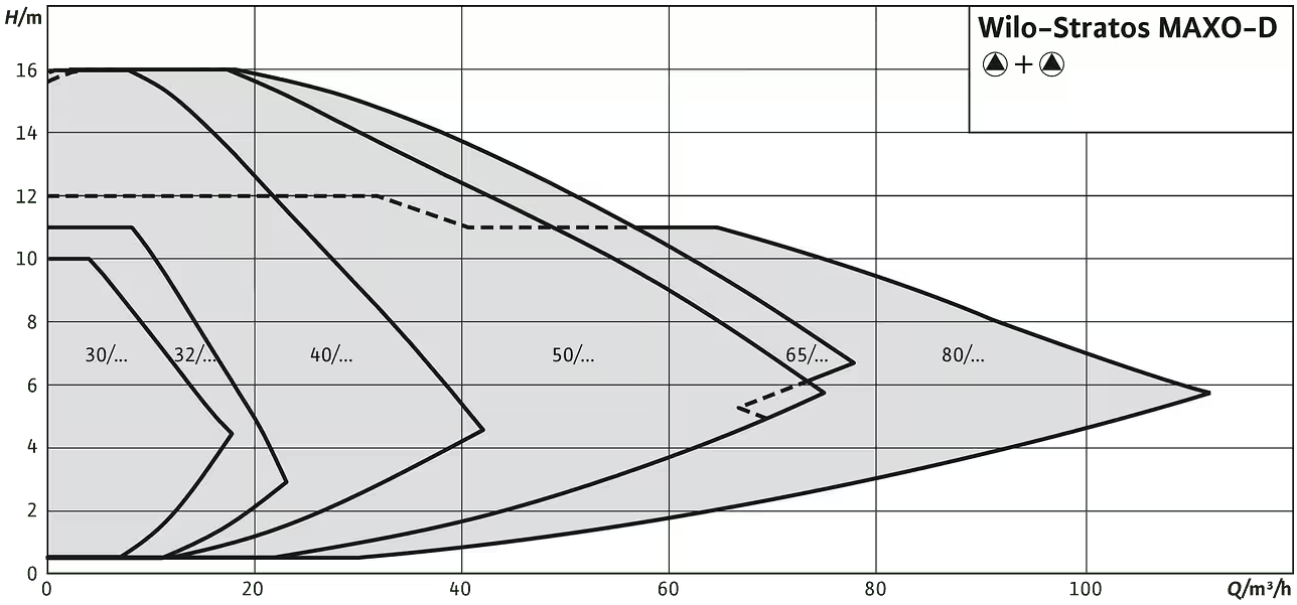

Design

Smart glandless twin-head circulator with screwed connection or flange connection, EC motor with integrated electronic power adjustment.

Application

Hot-water heating systems of all kinds, air-conditioning systems, closed cooling circuits, industrial circulation systems.

Equipment/function

Field of application

The pump facilitates an operation with highest system efficiency via precise setting of the control mode for the system-specific application (e.g. radiator, underfloor heating, ceiling cooling).

Heating

- Radiator
- Underfloor heating
- Ceiling heating
- Fan heater
- Concrete core heating*
- Hydraulic shunt
- Differential pressure-less distributor*
- Buffer heating*
- Heat exchanger
- Heat source circuit (heat pump)*
- District heating circuit*

Cooling

- Ceiling cooling
- Underfloor cooling
- Air-conditioning devices
- Concrete core cooling*
- Hydraulic shunt
- Differential pressure-less distributor*
- Buffer cooling*
- Heat exchanger
- Recooling circuit*
- District cooling circuit*

(* system types from SW≥01.05.08.00 available)

Heating and cooling combined

- Automatic switchover (version “-R7”: not possible; however, possible with Stratos MAXO temperature sensor)

The following control modes are available depending on the selected application:

Control modes

- Constant speed (control mode)
- Δp-c for constant differential pressure
- Δp-v for variable differential pressure
- Dynamic Adapt plus for continuous (dynamic) adjustment of the delivery rate to the current requirement
- T-const. for constant temperature control
- ΔT-const. for constant differential temperature control
- Constant Q for constant volume flow control
- Multi-Flow Adaptation: Total volume flow determination through the feeder pump for the needs-based supply of secondary pumps in the heating circuit distributors
- User-defined PID control

Optional functions

- Q-limit$_{max.}$ for limiting the maximum volume flow
- Q-limit$_{min.}$ for limiting the minimum volume flow
- No-Flow Stop (zero-flow-deactivation)
- Automatic night setback (version “-R7”: not possible; however, possible with Stratos MAXO temperature sensor or with analogue temperature sensor, e.g. PT1000**)
- Index circuit evaluator (Δp-c control with external actual value sensor)
- Thermal disinfection detection (Stratos MAXO-Z)
- Variable pitch of Δp-v pump curve

Manual settings

- Selection of the field of application in the setting assistant
- Setting the related operating parameters
- Nominal duty point: direct input of calculated duty point at Δp-v
- Status display
- Setting and resetting the energy meters (heating and cooling)
- Pump venting function
- Key lock for disabling the settings
- Function for resetting the factory settings or the saved restoration points (parameter sets)
- Parameterising the analogue inputs
- Parameterising the binary inputs
- Parameterising the relay outputs
- Twin-head pump function (for 2 single pumps, which should be operated as twin-head pump)

