 Boilers for Solid Fuels

DAKON



## Boilers **DOR** for solid fuels

The trade mark **DAKON** is of long-lasting tradition and it has been perceived by our customers as a byword for outstanding utility properties, high technical level, reliability, well-tried quality, and consideration for the environment. In the process of their innovation, several novelties were applied to the boilers **DAKON DOR** and **DAKON DOR D** on a basis of our leading designers experience as well as the newest science-technical knowledge. These boilers are designed for burning all common solid fuels namely brown coal, hard coal, briquettes, coke, wood as well as wood by-products.

The warm-water boilers **DAKON** of the series **DOR** are modern appliances of new design which are intended for the burning of solid fuels, in which it is feasible to burn the mentioned fuels by both burn-off and burn-through manners. Perfection of burning is guaranteed by a new furnace grate system with a new combustion chamber with on-line regulation of primary and secondary air as well as with possibility to regulate tertiary air.

### Essential parts of boilers **DAKON DOR**:

- steel boiler body whose inside

space is divided by water cavities into a fuel bunker, combustion space, and combustion products ways

- patented system of a swivelling furnace grate completed with front and tipping grate, with a furnace grating lever which is situated outside the boiler casing
- manotherm for watching the temperature as well as pressure in



a heating system

- self-operated output governor
- steel-sheet casing with inserted heat insulation
- stoking door, fire flap, chimney flap, controllable ash door for the inlet of combustion air

The internal space of the boiler is divided by water cavities into combustion product ways, and special

economizers are put into them to optimize the transfer of heat to the heating water.

Flanges for inlet and outlet of heating water are situated on the rear wall of the boiler body.

Tertiary air caps are situated in the middle part of boiler casing side walls.

### Advantages of boilers **DAKON DOR**:

- essentially larger fuel bunker with widening diameter towards the furnace
- the new furnace grate system that is suitable even for low-grade fuel during continuous cycle, with dust-free furnace grating, with on-line regulation of primary as well as secondary combustion air
- perfect insulation of the boiler by using new insulating material without asbestos
- automatic output regulation by means of self-operated governor
- modern design
- wide technical support

The reliable operation as well as the good function of the boilers are conditioned by choosing the right type of the boiler, professional installation, correct draught in a chimney, warranted fuel and last but not least correct manipulation.

## Cast iron boilers for solid fuels **DAKON FB**



Cast iron boilers **FB** are intended for burning of hard coal and briquettes (output 20, 26, 32, 36 and 42 kW) and for burning wood, wooden briquettes, pallets and wood by-products (output 17, 20, 25, 30 and 34 kW).

The boilers are put together from high quality cast iron sections. In case of the modification of the boiler for wood burning, the feeding hole is enlarged because of special cast iron section. The fuel in the boiler is burned by a burning-through way with an automatic primary combustion air regulation and hand-served second-

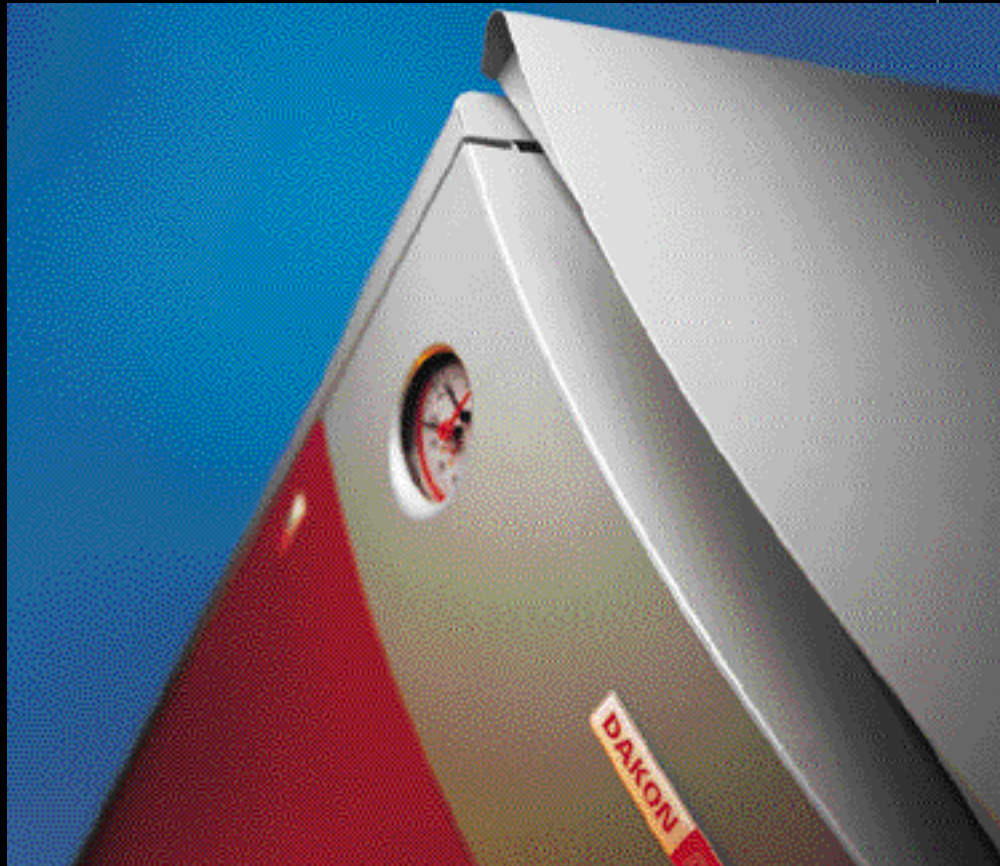
dary combustion air regulation. The grates inside the boiler are solid, water cooled. Cast iron boilers **FB** are marked by long service life even in low temperature operation. The boilers can be used for open as well as pump circulation heating systems, with open and pressure expansion vessels.

