wilo Yonos PICO Standard High Efficiency Pump Instruction Manual

wilo

Pioneering for You
Wilo-Yonos PICO

ErP READY — APPLIES TO EUROPEAN DIRECTIVE FOR ENERGY RELATED PRODUCTS

Installation and operating instructions

Contents

onos PICO Standard High Efficiency Pump

Fig. 1:

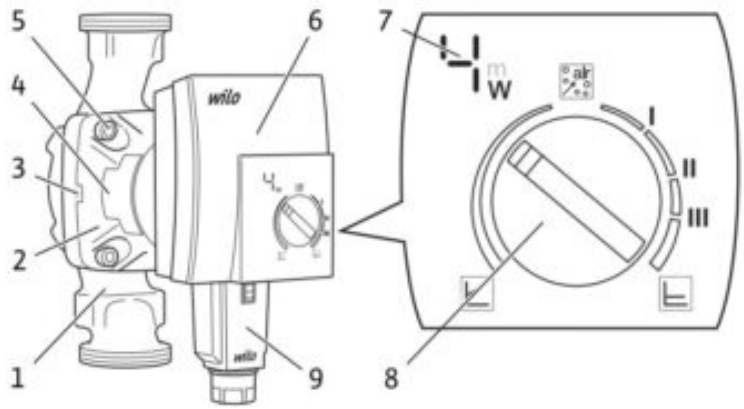


Fig. 2:

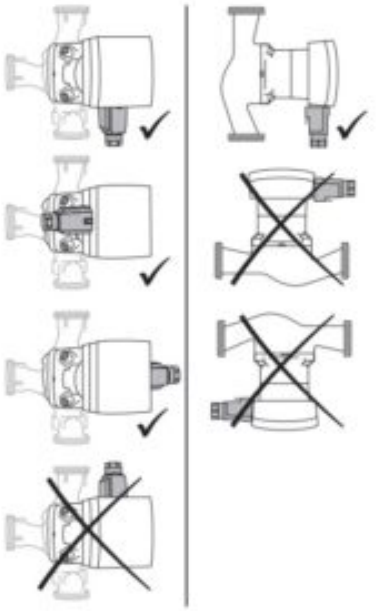


Fig. 3a:

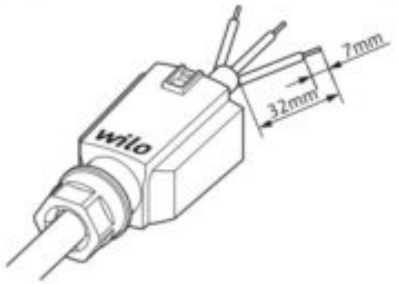


Fig. 3b:

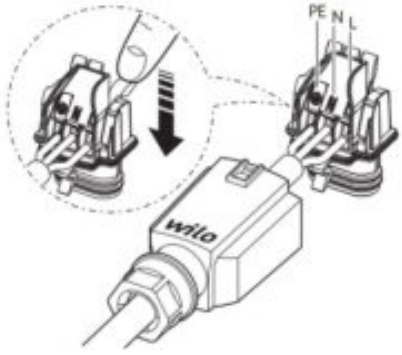


Fig. 3c:

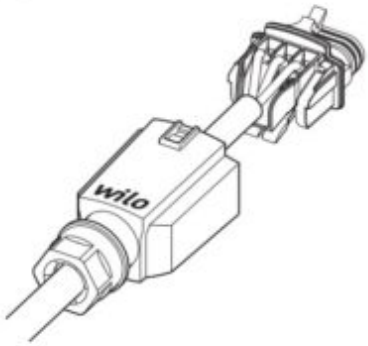


Fig. 3d:

