

VIMAR

Ecological Boilers VIGAS

MANUAL FOR INSTALLATION, ASSEMBLY AND USE

VIGAS 25 TVZ
with control AK 3000

Certificate of warranty



WARNING

Never operate boiler without energy or without cooling fan. (If boiler is not cooled, corpus of the boiler can be damaged)!!!

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DECLARATION OF CONFORMITY

Issued according to Section 12, par. 3, letter a) Act No. 264/1999 Coll.
And 97 / 23 EC

We, VIMAR Vigaš Pavel

M. Čulena 25
974 11 Banská Bystrica
SLOVAKIA
VAT No.: SK 1020548001

hereby declare that the undermentioned products comply with technical regulations and the products are safe if determined conditions are followed and we took all possible measures to assure the compliance of products with technical documentations as well as with relevant instructions requirements of government. The validity of this statement is lost when an unauthorized changes are done without permission of VIMAR.

Product: Hot – air boiler VIGAS TVZ with AK 3000 control

Type: VIGAS 25 TVZ

Enginery : Hot – air boiler

Producer: VIMAR Vigaš Pavel
M. Čulena 25, 974 11 Banská Bystrica,
SLOVAKIA

Governmental ordinance (GO)

GO No. 436/2008 Coll. – Machinery Directive (2006/42/ES)
GO No. 308/2004 Coll.– Low Voltage electric devices (2006/95/ES)
GO No. 194/2005 Coll. – EMC (2004/108/EC)

Used harmonized standards when conformity review

STN EN ISO 12100-1: 2004/A1: 2009; STN EN ISO 12100-2:2004/A1: 2009
STN EN 60335-1: 2003; STN EN 60335-2-102: 2007
STN EN 61000-9-3: 2007; SNT EN 55014-1: 2007; STN EN 61000-3-2: 2006
STN EN 61000-3-3: 2009; STN EN 61000-6-2: 2006

Supplementary data: Certificates, Test record
Conformity certificate No. 101299029 of 19. 02. 2010

Issued in: Banská Bystrica

Name: VIGAŠ Pavel

Date of issue: 01. 03. 2010

Title: Owner

Signature:

1. TECHNICAL DESCRIPTION

Hot-air boilers, VIGAS are designed for combustion of dry wood material, starting from sawdust up to logs in the length according to the dimensions of gasification chamber, maximum 20 cm. Sawdust, chippings, splinters and cuttings must be burnt together with logs.

Boilers are welded from 4- 6 mm steel sheets. Inner boiler sheets that have contact with boiler waste gases are 6 mm thick, others are made of 4 mm sheet. Heat exchanger is welded from steel pipes, 57x 5 mm. Exterior boiler shell is made of 0.8 mm sheet. Thermal insulation of the boiler is made of insulation material, 20 and 40 mm thick. Boiler waste gases go away through steel neck to chimney.

Inner boiler space consists of gasification chamber, where fuel is dried and gasified. Then created gas goes through fireproof /concrete/ nozzle into combustion chamber, where it burns with the help of secondary air. Boiler waste gasses are intensively cooled in exchanger. Wood that is not burnt must be removed from combustion chamber. The boiler has a lighting up damper that is controlled by operating rod at the front part of boiler.

In order the boiler complies with the requirements for non-demanding operation, it is equipped with AK 3000 control unit that is situated in the upper part of boiler. The used system of control allows very effective combustion of various kinds of fuel. AK 3000 control allows:

:

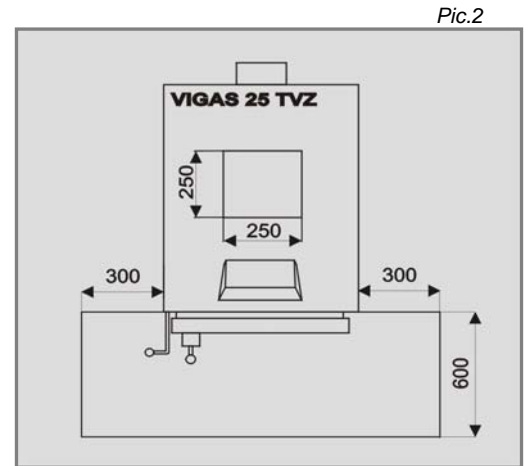
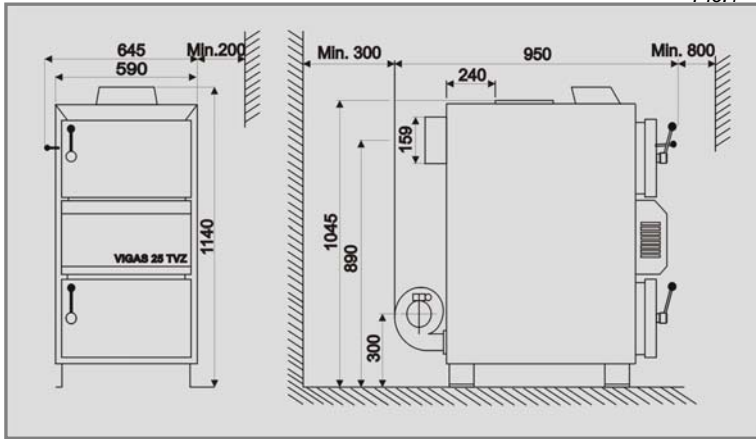
- smooth and automatic control of forced draft fan according to required output and fuel,
- to connect circulation pump,
- to connect and to control boiler by space temperature regulator,
- to connect discharge fan
- to connect extended regulation (EXPANDER) via AK BUS
- to connect module with Ethernet interface and SD-card for data saving and consecutive evaluation via PC
- Gases thermometer as a standard

Boiler has thermal fuse that ensures disconnection of forced draft fan if boiler is overheated.

