

Product description and function

Overview Wilo-Para (Fig. 1)

- 1 Pump housing with screwed connections
- 2 Glandless motor
- 3 Condensate drain openings (4x around circumference)
- 4 Housing screws
- 5 Control module
- 6 Rating plate
- 7 Operating button for pump adjustment
- 8 Run signal/fault signal LED
- 9 Display of selected control mode
- 10 Display of selected characteristic curve (I, II, III)
- 11 PWM or LIN signal cable connection
- 12 Mains connection: 3-pin plug connection

Function High-efficiency circulator for hot-water heating systems with integrated differential pressure control. Control mode and delivery head (differential pressure) are adjustable. The differential pressure is controlled via the pump speed.

Type key

Example: Wilo-Para 15-130/7-50/SC-12/I

Para	High-efficiency circulator
15	15 = screwed connection DN 15 (Rp ½) DN 25 (Rp 1), DN 30 (Rp 1¼)
130	Port-to-port length: 130 mm or 180 mm
7	7 = maximum delivery head in m at Q = 0 m³/h
50	50 = max. power consumption in watts
SC	SC = Self-Control iPWM1 = external control via iPWM1 signal iPWM2 = external control via iPWM2 signal
12	Position of the control module at 12 o'clock
I	Individual packaging

Technical data

Connection voltage	1 ~ 230 V +10 %/-15 %, 50/60 Hz
Protection class	IPX4D
Energy efficiency index EEI	See rating plate (6)
Fluid temperatures at max. ambient temperature +40 °C	-20 °C to +95 °C (Heating/GT) -10 °C to +110 °C (ST)
Ambient temperature +25 °C	0 °C to +70 °C
Max. operating pressure	10 bar (1000 kPa)
Min. inlet pressure at +95 °C/+110 °C	0.5 bar / 1.0 bar (50 kPa / 100 kPa)

Indicator lights (LEDs)



- Signal display
 - LED is lit up in green in normal operation
 - LED lights up/flashes in case of a fault (see chapter 10.1)



- Display of selected control mode
Δp-v, Δp-c and constant speed

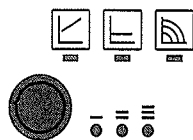


- Display of selected pump curve (I, II, III) within the control mode



- LED indicator combinations during the pump venting function, manual restart and key lock

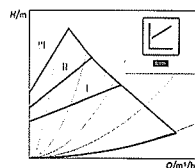
Operating button



- Press
- Select control mode
 - Select pump curve (I, II, III) within the control mode
- Press and hold
- Activate the pump venting function (press for 3 seconds)
 - Activate manual restart (press for 5 seconds)
 - Lock/unlock button (press for 8 seconds)

Control modes and functions

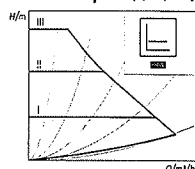
Variable differential pressure Δp-v (I, II, III)



Recommended for two-pipe heating systems with radiators to reduce the flow noise at thermostatic valves.

The pump reduces the delivery head to half in the case of decreasing volume flow in the pipe network. Electrical energy saving by adjusting the delivery head to the volume flow requirement and lower flow rates. There are three pre-defined pump curves (I, II, III) to choose from.

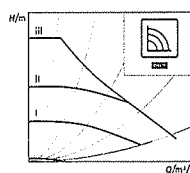
Constant differential pressure Δp-c (I, II, III)



Recommended for underfloor heating for large-sized pipes or all applications without a variable pipe network curve (e.g. storage charge pumps), as well as single-pipe heating systems with radiators.

The control keeps the set delivery head constant irrespective of the pumped volume flow. There are three pre-defined pump curves (I, II, III) to choose from.

Constant speed (I, II, III)



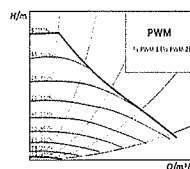
Recommended for systems with fixed system resistance requiring a constant volume flow.

The pump runs in three prescribed fixed speed stages (I, II, III).



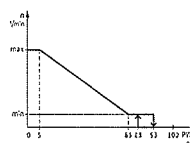
NOTICE
Factory setting:
Constant speed, pump curve III

External control via iPWM signal



The required setpoint/actual value comparison for control is performed by an external controller. A PWM signal (pulse-width modulation) is fed as a correcting variable to the pump.

The PWM signal generator gives the pump a periodic sequence of impulses (the duty cycle) in accordance with DIN IEC 60469-1.



iPWM 1 mode (heating application):

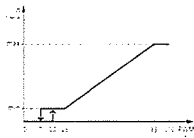
In iPWM 1 mode, the pump speed is controlled according to the PWM input signal.