Automatic functions

- Power adjustment according to requirements for energy-efficient operation depending on the operating mode
- Detection of night setback (version “-R7”: not possible; however, possible with Stratos MAXO temperature sensor or with analogue temperature sensor, e.g. PT1000**)
- Deactivation at zero flow (No-Flow Stop)
- Soft start
- Automatic troubleshooting routines (e.g. deblocking function)
- Switchover between heating/cooling mode (version "-R7": automatic switchover not possible; however, possible with Stratos MAXO temperature sensor)
- Full motor protection with integrated trip electronics

(** possible from SW≥01.05.08.00)

External control inputs and their functions

2 x analogue inputs:

- Signal types: 0 – 10 V, 2 – 10 V, 0 – 20 mA, 4 – 20 mA, PT1000
- Applications: Remote adjustment of the setpoints in every control mode (except Multi-Flow Adaptation), sensor inputs for temperature, differential pressure or free sensor in user-defined PID operation

2 x digital inputs:

- For potential-free control outputs or switch
- Parametrisable functions:
  - Ext. Off
  - Ext. Min
  - Ext. Max
  - MANUAL (BMS-OFF)
  - Key lock
  - Switchover between heating/cooling mode

Wilo Net for dual pump management of 2 single pumps, communication of several pumps with each other and pump-remote adjustment via gateway

Signal and display functions

- Display status operation display:
  - Setpoint
  - Actual delivery head
  - Actual volume flow
  - Power consumption
  - Electric consumption
  - Temperatures (version "-R7": current fluid temperature possible with Stratos MAXO temperature sensor)
- Status display LED: Faultless operation (green LED), pump communication (blue LED)
- Display status of display fault (display red):
  - Error codes and error description in full text
  - Remedial measures
- Display status of display warning (display yellow):
  - Warning codes and description of the warning in full text
  - Remedial measures
- Display status process indicator (display blue):
  - Pump venting
  - Update procedure
- Display BMS communication (display blue):
  - Summary of the active BMS parameters (baud rate, address...)
- Collective fault signal SSM (potential-free changeover contact)
- Collective run signal SBM (potential-free normally open contact)

Data exchange

- Bluetooth interface for wireless data exchange and remote operation of the pump using a smartphone or tablet.
- Remote monitoring of the pump via the Internet with the Wilo-Smart Gateway.
- Digital Modbus TCP interface for connection to building automation (BA) (possible with Wilo-CIF module Ethernet [multi-protocol]).
- Serial digital interface Modbus RTU for connecting building automation (BA) via RS485 bus system (possible with Wilo-CIF module Modbus RTU).
- Digital BACnet IP interface for connection to building automation (BA) (possible with Wilo-CIF module Ethernet).
- Serial digital interface BACnet MS/TP for connecting building automation (BA) via RS485 bus system (possible with Wilo-CIF module BACnet MS/TP).
- Serial digital interface LON for connecting building automation (BA) via bus system LONWorks (possible with Wilo-CIF module LON).
- Serial digital interface CANopen for connecting building automation (BA) via bus system CANopen (possible with Wilo-CIF module CANopen).
- Serial digital interface PLR for connecting BA via company-specific coupling module (possible with Wilo-CIF module PLR).

Dual pump management (twin-head pump or 2 x single pumps)

- Main/standby operation (automatic fault-actuated switchover/time-sensitive pump alteration)
- Parallel operation (efficiency-optimised peak load cut-in and out)

Equipment

- For flange-end pumps: Flange versions
  - Standard version for DN 32 to DN 65 pumps: PN 6/10 combination flange (PN 16 flange according to EN 1092-2) for PN 6 and PN 16 counter flanges
  - Standard version for DN 80/DN 100 pumps: PN 6 flange (designed for PN 16 according to EN 1092-2) for PN 6 counter flange
  - Special version for DN 32 to DN 100 pumps: PN 16 flange (according to EN 1092-2) for PN 16 counter flange
- Various integrated communication interfaces and optionally usable CIF module plug-in position
- 5 cable inlets for connecting the communication interfaces
- Bluetooth interface
- High resolution graphic display with green button and 2 additional buttons
- User-friendly terminal room
- Integrated temperature sensor (version "-R7": without)
- Quick electrical connection with optimised Wilo-Connector for the power supply

Scope of delivery

- Pump
- 2x optimised Wilo-Connector
- 4x threaded cable connection M16 x 1.5
- Washers for flange screws (for nominal connection diameters DN 32 - DN 65)
- Gaskets for threaded connection
- Installation and operating instructions

Typekey

Example:	Wilo-Stratos MAXO-D 40/0,5-8
Stratos MAXO	High-efficiency pump (flange-end pump), electronically controlled
D	Twin-head pump
40/	Nominal connection diameter
0.5-8	Nominal delivery head range [m]
-R7	Without an integrated Stratos MAXO temperature sensor
-P1	PWIS-free version

Technical data

- Permissible temperature range -10 °C to +110 °C
- Mains connection 1~230 V, 50/60 Hz
- Protection class IPX4D
- Screwed connection DN 30 (RP $1^{1/4}$)
- Flange connection DN 32 to DN 80
- Max. operating pressure of standard version: 6/10 bar or 6 bar (special version: 10 bar or 16 bar)
- Max. volume flow *Q*: 112 m³/h
- Max. delivery head *H*: 16 m

Materials

- Bearing: Carbon-graphite
- Impeller: PPS-GF40
- Pump housing: Grey cast iron
- Shaft: 1.4028, DLC-coated

Construction

- Smart glandless twin-head circulator with EC motor and integrated electronic power adjustment
- Green Button Technology and graphic display
- Motor protection with trip electronics
- Plug connection for functional extension with optional CIF-modules for building automation (BA)
- Impeller with three-dimensionally curved blades and plastic sealing tube made of carbon fibre composite material