

Make use of the broad range of available original Protherm accessories

Room control units

Using a suitable room control unit will result in higher temperature comfort and better running economy.

Outdoor sensor

An essential component when running a boiler equipped with an equithermal control unit.

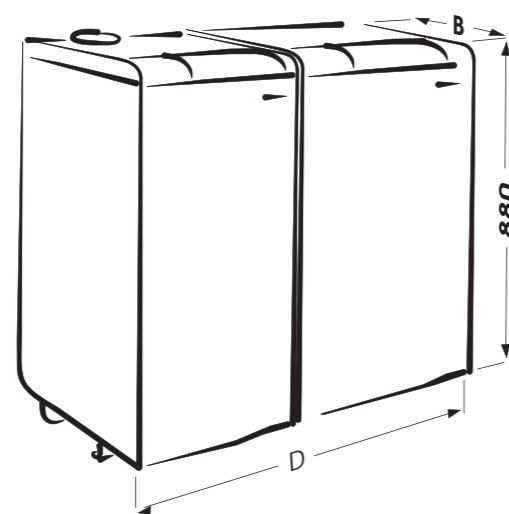
Semi-turbo – an alternative to chimney

When it is not possible to discharge combustion gasses into a chimney, these can be discharged directly through a wall opening by using an add-on PROTHERM PT fan extender – “semi-turbo”, installed on the boiler’s combustion gasses outlet.

“Boiler – tank” installation kit

Simplifies interconnecting the boiler with a tank and guarantees their faultless communication.

| Type | 20 | 30 | 40 | 50 | 60 |
|------------------|-----|-----|------|------|------|
| Dimension B (mm) | 600 | 600 | 600 | 620 | 620 |
| Dimension D (mm) | 870 | 955 | 1040 | 1125 | 1210 |



Boilers KLO / PLO in combination with a B100MS tank

| Type | Unit | 20 KLO, PLO | 30 KLO, PLO | 40 KLO, PLO | 50 KLO, PLO | 60 KLO, PLO |
|---------------------------------------|--------|-------------------------------------|-------------|-------------|-------------|-------------|
| Output Stage I/Stage II - natural gas | kW | 12 / 17 | 18 / 26 | 24,5 / 35 | 31 / 44,5 | 49,5 |
| - propane gas | kW | 11 / 16 | 17 / 24,5 | 23 / 33 | 29 / 42 | 48 |
| Control | | 2-stage | | | 1-stage | |
| Fuel | | natural gas / propane gas | | | | |
| Efficiency – natural gas/propane gas | % | 90 - 92 / 89 - 91 | | | | |
| Ignition | | KLO - electric, PLO - eternal flame | | | | |
| Power supply voltage/ frequency | V / Hz | 230 / 50 | | | | |
| Power input | W | 20 | | | | |
| Electric protection cover | IP | 40 | | | | |
| Max. operating pressure HW | kPa | 400 | | | | |
| Max. operating temperature HW | °C | 90 | | | | |
| Min. required chimney draught | Pa | 2 | | | | |
| Exhaust of combustion gases | | into chimney | | | | |
| Exhaust outlet diameter | mm | 130 | 130 | 150 | 180 | 180 |
| Optional fan extender | | PT 20 | PT 30 | PT 40 | PT 50 | - |
| Weight without water | kg | 90 | 110 | 130 | 150 | 170 |

Boilers combined with a B100MS tank

| Type | Unit | 20 | 30 | 40 | 50 | 60 |
|---|---------|-----------|----|------|----|------|
| Min./Max. DHW pressure | kPa | 100 / 600 | | | | |
| DHW temperature range | °C | 40 - 60 | | | | |
| DHW tap flow* | l / min | 16,5 | 19 | 19,5 | 20 | 20,5 |
| Time of first tank DHW (from 15°C to 60°C) | min | 20 | 15 | 14 | 13 | 12 |
| Time to heat the tank (from 30 °C to 60 °C) | min | 13 | 10 | 9 | 9 | 8 |
| B100MS tank nominal volume | l | 95 | | | | |
| Tank weight without water | kg | 46 | | | | |

*by EN 625

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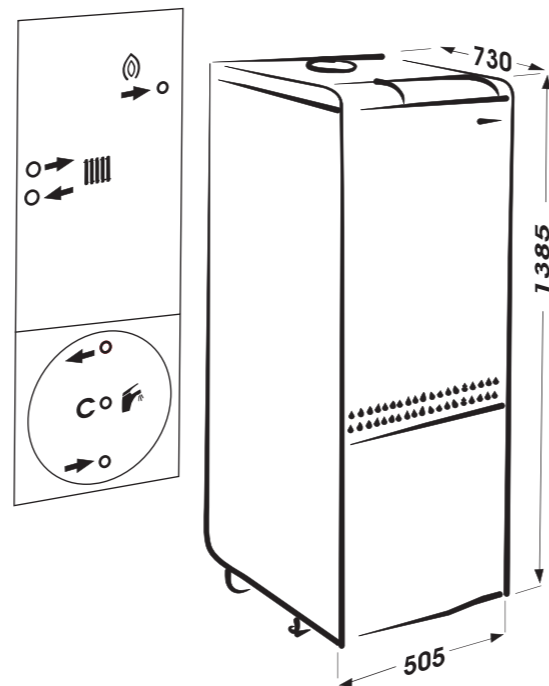
Bear