2. TECHNICAL DATA

Technical data		HOT AIR BOILER VIGAS 25 TVZ
VIGAS		25
Nominal boiler output	kW	25
Boiler class according to EN 303-5		3
Fuel		Wood heating min. 15 MJ/kg
Output capacity	kW	5-28
Fuel consumption with nominal output.	kg/hod	7,6
Efficiency	%	85
Substitute fuel		Wood waste, splinters, saw dust, saw dust briquettes
Chimney draught	mBar	0,15 – 0,20
Extend of temperature setting	°C	40 – 120
Weight	kg	450
Height with regulation	A mm	1230
Height of exhaust branch	B mm	1145
Height of inlet branch	C mm	330
Height of chimney neck	D mm	1000
Width including pull-road	E mm	645
Width including shell	F mm	590
Depth	G mm	1250
Exhaust brand	H mm	240
Diameter of draught neck	I mm	159
Dimension from the edge of boiler		250 x 250
Temperature of boiler waste gases with nominal output		°C 260
with minimum output		°C 170
Dimensions of gasification chamber		
Depth	mm	490
Height	mm	500
Width	mm	440
Dimensions of gasification opening (width- height)		mm 435 -255
Max. weight of fuel	kg	28
Capacity of gasification chamber	l	110
Noisiness	dB	70,5
Electric input	W	640
Voltage/frequency	V/Hz	230ACV/50
Time of burning with min. output	Hour	3,8
Weight flow of boiler waste gases	kg/s	0,034 – 0,047

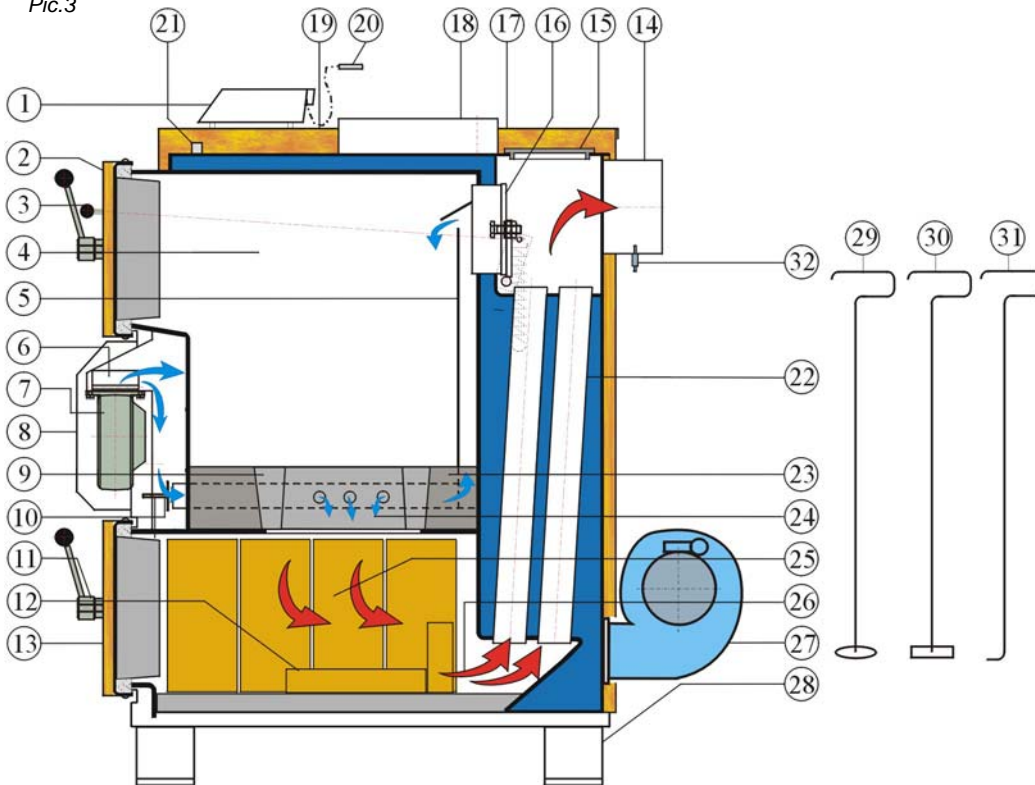
2.1 DIMENSION CHART AND THE POSITION OF PROTECTIVE SUPPORT PLATE ON EASILY IGNITABLE FLOOR



2.2 BOILER SCHEMATIC

Scheme VIGAS 25 TVZ

Pic.3



KEY

- | | | |
|-------------------------------|-------------------------|----------------------------------|
| 1. AK 3000 control | 11. Door closing device | 22. Exchanger pipes |
| 2. Upper door | 12. Fireclay bricks | 23. Heat proof /concrete/filling |
| 3. Chimney flap operating rod | 13. Bottom door | 24. Secondary air |
| 4. Fuel bunker | 14. Chimney neck | 25. Combustion chamber |
| 5. Primary air conduction | 15. Exchanger cap | 26. Direction of gases |
| 6. Flap for fan | 16. Lighting up damper | 27. Cooling fan |
| 7. Fan | 17. Upper back cover | 28. Totters |
| 8. Fan cover | 18. Outlet water neck | 29. Scavenge plate |
| 9. Heatproof nozzle | 19. Upper front cover | 30. Scavenge scraper |
| 10. Secondary air screen | 20. Thermometer | 31. Scavenge hook |
| | 21. Thermal fuse | 32. Gases thermometer |

3. DESCRIPTION OF AK 3000 CONTROL

3.1 Safety Instructions

- Check protection (cover) metal sheet before plug-in the power wire
- Avoid any contact of power wire with hot parts of the boiler (f.e. chimney)
- Make sure, no water is allowed under the upper isolation (risk of short circuit)
- Do not stress the power wire
- Always disconnect the power wire when a new electrical components are connecting (f.e. indoor thermostat, discharge fan)
- Do not remove protection (cover) metal sheet during the boiler operation, especially from fan
- Compare working voltage displayed on the label with your distribution network
- Always observe safety regulations

3.2 Connecting to the distributing network

AK 3000 control is integral part of VIGAS TVZ boilers.

Control is connected when power wire is plugged in to the distributing network 220/230V. Display is active when power wire is plugged-in (Pic.4).



