



Installation and operation manual for stoves

STO MAX 7 3F



STO MAX 7



The fireplace insert is a heating and decorative device, allowing construction of a complete heating system based on distribution of hot air. It is not an autonomous heating device but a component of the heating system. Due to the above reasons, its operation and safety largely depends on the method of installation and materials used. Considering that, it is recommended that installation of the insert is commissioned to an Authorised KFD Fitter, guaranteeing an appropriate standard of service.

All domestic and local regulations ought to be observed.

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1 Construction of the stoves

1.1 Placement of the stove

Ventilation: To allow proper operation, verify that the oxygen required for combustion can be obtained in sufficient quantity in the place where it is to install the appliance.

Location of appliance: Choose a central location in the room that favors a good distribution.

Ensure that there aren't made or coated with materials that are flammable or degrade with heat effect (wallpaper, carpet, light closures based on plastics, etc.)

Not allowed the installation of the stove in bedrooms or bathrooms neither in places that has been already installed other heating appliance or a fume extraction system without an independent air intake (kitchen extractor, fireplace, stove, etc.).

It is forbidden to place the fireplace in explosive environments.

With wooden floors, provide for protection of the soil surface in accordance with the rules in force in the country.

1.2 Preparation and unpacking

When you unpack the fireplace, check for perfect operation, as well as the possible presence of shipping damage. Any anomalies must be immediately reported to the transport carrier or seller.

Check the accordance with what is provided.

The chimney must always move in VERTICAL position

The glass is fragile, it's necessary to protect it.

If possible, unpack the fireplace near the area where you will install it.

1.3 General assembly rules

The appliance must always lean on a structure which support the weight and leave at least 5 cm air gap between the chimney and walls

If the chimney is placed on a floor or near combustible walls, a proper insulation is recommended.

1.4 Assembly of cladding

The fireplace and the parts of the cladding must be attached together **WITHOUT ANY CONTACT WITH STEEL STRUCTURE** to prevent heat transmission to the coating and allow thermal expansions. Beware of wood finishes such as beams or shelves, which must be properly insulated.

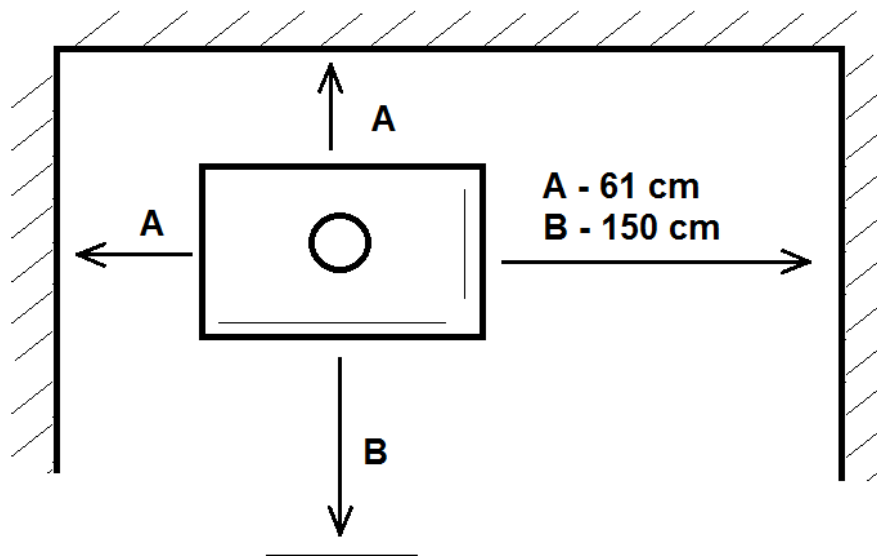
In particular, the shelves should be placed at a distance upper to 30 cm from the top of the appliance.

2 Installation

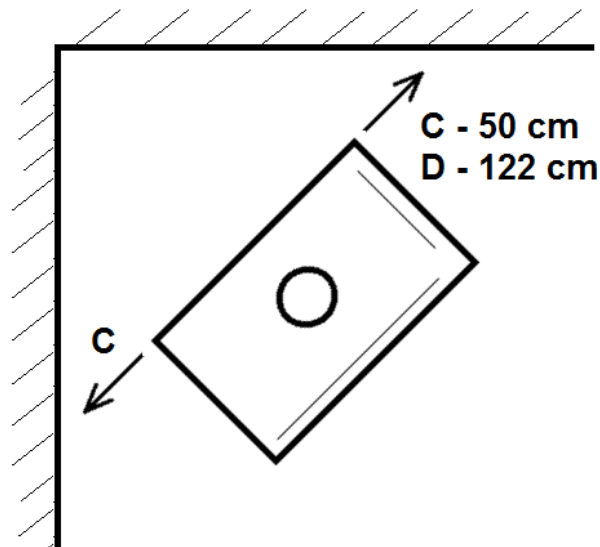
2.1 Stove placement

During stove installation put attention to placement of the combustible elements. Minimum distances which should be preserved are:

- a) Side (A) – 61 cm
- b) Side (B) – 150 cm in case of glassed side
- c) Back (A)– 61 cm
- d) Front (B)– 150 cm
- e) Side (C) – 50 cm
- f) Side (D) – 122 cm in case of glassed side



View from above



View from above

KFD stove must be installed on fireproof surface. If stove is going to be placed on wooden floor or similar combustible surface, it must be preserved with high temperature (fire) resistant material. Floor must be preserved under and around the stove.