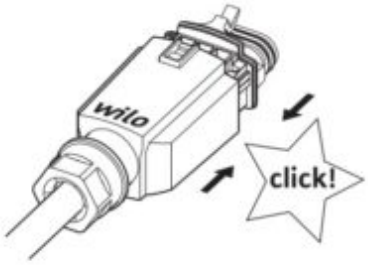
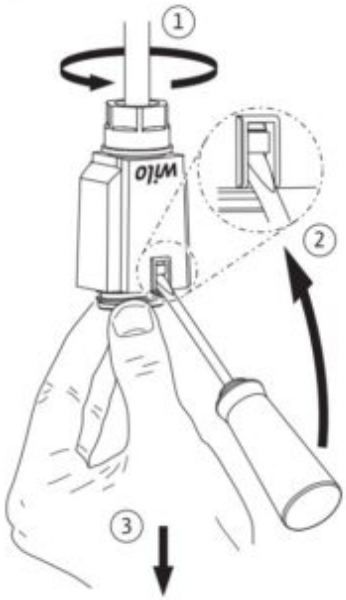


Fig. 3e:

Fig. 4:



Information about these instructions
These instructions facilitate safe and efficient pump operation. Read these instructions before commencing work and keep them in an accessible place at all times. For safe pump operation, observe these instructions and the data and markings on the pump. Observe local regulations where the pump is installed.

Highlighting instructions

Safety instructions used in this manual:

Danger: Indicates a danger to life due to electrical current.

Warning: Indicates a possible danger to life or risk of injury.

Caution: Indicates a possibility of property damage.
Tips and information:

Note: Highlights tips and information.

Overview

Product Wilo-Yonos PICO (Fig. 1)

1. Pump housing with screwed connections
2. Glandless pump motor
3. Condensate drain openings (4x around circumference)
4. Rating plate
5. Housing screws
6. Control module
7. LED display
8. Red operating knob
9. Wilo-Connector, electrical mains connection

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

Type key

Example: Wilo-Yonos PICO 25/1-6

Yonos PICO	High-efficiency circulation pump
25	Screwed connection DN 25 (Rp 1)
6-Jan	1 = Minimum delivery head in m (adjustable down to 0.5 m) 6 = Maximum delivery head in m at Q = 0 m³/h

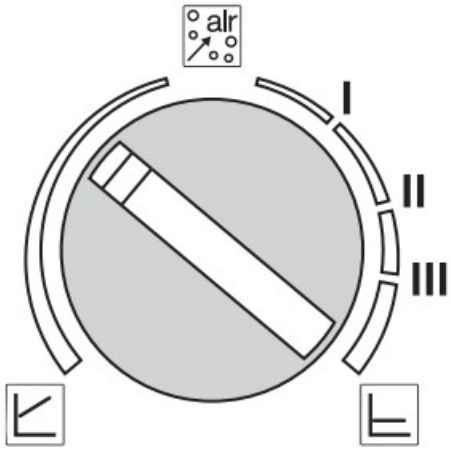
Technical data

Connection voltage	1 ~ 230 V ± 10%, 50/60 Hz
Protection class IP	See rating plate (4)
Energy efficiency index EEI	See rating plate (4)
Fluid temperatures at max. ambient temperature +40 °C	—10 °C to +95 °C
Fluid temperatures at max. ambient temperature +25 °C	—10 °C to +110 °C
Permitted ambient temperature	—10 °C to +40 °C
Max. operating pressure	6 bar (600 kPa)
Minimum inlet pressure at +95 °C/ +110 °C	0.3 bar/1.0 bar (30 kPa/100 kPa)

LED display

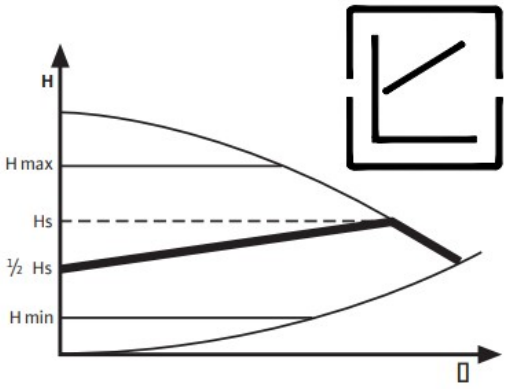
	• Display of the current power consumption in W.
	• Display of the differential pressure setpoint H (delivery head) in m.
	• Display of fault signals.