3.3 Working conditions

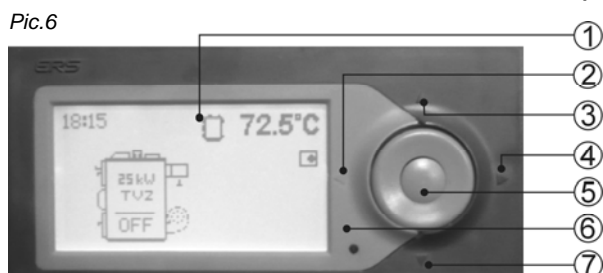
Operation temperature range of AK 3000 control is +5°C to +45 °C. Control may not be used in humid environment or direct sunlight.

3.4 Maintenance of AK 3000 control

Keep in clean and dust-free environment. Antistatic, or wet wiper is advised to wipe-off dust and impurities from metal cover and control panel.

3.5 Control panel

Part of the electronic control is panel, equipped with buttons, pictograms and display. Further informations will be available in the next part of this manual.

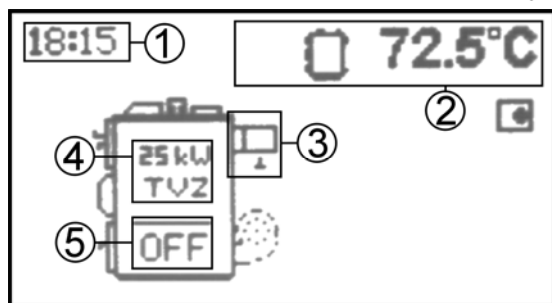


1. Graphical display 128 x 64 pixels
2. Button ◀ with functions
3. Button ▲ with functions
4. Button ▶ with functions
5. Button ● (ENTER) with functions
6. LED control
7. Button ▼ with functions

Gasifying boilers VIGAS

Functionality of each button are composite and their functionality depends accompanying description on display and from manufacture settings.

Pic.7



1. Real time indication.
2. Indication of current boiler values.
Modification ▲ or ▼.
3. Indication of discharge fan, gases thermometer
4. Indication of nominal boiler output when switched off.
5. Indication of boiler status.

3.6 Symbols

Boiler		Discharge fan		Cooling fan	
Boiler „ ON „	ON	End of burning	END	Fan	
Boiler „ OFF „	OFF	Thermometer	T	Fan change output	
Heating	 ON	Error indication value	X	Indoor thermostat	
Burning	 73 °C	Indoor thermostat decay		Maximal value of gases	max
Afterflaming	 52 °C	Adding fuel		Minimal value of gases	min
Temperature setting		Parameter setting		Time setting	
Error messages		Program		Konfiguration informations	
Service message					

4. VIGAS TVZ BOILER IN BASIC CONFIGURATION

(without discharge fan)


VIGAS TVZ BOILER OPERATING

4.1 4.1 Boiler activation



If boiler is in unactive status with symbol „OFF“, as displayed on the picture, by pressing the central button ENTER the boiler start the operation.

Warning:

The cooling fan turns on depending on chimney temperature of combustion gases. The temperature for cooling fan is regulated in boiler settings (start ). The cooling fan will turn off when temperature under 10 °C.


4.2 Boiler activated – heating mode



Boiler is set to heating mode, if temperature of outgoing gases is lower, then set shutdown temperature of the gases. Minimum gases temperature as a maximum gases temperature is in settings. Usually is set to minimum gases temperature to 90°C and maximum gases temperature to 200°C.

4.2 Boiler activated – burning mode




The burning mode is active after the shutdown temperature is gases ( end) + 20°C.


4.4 Adding fuel, Disconnection the boiler (manually)

Using graphical control. To call the graphical control, press central button ENTER. Graphical control offers option to switch off, adding fuel or cancel the graphical control.




Choose one option	
OFF	Switch - off
	Add fuel
<input checked="" type="checkbox"/>	Cancel the control
▼▲	Change the indicated value



By pressing  fan will be switched off. By using the rod open the chimney flap, consequently open the upper door. You can add fuel, if necessary. Close the upper door and chimney flap.



By pressing  adding fuel will be stopped. Fan will be switched-on automatically.

4.5 Disconnection the boiler (Automatically)



When temperature drops under the shutdown temperature (see Parameter settings of Vigas TVZ boiler) boiler is switch-off automatically. „END“ will be indicated on the display. By pressing „ENTER“ boiler will start operating again.

5. VIGAS BOILER IN CONFIGURATION WITH DISCHARGE FAN

Main advantage of discharge fan is increased comfort during heating or adding fuel. When discharge fan is active during adding fuel there is significant decrease of smudging into boiler-room. During the heating, discharge fan will accelerate the burning.

VIGAS TVZ BOILER CONTROL WITH CONNECTED DISCHARGE FAN

5.1 Boiler activation



If boiler is in unactive status with symbol „OFF“, as displayed on the picture, by pressing the central button ENTER the boiler start the operation.



Choose one option	
+60	Discharge fan active for 60s. (Using when heating)
ON	Boiler activation
<input checked="" type="checkbox"/>	Cancel the control
▼▲	Change the indicated value



If „+60“ is chosen, new graphical control is indicated. In left corner is running time of discharge fan.	
+60	Another 60s. could be added. 300s. maximum
ON	Boiler activation
0	Discharge fan disconnection
▼▲	Change the indicated value

5.2 Boiler activated – heating mode



Boiler is set to heating mode, if outgoing gases temperature is lower, then set minimal gases temperature (end). Minimal gases temperature, as well as, maximal gases temperature can be set in boiler settings. Minimal gases temperature is set on 90°C, maximal gases temperature is set on 200°C, which are standard settings. Pump is **pulse** working in dependence on temperature of the boiler water!

5.3 Boiler activated – burning mode



The burning mode is active after the gases temperature is higher (↗ end) + 20°C. In this mode pump is working **pulse** (bolier protection against low-temperature corrosion). The pump is working, when symbol flash. Boiler is responsive to indoor thermostat, when indoor thermostat is switched off boiler slowly decreasing its output.

5.4 Adding fuel, Disconnection the boiler (manually)

Using graphical control. To call the graphical control, press central button ENTER. Graphical control offers option to switch off, adding fuel or cancel the graphical control.