There is also a possibility to modify cast iron **FB** boilers to burn wooden pellets and liquid or gas fuels by means of connection of pellet burners or overpressure burners (for instance Bentone, Lamborghini or Weishaupt).

## Universal boilers **DOR D** for wood

The designers of our firm have developed special boilers **DOR 32 D** and **DOR 45 D** of output 28 kW and 45 kW which are designed for burning wood and waste wood. It is possible to burn other solid fuels in these boilers as well. Design of these boilers follows the successful conception of series DOR they only have a different system of the combustion chamber that is completed with fire resistant segments as well as fireclay plates serving as catalyst with the burning of wooden fuel.

The boilers do not need any electrical energy and governing these boilers is made by self-operated draught governor by means of heating water temperature adjusting. An advantage of these boilers is the possibility to burn wood up to 35 % final moisture content.



## Boilers **DAKON KP PYRO** for wood



The warm water boilers **DAKON KP PYRO** are intended for burning of dry wood and wood fragments, with maximum 20 % moisture content.

The pyrolytic burning of the wood in a lowpressure chamber with a special ceramic jet guarantees both economical and ecological operation of high efficiency of up to 85 %. The heating gas developed under high temperature in the fuel bunker goes through the ceramic jet and it is burning in the combustion chamber. During such burning a minimum ash is developed.

**Essential parts of the DAKON KP PYRO boiler:**

- oval shaped boiler body welded from a special steel plate
- ceramic jet
- combustion chamber with ceramic elements
- output air fan
- control box with a control and safety elements

**Advantages of the DAKON KP PYRO boilers:**

- large fuel bunker which guarantee long term slow combustion
- it is possible to burn billets with diameters up to 130 mm
- ceramic jet

with a hot combustion chamber guarantees a perfect burning

- simple regulation of the primary air
- taking out the ash only once in period 3 - 7 days.

Boilers **DAKON KP PYRO** are intended for forced circulation systems, opened as well as a pressure heating systems. A circulation pump is delivered on request as a special accessory.



<b>Performance data DAKON DOR and DOR D</b>										
<b>Parameters</b>	<b>Unit</b>	<b>DOR 12</b>	<b>DOR 16</b>	<b>DOR 20</b>	<b>DOR 24</b>	<b>DOR 25 MAX</b>	<b>DOR 32</b>	<b>DOR 32 D</b>	<b>DOR 45 D</b>	<b>GASOGEN 24</b>
Output	kW	5-12	6-16	6-20	7-24	8-25	10-32	9-28	18-45	10-24
Efficiency at burning determined fuel	%	78-84			74-78			75-82	76-82	76-85
Efficiency at burning substitute fuel	%	74-86			72-83			73-82		-
CH inlet,outlet flange	inch	DN 50				DN 70				G 5/4
Height	mm	920	907			1040			1045	1380
Width/total width	mm	424/600	394/600			526/700			688/770	560
Depth/total depth	mm	691/730	698	730			830		864/980	1175
Filling entry dimensions	mm	260x135	260x125	358x150			358x175		550x276	-
Hopper volume	l	26		46		61		63	115	-
Heating surface	m <sup>2</sup>	1,2	1,1	1,7	1,8	1,9	2,0		3,0	-
Weight without water	kg	158	166	200	215	232	240		320	350
Volume of water in boiler	l	47	46	56	57	63	64		73	90
Determined fuel	-	brown coal –nut sort 1						wood		DW**
Consumption of determined fuel	kg/h	3,2	4,7	6	7,6	7,9	8,9	8,4	14	7,2
Substitute fuel	-			A, B, C, D, E, F*				B, C, D, F		-
Voltage	V/Hz									230/50
Voltage on contacts for room-thermostat	V									230
CHW temperatura range	°C				45-95					60-90
Flue pipe diameter	mm				145				180	150
Minimum operating chimney draught	Pa	12	18	20	22	26	22	20	26	20

\*A: wood, B: brown coal –nut sort 2, C: brown coal –cubes, D: briquettes, E: black coal, F: coke

\*\*DW: dry wood

<b>Performance data DAKON KP PYRO and FB</b>										
<b>Parameters</b>	<b>Unit</b>	<b>KP 18</b>	<b>KP 24</b>	<b>KP 32</b>	<b>KP 38</b>	<b>FB 20</b>	<b>FB 26</b>	<b>FB 32</b>	<b>FB 36</b>	<b>FB 42</b>
Output-coal	kW	-	-	-	-	6-20	8-26	10-32	11-36	13-42
Output-wood	kW	8-21	12-25	13-33	15-40	8-17	10-20	13-25	15-30	17-34
Class of the boiler	-		2					3		
Efficiency	%		78-82					78-85		
Hopper volume	l	66	86	86	86	86	86	86	1045	1380
Volume of water in boiler	l	76	90	107	124	27	31	35	39	43
Rated chimney draught	mbar	0,2	0,23	0,25	0,28	0,20	0,22	0,23	0,25	0,28
Max. overpressure	bar		2					4		
Electrical protection	-		IP 21					-		
Electrical power consumption	W		50					-		
Length of combustion chamber	mm	450	550	500	600	290	240	240	590	690
Total height	mm	1185		1185				1035		
Width	mm	626		686				500		
Depth	mm	995	1035	985	1085	840	940	1040	1140	1240
Flue pipe height	mm	900		975				845		
Heating water output	mm	1115		1185				1033		
Heating water input	mm		65					230		
Heating water connection	-		G 6/4					G2		
Flue pipe connection	mm		150					150		
Weight	kg	270	315	340	370	210	245	280	315	350