	mm	350 x 740 x 295
Weight	kg	153
Minimum distance from flammable materials		
Back	mm	500
Side	mm	350
Front	mm	600
Content CO (reduced on 13% O ₂)	mg/Nm ³	4271
Chimney connection	mm	150
Chimney connection position		Top right-left, Rear right-left
Consumption by nominal power	kg/h	3,8
Emission temperature	°C	162
Required draft	Pa	10-14

Storey stove is made for heating residential premises, cooking and baking. An integral part of the installation is thermal drain valve that serves as a thermal fuse of a possible overheating. The recommended thermal fuse is Caleffi 1/2 544, shown in Figure 2.

Note: The thermal fuse is not part of the product and it's not supplied with the product. The guarantee is valid only if the termar fuse gets installed into the boiler.



Figure 2: Termal fuse Caleffi

INSTALLING THE COOKER

Cooker must not be set up near the wooden parts, refrigeration parts, plastic furniture and other flammable materials because during operation (during fuel combustion) it achieves high operating temperature that is distributed on the outside of the furnace. Minimum distance between the stove and the surrounding elements is 50 cm, and the from flammable materials 80 cm.

If the ground on which you set the cooker is made of easily flammable material (wood, warm floor, laminate ...) you need to set under the cooker a protection sheet metal - lateral width of 10 cm and 50 cm in the front.

Because of it's weight, the cooker must be installed on the appropriate base. If it does not satisfie necessary standard, you must take appropriate measures to make it possible (eg, weight distribution).

Connect the cooker to a chimney and flue pipes through the connector on top of the furnace, so as to ensure adequate tightness and flow of smoke from the stove to the chimney. Flue pipe must not be drawn too deeply into the chimney that would reduce the cross sectional area and thus undermined draft in the chimney. Do not use reducers which reduce the cross section of pipe smoke.

NORTH cooker requires insertion of fresh air in the room where it is installed, with surface openings for insertion of fresh air should not be less than 0.4 dm^2 . The unit for fresh air set outside the common room for ventilation, which must be insured by door and grille.

Fans that work in the same room where the cooker is installed may make interference wit the the cooker. Also, all devices or ventilation that creates negative pressure in the room where the cooker is installed, must be set in the way that does not make decompression that prevents normal operation of the furnace.

Before installing the cooker, check the chimney drafts because it is a key factor in the proper functioning of the cooker. Draft depends on the proper operation of the chimney and meteorological conditions. One of the easiest ways to check the draft in the chimney is with a

candle flame, as shown in Figure 3 . Put a candle near the chimney connection drain. If the flame bends towards drain, the draft is satisfying (Figure 3b). If the flame doesn't bend or bends a little, that indicates poor draft(Figure 3a).

If there is poor draft in the chimney (Figure 3a), check the chimney operation. The chimney should be located inside the building, and if it's located on the external walls of the building, it's recommended insulation chimney.

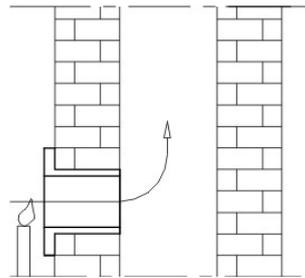


Figure 3a

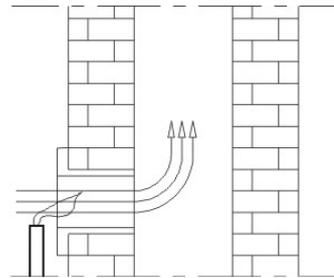


Figure 3b

Disadvantages of the chimney (Figure 4):

1. The chimney is higher than the top of the roof, a small cross section of the output,
2. Excessive slope
3. A sudden change of direction of the flue channel
4. Stove or some other device connected to the same flue channel,
5. Bulges in the flue channel
6. Cracks
7. Alien body or accumulated grime,
8. Tube inserted too deeply,
9. Fan or other device that creates a vacuum in the room
10. Unsealed or opened cleaning hole