Choose one option	
OFF	Switch off
	Add fuel
<input checked="" type="checkbox"/>	Cancel the control.
▼▲	Change the indicated value



By pressing „“ fan is swithed off and discharge fan is automaticaed on 300s. In left corner is running time of discharge fan. If „+60“ is chosen, new graphical control is indicated. By using the rod open the chimney flap, consequently open the upper door. You can add fuel, if necessary. Close the upper door and chimney flap. By pressing „0“ discharge fan is swithed off. By pressing adding fuel is finished, discharge fan is swithed off automatically and fan will swithed on.

5.1.2 Disconnection the boiler (Automatically)



When gases temperature drops under the set temperature (↘ end) (boiler is switch-off automatically). „END“ will be indicated on the display. By pressing „ENTER“ boiler will start operating again.

6. TEMPERATURE SETTINGS OF OUTLET AIR



To call temperature setting hold „ENTER“ button at any boiler status. Symbol of the temperature setting will be indicated on the display. Press „ENTER“ again. Symbol of the nominal output will be indicated on the display with value, together with temperature of outlet water in °C. By pressing the „ENTER“ button, the value start to flash.



„ENTER“



„ENTER“

Temperature is flashing, by using buttons ▲▼ choose requested value. Button ► will exit the temperature settings.

7. PARAMETERS SETTINGS OF VIGAS TVZ BOILER



To call parameters setting hold „ENTER“ button at any boiler status and by pressing ▲ button. Press „ENTER“ again Symbol of the parameters setting will be indicated on the display. By pressing the „ENTER“ button twice, the values you can set will be indicated on the display.



„ENTER“



„ENTER“



By ▲▼ buttons set the parameter you want to edit and by pressing „ENTER“ button, the value starts to flash. ▲▼ buttons set requested value.



max	Choose maximal gases temperature that will result in decreasing the operating speed.
end	Choose shutdown temperature of the boiler.
	Increase or decrease the value, maximal output will be changed. Is advised to decrease the value in transition period (boiler tar level will drop).
Start	Choose gases temperature that will activating cooling fan.
*	Brightness.
Roll	Press „yes“ will activate the value rolling (Pic.7/2).
Help 0s	Set the time when graphical control will be indicated.

8. TIME SETTING

Set time and date, when boiler is plugged first time. In left corner is time is indicated.



To call parameters setting **press longer** „ENTER“ button at any boiler status and by pressing ▲ button twice.



By ◀ button set date or time, that will be edited. ▲▼ buttons choose date and time. Button ▶ will exit the settings.

Mon – Monday, Tue – Tuesday, Wed – Wednesday, Thu – Thursday, Fri – Friday, Sat – Saturday, Sun – Sunday

9. HARDWARE AND SOFTWARE INFORMATION



To call informations setting **hold „ENTER“** button at any boiler status and by pressing ▼ button.

▲▼ buttons choose modul and confirm „ENTER“. Information about the module will be indicated on display.



10. ERROR MESSAGES



To call error messages **hold „ENTER“** button at any boiler status and by pressing ▼ 3 times. By pressing „ENTER“ error with description will be indicated on display.

10.1 STB failure



At „STB“ failure boiler is overheated. Thermal fuse is activated (Pic.3/21). The fan is disconnected from voltage. Boiler is mechanical activated again only if boiler temperature drops by to cca 30°C. Boiler is need to be switch-on by „ENTER“ button.

11. SERVICE SETTINGS PIN 0000 PROTECTED



Service settings PIN 0000 protected can be used only in restricted cases. Only trained service engineer can do these settings. (In necessary cases client can do also). In service settings are adjusted boiler type with accessories

To call the service setting PIN 0000 protected as follows:

1. **Hold „ENTER“** button at any boiler status
2. Press ▲ button
3. **Hold ◀** button for 4s - „PIN 0000“ will be indicated
4. Press „ENTER“ 4 times
5. Service settings symbol will be indicated on display
6. Press „ENTER“ and buttons ▲▼ choose service setting of boiler type, micro SD card, service operation and press „ENTER“ .



11.1 Settings for micro SD card

AK 3000 control can be extended by SD modul (Pic.8). Micro SD card of different capacity is plugged into SD module.



Micro SD card allows:

- Loading of back-up software to control unit of the boiler
- Software back-up to SD card
- Loading of updated software from SD card to control unit of the boiler
- Selected parameters boiler back-up (f.e. boiler temperature, fan speed, etc.) during 1 month and consequently interpretation by PC
- SD card erasing



By pressing „ENTER“ symbols that micro SD cards allows will be indicated on the display. Buttons ▲▼ choose the task, you want to realize and then press „ENTER“.



11.2 Service settings boiler type with accessories



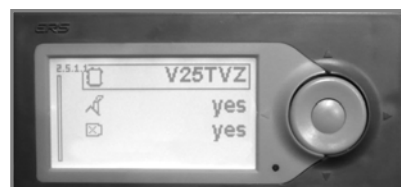
WARNING

Graphical control unit AK 3000 is used to control all types of VIGAS boilers. It is important, software settings must be same as type of the boiler. In deactivated boiler status „OFF“ boiler type is indicated on the display, that is equal to boiler nominal output. **For correct boiler operation, boiler type must match with boiler type marked on boiler label.**

In case of control unit exchange, always must be AK 3000 checked!!!

Continue Chapt.11

7. Press „ENTER“, display indicates :



List of boiler types	
V 16	V 80
V 16L	V 80L
V 25	V 100
V 25L	V 100L
V 40	V 25TVZ
V 40L	V 29UD
V 60	V 18DP
V 60L	

	Boiler type V- VIGAS, xx – nominal output, L – lambda TVZ – hot-air, UD – coal – wood, DP – wood – pellets
λ	yes – boiler with lambda sensor, no – boiler without lambda sensor
	yes – boiler with gases thermometer, no – boiler without gases thermometer
	yes – boiler with discharge fan, no – boiler without discharge fan

8. Buttons ▲▼ choose parameter and press ENTER

9. Button ► will exit the settings

11.3 Control of service settings



Functionality of each system can be checked in service settings by symbols indicated on display. Press „ENTER“ and selected system will be activated.



