

17 years
in business!


VERNER[®]
EXPERT ON HEAT



fireplace stoves



interior boilers



automatic boilers



boilers for lump
wood combustion



industrial biomass
boilers

Automatic boilers for corn, pellets and maize



II.
GENERATION

VERNER AUTOMATIC BOILERS

Are intended for:

- 🔥 **Comfortable, economic and ecological heating** of family houses, flats, agriculture buildings, schools, hotels, workshops, small workrooms and similar buildings
- 🔥 **Combustion of agriculture products** - wheat, oat, rye, tritical, barley, maize, mustard, rape, **alternative pellets** of cereal husk, energy plants and cereal or colza straw and also **wood pellets**
- 🔥 **All-season warm supply water heating** (by the storage reservoirs or economic boiler)

The main advantages:

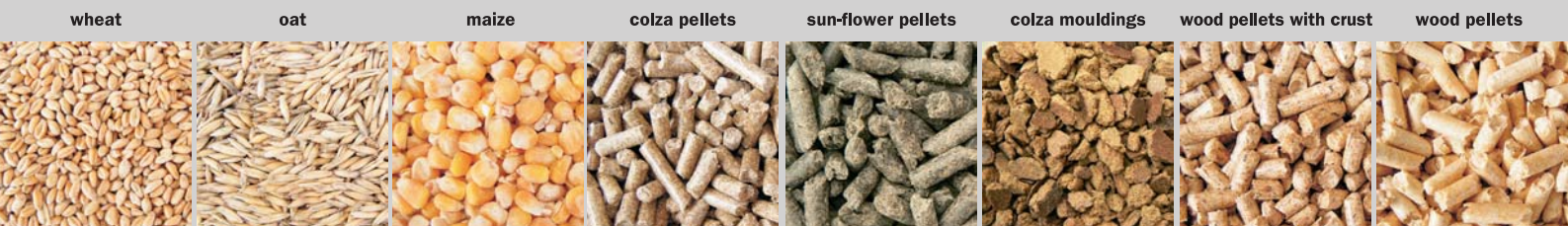
- 🔥 **High attendance comfort**
The boilers provide fully automatic operation from the fuel supply and its ignition up to the ash transport. The basic hopper provides several days operation without the necessity of feeding.
- 🔥 **Perfect output regulation (control)**
Boilers have fluent output regulation in the range of 30 - 100%. The output of 0 - 30% is provided by automatic stand-off mode with the automatic ignitron (firing).
- 🔥 **High efficiency - 92,7%**
The efficiency is reached by accurate exact ratio of fuel and combustion air, sizable flue exchanger and thick insulation of all boiler parts.
- 🔥 **Low operation costs**
Due to the boiler ability to burn the agriculture products the heating costs are lower as far as by 2/3 compared to the natural gas heating. Boilers are characterized even by low electric energy consumption.
- 🔥 **Long life-time**
Boilers are produced of the quality steel and special fireproof ceramics. The boilers life-time is markedly extended by the controlled combustion on the special grate. This policy prevents from the tar and deposits creation.
- 🔥 **Various types of fuel combustion ability**
Boilers provide the combustion of fuels even with the higher portion of baked ash. Thanks to this ability the fuel can be taken even near the farmers. Moreover, the boiler's hoppers can be supplied with the dividing bar that provides the controlled combustion of several fuels together.



Boiler description and its function:

Fixed conveyor supplies the fuel out of the reservoir into the combustion area of the boiler. **The fuel is then automatically ignited** by electric hot-air system. The smart electronic regulation controls the exact fuel and air batching (charging) in the burner based on the data evaluation about the outgoing water temperature, combustion gas temperature and based on the information that are obtained from the room thermoregulator or outdoor sensor with superior control driving system. The multi-stage pressure relief ventilator provides the necessary air for combustion. **The base of the boiler is unique movable grate** which ensures the fuel supply in the combustion area. It enables to burn without any problem even fuels that create slag at combustion (f.e. wheat or straw pellets). The ash of completely burnt fuel is supplied into the ashbin by movable grate. The ash is supplied directly into the reservoir out of the boiler area in case of external automatic deashing system purchase.

Fuel examples for VERNER automatic boilers



■ Standard variant

The VERNER automatic boilers have the fuel reservoir of the capacity of 240 l in standard design. The reservoir is a part of the boiler and is situated in the rear part. The fuel is supplied by the fixed feeding screw from the hopper directly into the combustion area. The reservoir is airtight sealed during the operation and equipped with the water spray due to the safety.