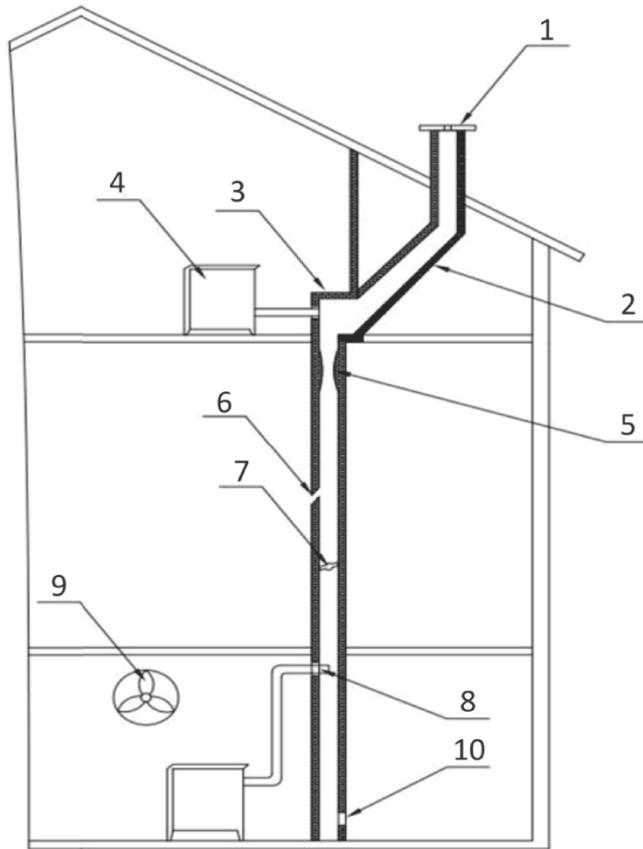


Figure 4

IGNITION AND LIGHTING

Before the first firing, wipe all painted surfaces with a clean and dry cloth, in order to avoid burning of impurities on the stove and creation of unpleasant smells.

Start the fire in the stove by following order:

- pull the draft regulator handle as much as you can towards yourself
- primary air regulator turn clockwise, at maximum point
 - open the firebox door
 - insert the firing material in the firebox (tiny chopped wood on dry wrinkled paper)
 - light the fire
 - close the firebox door,
 - after creating a basic glow in the firebox, insert larger pieces of wood or coal, close the firebox door and push the handle of the draft regulator to the stove

If fuel briquettes are used as a fuel, you must wait until entire amount of a fuel lightens up and only then reduce draft on half

- when adding fuel, open the firebox door for just few degrees,

wait for 4-5 seconds and then slowly open them wide. Do not open the door

suddenly, because when there is a high flame in the firebox, it can could easily reach in to room

Regulating the draft in the cooker, you can regulate temperature, power and the combustion of fuel. Recommended fuels are briquettes and wood.

You must not use gasoline and similar fuels, because by using liquid fuels you create conditions for damaging the stove and to provoke an explosion.

Attention!

- Do not use organic wastes as fuel, food residue, plastic, combustible or explosive materials, which combustion disturbs the proper functioning of the cooker and may cause damage and environmental pollution.

- Increased ambient temperature can cause poor air circulation (drafts) in the chimney, and in that case is recommended more frequent firing in smaller quantities.

- Avoid using the cooker when there are bad weather conditions for the cooker and in the case of strong wind, because it reflects the required vacuum in the chimney. In these cases there may occur potential return of smoke in the room where the cooker is placed. Ignition is difficult then.

We recommend firing every hour with the amount of fuel in the combustion chamber up to 15cm with cross stacking wood for better airflow.

After each refilling, it's recommended to leave the oven running in full speed for 30 minutes, in order to destroy all volatile elements that may cause condensation in the cooker.

For correct cooker operation it takes:

- Regular cleaning of the cooker and chimney
- Regular room ventilation for better combustion
- Regular ash tray cleaning
- Accumulated slag and unburned material regularly remove from the grid with an adequate cleaning kit

HANDLING THE COOKER OPERATION

Start a fire with a moderate flame in order to avoid thermal shocks.

The following amounts of wood are inserted only after the previous volume burn.

Do not allow that ashes and unburned accumulate on the grid and to tap that way. Clean the grid.

Open the door slowly and carefully, allowing that way equalization of pressure in the firebox and in the room, otherwise it might cause the smoke in the room.

The cooker is designed and made for use with firebox door constantly closed, except during refueling. Do not open the door with no need.

