

-Pellets, woodchips, sawdust **-Sod peat¹** **-Coal¹** **-Chipboard waste²**

The LAKA PS heating boiler has been developed for burning pellets, woodchips and wood waste (sawdust, shavings, sander dust). The boiler can be used for heating at wood-processing and agricultural enterprises, in greenhouses, at district heating plants and for heating single-family detached houses or larger buildings.

■ **Features**

The boiler has been designed to burn small fraction biomass e.g. with underfeed combustion systems³ or stoker burners³. In order to burn large fraction biomass LAKA PS boilers can be equipped with a mechanical step grate. The large combustion chamber ensures a complete combustion of fuel and decreases energy loss caused by incomplete combustion of gases and carbon particles in flue dust.

The heating surface of the heat exchanger has welded ribs that efficiently transfer heat from flue gas to water. The heat exchanger's hot vertical ribs collect less soot than the relatively colder tubes of conventional water-tube boilers. Low resistance to flow ($\approx 30 \text{ Pa}/100 \text{ kW}$) also allows LAKA PS boilers to be used in systems with natural draft.

Light fuel oil can be used as a reserve fuel. The oil burner hatch is located either at the front or the side of the boiler. When solid fuel is used, the oil burner door has to be opened and a second door is used to close the hatch.

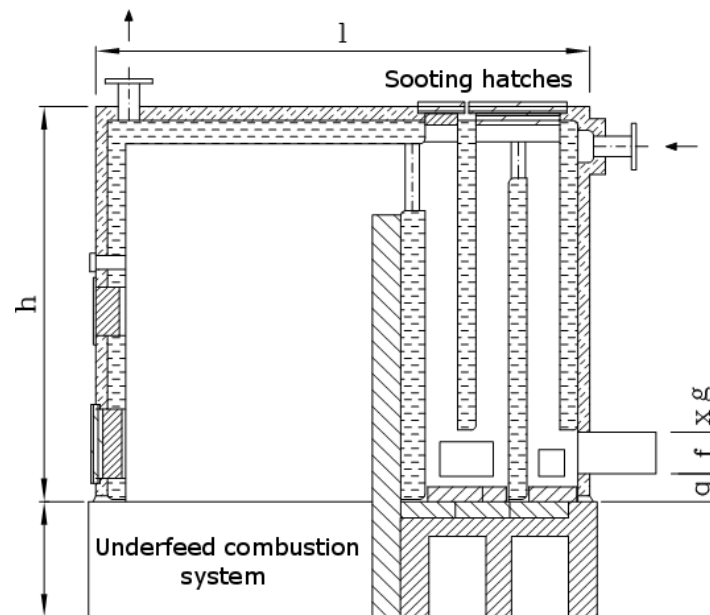


LAKA PS boiler 500 kW with Biofire woodchip stoker³

b = boiler width

Output	b	h	l	q	f	g	Water volume	Weight
kW	mm						l	kg
20	610	1200	740	20	150	150	180	360
40	690	1250	740	20	150	200	200	400
60	760	1250	1060	1000	180	300	270	550
80	910	1250	1060	1000	180	300	310	650
100	910	1250	1060	1000	180	300	340	850
120	980	1350	1060	1100	180	300	370	980
145	1000	1180	1310	875	160	450	395	1200
160	1000	1250	1400	950	160	450	410	1250
180	1000	1250	1770	120	250	680	540	1300
210	1100	1300	1800	120	250	680	600	1350
250	1100	1300	1920	120	250	680	650	1400
290	1100	1400	1920	120	250	680	700	1500
325	1150	1500	2000	120	250	680	850	1750
360	1150	1600	2000	120	250	680	880	1900
420	1150	1600	2200	120	250	680	950	2100
460	1150	1600	2350	120	250	680	990	2230
520	1250	1750	2300	120	250	680	1130	2500
580	1250	1820	2450	120	250	680	1250	3100
630	1380	1800	2450	120	250	680	1280	3800
700	1380	1870	2450	120	250	680	1350	4000
840	1500	1900	2700	120	250	880	1630	4300
1000	1500	2100	2800	120	250	880	1850	4600
1200	1600	2300	2825	120	280	880	2350	5000
1400	1700	2380	3150	120	280	1050	2500	5600
1600	1980	2400	3200	120	280	1050	2700	6100
1800	1980	2560	3200	120	280	1050	2850	6900
2000	1980	2860	3200	120	280	1050	3050	7300
2200	2100	3000	3200	120	280	1050	3300	7500
2500	2250	2600	4050	120	420	1050	3900	9300
3000	2250	3000	4050	120	420	1050	4300	10000
4000	3000	3500	5000	120	500	1100	5000	13000

The table dimensions are for a dry fuel boiler with a 3-pass heat exchanger. Boilers for fuel with higher moisture content have other dimensions.



An underfeed combustion system³ is installed at the base of the boiler. A step grate and a stoker burner³ are installed higher in the combustion chamber.

- 1) Sod peat¹ and coal¹ require a special step grate or chain grate. Such boilers are manufactured using special dimensions.
- 2) LAKA PS boilers are also available with a special combustion chamber for burning chipboard² and other toxic gas forming wood waste².
- 3) A buyer can either buy and install a separate pellet or woodchip burner or order a boiler equipped with a burner (for example, a Biofire-burner).

■ Installation

The boiler is open from below to be installed on a concrete or steel base. A drawing with recommendations for the base is delivered with the boiler. If a grate is installed in the base according to the drawings of a burner manufacturer, the latter will also provide drawings of the base.