Local regulations in exact country have the primacy of information presented in this manual.

All local standards and regulations regarding to distance of the wall and exhaust pipe.

2.2 Chimney

After stove installation the stoves air outlet must be connected with exhaust gas pipe. This connection should be made with attested pipe which can be used into solid fuel fireplaces. Its diameter should match the air outlet diameter. If there is any need of reducing this diameter use proper reduction connectors. Connection between reduction and the stove must be sealed. The last phase of connecting the stove with the chimney is assembling the connection pipe with the chimney.

The chimney must have at least as much air as you need for a normal combustion of the appliance and the ventilation of the place. Respect the UNI 10683 norm relative to the ventilation openings.

Basic requirements for chimney pipes, which are used for stove connection are:

- Chimney pipe must have round cross-section area,
- It should be heat isolated and waterproof, made of materials which are resistant to high temperatures, exhaust emission products,
- It cannot have any reductions or deviations bigger than 30 °,
- For rectangular cross-section the bigger side ratio should not be higher than 1/2,
- The minimum height of chimney pipe should be 4 meters counting from the place where fireplace is connected into it,
- It should have washout which allows to gather and remove all remaining of exhaust process,
- Too big cross-section of the chimney pipe might cause problems with the way how the device works,
- Too small cross-section area of the chimney pipe might greatly reduce the devices draft and make it fume.

The under pressure into chimney should be around 10-12 Pa. It should be measured during the work of the stove. When the under pressure is more than 17 Pa, installation of the moderator should be considered to lower and stabilize it.

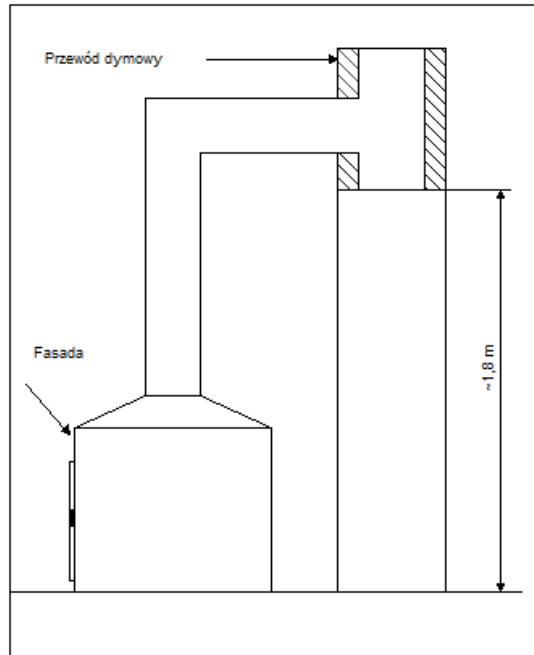


Figure 1a. Correct connection between the stove and the chimney pipe.