The wood must be a maximum of 20% moisture content for maximum fire effect. Otherwise the tar gets separated which with water steam may create creosote. If that happens in some bigger quantity, it may lead to a chimney fire. You will most easily recognize chimney fire by: the characteristic sound that comes out of the chimney like loud roaring, visible flames coming out of the chimney, high ambient temperatures of surrounding walls and the characteristic smell of burning.

If there comes to the fire do the following:

- Immediately call the fire squad
- muffle oxygen supply to the chimney and turn off the cooker
- Do not insert anything into the chimney and make sure that the fire does not spread to the wooden construction or other combustible materials in its nearby.
- **DO NOT pour water into the cooker or chimney**
- A fire in the chimney can be extinct only with dry powder
- Water can extinguish only a surrounding material
- Do not cool the surrounding walls with water

Before the second charging, clean the roasting grid in order to provide the fresh air supply.

Regularly clean the ash tray making sure that there is always enough place for ashes.

The furnace is designed to operate in periodic mode. To maintain the required nominal power, combustion chamber is periodically filled with prestabled amount of fuel.

Furnace is not designed to operate in continuous mode of heating or in accumulating temperature mode.

Authomatic regulation of stove's operation

Combustion rate, and thus the amount of heat generated by stove, depends on the amount of primary combustion air delivered to the space below the roast grid. The regulation of primary air is accomplished automatically by draft regulator Rathgeber (Figure 5).



Figure 5

When firing, control button located on the frame of the stove, turn to fully open flap in the direction shown in Figure 6. During the operation, depending on the temperature, the regulation valve will open and close automatically. If you want a lower temperature than the set one, turn regulator button to the desired position of minimum open flap, which closes the regulator flap.

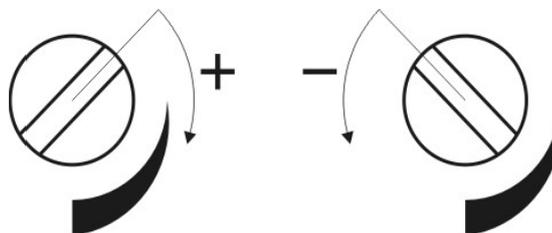


Figure 6

INSTALLING THE COOKER INTO THE SISTEM FOR WATER HEATING

- For water supply and drainage in condominial (central) heating system are provided connections to the boiler 1 ".
- Cooker can be installed on an indoor or outdoor central heating system.

Installation on closed central heating system

One of the aspects of mounting installations is depicted on figure 7a.and 7b.

- The safety valve must be placed close to the boiler and must be set to a maximum pressure of 3 bar (boiler is tested to 4 bar). The connecting line of the safety valve must be as short as possible and must not have the possibility of closing. In this connecting line also there must not be any single valve or any other fitting.
- Closed expansion vessel is placed close to the boiler and has a short security line. The volume of this vessel is determined by the capacity of the boiler where the ratio is 1kW: 1l.
- The installation of the safety fuse of the boiler it's necessary. We highly recommend a Caleffi 544 thermal fuse.

It is required the installation of a four-way mixing valve at certain place (Figure 6a and 7a) or a tubing pipe contact thermostat (Figure 7a and 8a), set to 55 ° C. Their installation is required for the prevention of condensation on the walls of the boiler in the furnace furnace (condensation boiler adversely affect the service life of the boiler and on the performance of the product by creating a resin on the walls of the boiler, which represents an insulator so the product does not have declared characteristics).

