

WARM-WATER AND HOT-WATER BOILERS

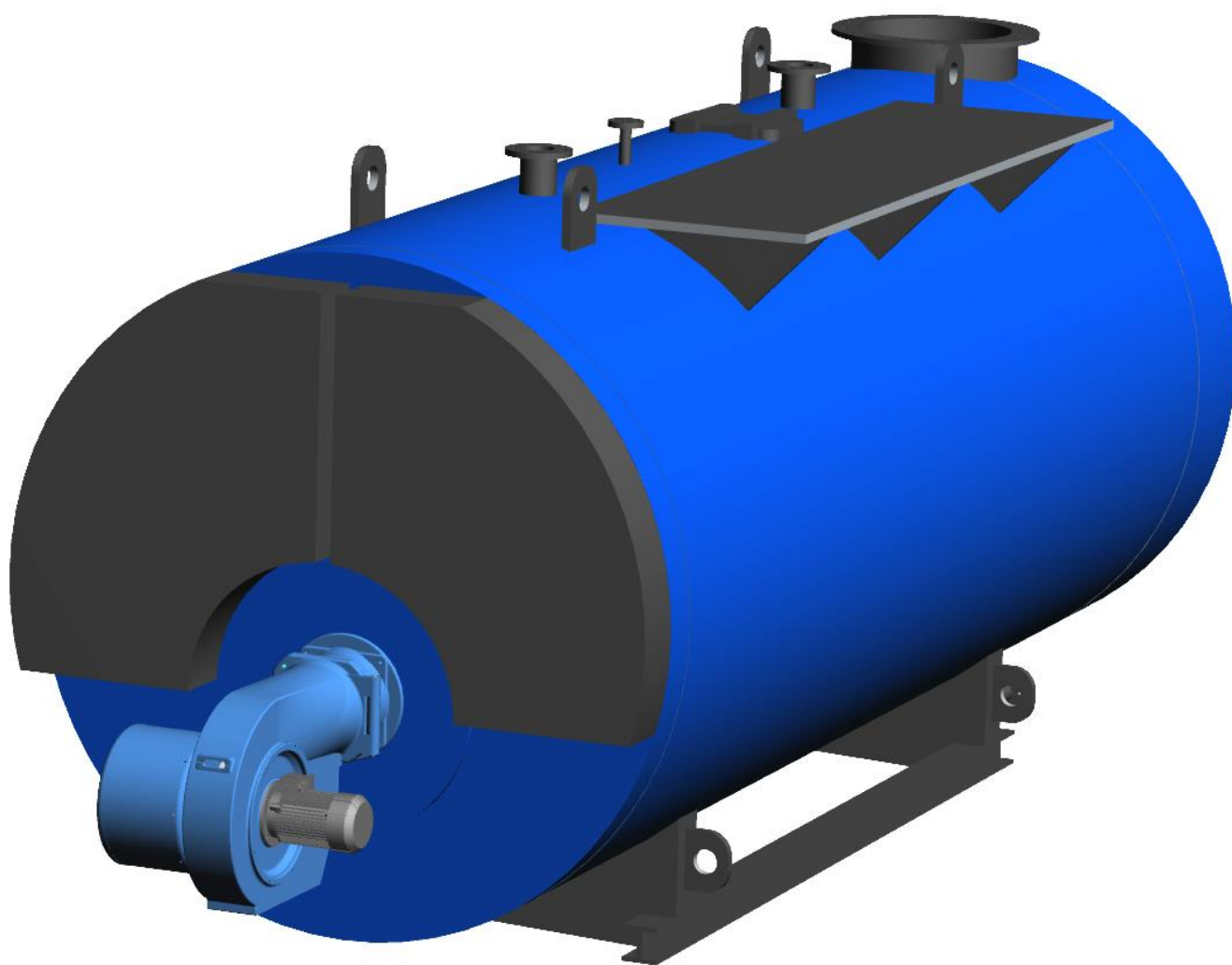
PB-V PB-H



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TPB-V, PB-H Series

Three-pass warm-water and hot-water boilers combusting gaseous and liquid fuels

In compliance with the requirements of standard ČSN EN 12 953 and directive EC 97/23

Design

The boiler body consists of a cylindrical shell, two reinforced bottoms, a symmetrically bedded boiler flue, a water cooled inflective chamber and a ring nest of stay tubes of the second and third pass. The front inflective chamber is not cooled. It is closed with a door enabling cleaning of the generating surfaces. Boiler venting is provided by a flue gas collector in the rear part of the boiler. Flue gas discharge is realized via a chimney neck with an upper or rear outlet.

