Technical Data Sheet

Bosch Uni 7000F
Cast Iron Hot Water Boiler

BOSCH

Hot Water & Heating

Standard Engineering Specifications

The boiler(s) shall be sectional cast iron hot water boiler(s) of full three pass design, suitable for forced draft firing with (select as appropriate – natural gas, or oil), achieving efficiency [to DIN] of up to 96%.

Boiler(s) shall be fabricated from GL-180M high silicon cast iron, which makes the boiler(s) resistant to corrosion and high temperatures.

Boiler(s) shall have a central return stainless steel distribution pipe with two drilled openings per boiler section to allow proportionate water distribution over the entire length of the boiler. The central return setup will allow for the return water preheating and mixing within the boiler before it comes into contact with the heated surface of the combustion chamber ensuring even temperature distribution in the boiler, avoiding condensate forming within the combustion chamber in constant operation, and reducing thermal stress.

The Boiler(s) shall be hgh efficiency and floor standing, designed for hot water heating systems.

Access to boiler firesides for inspection and maintenance shall be through a fully insulated and jacketed door, field-adjustable for left or right hinging. The seal between the door and the boiler casing shall be a permanent dry gasket for repeated positive sealing.

The boilers shall be supplied (select as appropriate – in individual sections or as a pre-assembled boiler block). Boiler shall have no minimum flow requirement.

The boiler(s) shall have a modular control technology and provide the option of 0-10 V interface with the BMS.

2 | Dimensions and Specifications

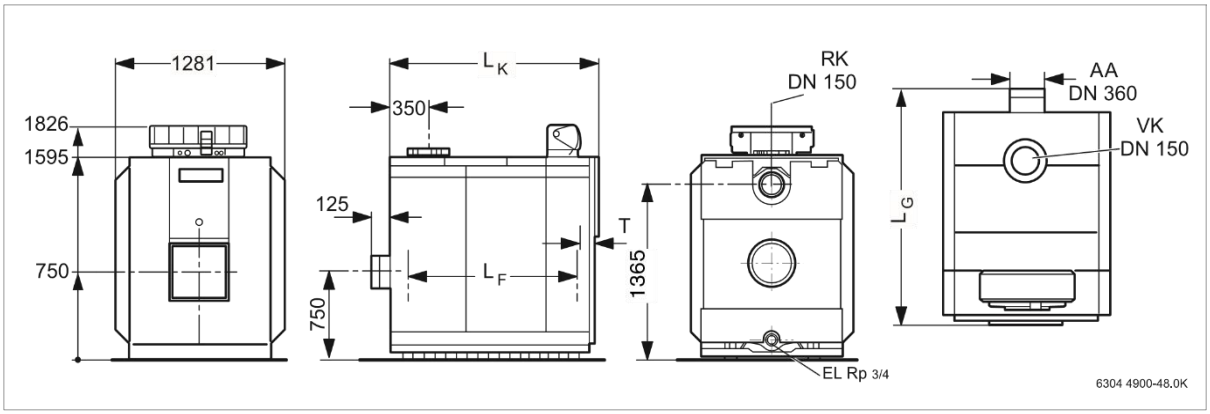

Fig.1 Connections and dimensions

Boiler size	kW	570	660	740	820	920	1020	1110	1200
Boiler sections	Qty	9	10	11	12	13	14	15	16
Rated output	kW	511 – 570	571 – 660	661 – 740	741 – 820	821 – 920	921 – 1020	1021 – 1110	1111 – 1200
Combustion output	kW	546.6 – 616.2	610.7 – 713.5	707.0 – 800.0	792.5 – 886.5	878.1 – 994.6	985.0 – 1102.0	109k2.0 – 1200.0	1188.0 – 1297.0
Overall boiler length (LG)	mm	1926	2096	2266	2436	2606	2776	2946	3116
Length of boiler block (LK)	mm	1804	1974	2144	2314	2484	2654	2824	2994
Loose boiler section transport unit	mm	Width 1096/height 1640/depth 170							
Boiler block transport unit	mm	Width 1096/height 1640/length LK							
Combustion chamber length (LF)	mm	1525	1695	1865	2035	2205	2375	2545	2715
Combustion chamber diameter	mm	680							
Burner door depth	mm	145							
Net weight[1]	kg	2505	2747	2990	3232	3475	3710	3953	4147
Water content	l	561	621	681	741	801	861	921	981
Gas content	l	922	1027	1132	1237	1342	1447	1552	1657
Pressure drop on the hot gas side	mbar	2.4	3.4	4.2	4.2	4.1	4.5	5.4	5.8
Maximum temperature of high limit safet cut-out	°C	99							
Permissible flow temperature[2]	°C	81[3]							
Permissible operating pressure	bar	6							
Maximum time constant T on thermostat	s	40							
Maximum time constant T on monitor/limiter	s	40							

Table 1. Specifications and dimensions

[1] Weight excluding packaging 4-5 % lower
[2] Safety limit (high limit safety cut-out). Maximum possible flow temperature = safety limit (STB) – 18K.
Example: Safety limit (STB) = 99˚C, max. possible flow temperature = 99 – 18 = 81˚C
[3] According to country-specific standards and regulations (for all counties)

Pressure Drop on the Water Side

The pressure drop on the water side is the pressure differential between the flow and reutn connections. It depends on the boiler size and the heating water flow rate.