The ventilation grilles must be installed so that cannot be obstructed

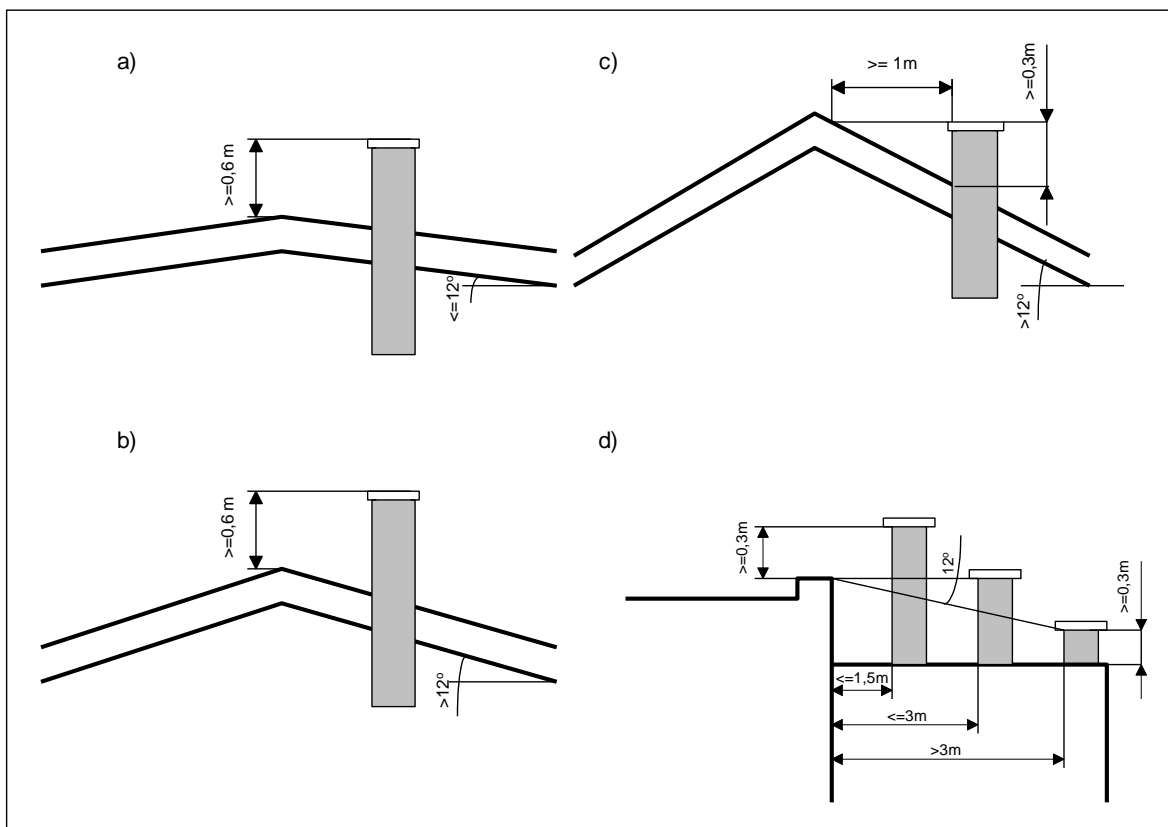


Figure 1b. Required chimney heights according to the norm PN-89/B-10425: a) flat roof covered with any material, b) steep roof with easily ignitable covering, c) steep roof with non-ignitable, incombustible and flash resistant covering, d) situation of the chimney nearby another building.

Note

- Safe distance between the internal side of the chimney and combustible elements is at least 16 cm in case of a brick chimney. In case of steel chimneys, the information is specified by the manufacturer (X).

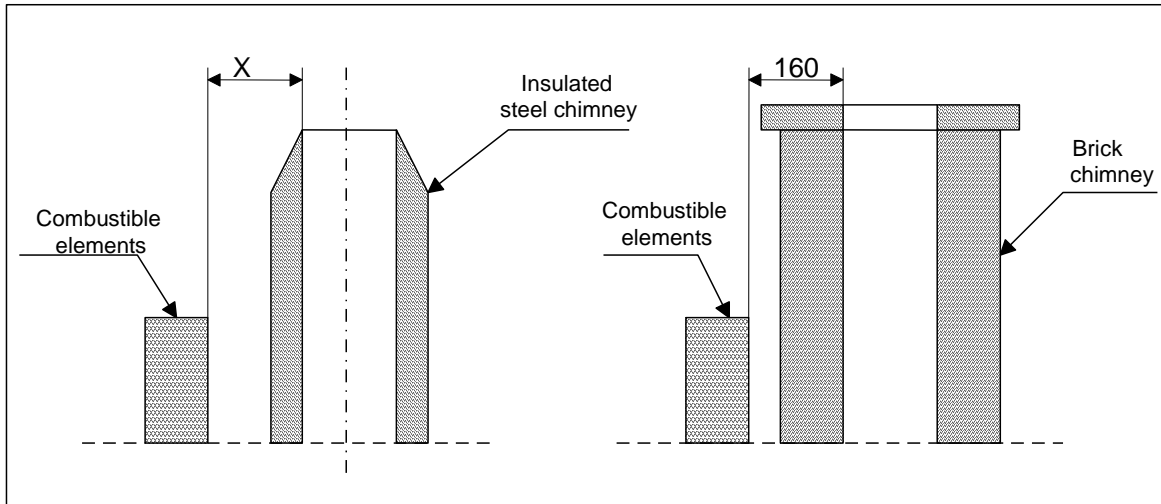


Figure 2. Safe distance of the chimney from combustible elements (dimensions in mm).

- Safe distance for conducting the connecting pipe (combustion gas pipe) through a combustible wall is at least 20 cm.

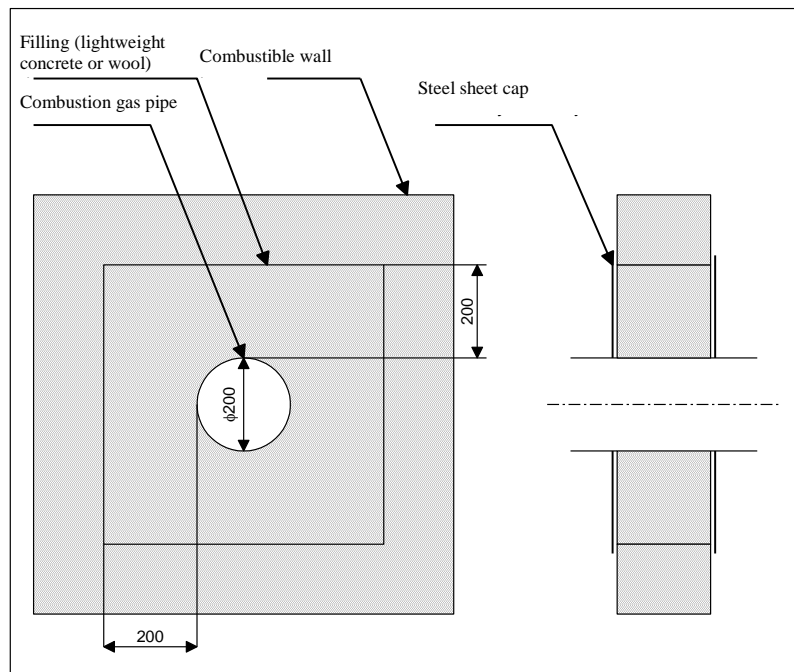


Figure 3. Method of conducting the combustion gas pipe through a combustible wall (dimensions in mm).