Equipment

The boiler body is equipped with a relief valve and draining. The outlet and reverse necks are fitted with adaptors with lugs for installation of measurement and regulation instruments. Beneath the return water inlet neck there is an injector increasing the output temperature.

Hot-water boilers are additionally equipped with a pressure limiter. Warm-water boilers are additionally equipped with a temperature limiter, namely up to 110°C.

Manholes together with inspection holes enable inner revision of the boiler.

Efficiency

The heat contained in flue gasses leaving the boiler can be transferred to return water in the exhaust-heat exchanger. Energy gained this way increases the boiler efficiency of up to 7% reducing thus the fuel consumption.

Economizer

It supplements the basic design of the PB-V and PB-H boilers. It can be integrated into the flue gas collector or autonomously placed at the flue gas outlet.

The economizer provides a highly efficient heat transfer - the counter-flow principle. It consists of nests of finned or plain tubes in the flue gas channel with admission in the water chambers.

Flue gas exchanger connection

With regard to the boiler output and the design efficiency two basic types of the exchanger connection are distinguished.

Version with a full flow - all the return water flows through the exchanger, where it is preheated.

Version with a partial flow - only a part of the return water (10 - 30%) flows through the exchanger. Before the boiler inlet the rest of the return water mixes with heated water from the exchanger. This version is mainly used for boilers with a higher flow rate of recirculation water.

Modifications

The design of the boilers enables using an identical construction for both warm-water and hot-water boilers, namely up to pressure of 16 bars.

BASIC TECHNICAL SPECIFICATION

- Output 760 ÷ 25 000 kW
- Operation overpressure 6 ÷ 25 bar(g)
- Warm-water or hot-water version
- In compliance with technical requirements ČSN EN 12953