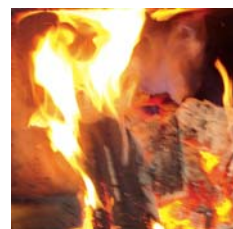
12. OPERATING INSTRUCTIONS

12.1 Before operation:

- to be informed with operating instructions and how to operate the electronic control AK 3000,
- to connect accessories (f.e. discharge fan or indoor thermostat),
- to check the placing of fireclay bricks in combustion chamber pic.3,
- to check connection to chimney and to check transitoriness,
- to check the cover metal sheets,
- to check the power to mains (230V/50Hz),
- to prepare sufficient amount of fuel for heating and burning.

12.2 Boiler operation

1. Connect boiler to distributing network (230V/50Hz) by power wire.
2. Wait when display will be activated to basic indication.
3. Set the boiler with AK 3000 control to deactivated mode "Off".
4. Fuel heating:
 - a) by using the rod open the chimney flap (Pic.3/3),
 - b) open the upper door (Pic.3/2) on fireproof ceramics (Pic.3/9) put the paper so that small piece of paper extend to lower burning chamber (Pic.3/25), woodchips, cleft timber, and fill-up with fuel
 - c) close upper door and open slightly lower (Pic.3/13) to start heating the fuel (obr.3/4), in configuration with discharge fan, the heating will be quicker to activate the fan.
 - d) close lower door and chimney flap when fuel is burning; 10 – 15 minutes, approx.,
5. Activate the boiler to „ON“. Boiler starts to gasifying and control its output automatically to set temperature
6. To refill the fuel follow steps in chap. 4.4. or 5.4
7. To deactivate the boiler, follow steps in chap. 4 or 5.



Burning fuel



Lower door open

12.3 Keeping operation and output regulation

Fuel in boiler is moved spontaneously in the direction to fireproof nozzle. Ash falls through nozzle and deposits in combustion chamber. Boiler output is regulated automatically according to the set temperature of outlet water. If there is mains failure during a longer period of time or if automatic regulation fails, it is not possible to heat.



WARNING !

Never operate boiler without energy or without cooling fan. (If boiler is not cooled, corpus of the boiler can be damaged)!!!

WARNING !

If power cut, or boiler failure during the burning, do not open neither door or chimney flap. A spontaneous decay of burning will be reached, and total blow out will be reached in a longer time.

12.4 Refilling the fuel bunker with fuel

- open chimney flap with the help of operating rod (Pic.3/3),
- on graphical control press  (Available in Chapt 4.4 or 5.4)
- open upper door with caution, to smoke venting
- refill necessary volume of fuel through upper door (Pic.3/2)
- close upper door (Pic.3/2) and chimney flap (Pic.3/3),
- button  will exit refuel



Tabuľka vlastností dreva

Drevo	výhrevnosť [MJ/kg] pri 20% vlhkosti	výhrevnosť [MJ/kg] pri 25% vlhkosti	prí	Tvrdosť *	objem.hmotnosť [kg/m ³] pri 25% vlhkosti
Topoľ	12,9	12,3	1		530
Jedľa	15,9	14,0	1		575
Smrek	15,3	13,1	1		575
Vrba	16,9	12,8	1		665
Borovica	18,4	13,6	1		680
Jelša	16,7	12,9	2		640
Breza	15	13,5	2		780
Javor	15	13,6	4		660
Buk	15,5	12,5	4		865
Jaseň	15,7	12,7	4		865
Agát	16,3	12,7	4		930
Dub	15,9	13,2	4,5		840

[kg/m³]=[kg/plm], plm - plinometer, * (1 veľmi mäkké....5 veľmi tvrdé)



Important !!!

- Use correct fuel only
- **Is adviced not to overload with fuel when operating the boiler in transition period, boiler tar level will drop.**
- When adding fuel, do not let it remain between flange and chimney flap, which might prevent flap to close properly.
- Lay fuel to boiler not to prevent upper door to close. Forcible closing may damage lining.
- We recommend to supervise boiler according to operation conditions by the person older than 18 years.

12.5 Boiler cleaning

If wood burning is optimal and minimum temperature of return water is kept, 60°C, gasification chamber, completing combustion space and exchanger are sooted minimally. If wet fuel is used, steam is condensed on the walls of combustion chamber and tar is created on surface.



Pic. VIGAS 60,80,100

▪ Gasification chamber cleaning

It is necessary to remove tar from gasification chamber once per week. We recommend to burn it with upper door and chimney flap open. With regard to the fact that inner walls of boiler have aluminium coating, we do not recommend to scrape tar off mechanically.

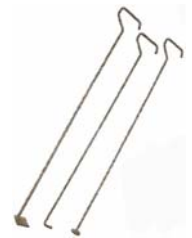
Excessive quantity of ash, that did not fall through nozzle (9) picture 3 into fireclay combustion chamber, must be removed from time to time. Thus you will increase the space of fuel bunker to original size and you will release the flow of primary air into gasification chamber. Check the continuity of openings for the intake of primary air on regular basis. If the openings are clogged, release them.

▪ Combustion chamber cleaning

Sweep ash and dust that fell to combustion chamber with a scraper. It is sufficient to sweep ash dust that settles in combustion chamber once per 3-5 days.

▪ Exchanger cleaning

It is necessary to clean exchanger pipes once per month with a "cleaning plate". Put cap away, (15) picture 3, and thus you will have an access to exchanger pipes.



Recommendation: If you do not clean the exchanger on time and it is too dirty, do not use any dissolvent for tar. Boiler must be clean while it is hot. Heat boiler through open chimney flap and upper door approx. at 80°C (without fan). Then close flap and door. Carefully (use gloves) open exchanger cap. Clean dirty exchanger with relevant accessories. After cleaning, close exchanger cap and let boiler burn / gasification/ approx 5 hours as maximum output in order the rest of tar might burn.

Warning: Boiler room must be properly ventilated during burning.

Step 1.



Step 2.



Step 3.



▪ Air piping cleaning

The clearness of boiler piping system is a necessary condition for right burning. If you mainly use sawdust, it is necessary to clean the piping system once per heating season. After putting fan cover (8) picture 3 and sheet cover of piping away, you will get access to two pipes. Use vacuum cleaner to remove sawdust and check continuity.