Red operating knob



- Select control mode.
- Set differential pressure setpoint H.
- Activate the venting function.

Control modes

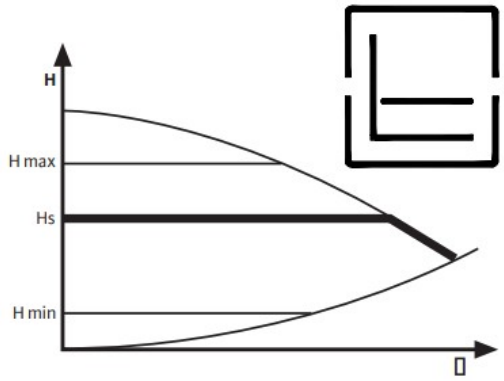


Variable differential pressure (Δp-v):
The differential pressure setpoint H is increased linearly from ½ H to H across the volume flow range.

Note: Factory setting: Δp-v, ½ H
The differential pressure generated by the pump is adjusted to the corresponding differential pressure setpoint.

Note: Recommended for heating systems with radiators to reduce the flow noises at the thermostatic valves.

Constant differential pressure (Δp-c):
The differential pressure is kept constant at the differential pressure setpoint H.



Note: Recommended for underfloor heating, large-sized pipes as well as all applications without changeable pipe system curve (e.g. storage charge pumps).

Venting

The venting function vents the pump automatically. The heating system is not vented.

Safety

2.1 Intended use

The high-efficiency circulation pumps in the WiloYonos PICO series are exclusively designed for circulating fluids in hot water heating systems and similar systems with constantly changing volume flows.
Permitted fluids:

- Heating water in accordance with VDI 2035.
- Water-glycol mixtures* with a maximum of 50% glycol.

*Glycol has a higher viscosity than water. If glycol is added, the delivery data of the pump must be corrected to suit the mixing ratio.
Intended use includes observing these instructions and the data and markings on the pump.

Misuse
Any use beyond the intended use is considered misuse and will result in the loss of all liability claims.

Warning: Misuse of the pump can lead to dangerous situations and property damage.

- Never use non-specified fluids.
- Never allow unauthorised persons to perform work.
- Never operate the pump outside of the specified limits of use.
- Never carry out unauthorised conversions.

- Use authorised accessories only.
- Never operate with phase angle control.

2.2 Operator responsibilities

- Keep children and people with limited physical, sensory or mental capacity, or insufficient experience, away from the pump.
- Have all work carried out by qualified personnel only.
- Ensure on-site contact protection from hot components and electrical hazards.
- Have defective seals and connecting cables replaced.

2.3 Safety instructions

Electrical current

 **Danger:** Electrocution hazard! Immediate danger to life if live components are touched.

- Only allow qualified electricians to work on the electrical system.
- Before commencing work, switch off the power supply and secure it against being switched on again.
- Never open the control module (6) and never remove control elements.
- Have defective connecting cables replaced immediately by a qualified electrician.

Magnetic field

 **Warning:** Risk of fatal injury from magnetic field!
Highly magnetic components are fitted inside the pump; they can cause fatal injury to people with medical implants if the pump is dismantled.

- Never remove the rotor.

Hot components

 **Warning:** Risk of burns!
Pump housing (1) and glandless pump motor (2) may become hot and result in burns on contact.

- Only touch the control module (6) during operation.
- Allow the pump to cool down before commencing any work.

Hot fluids

 **Warning:** Risk of scalding!
Hot fluids can result in scalding. Before installing or removing the pump, or undoing the housing screws (5), note the following:

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

Damage to electronic components

⚠ **Caution:** Damage to electronic components!
Pulsed mains voltage can lead to damage to electronic components.