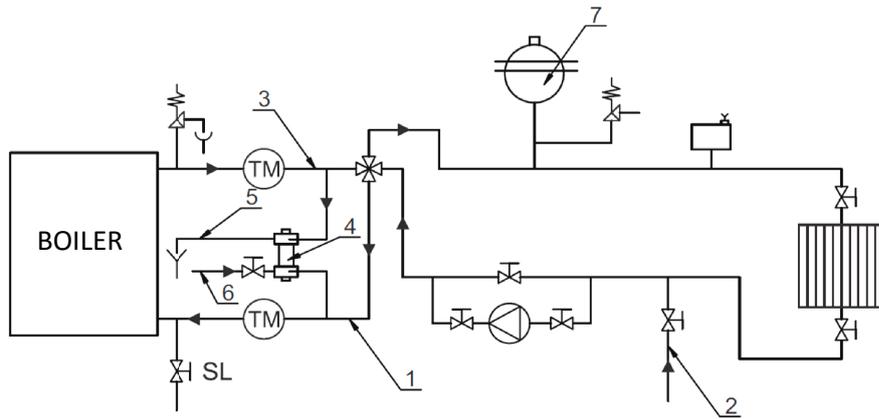


Figure 7 a – Scheme of closed central heating system with built in 4-way valve

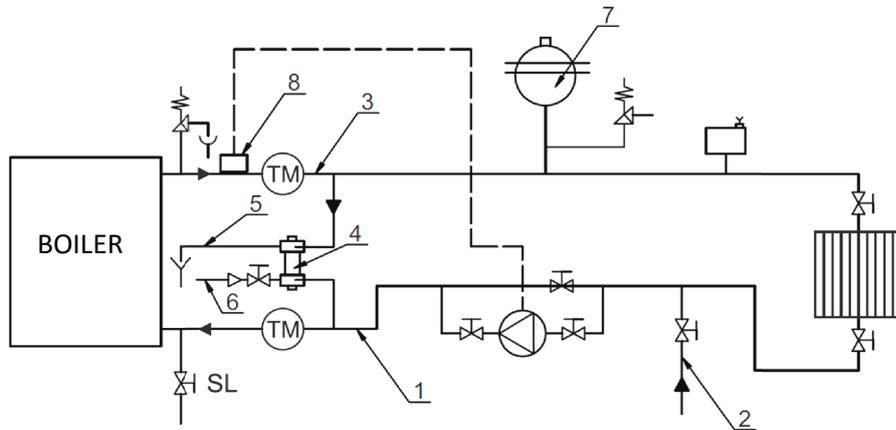


Figure 7 b – Scheme of closed central heating system with built leaning pipe thermostat

	Pump	1. Intake valve
	Valve	2. Guide for filling and discharging the system
	Air-exhaust valve	3. Distribution guide
	Safety valve	4. Thermal exhaust valve
	Mixing valve	5. Drainage for overheated water from the system
	Thermo manometer	6. Aqueduct network
	Consumer	7. Closed expansion vessel
	Boiler filling tap	8. Leaning pipe thermostat

Installation on opened central heating system

One of the possible installation processes is shown in Figure 8.

With this system, on the initial line are being set safety distribution line of the expansion vessel and boiler's valve, and on the initial line of the system are being set boiler's valve, a pump and a valv. Directly below the open expansion vessel is set short connection between safety distribution line and safety rebound line, which prevents water freezing on winter in an expansion vessel.

On safety distribution line and safty rebound line, must not be any kind of fitting. Expansion vessel must have an overflow pipe as shown on the chart in Figure 8. The volume of the expansion vessel is calculated by the following formula:

$V = 0,07 \times V_{\text{water}}$, (l), where V_{water} is volume of the water in entire system.

Open expansion vessel is placed vertically above the highest heating body. Under the open heating system is possible having gravitational heating system.

Note: Installation of the heating system and starting up of the entire system should be entrusted exclusively to professional service in charge that guarantees the correct operation of the entire heating system. In case of bad design of the system and possible shortcomings while installing it by the entity that did the work, complete material responsibility takes the person to whom was entrusted installation of heating systems, and not a producer, representative or seller of the boiler.

Important notice

- Installation of the cooker should be done by qualified person according to an appropriate project. Construction of the stove allows you to connect it either to indoor or outdoor heating system. All connections must be well sealed and fastened. Prior to starting it up, the complete installation must be tested with water at a pressure of 3 bar.
- When installing the safety valve, please pay attention to the direct connection with water pipes and sewer, and that valves (faucets) always stay open.
- If using a reinforced hose to connect to the drainage, it must be placed away from the back side of the cooker.

With first ignition is necessary to examine the the proper functioning of the valve by doing the following: overheating it up to 100 ° C on short-term basis, examining the proper function of draft regulator and installing hot water distribution connection up to radiators and directly to radiators.

