



Catalogue

Exhaust gas hot water boilers

For installation behind cogeneration modules

2024



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General information

VWKG type hot water boilers for waste heat recovery

Exhaust gas hot water boiler using waste heat from internal combustion engines.

Boiler description

The design of the boilers depends on the parameters of the flue gas, in particular on its temperature and volume. The design of the boilers can be single or double. Single-designed boilers have one pass, double-designed boilers – have two passes.

The passes contain one or two smoke tube bundles with inlet and outlet flue gas collectors.

The boiler can also be equipped with a separate independent burner path (combined boiler). These paths operate independently of each other, and their flue gas passes are separated. The boiler pressure part is shared.

The standard operating pressure in the range of boilers is 6 bar. VWKG boilers with operating pressure above 6 bar are available on request.



Boiler design description

Hot water one-pass, in case of double boiler design – two passes or in the case of an independent burner path, four-pass boilers of the VWKG series are designed to produce hot water for industrial purposes with standard pressure 6 bar and hot water temperature up to 110 C.

The use of boilers is particularly advantageous for heating systems and hot water supply. Large area of the boiler heating surfaces ensures perfect use of the flue gas heat and thus achieving high efficiency.

The boiler body is supplied as standard with insulation covered with sheet metal coating, painted in RAL 3000 color.

The boiler body is equipped with flanges for connecting a pressure and a temperature gauges and sensors. In addition, there are flanges for the safety valves, deaeration and drain. For the internal inspection of the boiler, the body is equipped with manholes and control openings. All heating surfaces are easily accessible for cleaning, which ensures a constant high efficiency even during long-term operation.

The boilers can be equipped with all necessary shut-off and control valves, regulating and measuring devices.

The materials used are boiler steel and seamless pipes, according to EN 10028 and EN 10216.



Boiler advantages

- High operational reliability and long service life of hot water boilers are ensured by the design of the boiler, developed based on many years of our engineering experience in the field of construction and operation of hot water boilers, and the use of high quality materials. The large water volume of the boiler and the large heating surfaces, ensures high boiler efficiency
- Low radiant heat loss due to optimal insulation thickness, thermally insulated flue gas collector and rear return chamber.
- Boiler thermal efficiency is 94-96%
- Complies with the European instructions for pressure installations EN 12952 and EN 12953
- Convenient access to service and control areas, as well as cleaning areas.
- A lacquered sheet metal insulation coating, which is supplied as standard, facilitates installation and maintenance and protects the boiler's thermal insulation from damage.



VWKG exhaust gas hot water boilers technical data

Boiler type		VWKG1000H	VWKG1200H	VWKG1500H	VWKG2300H	VWKG4500H	
Rated heat output	kW	440	550	730	980	1830	
Boiler efficiency without economizer	%	94-96					
Flue gas temperature at the boiler inlet	°C	410	415	410	380	380	
Dry flue gas volume	Nm ³ .h ⁻¹	3804	4527	5976	8310	16969	
Wet flue gas volume	Nm ³ .h ⁻¹	4260	5066	6686	9320	18964	
Operating pressure	bar	6	6	6	6	6	
Test pressure	bar	9	9	9	9	9	
Operating temperature	°C	105	105	105	105	105	
Maximum allowable temperature	°C	110	110	110	110	110	
Pressure loss on the flue gas side	mbar	15	15	15	20	20	
Shipping weight	kg	2200	2640	3524	4400	9500	
Water volume	l	1650	1887	2075	3250	7540	
Transport length	mm	6972	7050	7192	7320	7720	
Transport width	mm	762	852	1050	1390	1920	
Transport height	mm	1428	1520	1607	1950	2250	
Boiler connections, nominal pressure PN16	Hot water output	DN	80	100	125	125	150
	Hot water input		80	100	125	125	150
	Safety valve		25	25	25	32	40
	Deaeration		25	25	25	25	25
	Blowdown		15	25	25	25	25
Flue gas inlet	ø mm	550	580	660	680	750	
Flue gas outlet	mm	400	450	560	580	650	