- Only operate the pump with sinusoidal AC voltage as stated on the rating plate (4).
- Never operate the pump with phase angle control.
- When switching the pump on or off using an external control unit, deactivate any voltage pulsing (e.g. phase angle control).
- For applications where it is not clear whether the pump is operated with pulsed voltage, get the control/system manufacturer to confirm that the pump is operated with sinusoidal AC voltage.
- Switching the pump on/off via triacs/solid-state relays must be examined on a case-by-case basis.

Delivery and storage

Scope of delivery

- High-efficiency circulation pump with 2 seals
- Wilo-Connector
- Installation and operating instructions

Transport inspection
Inspect for transportation damage and check completeness immediately after delivery, and claim immediately if necessary.

Transport and storage conditions
Protect from moisture, frost and mechanical loads.
Permissible temperature range: –10 °C to +50 °C

Installation

4.1 Installation
May only be installed by qualified technicians.

Preparation

- Choose an installation point that is as easily accessible as possible.
- Observe the pump’s allowable installation position (Fig. 2), rotate the motor head (2+6) if necessary.

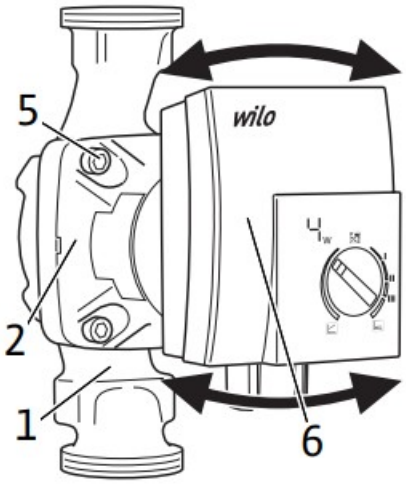
⚠ **Caution:** Damage to the pump!
An incorrect installation position may damage the pump.

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

⚠ **Caution:** Damage to the pump!
Leaking water may damage the control module.

- Align the upper shut-off device such that leaking water cannot drip onto the control module (6).
- Align the upper shut-off device laterally.
- When installing in the feed of open systems, the safety supply must branch off upstream of the pump (EN 12828).
- Complete all welding and brazing tasks.
- Flush the pipe system.

Rotating the motor head
Rotate the motor head (2+6) before installing and connecting the pump.

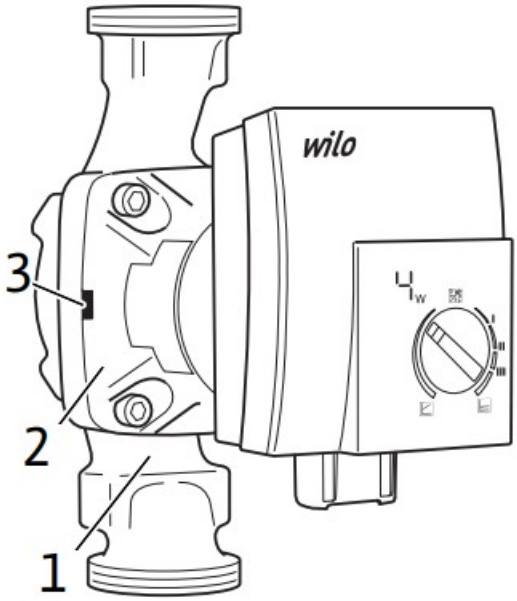


- Hold the motor head (2+6) and unscrew the 4 housing screws (5).

⚠ **Caution:** Damage to the inner seal!
Damage to the inner seal leads to leaks.

- Carefully rotate the motor head (2+6) without removing it from the pump housing (1).
- Carefully rotate the motor head (2+6).
- Observe the allowable installation position (Fig. 2) and the direction arrow on the pump housing (1).
- Tighten the 4 housing screws (5).