2.3 Tip of the chimney

The strength and stability of draught in the chimney depend as well on the kind of chimney tip. It ought to reach above the roof ridge and protect the outlet against rain and adverse impact of wind (figure 7).

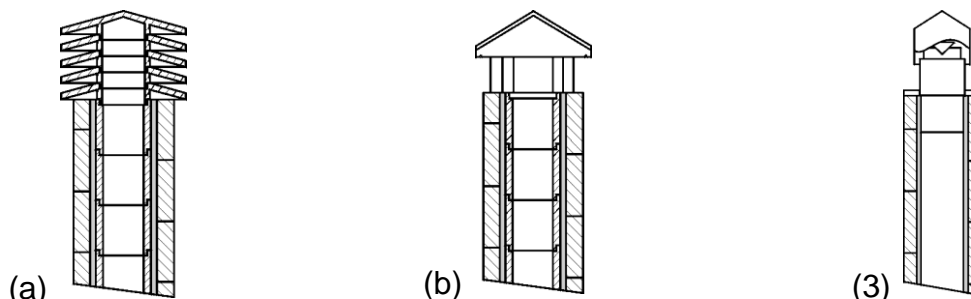


Figure. 4 Example chimney tips: a) prefabricated tip, b) brick version, c) steel tip – so called chimney cowl.

The chimney tip ought to meet the following requirements:

- its internal diameter should be equal to the diameter of the chimney,
- usable diameter of the combustion gas outlet is to be twice the size of the chimney diameter,
- it ought to protect the chimney against adverse weather (rain, snow) and foreign bodies,
- it ought to be easily accessible for maintenance and cleaning of the chimney,
- in case of two adjacent chimneys, tip of one chimney ought to be located at least 50 cm above the other one, in order to avoid mutual interference of produced negative pressure (figure 8),
- chimney tip ought to be situated 6 m away from any obstructions, such as walls, rocks or trees according to the local in regulations. Otherwise, the chimney ought to be extended to protrude approximately 1 m above the existing obstruction. The chimney tip ought to be situated approximately 1 m above the roof surface (figure 9).



Figure 5. Construction of adjacent chimneys.

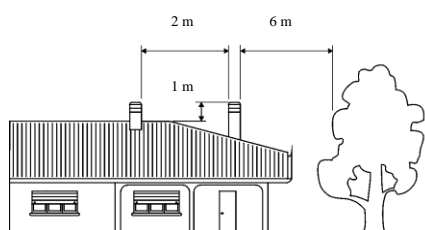


Figure 5a. Chimney placement

2.4 Connection to the external air intake

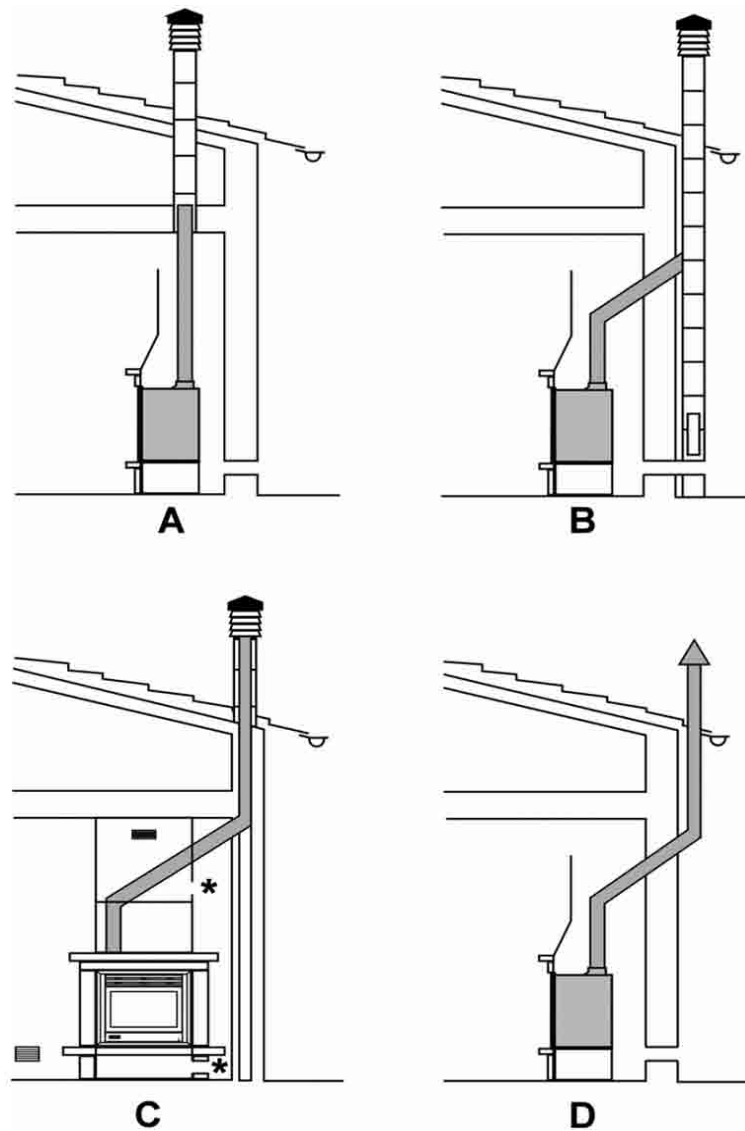


Figure 6. Connection to the external air intake

The smoke exhaust system must be unique to the insert (Not allowed pipe discharges common to other fireplace).