BEAR boiler features and accessories

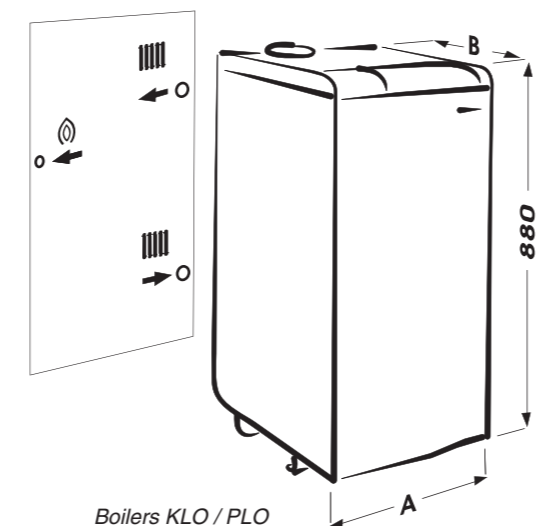
- Chimney draught control system
- Function Summer – Winter
- With PROTHERM fan extender – semi-turbo, your boiler needs no chimney

In addition KLZ boilers

- Integral microprocessor
- Continuous boiler output control
- Heating water pump over-run
- Domestic hot water pump over-run
- Anti-cycling restriction in heating mode
- Boiler antifreeze protection
- Tank antifreeze protection
- Magnesium anode protecting the tank against corrosion
- Pump anti-seize function
- Protection of the cast iron block against condensation
- Display of heating water temperature and DHW temperature and of basic self-diagnostic codes



Boilers KLZ
C – DHW circulation outlet connection



Boilers KLO / PLO

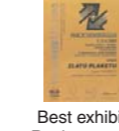
| Type | 20 | 30 | 40 | 50 | 60 |
|------------------|-----|-----|-----|-----|-----|
| Dimension A (mm) | 335 | 420 | 505 | 590 | 675 |
| Dimension B (mm) | 600 | 600 | 600 | 620 | 620 |

| Type | Unit | 20 KLZ | 30 KLZ | 40 KLZ |
|--|--------|---------------------------|-----------|-----------|
| Output - natural gas | kW | 12 - 17 | 18 - 26 | 24,5 - 35 |
| - propane gas | kW | 11 - 16 | 17 - 24,5 | 23 - 33 |
| Output control | | continuous | | |
| Fuel | | natural gas / propane gas | | |
| Efficiency - natural gas / propane gas | % | 90 - 92 / 89 - 91 | | |
| Ignition | | elektric | | |
| Power supply – voltage / frequency | V / Hz | 230 / 50 | | |
| Power supply - input | W | 130 | | |
| Electric protection | IP | 40 | | |
| Max. HW operating pressure | kPa | 300 | | |
| HW operating temperature | °C | 85 | | |
| HW expansion vessel volume | l | 10 | | |
| Max. / Min. DHW pressure | kPa | 600 / 100 | | |
| DHW operating temperature | °C | 40 - 70 | | |
| DHW tap flow (by EN 625) | l/min | 12,4 | 14,0 | 15,3 |
| Min. required chimney draught | Pa | 2 | | |
| Exhaust of combustion gases | | into chimney | | |
| Exhaust outlet diameter | mm | 130 | 130 | 150 |
| Type of fan extender | | PT 20 | PT 30 | PT 40 |
| Weight without water | kg | 145 | 160 | 185 |

HW - heating water / DHW - domestic hot water

The manufacturer reserves the right to make technical changes

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Your partner:

protherm



Bear

series of floor-standing cast iron boilers



12 / 17 kW 31 / 44,5 kW
18 / 26 kW 49,5 kW
24,5 / 35 kW

- Simple controls
- Easy hot water preparation
- Maximum safety
- Minimal heat losses
- Simple maintenance

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BEAR - cast iron boilers



The BEAR series of cast iron boilers are the best solution when modernising your existing heating system. They can be also connected to older systems with open expansion vessel, or as an add-on to a heating system using as a source of heat a solid fuel fired boiler. By its massive construction the boiler guarantees a long service life and by its simple controls a problem-free operation.

Ingenious design – high efficiency

- The boiler's cast iron body comprises of individual links which are designed to pass with maximum possible efficiency the heat ac-



Boiler's cast iron body

- quired from the fuel to the heating water.
- The burner plate is fitted with between two and five stainless steel tubes which by their ingenious design contribute towards the boiler's excellent parameters. In conjunction with specially designed jets, they evenly mix gas with air, resulting in very high efficiency of the boiler and very low content of harmful substances in the combustion gases.
- The boiler's combustion process meets the most strict European standards.

Control panel

- Practical arrangement of elements on the control panel contributes towards simplicity of controlling the boiler.