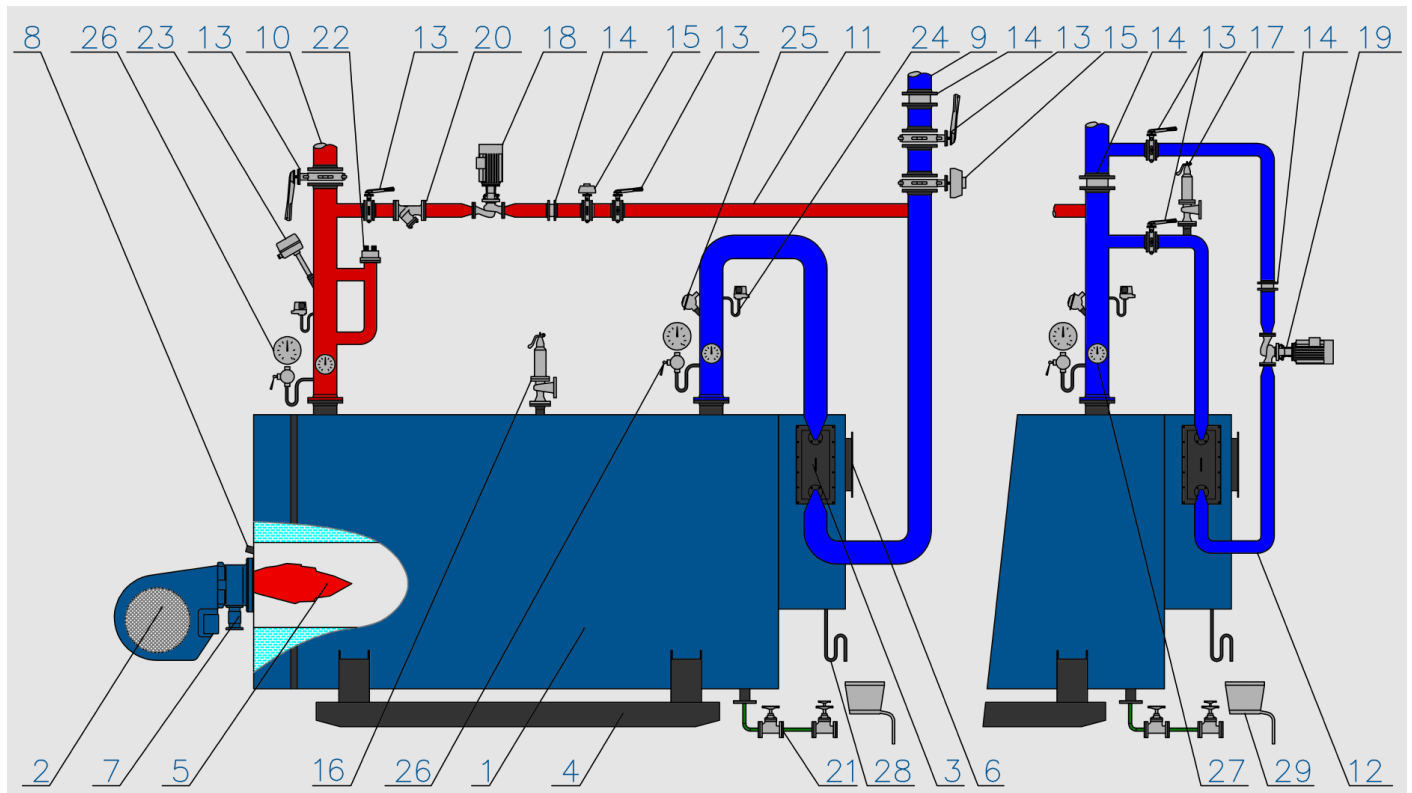
FUEL

- Natural gas
- Propane, propane-butane
- Low calorific power gasses - biogas
- Oil fuels

ADVANTAGES

- High lifetime
- Economical operation
- Combustion of different types of fuel
- Low combustion area load
- Large-capacity boiler
- Design customization
- High-quality warranty and post-warranty service
- Boilers in connection with low-emission burners meet the legal emission limits for gaseous and liquid fuels

BASIC CONNECTION DIAGRAM WITH FULL AND PARTIAL FLOW FOR BOILER TYPES PB-V AND PB-H



- | | |
|---------------------------------|-----------------------------|
| 1) Boiler | 16) Relief valve |
| 2) Burner | 17) Economizer relief valve |
| 3) Economizer | 18) Shorting pump |
| 4) Base | 19) Economizer circuit pump |
| 5) Boiler flue | 20) Filter |
| 6) Flue gas outlet | 21) Draining, blown-down |
| 7) Fuel supply | 22) Water incursion check |
| 8) Sight glass into the flue | 23) Emergency thermostat |
| 9) Return branch | 24) Manostat |
| 10) Output branch | 25) Temperature sensor |
| 11) Shorting circuit | 26) Manometer |
| 12) Partial flow via economizer | 27) Thermometer |
| 13) Shutting flap | 28) Condensing loop |
| 14) Check valve | 29) Neutralization box |
| 15) Damper | |

BASIC TECHNICAL DATA

Boiler type	Maximum output [kW]	Pressure loss flue gas side [Pa]	Indicative boiler length * (A) [mm]	Indicative boiler width (B) [mm]	Indicative boiler height (C) [mm]	Boiler weight without water [kg]	Service weight [kg]
PB-V760	760	520	3 300	1 510	1 790	1 960	3 310
PB-V1000	1 000	580	3 860	1 580	1 860	2 600	4 500
PB-V1200	1 200	560	3 960	1 850	1 860	3 250	5 600
PB-V1600	1 600	620	4 070	1 800	2 080	3 866	6 866
PB-V2000	2 000	710	4 370	1 900	2 215	4 743	8 193
PV-V2500	2 500	680	4 570	1 960	2 275	5 600	9 580
PB-V3000	3 000	750	5 010	2 100	2 500	7 100	11 620
PB-V4000	4 000	820	5 400	2 150	2 550	9 900	15 970
PB-V5000	5 000	840	6 150	2 230	2 630	11 100	24 420
PB-V6000	6 000	890	6 550	2 400	2 800	14 230	30 150
PB-V8000	8 000	910	6 950	2 570	2 975	16 426	32 006
PB-V10000	10 000	1 100	7 350	2 750	3 190	17 900	34 200
PB-V12000	12 000	1 250	7 825	2 850	3 260	23100	41 000
PB-V14000	14 000	1 500	on request				
PB-V16000	16 000	1 650	on request				
PB-V20000	20 000	1 800	on request				
PB-V25000	25 000	2 000	on request				

* without burner

** up to the pressure of up to 13 bar(g) the dimensions are identical. Dimensions for higher pressures on request.

Changes reserved!

INDICATIVE BOILER ASSEMBLY