Fumes discharged is made from the opening situated at the top. The discharge pipe must be connected to the outside using appropriate tubes and eventual isolation. Is necessary to use materials resistant to high temperatures.

3 Stove operation

Warning!

Modern technology used in construction of the central heating systems guarantee very high level of safety and reduce maintenance operations to minimum. Beside that it must be remembered that fire is dangerous element which need a lot of attention. Using stove remember about safety. The main requirement which guarantee safe exploitation is regular maintenance of the chimney.

3.1 Lightning

During first run we suggest to operate stove carefully and to use small pieces of dry wood. It is not recommended to use more than about 4kg of wood.

Under no circumstances for setting up fire do not use: alcohol, gasoline and other flammable substances.

During first lightning the process of paint curing might produce some strange smell. In this situation, the area should be vigorously ventilated.

When there is a need to add more wood to stove, the door should be opened slowly to prevent smoke from coming out.

Wood excess in stove might lead to stove overheat which might damage it.

During stove usage its elements heat to high temperatures. There is a need to take a lot of attention and all actions connected with stove maintenance should be done in safety gloves.

Remember to keep stoves door closed.

3.2 Flame control

Flame regulation is done by shifters which are on the front of the stove.

Depending on the model the placement of the shifters are:



When the moment of desired flame is reached, the primary air shifter should be pushed inside. In this placement primary air is blocked and flame is controlled by secondary air shifter. After desired control over side curtain is reached it should be left in permanent position.

3.2.1 In case of emergencies

If there is any need that fire has to be extinguished or there is a fire in the chimney the procedure is:

- close the door
- close all air inlets (primary, secondary, side curtain)
- call fire brigade to extinguish the fire in the chimney

3.2.2 Glass

Glass is very important part of stove because of its aesthetic and operation features. Glass with air curtain require to be cleaned often (few days). Some special products to clean it can be used. Inner side of glass can be cleaned with ash and wet paper or some rag. Inner side must be cleaned carefully. Outside surface of the glass can be cleaned with products used for window cleaning.

Do not use chemical agents which are used for cleaning stoves, barbecues and ovens. It can damage glass or paint.

Cracking of the glass: Vitroceramic Glasses used in KFD fireplaces are high temperature resistant (up to 750 degrees). Glass can crack only from mechanical damages.

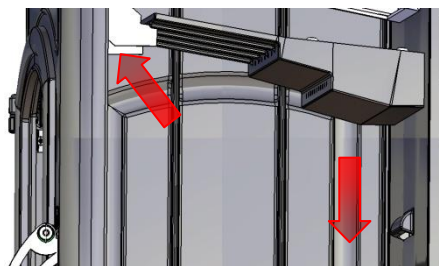
3.2.3 Cleaning out the ashes

KFD stove is provided with grate and the ash drawer. It is recommended to clean out ash drawer often. It is recommended to regularly remove the ash from drawer to prevent it from over excess.

Remember to clean out ash drawer only when the stove is not used. For safety check out the air inlet canal which should be cleaned every year.

3.2.4 Removing and cleaning of deflector.

The picture below shows how to disassemble the deflector. Move front part of deflector up and lower it slowly.



Way of disassembling deflector

To assembly deflector you need to do the same actions as during deflector removal. Deflector mounting channel must be put into proper place on the back plate.

To clean deflector use brush.

3.2.5 Summer break in device usage.

When the air humidity in the room where the fireplace is installed is high, put inside the stove substance which absorb humidity.

3.3 Fuel for the stove

Regardless of the class, type or brand of stove it is important to use only proper fuel. The only wood which must be used is wood from leafy trees. It should be seasoned for minimum 18 months on free air under some shelter. Wood must be chopped and seasoned on the fresh air. This will guarantee that stove will work perfectly and it will stay in good condition.

One cubic meter of wood which has got 20% moisture consists about 60 l. of water. This amount of wood two months after being cut has got about 350 l of water. Using this type of wood will lead to glass getting dirty.

There should be maximum 2-3 logs of wood in fireplaces hearth. It should be 20-40 long. The best diameter of logs is between 12 and 15 cm. Do not use briquette, coal, trashes, wet wood, painted wood or plastic as fireplaces fuel. When you use those products you automatically will lose warranty. Use paper only for lighting the device up.

3.4 Hints for users

! Forbidden fuel for stoves: coal and its derivatives, briquette, hay, carpentry scraps, wood with moisture under 10%, plastic and trash. It is also forbidden to use flammable chemical agents for lighting up.