Orientation operation parameters of VERNER automatic boilers in standard variant	VERNER A251G				VERNER A501G			
	Grain		Pellets		Grain		Pellets	
	Corn	Maize	Alternative	Wood	Corn	Maize	Alternative	Wood
Fuel weight in reservoir of the capacity of 240 l	120 to 160 kg	170 kg	100 to 170 kg	180 kg	120 to 160 kg	170 kg	100 to 170 kg	180 kg
Boiler operation time / 1 fuel reservoir - full output	18 to 24 hours	28 hours	16 to 28 hours	30 hours	9 to 12 hours	14 hours	8 to 14 hours	15 hours
Boiler operation time / 1 fuel reservoir - regular operation	2 to 3,5 days	5 days	2 to 5 days	5,5 days	1 to 2 days	2,5 days	1 to 2,5 days	3 days
Boiler operation time / 1 fuel reservoir - temperature keeping	4 to 7 days	10 days	4 to 10 days	11 days	2 to 4 days	5 days	2 to 5 days	6 days

The data mentioned in the table are only orientation and depends on the type of used fuel and size of the heated building.

■ Big-bag variant

The fuel reservoir is fabric bag - big-bag - volume of 1200 l. The fuel reserve in big-bag is 5x higher than in the standard hopper. Due to that the heating comfort is higher. The automatic fuel supply into the boiler is provided by external conveyor. This design is produced based on the space possibilities and customer demands.

In case of big-bag variant the boiler is usually equipped and supplied with a hopper in standard version. However, the upper hopper cover is replaced by the divided cover that allows the fuel supply from external conveyor through safety system into the boiler hopper and at the same time the fuel can be added into the boiler even manually.

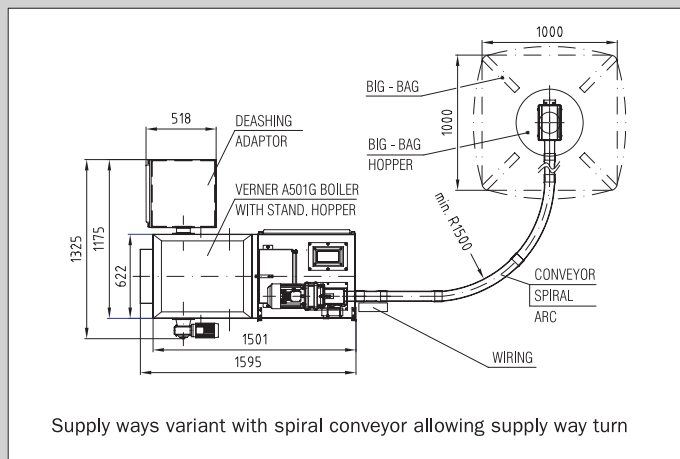
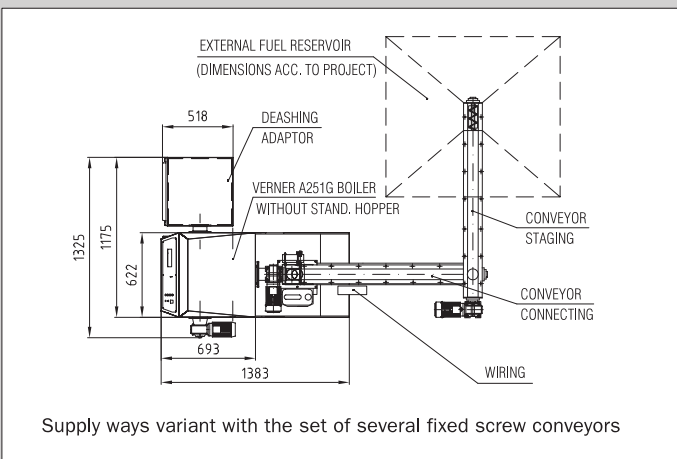
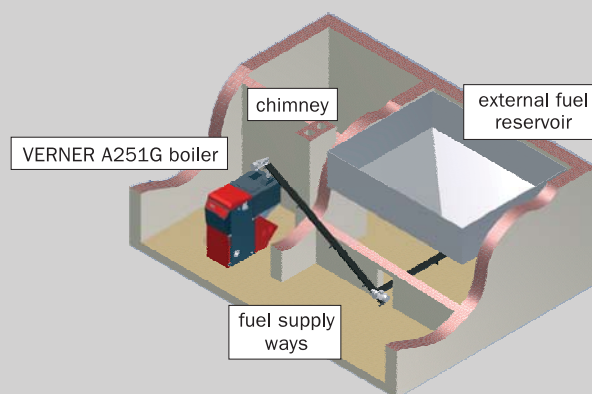
In case of lack of area the boiler can be assembled even without standard hopper. Then the external conveyor supplies the fuel through the safety mechanism directly to the feeding boiler screw.