Behaviour in the event of a cable break:

If the signal cable is disconnected from the pump, e.g. due to a cable break, the pump accelerates to maximum speed.

PWM signal input [%]

- < 5: Pump runs at maximum speed
- 5-85: The speed of the pump decreases linearly from n_{max} to n_{min}
- 85-93: Pump runs at minimum speed (operation)
- 85-88: Pump runs at minimum speed (starting)
- 93-100: Pump stops (standby)



iPWM 2 mode (solar application):

In iPWM 2 mode, the pump speed is controlled according to the PWM input signal.

Behaviour in the event of a cable break:

If the signal cable is disconnected from the pump, e.g. due to a cable break, the pump stops.

PWM signal input [%]

- 0–7: Pump stops (standby)
- 7–15: Pump runs at minimum speed (operation)
- 12–15: Pump runs at minimum speed (starting)
- 15–95: The speed of the pump increases linearly from n_{\min} to n_{\max}
- > 95: Pump runs at maximum speed

Venting The **pump venting function** is activated by pressing and holding the operating button (for 3 seconds) and automatically vents the pump. However, this function does not vent the heating system.

Manual restart A **manual restart** is initiated by pressing and holding the operating button (for 5 seconds) and unblocks the pump as required (e.g. after a long idle time in the summer).

Lock/unlock the button The **key lock** is activated by pressing and holding the operating button (for 8 seconds) and locks the pump's current settings. It protects against undesired or unauthorised adjustment of the pump.

Activating factory setting The **factory setting** is activated by pressing and holding the operating button whilst switching off the pump. When the pump is switched on again, the pump runs using the factory settings (delivery condition).

Intended use

High-efficiency circulators in the Wilo-Para series are exclusively intended for circulating fluids in hot-water heating systems and similar systems with constantly changing volume flows.

Permitted fluids:

- Heating water according to VDI 2035 (CH: SWKI BT 102-01).
- Water-glycol mixtures* with a maximum of 50% glycol

* Glycol has a higher viscosity than water. If admixture of glycol are used, the pumping data of the pump must be corrected to match the mixing ratio.



NOTICE

Only introduce ready-to-use mixtures to the system. The pump must not be used to mix fluid in the system.

Intended use includes observing these instructions and the specifications and markings on the pump.

Misuse Any use beyond the intended use is considered misuse and will void any warranty claims.



WARNING!

Danger of injury or material damage from improper use!

- Never use non-specified fluids.
- Never allow unauthorised persons to carry out work.
- Never operate the pump beyond the specified limits of use.
- Never carry out unauthorised conversions.
- Use authorised accessories only.
- Never operate with phase angle control.

Transportation and storage

Scope of delivery

- High-efficiency circulator
- Installation and operating instructions

Accessories Accessories must be ordered separately. For a detailed list and description, consult the catalogue. The following accessories are available:

- Mains connection cable
- iPWM/LIN signal cable
- Thermal insulation shell
- Cooling shell

Transport inspection Immediately check for transportation damage and completeness upon delivery, and lodge any complaints immediately.

Transport and storage conditions Protect against moisture, frost and mechanical loads. Permissible temperature range: -40 °C to +85 °C (for max. 3 months)



WARNING!

Risk of scalding from hot fluids!

Hot fluids can cause scalding. Before installing or removing the pump, or loosening the housing screws (4), note the following:

- Allow the heating system to cool down completely
- Close shut-off devices or drain the heating system

Preparation **Installation within a building:**

- Install the pump in a dry, well-ventilated, frost-free room.

Installation outside a building (outdoor installation):

- Install the pump in a chamber with cover or in a cabinet/housing as weather protection.
- Avoid exposure of the pump to direct sunlight.
- Protect the pump against rain.
- Keep the motor and electronics continually ventilated to avoid overheating.
- The permitted fluid temperatures and ambient temperatures should not be exceeded or undershot.
- Choose an installation point that is as easily accessible as possible.
- Observe the pump's permitted installation position (Fig. 2).

CAUTION!

An incorrect installation position may damage the pump.

- Select the installation point in line with the permissible installation position (Fig. 2).
- The motor must always be installed horizontally.
- The electrical connection must never face upward.
- Install shut-off devices upstream and downstream of the pump to facilitate pump replacement.

Installation and electrical connection

Installation

May only be installed by qualified technicians.



WARNING!

Risk of burns from hot surfaces!

Pump housing (1) and glandless motor (2) may become hot and cause burns if touched.

- During operation, only touch the control module (5).
- Allow the pump to cool down before commencing any work.