We reserve the right to make technical alterations without prior notice

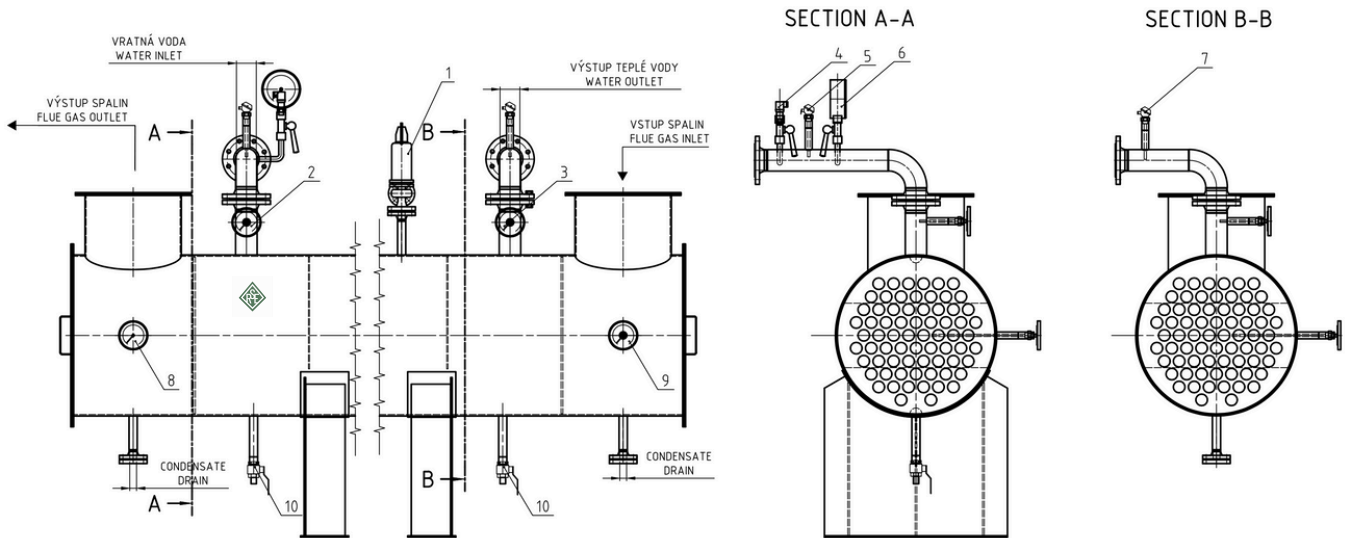


VWKG exhaust gas hot water boilers scope of supply

- The hot water boiler is supplied with insulation covered with lacquered metal sheets. These sheets are attached to support structures with insulated thermal bridges. Metal sheets are covered with a polyethylene film to protect the boiler surface from damage during transportation and installation. This film is removed after installation is completed.
- Flanges are mounted on flue gas inlet and outlet pipes.
- All cleaning and inspection openings have doors and covers.
- Valves and equipment are shipped in suitable transportable non-returnable packaging.



VWKG exhaust gas hot water boilers main equipment layout



Main equipment list:

Number	Equipment name
1	Safety valve
2	Inlet water temperature gauge
3	Outlet water temperature gauge
4	Water pressure sensor
5	Inlet water temperature sensor
6	Water pressure gauge
7	Outlet water temperature sensor
8	Outlet flue gas temperature gauge
9	Inlet flue gas temperature gauge
10	Drain ball valve



VWKG-K combined boiler.

Boiler design description

Combined hot water fire-tube boiler for hot water or overheated water production.

The boiler body has a cylindrical shape. In one part of the boiler body there is a three-pass burner path using a gas or liquid fuel burner as a heat source, and in the other part there is a single-pass flue gas path using waste heat from internal combustion engines.

The burner path consists of a flame tube, a water-cooled rear return chamber, two bundles of smoke tubes, an uncooled front return chamber and a smoke collector. The flame tube has a hatch at the back and the front reverse chamber has doors for cleaning and inspection of the pressure part of the boiler from the flue gas side.

The flue gas path for waste heat utilization is single-pass, it consists of one bundle of smoke tubes, inlet and outlet flue gas collectors. Flue gases enter the front flue gas collector through a vertical inlet tube. Front flue gas collector is equipped with a hatch for inspection and cleaning. Flue gases exit from the rear flue gas collector through a vertical outlet pipe located at the rear of the boiler.

These paths operate independently of each other, and their flue gas passes are separated. Each path has its own separate flue gas outlet. The boiler evaporator is shared.

A flue gas heat exchanger (economizer) is installed in the rear flue gas collector of the boiler in the burner path. The economizer consists of two bundles of finned galvanized pipes interconnected in chambers. In the economizer, the heat from the flue gases is transferred to the boiler feed water. The energy obtained in this way increases the efficiency of the boiler and reduces fuel consumption.

There is a 420x320 mm hatch in the upper part of the boiler for cleaning and inspection of the pressure part from the side of water and steam.

The standard operating pressure of combined boilers is 8, 10, or 13 bar. VWKG-K combined boilers are manufactured upon request according to customer requirements.



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