The fuel can be filled into the hopper by **self-fallout** in case of big-bag positioning (or external reservoir) above the boiler. This solution is not so expensive (investment costs) and does not require the screw conveyors mounting. At the most simple variant the attendance is necessary.



■ Variant with external fuel reservoir

This system allows the automatic fuel supply from the external reservoir **during the whole heating season**. The reservoir can be placed even in the other room. The system is supplied based on the area possibilities and customer demands. The connection method of boiler and supply ways is the same as in case of the big-bag variant.



VERNER automatic boilers accessories and equipment

• Lambda sensor

Lambda sensor increases the service comfort and provides more efficient and perfect combustion. It controls the volume of supplied combustion air based on the flue gas quality evaluation. Thus, boiler operation is easier and does not require interference to setting of regulation at fuel change.



• Automatic deashing

The automatic deashing device helps to supply the ash into the reservoir out of combustion area of the boiler. The ash reservoir has a higher capacity than the basic ashbin. Due to this fact the service comfort is increased.

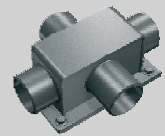


Orientation parameters of deashing of VERNER automatic boilers	VERNER A251G				VERNER A501G			
	Grain		Pellets		Grain		Pellets	
	Corn	Maize	Alternative	Wood	Corn	Maize	Alternative	Wood
Filling time of basic ashbin 20 l - regular operation (for comparing)	2 to 3 days	3 days	2 days	20 days	1 to 1,5 day	1,5 day	1 day	10 days
Filling time of external ashbin 40 l - regular operation	5 days	6 days	4 days	40 days	3 days	3 days	2 days	20 days

The data mentioned in the table are only orientation and depends on the type of used fuel and size of the heated building.

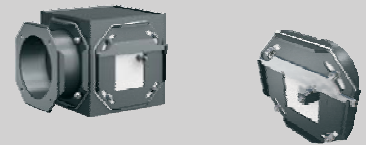
• Automatic mixing fitting VERNER

The automatic mixing fitting VERNER is designed for the boiler low-temperature rust protection. It divides the heating system into two parts: boiler and heating circuit. The water temperature can be controlled in each circuit separately. That way it is assured that the return water temperature into the boiler does not drop under 60°C. The other advantage is that the boiler circuit can operate even in gravity circulation in case of rated output of 23-25 kW, so there is no necessity to install the circulating pump.



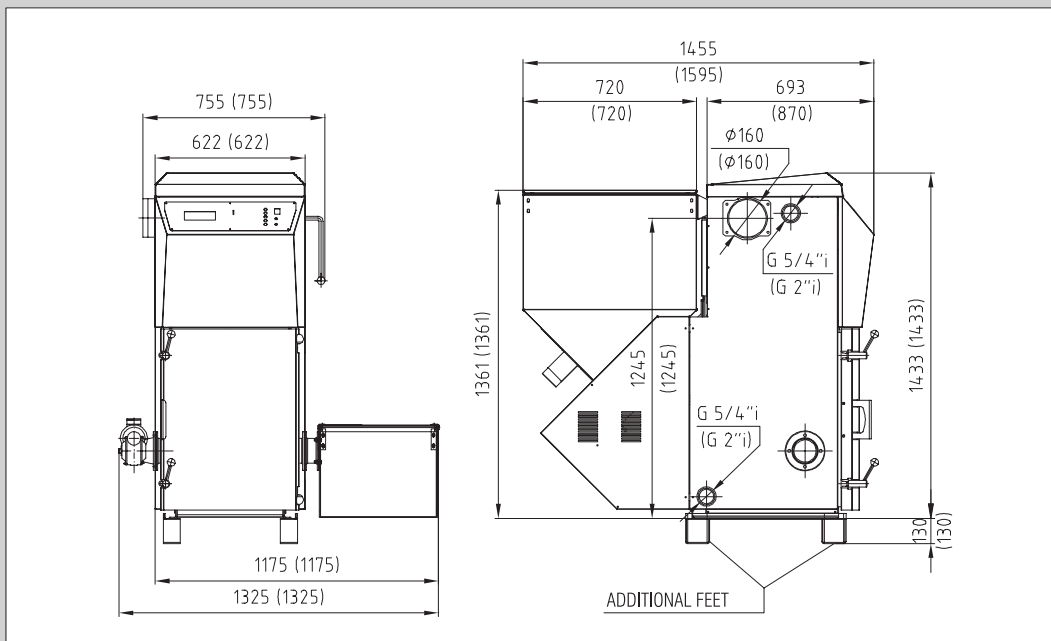
• Chimney draught regulator

The chimney draught regulator provides steady draught behind the boiler and makes optimal burning conditions in the furnace. It supports the ventilation of venting unit, the danger of condensation is reduced. It is possible to achieve 3-9% of annual fuel saving in case of its installation. Two variants are produced: box and shrunk ring.