Uni 7000F – From 570kW to 1200kW

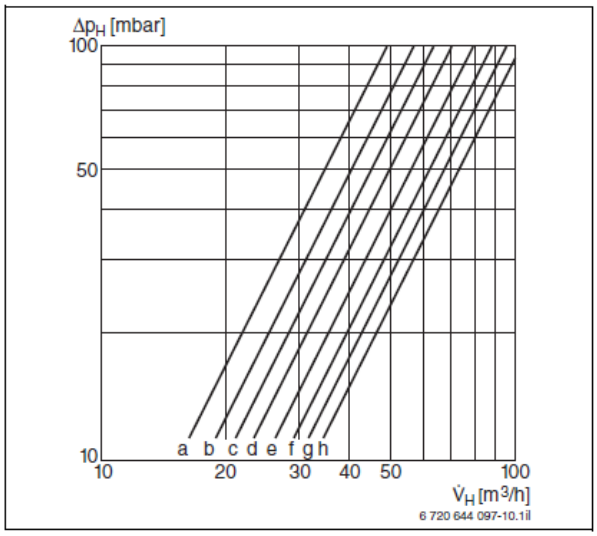

Fig.2 Pressure loss on the water side for Uni 7000F cast iron boiler units

Δp_H Pressure drop on the heating water side
$\dot{V}_H$ Heating water flow rate

a Boiler size 570kW
b Boiler size 660 kW
c Boiler size 740 kW
d Boiler size820 kW
e Boiler size 920 kW
f Boiler size 1020 kW
g Boiler size 1100 kW
h Boiler size 1200 kW

Boiler Efficiency

The boiler efficiency describes the ratio of rated output to rated heat input. It is show subject to the average boiler water temperature.

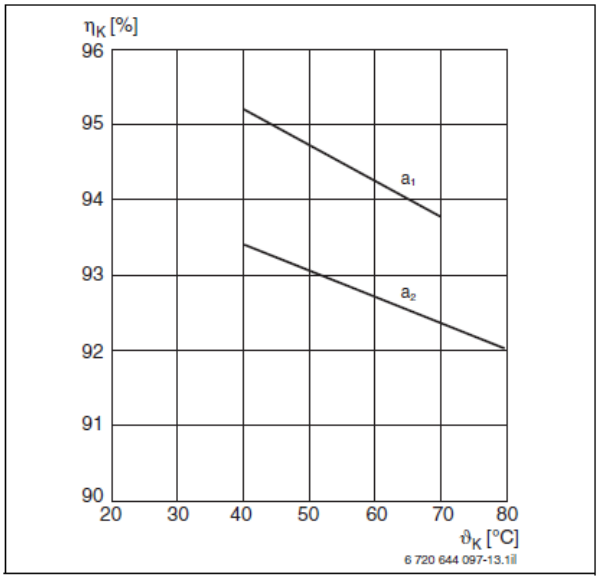

Fig.3 Boiler efficiency of the Uni 7000F cast iron boilers, subject to the average boiler water temperature

ϑK Average boiler water temperature
ηK Boiler eficiency

a_1 Boiler efficiency at stage 1 (partial load here approx 60% of rated output)

a_2 Boiler effiency at stage 2 (full load)

Weishaupt Burners and Combustion Management

The boilers are offered with exceptional quality burners from Weishaupt Germany. These fully modulating burners offer the highest levels of performance and lowest emissions for standard packaged equipment. The burner has an integrated digital Burner Management System (BMS) that elimiates cams and linkages, even on mili-fuels. This W-FM digital combustion manager was co-developed with Siemens, with many advantages including fault self-diagnosis, elimination of mechanical linkages for air/fuel ration control and infra-re or UV self checking flame sensor.

The benefits include:

- Exceptional high quality for enhanced reliability
- High efficiency combined with the lowest emissions (CO and NO_x)
- High turndown capability
- Digital Burner Management System (BMS) with clear fault messaging
- Servo motors for air & fuel for precise repeatable combustion
- Low noise operate
- Optional Dual Fuel configuration (Diesel / Heavy Oils / Biogas)

–weishaupt–

Recommended Wall Clearances

Observe the recommended wall clearances for easier boiler installation, cleaning and maintenance. Adhere to the minimum cleanences (in brackets) in all cases.

Take into account the space required for opening the burner door.

The burner door can be hung on the right or left.

The wall clearance on the hinge side must be at least the same as the amount by which the burner projects (AB). Recommended wall cleanance AB + 100mm.

Boiler size		Clearance A (mm)	
kW	Sections	recommended	minimum
570 – 820	9 – 12	2300	1400
920 – 1200	13 – 16	3000	1500

Table 2. Recommended and minimum wall clearances

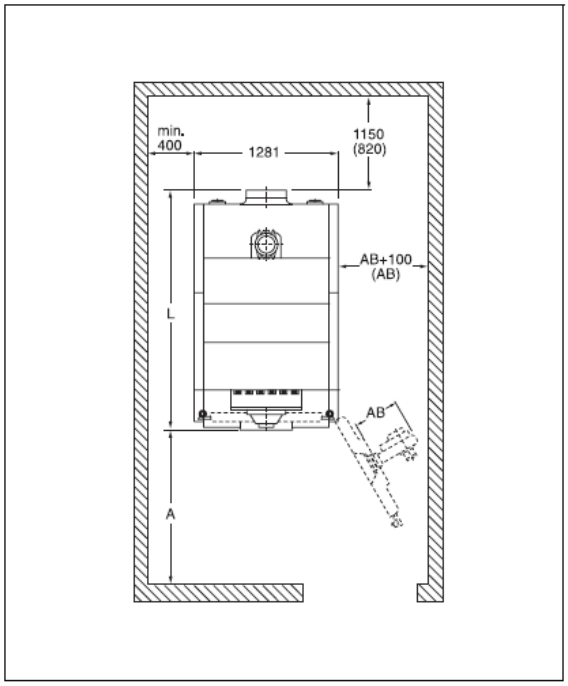

Fig.4 Boiler room with boiler (dimensions in mm)

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