Installing the pump



Observe the following points when installing the pump:

- Note the direction arrow on the pump housing (1).
- Install tension-free with horizontal glandless pump motor (2).
- Place seals in the screwed connections.
- Screw on threaded pipe unions.
- Tightly screw the pump and the pipes together.
- If necessary, thermally insulate the pump housing (1) with insulating shell (accessory).

⚠ **Caution:** Damage to the pump!
Insufficient heat dissipation and condensation water may damage the control module and the glandless pump motor.

- Do not thermally insulate the glandless pump motor (2).
- Ensure all condensate drain openings (3) are kept free.

4.2 Making the electrical connection
The electrical connection may only be made by a qualified electrician.

Preparation

- The current type and voltage must agree with the specifications on the rating plate (4).
- Maximum back-up fuse: 10 A, slow-blow.
- Only operate the pump with sinusoidal AC voltage.
- When switching the pump externally, deactivate any voltage pulsing (e.g. phase angle control).
- Switching the pump via triacs/solid-state relays must be examined on a case-by-case basis.
- Note switching frequency:
  – Switch-on/off procedures via mains voltage ≤ 100/ 24 h.
  – ≤ 20/h for a switching frequency of 1 min. between switching on/off via mains voltage.
- The electrical connection must be made via a fixed connecting cable equipped with a connector device or an all-pole switch with a contact opening width of at least 3 mm (VDE 0700/Part 1).

- Use a connecting cable with a sufficient outer diameter (e.g. H05VV-F3G1.5) to protect against leaking water and to ensure strain relief at the threaded cable connection.
- Use a heat-resistant connecting cable where fluid temperatures exceed 90 °C.
- Ensure that the connecting cable does not make contact with either the pipes or the pump.

Fitting the Wilo-Connector

- Disconnect the connecting cable from the power supply.
- Observe the terminal allocations (PE, N, L).
- Connect and fit the Wilo-Connector (Figs. 3a to 3e).

Connecting the pump

- Earth the pump.
- Connect the Wilo-Connector (9) to the control module (6) until it snaps into place.

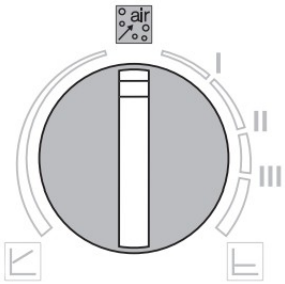
Removing the Wilo-Connector

- Disconnect the connecting cable from the power supply.
- Remove the Wilo-Connector using a suitable screwdriver (Fig. 4).

Commissioning

May only be commissioned by qualified technicians.

5.1 Venting

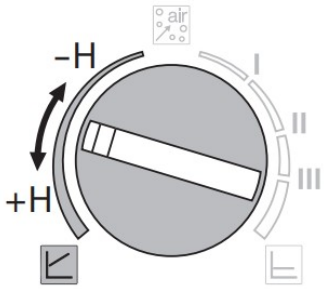


- Fill and vent the system correctly.
  ↪ The pump vents automatically when first started. If the pump does not vent automatically:
- Select the venting function.
  ↪ Venting function starts after 5 seconds, duration 10 minutes.
  ↪ LED display shows bars running from bottom to top.
- Rotate the red operating knob to abort.

After venting

Note! Set the control mode and the delivery head after venting.

5.2 Setting the control mode and the delivery head

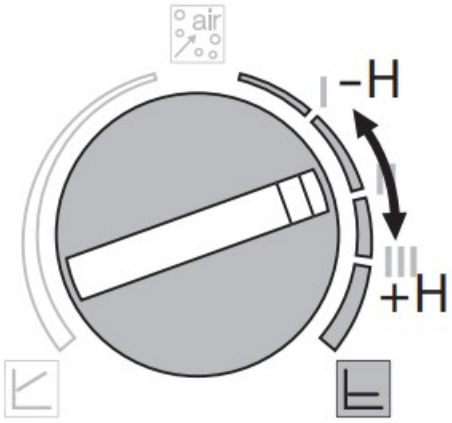


Variable differential pressure (Δp-v):

- Select the Variable differential pressure control mode setting range.
- Set differential pressure setpoint H.

