

## POLYPREP®

# Preparation systems for polyelectrolytes

The fully automated POLYPREP system is suitable for applications where auxiliary flocculants are continuously dissolved and metered. The POLYPREP® system requires a minimum of labour and monitoring for the preparation of a homogenous and properly aged polyelectrolyte solution with a constant concentration.

### General

Polyelectrolytes are used as auxiliary flocculants when treating potable, process and waste water and to accelerate or improve the solid/liquid separation process. They are also utilised to dewater sludge. Auxiliary flocculants are also used for industrial clarification processes. They are added to water or waste water sludge in the form of highly diluted, aqueous solutions. Most auxiliary flocculants are available as dry substances and some as concentrated solutions. The POLYPREP system can be fitted with an additional module to process liquid auxiliary flocculants.

When dissolving the auxiliary flocculants, their properties must be considered. Full utilisation of the chemicals is ensured only if certain conditions are met when preparing and metering these solutions. Proper wetting and dissolving of the polyelectrolyte products, plus adherence to the ageing time are important factors to consider.

### Design and function

The compact design of the POLYPREP system houses all components for dry product metering, wetting, dissolving, and ageing of the polyelectrolytes. The system consists mainly of the dry product metering module with feed screw, wetting unit, multi-chamber tank with mixers and the control module to control the process. The control module is either attached to the system (optional) or mounted on the wall.

### Benefits:

- Proven, reliable three chamber system with constant flow processing
- Complete dissolving and maturation
- Optional use of liquid flocculants
- Space-saving, compact design
- Easy to operate using individual customized controls
- Low maintenance

The auxiliary flocculant is routed from the storage tank to a special metering feed screw and from there to the wetting unit. The feed screw features a fluffing spiral in the area of the inlet funnel that ensures a reliable product feed and smooth product flow. A circular electric heater is attached to the product exit to prevent moisture from penetrating the system and caking of the metered product. The wetting unit has been designed specifically for auxiliary flocculants that are powders or granulates. The special construction of the wetting unit ensures all polyelectrolyte particles being fed are immediately and completely wetted with water. Lump formation and all of the associated disadvantages are thereby ruled out right from the start. The water supply is controlled in such a way that the flow of operating water is always activated first before the dry product metering process starts, while a certain amount of

water continues to trickle after conclusion of the dry product metering process.

The multi-chamber tank is divided into a dissolving, ageing and a storage chamber. The partition walls and the riser ducts between the chambers are arranged in a pattern that prevents accidentally mixing the aged with the freshly prepared solution. Three mixers with suitable speeds and corresponding agitator blades (designed specifically for mixing viscous solutions) gently stir and agitate the auxiliary flocculant solution. The prepared solution be pumped directly to the metering site or a mixing section where the solution is diluted with water.

### Technical data

Type	Content (m <sup>3</sup> )	Dimensions L x W x H (mm)	Extraction tube	Electrical connection	Operating water connection	Operating water flow
A-730-G 1	1	1700 x 985 x 1360*	DN 40	3/N/PE	R 1 "	300 – 3000 l/h
A-730-G 2	2.5	3500 x 985 x 1460*	DN 40	400/230 V AC,	R 1 "	300 – 3000 l/h
A-730-G 3	5	3500 x 1400 x 1760*	DN 50	50 Hz	R 1 1/2 "	600 – 6000 l/h

\* Height without storage tank

#### Volume of standard storage tank:

– 115 litres

– 190 litres

Larger storage tanks available upon request

**Diameter of feed screw (mm):** 25  
With screw heater

**Speed (rpm)**  
**Feed screw (1/min):** 23 66

**Max. feed rate/throughput**  
**Nominal volume (l/h):** 7.5 21

The actual volume flow rate depends on the product. However, this rate can be adjusted to meet specific requirements.

**Viscosity of the polyelectrolyte solution:** Max. 2500 mPas

**Concentration of the polyelectrolyte solution:** 0.1 – 0.5 %

#### Operating water:

Min. pressure: 3.5 bar;

free of mechanical pollutants

The POLYPREP system is suitable for all commercially available dry polyelectrolytes. An optional module makes it possible to process liquid polyelectrolytes.

#### Pumps

Various metering and feed pumps are available for dosing the parent solution.

#### Post-dilution module

The post-dilution module serves to dilute parent solutions with a higher-percentage concentration to the concentration level needed. The optional module design depends on the respective application.

#### Assembly

The POLYPREP system is delivered preassembled. All that remains to be done on site is to install the metering system and connect electricity and water. Siemens Service personnel are available to assist with installation and commissioning.

The information provided in this brochure contains merely general descriptions of characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.