Safety – an important boiler parameter

- The ingenious draught breaker design optimises the combustion conditions and boosts the chimney's correct draught. In the event that non-standard draught conditions occur (blocked chimney, unusual weather conditions, atmospheric effects), the chimney draught control system will shut the boiler down, preventing the building's occupants and people in the surrounding areas from being endangered.

BEAR KLZ – the smartest of the bears

The Series KLZ boilers are equipped with a state-of-the-arts control system used in wall-mounted boilers, such as integral microprocessor, continuous power output modulation and equithermal control. This Series of boilers can be recommended also for new and reconstructed buildings.

Integral microprocessor

- controls not only the entire running of the boiler, but also takes care of equithermal temperature control and self-diagnostics. Any fault status (e.g. gas supply failure) is displayed on the control panel screen.
- It smoothly controls the boiler's output by continuously comparing the actually achieved values with the values required (set) by the user. This type of control is proportionate, i.e. when the difference between the compared values is greater, the boiler runs with higher output and vice versa.

Control panel

- Under an easy-to-open swing plastic cover is a screen on which displayed are heating water temperatures or hot water temperatures and self-diagnostic system codes. Setting of all parameters is very simple, all is done with two push-buttons.

Boiler accessories

- Two pumps (for heating and for hot water), safety valves and a 10-litre heating circuit expansion vessel allow the boiler to be easily connected to the heating system without any additional expenses.

Enough hot water

- The built-in 90-litre tank guarantees availability of sufficient quantity of hot water. Its heating has priority before heating water and is always performed using an output which

is necessary for task, independent from the boiler's output setting. The boiler's efficient heat exchanger guarantees that the tank is heated quickly. The tank has a connector for hot water circulation.

Boiler control

- The boiler is equipped with an equithermal control unit and a time switch. The time switch, which is an integral part of the control panel, allows the user to preset time periods during the day when temperature comfort is required and time periods of lower temperature (at night, at the time the family leaves home for work or school, etc.).

Equithermal control

- This is a way of controlling the boiler, whereby the heating water temperature is controlled as a function of outdoor temperature. An outdoor sensor continuously monitors weather changes and the control unit adjusts the heating water temperature according to preset functions (and thus also the indoor temperature), ensuring a perfect temperature comfort at any point in time. When combined with a room control unit or with thermostatic heating radiator valves, your home will be heated with a reliable, economical and pleasant system, providing the right temperature comfort for its inhabitants.
- To simplify the unit's controls, several heating curves have been predefined and stored in the unit's memory, according to which a specific heating water temperature is as-



signed to each outdoor temperature.

- Part of the control unit is a time switch on which the user can set the breakpoints between day and night boiler operating modes.
- Equithermal control is part of the boiler's control system and therefore there is not a need for additional expenses to buy a special control unit.

Benefits of equithermal control

- The heating water temperature is instantaneously adjusted to the outdoor temperature.
- This will be particularly appreciated in transition periods between seasons, when this control method is more flexible in comparison with the use of a classic room control unit.
- When weather conditions change rapidly, an equithermally controlled boiler reacts faster than a boiler controlled by a room thermostat alone.

BEAR KLO, PLO – the only bear which does not hibernate in winter

The Series KLO and PLO boilers rely on the simple and proven system of thermostatic control. They use a two-stage output control and have a provision for connecting the boiler to a tank, a combustion gases flap and a circulation pump. When combined with a 100-litre tank, they provide enough hot water at any time and in addition are an elegant accessory in any household.

Well-arranged control panel

- Practically arranged elements on the control panel increase the safety of using the boiler. The main switch together with elements used for visual inspection of the running boiler are situated under an easy-to-open swing plastic cover.
- Those elements, which are used for setting the boiler's parameters, are protected by the front boiler cover. This will prevent accidental or unauthorised manipulation with these controls.
- To increase the heating comfort, the boiler can be controlled by a programmable room control unit.

For your satisfaction

- The boiler running mode can be easily selected using the toggle switch on the boiler's control panel. When set to the summer mode, the boiler only heats hot

water, in the winter mode it also heats. In periods between seasons the boiler can be set to a lower output.

- An optional boiler accessory is a pump thermostat which switches the circulation pump (not a standard boiler accessory) on only after the heating water inside the boiler has been sufficiently heated. The significant shortening of water heating time results in considerable saving of fuel and protecting the boiler's cast iron block against condensation.

Two-stage control – fuel saving

- The KLO and PLO boilers are equipped with proven and reliable two-stage gas valves.
- During the main heating season the boiler runs on full output, while during transition seasons, when the outdoor temperature remains above freezing point, the



boiler can be switched to a reduced output by the toggle switch on the control panel.

Easy way to heat hot water

- The BEAR boiler can work in combination with a hot water tank.
- PROTHERM offers a suitable installation kit which will guarantee faultless communication between the boiler and the tank.
- The installation kit is universal, used to link the BEAR boilers of all sizes with a B 100MS tank, located either on the right hand side or on left hand side of the boiler. The kit contains all necessary components including interconnecting hoses.



Configuration - boiler 30 KLO with the B100MS tank on the left hand side

The development and manufacture of PROTHERM boilers is certified by the ISO 9001 international quality standards.