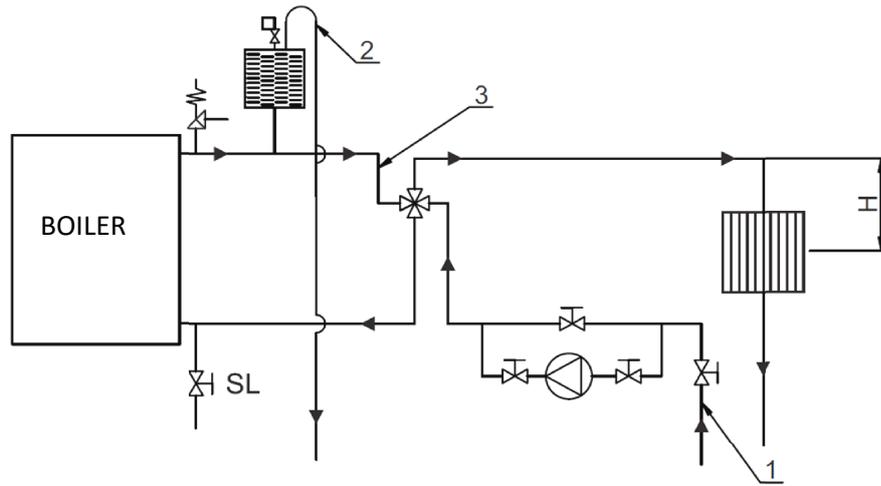


Figure 8 a – Scheme of closed central heating system with built in 4-way valve

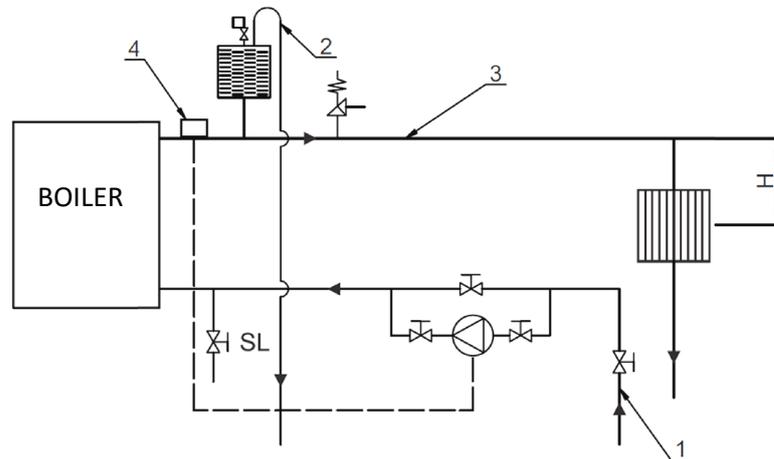


Figure 8 b – Scheme of closed central heating system with built leaning pipe thermostat

	Pump	1. Intake valve
	Valve	2. The overflow pipe with a valve
	Air-exhaust valve	3. Distribution guide
	Safety valve	4. Leaning pipe thermostat
	Mixing valve	H The height difference between the boiler and the consumer
	Open expansion vessel	
	Consumer	
	Boiler filling tap	

CLEANING AND MAINTENANCE

Regular and proper cleaning allows proper operation and long life of the stove. All cleaning the interior or exterior surfaces are always performed in a cold oven.

Cleaning exterior surfaces - is done with a soft cloth that will not damage the surface of the stove. Cleaners of chemical origin can damage the surface of the fire place and cannot be used. Painted surfaces must not be cleaned with abrasive products.

Cleaning inter surfaces –when cleaning use protective gloves.

Clean the bottom of the oven from accumulated ash and pick up small unburned pieces of the grid, clean the ashtray and ash accumulated in the interior of the fireplace.

Cleaning glass surfaces - glass on the firebox may get dirty during the operation.. For cleaning use a mild detergent. Do not use abrasive cleaners because they can damage the surface of the glass. Clean the glass only when cool.

Cleaning and maintenance of the chimney - chimney cleaning and control is recommended at least once a year and after a long downtime. Regular maintenance and control of the chimney will prevent the occurrence of fire and poor operation of the stove.

Malfunction. Recommendations for its elimination

Cleaning and maintenance of the chimney - chimney cleaning and inspection is recommended at least once a year as well as anyone inside long time interval. Regular maintenance and control of the chimney will help prevent the occurrence of fire and bad working furnace.

Monthly cleaning of the boiler includes a complete cleaning of the interior walls of the boiler of the accumulated soot and ash in all channels where moving combustion products.