! Never extinguish fire with water.

! Do not touch device when it is working because you might get burned. During its work it is necessary to use safety gloves.

! It is important to clean the ash tray often to prevent it from fill.

! Do not leave stove working without ash drawer inside.

! Do not leave working stove with door open without supervision.

! Parts like grate, deflector and seals are not the subject of the warranty and they should be replaced during the maintenance regarding to their level of usage.

! Technical overview should be done every year by the authorised installers of KFD.

! Missing deflector can lead to big pressure which may lead to rapid combustion, excessive wood usage and overheat of the device.

! To avoid the danger of glass cracking, glass cleaning must be done on cold device.

! It is forbidden to use liquid agents like alcohol, gasoline, oil etc.

! Leftovers after the burning process (ash) should be gathered into hermetic bin which is resistant to high temperature.

! Device cannot be used in place where is emission of any gasses or fumes (eg. gasoline, glue etc.). Do not leave flammable materials near the device. Children must be cautioned not to touch the device while it is working or just after it has finished its work.

! If there is a fire in the fireplace you need to:

- **Close fireplace door**
- **Close air inlet**
- **Put off the fire with fire extinguisher (CO₂ powder)**
- **Immediately call the fire brigade**

! Do not light up the fireplace if there are and fumes in the room (eg. after floor varnish).

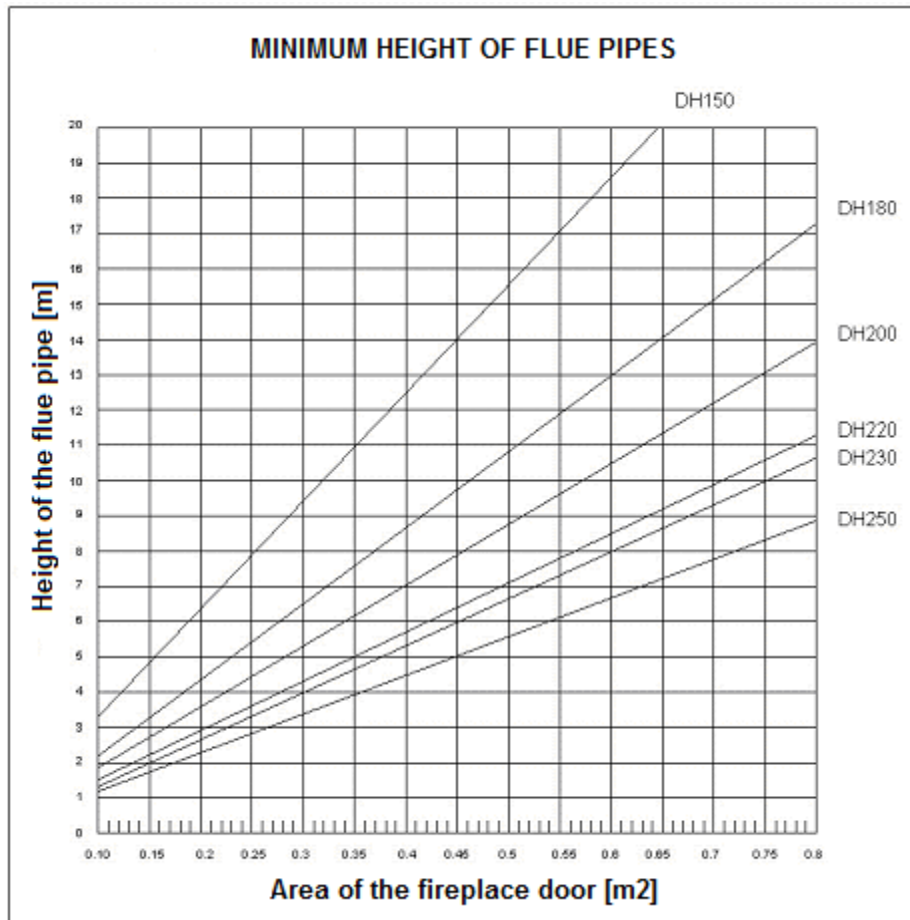
! Until the construction works in the place where fireplace is it should be preserved from external factors and it should not be used.

! Do not lead the device to overheat, which can be noticed by the glow of the cast parts. In case of situation like that you need to reduce the air inlet (combustion speed). If it is not possible you need fire to extinguish itself. Leading cast to glow may lead to device damage. This type of damage is not under the device warranty.

! Regulation of primary air is in the front of the stove, under its door. Pulling it increase air flow, pushing it decrease air flow delivered to fireplace.

! For cleaning of the elements painted with high temperature resistant paint do not use any chemical agents. They can be cleaned only by wet cotton rag.

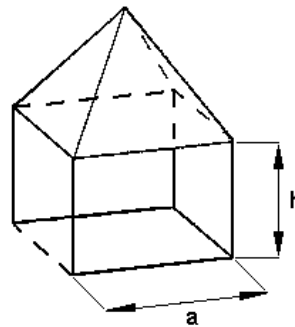
4 Parameter selection for flue pipe



Height and diameter of the flue pipe depending on the area of the fireplace door. Chimney height should be measured from the point fireplace is mounted.