• Flue exhauster

The flue exhauster is determined as an additional appliance for the chimney draught support. It eliminates the smoke up into boiler-room at firing and at start from the stand-off. It limits also the dustiness during ash removal and boiler cleaning. It is situated on the smoke flue between the outlet neck of the furnace and the inlet into the chimney.



VERNER A251G dimensions (VERNER A501G dimensions are mentioned in brackets)

New generation regulation

Completely new smart control unit (with additional functions and comfort user interface) was developed for automatic boilers based on the existing customer requirements and based on the company VERNER experts experience.

NEW

Boiler setting is markedly easier than in case of previous versions. The parameters **for 10 different fuel types** which is absolutely rare and revolutionary solution, are already pre-set in the memory of new regulation. The change in fuel setup is now a question of several seconds. The regulator allows the connection to the GSM net and it can signalize troubles through the mobile phone.



Regulator evaluates:

- Water temperature at output from boiler
- Water temperature in boiler or storage reservoir !
- Flue gas temperature
- Signal from room thermoregulator or switching clock
- Lambda sensor data !

Regulator controls:

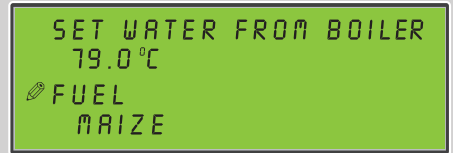
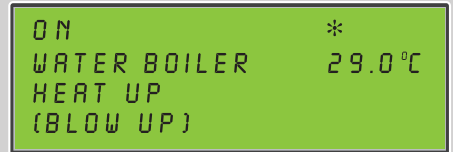
- Fuel dosing (metering)
- Combustion air supply
- Fuel firing
- Heating system pump
- Boiler circuit pump

Staff sets up:

- Fuel type - pre-set 10 fuel types !
- Required water temperature at output from boiler
- Required water temperature in boiler or storage reservoir !
- Maximum output in percentage !

Display indicates:

- Type of setup fuel
- Set and actual outgoing water temperature
- Set and actual flue gas temperature
- Set and actual value of boiler output
- Other setting data



VERNER A251G technical specifications

		Corn (wheat, oat, rye, triticale, barley)	Maize	Alternative pellets (dia. 6 - 14 mm)	Wood pellets (dia. 6 - 14 mm)
Rated thermal output	kW	25	25	25	25 (30 max.)
Efficiency	%	85 - 91*	91*	91*	92,7
Fuel consumption at rated output	kg/hour	6,5 - 7,5	6,2	6,8	5,6
Standard feeding hopper total capacity	l	240	240	240	240
Total weight	kg	580	580	580	580
Specified operational chimney draught	Pa	15 - 30	15 - 30	15 - 30	15 - 30
Incoming voltage	V/Hz	230 / 50	230 / 50	230 / 50	230 / 50

VERNER A501G technical specifications

		Corn (wheat, oat, rye, triticale, barley)	Maize	Alternative pellets (dia. 6 - 14 mm)	Wood pellets (dia. 6 - 14 mm)
Rated thermal output	kW	48	48	48	48 (53 max.)
Efficiency	%	85 - 91*	91*	91*	92,7
Fuel consumption at rated output	kg/hour	12 - 14	12	13	10,5
Standard feeding hopper total capacity	l	240	240	240	240
Total weight	kg	650	650	650	650
Specified operational chimney draught	Pa	15 - 30	15 - 30	15 - 30	15 - 30
Incoming voltage	V/Hz	230 / 50	230 / 50	230 / 50	230 / 50

* depending upon fuel quality

Examples of realized boiler-rooms with VERNER automatic boilers



Wood log house - boiler-room (incl. fuel storage) is situated in the shared united building with garage.



Family house, farm country house - boiler-room is placed in a separated, sole farm building incl. other rear areas (carport, workshops, cellar)



Office building - boiler-room is situated downstairs, however boiler-rooms were realized even in the attic in case of similar buildings



Monastery incl. chapel - in this monastery the heat pump was replaced by VERNER boilers cascade placed in the neighbouring building

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