Depending on the manner in which handling the furnace, the type of fuel used, the draft in the chimney, preferably monthly cleaning done in shorter time intervals.

The most effective way of cleaning is that after scratching the walls with an auxiliary boiler accessories, ashes and soot removed vacuum scavengers

Glass braids are not subject to regular service because they are expendable material

The following table shows the most common defects and recommendations for their removal.
Table: Showing the most common malfunctions, possible causes and ways of eliminating it.

Malfunction	Possible cause	How to remove it
Oven heats poorly	improper handling, Poor uptake	Read carefully and follow the instructions. In the case that despite all instructions have been respected, malfunctions are still not removed, call the customer service
Difficulties in lighting fire	Closed regulator of air supply, Wet wood, Lack of oxygen	Open the regulator of air supply and provide a supply of a primary air Use a dry wood Ventilate a room in order to provide a supply of fresh air
Smoke reenters into a room	Closed regulator of air supply, Insufficient draft, Remainings of ashes on a grid	Open the regulator of air supply and provide a supply of a primary air Read carefully the instructions and apply advice how to provide a draft Clean the grid
Glass on a firebox door are getting sooty for a while	Wet wood Too much fuel Insufficient draft Closed intake of secondary air	Use a dry wood Check a suggested quantity of a fuel provided in a user's manual Check a connection with a chimney Read carefully the instructions and apply advice how to provide secondary air

GENERAL RECOMMENDATION

If you have followed all the recommendations for installation, operation and control of cleaning, given in this manual, the stove is now tested, safe device for household use.

Before installing the stove, remove the package. Be aware of potential injuries because the wooden slats are connected with nails. Dispose a plastic bag in accordance with the regulations. Old stove you do not want to use anymore, dispose to designated areas in accordance with the regulations.

All complaints, perceived failure or malfunctioning stoves, should be reported to the factory or authorized service center by telephone or in written, only with fiscal receipt. All contact information provided at the end of this guide.

Any malfunction of the cooker, must be removed by the manufacturer's service only.

If unauthorized persons carry out any servicing or repairs and alterations to the stove, the owner loses the right to the manufacturer's warranty.

Supply of spare parts has to be done via manufacturer's service, based on the position and image of this manual.

The manufacturer does not assume any responsibility if the buyer fails to comply with the instructions for use and installation of the stove.

ADVICES FOR ENVIRONMENT PROTECTION

PACKAGING

Packaging material is 100% recyclable.

For a waste disposal of, act in accordance with local regulations.

Packaging material (plastic bags, polystyrene parts-polystyrene, etc.). Should be kept away from children, as a potential source of danger.

Take care of safe removing and disposing of wooden boards because they are connected with nails.

PRODUCT

The device is made of materials that can be recycled. When disposing the waste, act in accordance with environmental laws in effect.

Use only the recommended fuel.

It is forbidden burning an inorganic and organic materials (plastics, plywood, textile, oiled wood, etc.), because the combustion releases carcinogenic materials and other toxics.

WARRANTY

Stove will work well only if you follow the given instructions.

TIM SISTEM is obligated to provide spare parts and eliminate interference with the stove that are covered by this warranty within the time limit not exceeding 45 days from the date of defect report . If the defect is not corrected within 45 days, you have the right to a substitution for a new product.

The warranty is valid from the date of purchase, as evidenced by duly completed guarantee certificate, and the shop's receipt.

The warranty for this product is 24 months.

TIM SISTEM is obliged to provide spare parts in due time after the stove is no longer produced.

This warranty does not cover damage caused by:

- **inadequate use of stoves;**
- **violating the instructions given in this manual;**
- **mechanical damage incurred due to inadequate storage and transport;**
- **due to mechanical damage caused by kicking, tumbling;**
- **due to inadequate exposure to rain, snow etc.;**
- **due to chemical damage caused by exposure to inflammatory agents such as**
- **oil and oil products, alcohol, solvents, paints;**
- **due to natural disasters such as lightning, floods, fire;**

The parts subjected to wear, such as braiding (glass), gaskets, rubber parts (rubber feet, spacers), are not covered by this warranty.

All malfunctions report in written or orally by telephone, on the address listed below:

Distributor / Authorized Service :