One sided central fireplace:
Area= a*h [m²]

Two or more sided fireplace:
Area= a*h*1.75 [m²]



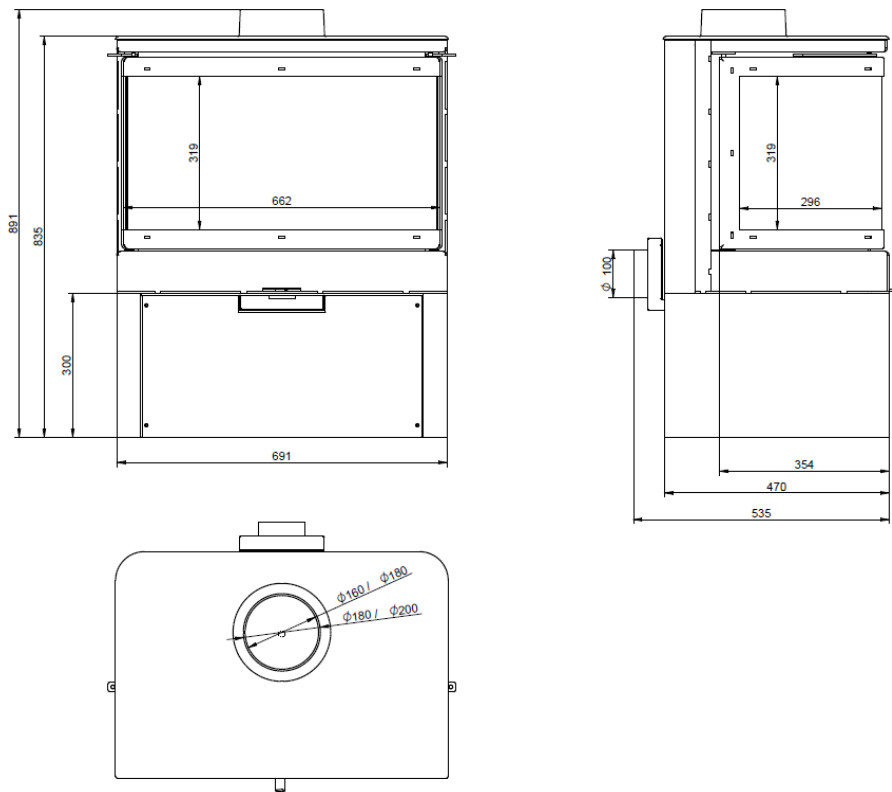
Minimum reduced hydraulic diameter cannot be less than:

$$DH_{\min} = \text{inner nominal diameter} - 10\% \text{ [mm]},$$

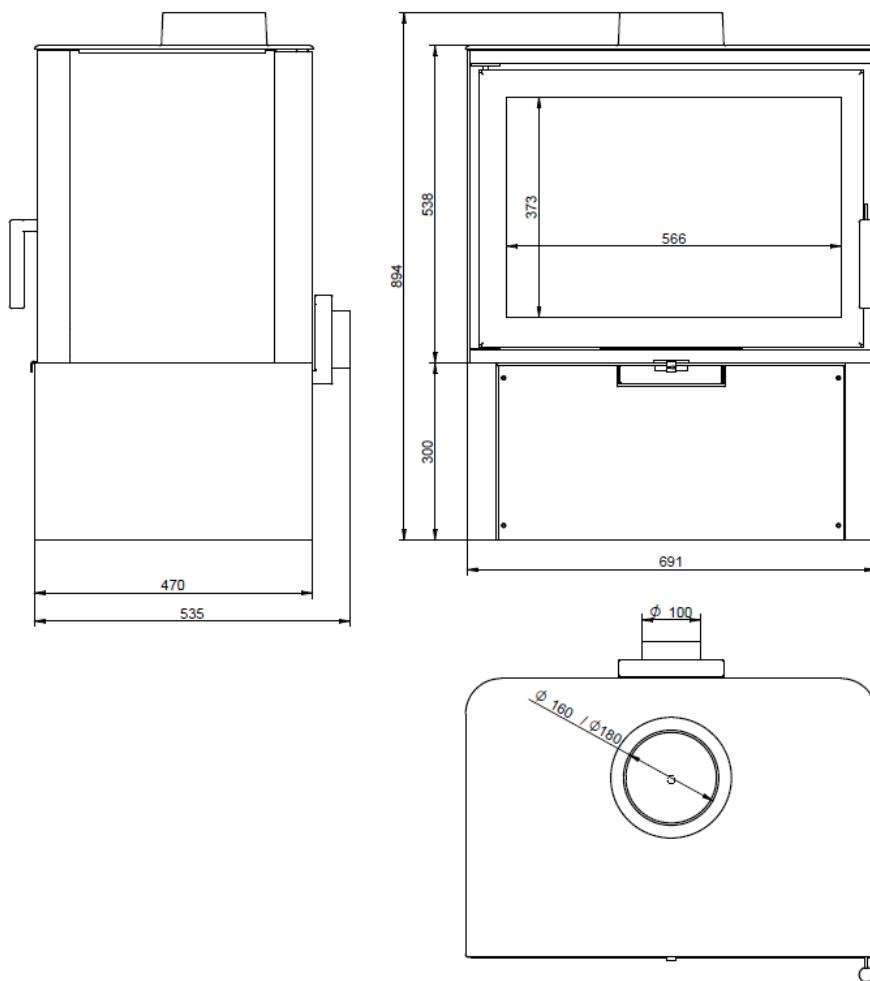
When flue pipe height is according to picture above.