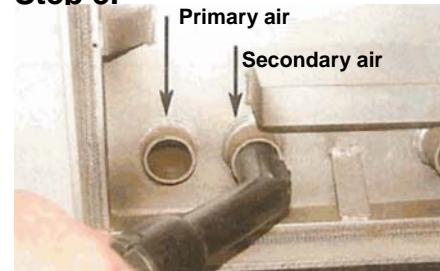
Step 1.



Step 2.



Step 3.



13. BOILER MAINTENANCE AND REPAIRS

The contractor ensures regular checks and boiler maintenance. During boiler operation, it is necessary to check water pressure, door tightness, chimney flap tightness, exchanger cap tightness, chimney tightness and fan performance.

NOTE: Before boiler shutting down during summer season, clean combustion chamber properly not to leave any condensed moisture there and open bottom door and chimney flap.

13.1 Door tightness:



Boiler door are stabilized in three points, on two revolving pins and on closing. If door does not fit tightly, besides revolving closing it is also possible to fix it from hinge side. You can slightly turn hinge bolt with releasing and turning nuts and thus you turn door in a desired direction. In case of sealing rope exchange "1" is a connecting point.

13.2 Chimney flap tightness:

When cleaning exchanger pipes (Pic. 3/22), check if flap closes tightly. Check chimney flap (Pic. 3/16) for the same as well. Leakage may result in decreased boiler output.

13.3 Heatproof nozzle



Heatproof nozzle is block made of heatproof concrete used to mix gases with secondary air and so efficient burning is in progress. Nozzle is located on water cooling rack. Nozzle is surrounded with heatproof concrete in the same height as nozzle. Nozzle lifetime depends from mechanical damage during fuel adding or poke the fire. Therefore, the nozzle is considered as spare part.

Cracks on nozzle are not reason to nozzle exchange, this is necessary only when nozzle drops. If the nozzle is damaged, its necessary to remove bits and pieces of old nozzle and then insert new nozzle into the hole. Check if new nozzle fits in the hole.

13.4 Setting the position of secondary air flaps of VIGAS boiler



The quality of burning can be increased by secondary air flaps. Optimal settings from production is adjusted to 2,5 turns „1“. When change or check the setting follow the steps:

Step1: „1“ loose the safety nut,
 Step2: Draw close screw „1“ in direction to the boiler,
 Step3: Loose the screw, back on 2,5 turns (optimum),
 Step4: Draw close the safety nut.

Safety flap is located above the fan „2“, that avert burning without fan (chimney draught). If boiler has lack of output , check flap functionality „2“.

TURN	FUEL
0	Not recommended
1	Wet wood
1,5	Wet softwood
2	Dry softwood
2,5	Dry hardwood
2,5 and more	Very dry, hardwood, small pieces

13.5 Gases thermometer

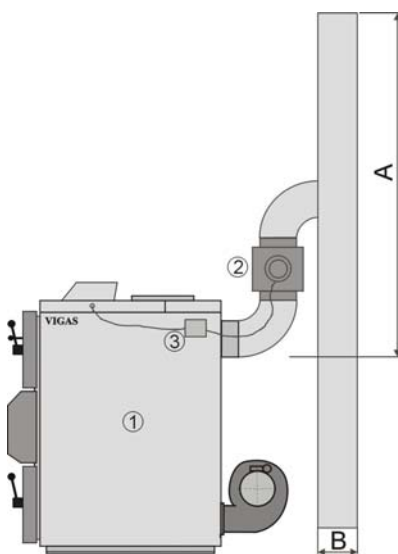


Cleanness is important for correct functionality of gases thermometer. Gently wipe dust from gases thermometer „1“, when cleaning.

Important: Gases thermometer must be in correct position. Correct position of gases thermometer „2“ – end of the metal gases thermometer must be together with end-socket. (to change the position of the gases thermometer, indicated value will be changed significantly).

14. ACCESSORIES ASSEMBLY

14.1 Discharge fan



The discharge fan “2” is designed to discharge boiler waste gases from the gasification chamber during the adding of fuel into the log magazine. Its recommended to add discharge fan if you do not meet parameters „A“ and „B“.

Its mounted between chimney neck and chimney. Capacitor „3“ is mounted aboard of the boiler. Electrically connect to control board AK 3000S. For VIGAS TVZ boiler its supplied type of discharge fan V 25.


BOILER TYPE	Min A	Min B
VIGAS 25 TVZ	8 m	160 mm

Drawing with dimensions for V25 and V80 available on www.vimar.sk

14.2 Indoor thermostat



Comfort is increased with indoor thermostat connection. Indoor thermostat is connected to mother board AK 3000S. Jumper is on T3 contact, standardly. Contact is switching, no voltage.

When T3 contact is disconnect, „OFF“ indicate on display. Fan will be disconnected. Boiler status is indicated by  symbol. After reclose, boiler is in „ON“ mode and boiler is activated.

Warning:

If indoor thermostat is disconnected for longer than 1 hour, then boiler will be blown through for short time to keep glowing embers.

15. LIST OF GUARANTEE AND AFTER GUARANTEE SERVICES

In order quality and safe operation might be kept, repairs of boiler must be done by authorized specialists:

VIMAR Vigaš Pavel, Príboj 796, Slovenská Ľupča,

tel. 00421 48 41 87 022.

tel. 00421 48 41 87 159

mail: vimar@vimar.sk

See the current list of sale and service places:

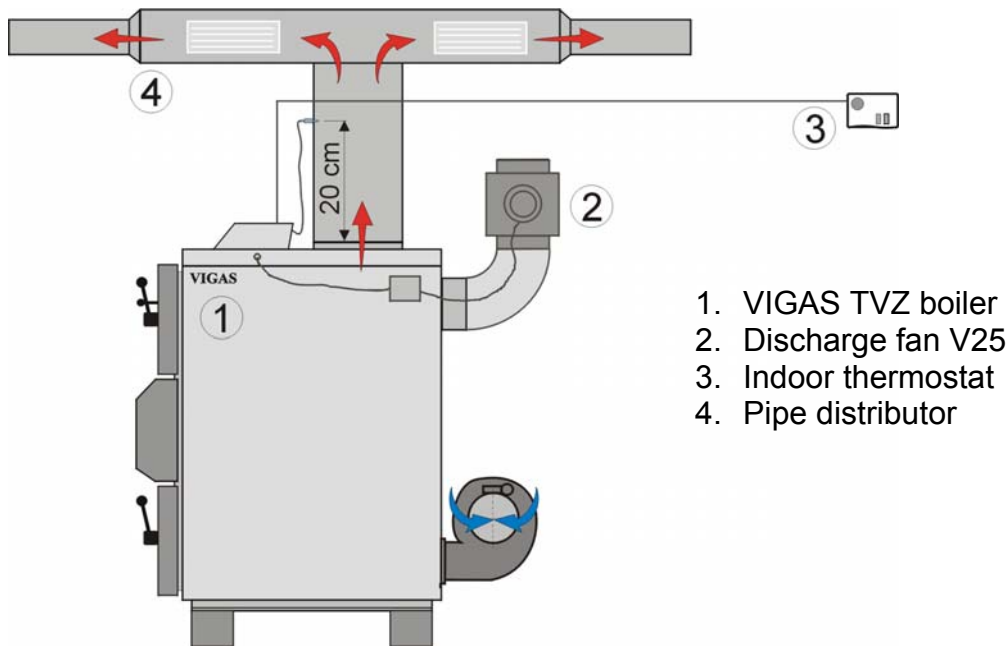
www.vimar.sk , www.vigas.eu

16. PROBLEMS SOLVING

Problem	Cause/Solution
When heating with wood, boiler output is smaller that it was when it was new.	Clean ventilation system. Clean fan blades. Too wet fuel.
After closing chimney flap, fuel burns a little and then smokes.	Small volume of primary air. Clean primary ventilation system. Check if fan flap opens.
Bigger pieces of not burn out fuel are in combustion chamber.	Enlarged opening of nozzle. Change nozzle. Set secondary air . See 14.4.
Smoke leaks through seal after closing door.	Fix . See 14.1. Take out and turn sealing. Change sealing.
It is not possible to open chimney flap.	Chimney flap is glued by tar. Increase boiler operation temperature. Use dry fuel. Increase boiler shutting down temperature
After opening upper door and chimney flap, boiler room becomes smoky.	Small chimney effect.
Cracked fireproof /concrete/ lining.	No defect. Separates combustion chamber from gasification chamber.
Fan does not turn. It starts to turn after turning by hand..	Starting capacitor is defective. Change capacitor.
After the position "Heating" , boiler will shut down.	Incorrectly selected temperature of boiler shutting down. See the chapter „Configuration of boiler shutting down temperature“.
Boiler is shut down but fan still works.	Damaged cabling to fan.
Warning signals and signs	Cause/Solution
!!!STB!!!	See 10.1

17. ASSEMBLY INSTRUCTION

Recommended schema of basic connection with AK 3000 regulation.



17.1 Assembly and maintenance instructions

- Boiler can only be connected to the system whose thermal capacity correspond with boiler output.
- Boiler is connected to air piping system by steel neck located in upper part of the boiler. Outer neck dimension is 250x250 mm.
- Thermometer that scans air outlet temperature is inserted to air pipe 20cm above outlet branch, its necessary to avoid any contact with even air pipe or steel covering of the boiler.
- Its recommended to connect cooling fan to inlet tubing from heated space, when boiler is located apart from heated space.
- If the piping is longer than 15 meters, or air pipe resistance is too high, producer recommends to install additional fan inside the pipe
- If air piping system has installed closing flaps, its necessary to secure flaps against complete closing
- Boiler must be connected correctly and as short as possible to chimney. Other appliances must not be connected to chimney. Chimney shaft must be dimensioned according to the standards: STN 734201 and STN 734210.
- Boiler assembly must be done by specialists of assembly firms.
- Boiler need not be placed on a firm base.
- Boiler room must be ventilated permanently through the opening of min. diameter 0,025 m². The diameter for air inlet and outlet must equal approximately.
- Boiler must be installed in the surrounding that is common, basic in accordance with the standard, STN 33 2000-3.
- Work and health safety regulations must be followed in accordance with current instruction requirements, UBP SR No. 718/2002 Coll. and seq.

17.2 Safety regulations for control and maintenance of VIGAS TVZ boiler electric equipment

The boiler operator must follow relevant regulations and standards, as well as the following principles:

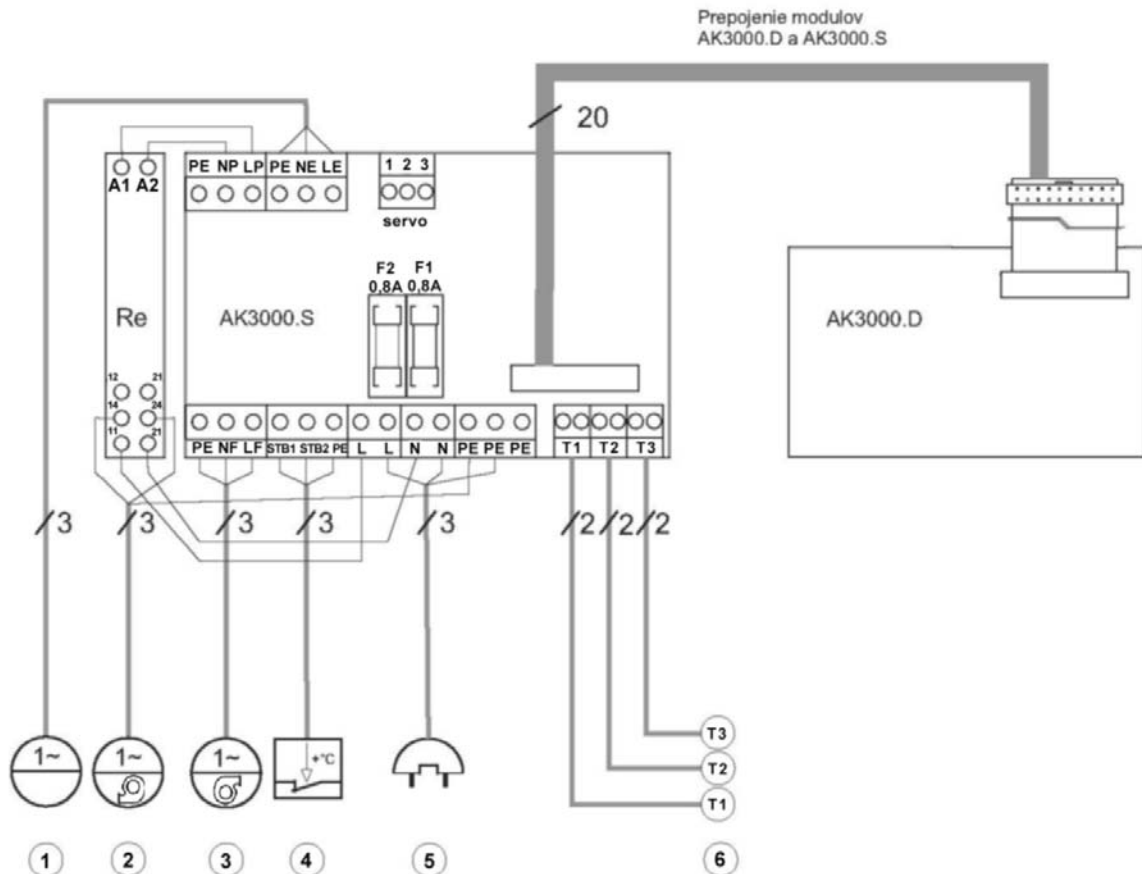
- If boiler is in operation, none of the following may be done with electric equipment:
 - uncover electronic equipment, e.g. boiler electronics, fan, thermostat,
 - to exchange fuse,
 - to repair damaged cable insulation etc.
- Maintenance and repairs of boiler with uncovered electric equipment may only be done by persons authorized to do so according to 74/1996 Coll.
- Before uncovering boiler or any electric equipment connected to boiler, it is necessary to disconnect any mains /unplug/. You can only plug in after placing covers on original places.
- If there is any defect of electric equipment or boiler installation is damaged it is important: - do not touch any part of boiler
 - disconnect boiler from mains /unplug/.
 - to call an authorized service technician that will correct defect.

Apart from common maintenance of boiler, it is strictly forbidden:

- to manipulate electric equipment and boiler installation if plugged in,
- to touch damaged electric equipment and boiler installation, mainly damage cable insulation , etc.,
 - to operate boiler if uncovered,,
 - to operate boiler with defective electric equipment or defective boiler installation,
 - to repair damaged boiler electric parts by persons unauthorized by the producer

18. ELECTRIC SCHEME OF CONNECTION VIGAS TVZ BOILERS

Flow diagram of basic connection VIGAS TVZ boiler with AK 3000



1. Discharge fan, power supply 230 VAC / 0,6A
2. Cooling fan, power supply 230 VAC / 370W
3. Fan, power supply 230 VAC / 0,3A
4. Emergency thermostat STB 110 °C
5. Power supply 230 VAC, 50 Hz
6. T1 Thermometer KTY (thermometer of outgoing air), T2 Thermometer PT1000 (gases thermometer, T3 Indoor thermostat without voltage expanding.

LETTER OF GUARANTEE

Certificate of Quality and Completeness

Product

VIGAS

TVZ kW

Serial number :

The producer confirms that the boiler comply with the standards, STN EN 61010-1+A2:2000, STN EN 50081-1:1995, STN EN 50082-1:2002, STN EN 61000-3-3:2000, STN EN 61000-3-2:2000+A1+A2:2001.

Production inspection date

.....
Stamp a signature of producer

Date of sale

Date of commissioning:

.....
Stamp and signature of seller

Instructions for customers and guarantee conditions.

- Claims regarding the completeness of delivery must be in accordance with Commercial Code and Civil Code of the supplier,
- Damage and defects due to transport must be claimed by customers to a carrier when goods is taken over.
- Guarantee period is 24 month from the date of sale.
- Guarantee is valid if boiler is commissioned by an authorized serviceman.
- Guarantee is valid if all the electric equipment is connected to regulation by an trained specialist and if recorded in relevant documents..
- Guarantee applies to construction, used material and product manufacture.
- Transport of serviceman is not included into guarantee repair (it is paid by a customer in its full amount).

Guarantee does not apply to:

- consumer material: door seal, seal of exchanger cap, seal under fan, heatproof nozzle, heat proof / concrete/ filling, fireclay bricks,
- defects caused by a customer,
- defects due to not following assembly instructions, incorrect operation and maintenance or if the product is used otherwise than instructed and for a different purpose than specified in normal conditions; incorrect or unauthorized handling,
- otherwise the guarantee follows relevant provisions of Civil Code.

Confirmation of VIGAS TVZ boiler commissioning

Product

VIGAS TVZ kW

Production No. / Year of production

Date of sale

Date of commissioning

.....
Stamp and signature of

.....
Signature of serviceman

Name and adress of user:

When commissioning, we did the following:

- we informed the customer how to operate the boiler,
- we checked the boiler prior heating,
- we heated the boiler,
- we filled in and confirmed data of the Letter of Guarantee.

.....
Signature of the boiler user

Confirm and send to the producer !!

Records of electric equipment connection (discharge fan, indoor thermostat, etc.)				
Date	Equipment	Name of serviceman	Certificate No.	Signature of serviceman
Records of guarantee and after guarantee repairs				
Date	Record od repair No.	Name of serviceman	Certificate No.	Signature of serviceman
Notes				



Serial number

VIMAR

Ecological and gasifying boiler

Producer:

VIMAR Vigas Pavel
M. Culena 25
974 11 Banska Bystrica
SLOVENSKO

Production plant:

VIMAR Vigas Pavel
Priboj 796
976 13 Slovenska Lupca
SLOVAKIA
tel.: 00421 48 4187 022
fax: 00421 48 4187 159

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