



# POLYDOS PREPARATION & DOSING SYSTEMS

## Flexible, robust and economic

### General

Grundfos Polydos preparation systems are fully automatic systems for preparation of solutions from dry or concentrated liquid polymers. The concentration of the final solution is achieved by proportionally mixing the polymer with intake water. The concentration is set at the touch screen of the control cabinet. The maturing time of the polymer solution depends on the discharge rate and the hydraulic capacity of the system.

### Polydos 412E for dry and liquid polymer

- PPH tank with 3 chambers with double-wall partition: mixing, maturing and storage
- Mixing and maturing chambers fitted with electric stirrers
- Dry-material feeding system with capacitive sensor
- Water inlet with shut-off valve, solenoid valve, pressure reducing valve, strainer and Grundfos Vortex water meter
- Jet mixer for dry polymer. Optional connection for liquid polymer
- Control cabinet with PLC and multilingual graphic display
- Communication options: Profibus, Modbus, Ethernet
- Ultrasonic sensor for continuous level control

### Polydos 420E for liquid polymer

- PPH tank with 2 chambers: mixing and maturing
- Mixing chamber fitted with electric stirrer
- Polymer dosing line with ball valve, controlled outlet, drain connections and tank overflow, all mounted directly to the tank
- Control cabinet with PLC and multilingual graphic display
- Communication options: Profibus, Modbus, Ethernet
- Feeding pump for concentrated liquid polymer
- Ultrasonic sensor for continuous level control

### Polydos 460E for liquid polymer

- PPH tank with 2 chambers with double-wall partition: mixing and maturing
- Mixing chamber fitted with electric stirrer
- Maturing chamber optionally fitted with electric stirrer
- Feeding pump for concentrated liquid polymer
- Ultrasonic sensor for continuous level control
- Control cabinet with PLC and multilingual graphic display
- Communication options: Profibus, Modbus, Ethernet

### Polydos 510 for post-dilution

- Capacity from 250 to 20.000 l/h
- Stand-alone device
- Static mixer allowing a dilution of 10-to-1

### Polydos 520 for polymer solution dosing station

- Dosing skid for polymer solution, frame from galvanized and PPH
- Horizontal design for progressive cavity pumps installation
- Skid for erection of 1, 2 or 3 pumps as duty, duty – stand-by version
- Capacity from 1x100 to 2x10.000 l/h
- Optional equipped with measurement equipment and control cabinet
- Communication options: Profibus, Modbus, Ethernet

### Applications

- Treatment of industrial water, municipal water, waste water and sludge

Grundfos supply engineer-to-order solutions that match individual conditions.

## Technical data

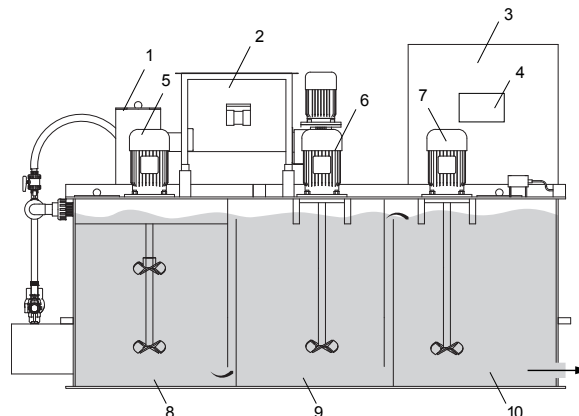
	Material	Capacity
Polydos 412E	Dry-material feeder and worm screw: SS Stirrer shaft and impeller: SS, Piping and connections: uPVC	300 to 10000 l/h*
Polydos 420E	Stirrer shaft and impeller: SS Piping and connections: uPVC	50 to 2000 l/h*
Polydos 460E	Stirrer shaft and impeller: SS Piping and connections: uPVC	max. 4000 l/h*
Polydos 510	Piping and connection: PVCU and brass	250 to 20000 l/h
Polydos 520	Piping and connection: PVCU	1x100 to 2x10.000 l/h

\* Based on a solution concentration of 0.5 %

## Frequently asked questions for Polydos 412E

<b>Why do polymers need to be prepared?</b>	Polymers need time to unwind their chains, so they can catch more particles. Preparation process changes from one polymer to another. As an example, the maturing time can be anywhere from 10 minutes to 2 hours.
<b>What is important in the preparation process?</b>	The polymer is fed into a water jet mixer which breaks the powder into its fine particles ensuring every speck is wetted and dissolved. Polymer lumps or “fish-eyes” are avoided. It is then mixed with water and gently stirred while maturing.
<b>How is the Polydos system designed?</b>	The Polydos system has one tank with three separate chambers: 1. mixing, 2. maturing and 3. storage. The chambers are separated by a double-wall. As new mix fills the mixing chamber, the polymer already mixed is forced through the weir into the maturing chamber. In turn, the matured polymer flows through the second weir and fills the storage chamber. The control of system establishes a water trap in chamber II during water intake to prevent evasion of fresh polymer.
<b>Why is Polydos better than batching system?</b>	- Smaller footprint with space-saving design - More accurate average maturation time - Less reserve polymer is prepared - Easier to manage and service
<b>What controls the operation of Polydos?</b>	An ultrasonic level sensor in the storage chamber monitors the ready-to-dose polymer and starts the filling/ mixing process on a low-level signal. It then stops the process on a high-level signal making it a fully automated process.
<b>What is the operator required to do?</b>	1. Ensure that feed water of potable quality is connected and turned on. 2. Maintain the supply of powder to the feeder hopper. 3. Regularly check that the worm screw and jet mixer are clean.
<b>How much polymer can be stored on a Polydos?</b>	The standard dry-material feeder holds 32 litres, but extension hoppers are available to hold enough for weekly or longer filling routine. We also offer vacuum loader to ease the filling of polymers into the dry-material feeder.
<b>How can I tell when the dry material feeder needs filling?</b>	The feeder hopper has a capacitive sensor to detect a minimum powder level. The Polydos will send out an alarm when the powder level is low, but before it is empty.
<b>What other alarm signals do I get?</b>	1. Motor failure 2. Circuit breaker failure 3. Low or high water flow 4. Dry run
<b>How do I keep the powder dry?</b>	Electric trace heating is wrapped around the feeder nozzle preventing the powder from absorbing moisture and keeping the inside of the jet mixer dry.

## Polydos 412E Functional scheme



Pos.	Description
1	Jet mixer
2	Dry-material feeder
3	Control cabinet
4	Touch screen
5-7	Stirrer
8	Mixing chamber
9	Maturing chamber
10	Storage chamber