5 Technical specifications

		KFD STO M / MAX 7 3F	KFD STO M / MAX 7
energy efficiency class		A+	A+
direct heat output (nominal power)	[kW]	11,5	11,5
heating power range	[kW]	6 - 15	6 - 15
energy efficiency index	[EEI]	110,6	110,6
energy efficiency at nominal heat output	[%]	82,5	82,5
seasonal space heating energy efficiency	[%]	73,5	73,5
CO emission at 13% O ₂	[%]	0,09	0,09
	[mg/Nm ³]	1162	1162
dust emission at 13% O ₂	[mg/Nm ³]	19	19
OGC at 13% O ₂	[mg/Nm ³]	51	51
NOX emission at 13% O ₂	[mg/Nm ³]	145	145
flue gas mass flow	[g/s]	9,75	9,75
verage smoke temperature at smoke outlet	[°C]	235	235
minimum chimney draft	[Pa]	12	12
weight	[kg]	145	140



KFD ECO MAX 7 3F



KFD ECO MAX 7

6 Troubleshooting

PROBLEM	REASON	SOLUTION
I. Poor control of fire in the furnace.	<ol style="list-style-type: none">1. Excessive quantity of combustion air.2. Open chimney damper.3. Excessive quantity of inserted fuel.4. Worn gaskets.5. Excessive negative pressure in the chimney.	<ol style="list-style-type: none">1. Reduce the quantity of combustion air using the adjustment lever in the fireplace insert.2. Close the chimney damper.3. Do not put more fuel and reduce the quantity of combustion air, close the chimney damper.4. Fit new gaskets.5. Install a cap type chimney attachment and/or install a draught moderator.
II. Fire cannot be lit up in the furnace	<ol style="list-style-type: none">1. Closed levers of combustion air inlet.2. Clogged openings of air blow-in in the furnace.	<ol style="list-style-type: none">1. Increase the quantity of combustion air.2. Clean furnace interior from ash.
	<ol style="list-style-type: none">3. Insufficient negative pressure in the chimney.4. Too humid wood.5. Too large slivers used for lighting up.6. Bad weather conditions.	<ol style="list-style-type: none">3. Check if the inspection door is closed; clean the chimney and connecting duct; recommended installation of a mechanical combustion gas exhaust.4. Replace the wood with dry wood (humidity under 20%)5. Use smaller slivers.6. Check if burning improves once the weather is better. In case of recurring problems resulting from weather conditions, installation of a mechanical combustion gas exhaust is recommended.
III. Smoke comes out from the fireplace insert	<ol style="list-style-type: none">1. The chimney and/or connecting pipe is not passable.2. The chimney and/or connecting pipe is not tight.3. Excessive negative pressure in the room in which the fireplace is installed.	<ol style="list-style-type: none">1. Cleaning of the chimney and connecting pipe is necessary.2. Check tightness of closing the inspection door in the chimney and connection of the connecting pipe.3. Supply fresh air to the room in which the fireplace is installed (e.g. open the window).

	<p>4. Fresh air inlet is not passable.</p> <p>5. Air inlet is installed at the leeward side.</p> <p>6. Incorrectly constructed ventilation of the fireplace insert.</p>	<p>4. Check if the duct supplying fresh air to the fireplace is passable.</p> <p>5. Change location of the air intake.</p> <p>6. Check if convection air inlets under the insert are constructed correctly.</p>
IV. Smoke comes out from the fireplace enclosure when the door is closed	<p>1. Connecting pipe is not tight.</p> <p>2. The tee pipe in the chimney is not tight.</p>	<p>1. Check if connection of the connecting pipe is tight.</p> <p>2. Check if the connecting tee pipe in the chimney is tight.</p>
V. Significant bloom of tarry substances (creosote) appears on the glass pane	<p>1. Too humid wood.</p> <p>2. Insufficient negative pressure in the chimney.</p> <p>3. Clogged air blow-in openings in the furnace.</p>	<p>1. Replace the wood with dry wood (humidity under 20%).</p> <p>2. Check the reasons described in points III 1-4.</p> <p>3. Clean interior of the furnace from ash.</p>
VI. Fire in the chimney or flue	1. To be evaluated by the fire brigade.	1. Close the door of the fireplace insert.
		2. Close combustion air inlets.
		3. Extinguish the fire using carbon dioxide extinguishers (CO ₂ , dry powder extinguishers) – Never extinguish fire inside the chimney using water!
		4. Call the fire brigade immediately.
VII. No power supply (water module option)	No power supply	1. Do not add more fuel, open the chimney damper and door of the fireplace insert.

7 Inspection log

The inspection ought to be performed once a year by an Authorised KFD Fitter.

Date	Performed work	Company/Signature



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