If ordered specially, the LAKA PS boiler can also be delivered complete with a steel base and combustion-improving masonry inside the furnace.

A minimum service space equal to the height of the boiler minus 300 mm is needed above the boiler to allow cleaning access.

On the side of the boiler containing hatches a service space equal to the width of the boiler is also needed.

On the opposite side (the side without hatches) the distance from other stationary objects should be at least 500 mm.

■ Modifications

LAKA PS boilers can be manufactured with hatches either on the right or left hand side of the boiler depending on the buyer's needs, in order to simplify designing the boiler room and installing the boiler. The furnace hatch can be either on the side or at the front of the boiler.

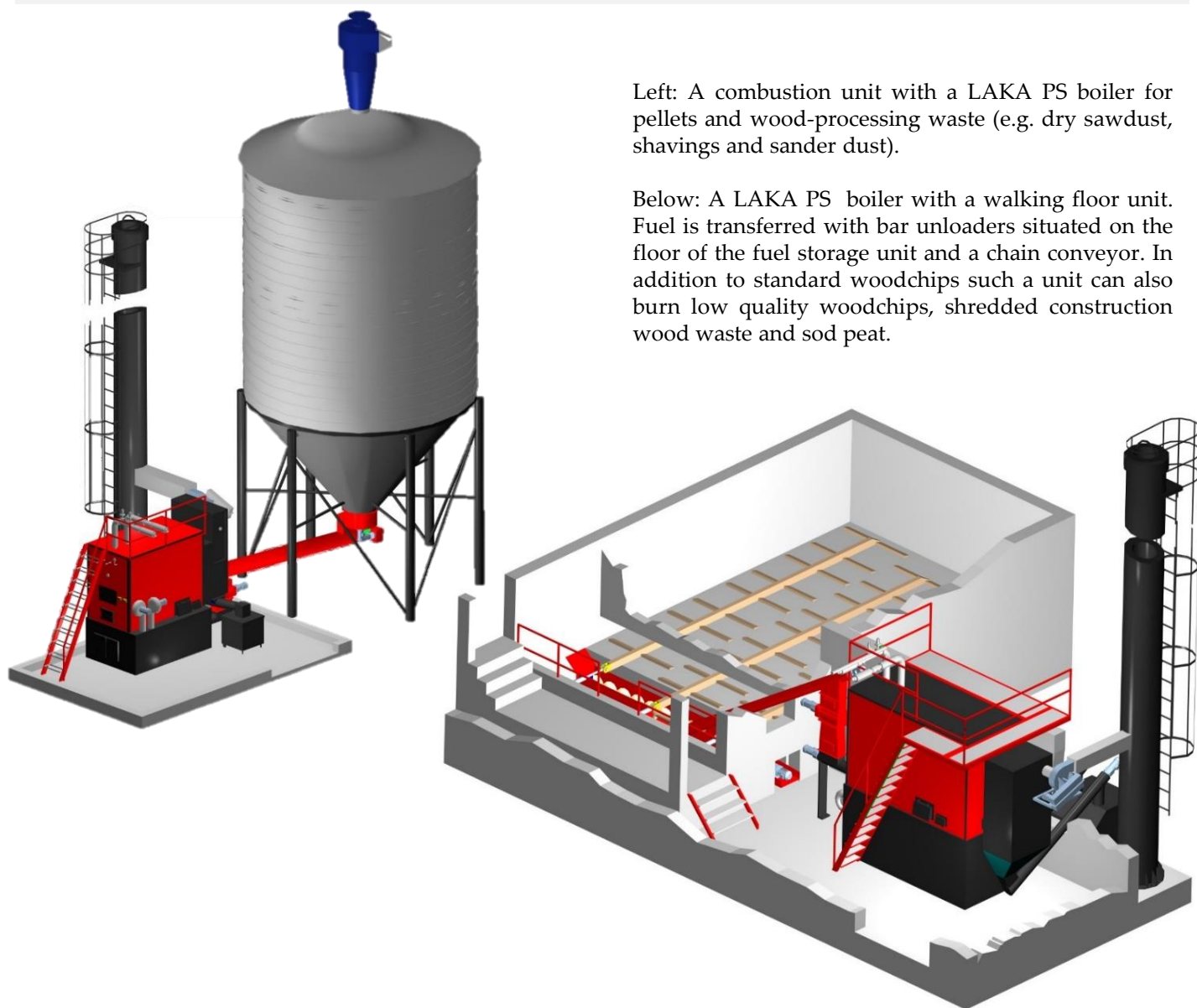
■ Additional equipment

A steel base for the boiler, combustion-improving masonry for a furnace, a twin door for installation of an oil burner, a joint in the cleaning hatches for a compressed air cleaning system, etc.

The LAKA PS boiler can also be ordered with flue gas equipment (a flue gas cleaning system, a flue gas fan).

If the boiler room does not have enough space, the flue gas cleaning system can be delivered as a separate unit to be installed outside the boiler room.

We recommend installing flue gas cleaning systems to all boilers with an output of 500 kW and more to protect the environment.



Left: A combustion unit with a LAKA PS boiler for pellets and wood-processing waste (e.g. dry sawdust, shavings and sander dust).

Below: A LAKA PS boiler with a walking floor unit. Fuel is transferred with bar unloaders situated on the floor of the fuel storage unit and a chain conveyor. In addition to standard woodchips such a unit can also burn low quality woodchips, shredded construction wood waste and sod peat.



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