  ↪ The LED display shows the differential pressure setpoint H in m.

Constant differential pressure (Δp-c):



- Select the Constant differential pressure control mode setting range.
- Set differential pressure setpoint H.

  ↪ The LED display shows the differential pressure setpoint H in m.

Note: The I, II and III marks serve as orientation when replacing Wilo-Star RS pumps.

Completing set-up

- Do not rotate the red operating knob for 2 seconds.

  ↪ LED display flashes 5 times and changes to the current power consumption in W.

Decommissioning

Shutting down the pump

Shut down the pump immediately in case of damage to the connecting cable or other electrical components.

- Disconnect the pump from the power supply.
- Contact Wilo customer service or a specialist technician.

Servicing

Cleaning

- Carefully remove soiling from the pump on a regular basis using a dry duster.
- Never use liquids or aggressive cleaning agents.

Troubleshooting

Only allow qualified electricians to remedy faults on the electrical system.

Faults	Causes	Remedy
Pump is not run- ning alt hough the power supply i s switched on	Electrical fuse defective	Check fuses
	Pump has no voltage	Resolve the power interruption
Pump making noises	Cavitation due to insufficient suction pressure	Increase the system pressure within the permissible r ange
		Check the delivery head and set it to a lower height if necessary
Building does not get wa rm	Thermal output of the heatin g sur- faces is too low	Increase setpoint
		Set control mode to Δp-c

Fault signals

LED	Faults	Causes	Remedy
E04	Undervoltage	Power supply too low on mains side	Check mains volt- age
E05	Overvoltage	Power supply too high on mains side	Check mains volt- age
E07	Generator opera- tion	Water is flowing through the pump hydra ulics, but pump has no mains voltage	Check mains volt- age
E10	Blocking	Rotor blocked	Request customer service
E11	Dry running warning	Air in the pump	Check water quantity/pressure
E21	Overload	Sluggish motor	Request customer service
E23	Short circuit	Motor current too high	Request customer service
E25	Contacting/ winding	Winding defective	Request customer service
E30	Module overtemperatur e	Module interior too warm	Check conditions of use
E36	Module defective	Electronics defective	Request customer service

If the fault cannot be remedied, contact a specialist technician or Wilo customer service.

Disposal

Avoid damage to the environment

- Do not dispose of the pump in household waste.
- Recycle the pump.
- If in doubt, contact local authorities and specialist waste management companies.

 **Note!** For further information on recycling, go to **www.wilo-recycling.com**.

EC DECLARATION OF CONFORMITY

We, manufacturer, declare that the glandless circulator types of the series,

Wilo-Yonos PICO
The serial number is marked on the product site plate.
in their delivered state comply with the following relevant directives:

– Low Voltage Directive 2006/95/EC,
– Electromagnetic compatibility 2004/108/EC,
– Energy-related products 2009/125/EC

This applies according to eco-design requirements of the regulation (EC) No. 641/2009 amended by the regulation (EU) No. 622/2012,
and with the relevant national legislation,
comply also with the following relevant harmonised European standards:

EN 60335-2-51

EN 61000-6-1:2007
EN 61000-6-2:2005
EN 61000-6-3+A1:2011
EN 61000-6-4+A1:2011

EN 16297-1
EN 16297-2

Dortmund, 27. Januar 2014

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Documents / Resources

	wilo Yonos PICO Standard High Efficiency Pump [pdf] Instruction Manual Yonos PICO Standard High Efficiency Pump, Yonos PICO, Standard High Efficiency Pump, High Efficiency Pump, Efficiency Pump

References

- Recycling | Wilo
- Wilo Corporate - Pioneering for You | Wilo
- User Manual