

Application story



Polyelectrolyte Injection in Waste Water Treatment Plants

Location	Portugal (Installation: 2017)	Hydra-Cell model	G20XDSTHFECG
Type of application	Polyelectrolyte Injection in Waste Water Treatment Plants	Flow rate	100 - 200 l/hr
Liquid	Polymer (Polyelectrolyte)	Pressure	Up to 24 bar

Application details

Polyelectrolyte is the most common type of polymer used for waste water treatment. It is a thick emulsion (made up from a powder on larger applications), and then dosed proportionally into the water stream, and delivered via an activation tank, or a pipe flocculator tube with other chemicals. In this application, the polyelectrolyte is used as a friction reducing agent to allow dewatered sludge to move more easily from the dewatering centrifuge to the sludge storage tank before transportation for disposal.

Dewatering the sludge, greatly reduces its weight and its volume before disposal - significantly reducing transport costs of disposal.

For maximising the efficiency of injecting the polyelectrolyte, the main pipeline has an injection ring with at least with four injection points with a pressure gauge and a non-return valve.

Customer process requirements:

- Up to 24 bar (or higher)
- Flow rate: 100-200 l/hr
- Polyelectrolyte viscosity: 100-150 centipoise (cP)

The problem:

The customer was experiencing expensive maintenance requirements on the existing installed polyelectrolyte progressive cavity pumps due to the high injection pressures required. Problems with the existing polyelectrolyte pumps were also having a negative effect on the main dewatered sludge transfer progressive cavity pump as the lack of lubricating polymer injection was causing premature wear of the larger expensive pump rotor and stator due to increasing pressure required to move the dewatered sludge to the storage tank.

The Solution:

- Hydra-Cell® G20XDSTHFECG
- Stainless steel pump head with Buna diaphragms
- 0.55 kw Motor @ up to 1500rpm

Absorbed power: 0.25 kw

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Advantages of Hydra-Cell pumps in this application

- Less maintenance of polyelectrolyte pumps resulting in no unplanned downtime and reduced
- Increased stability and rotor life of the sludge transfer PC pump
- Lower acquisition and spare parts costs
- 20-30% less power consumption
- G20 solution - up to 70 bar - one size can reach high pressures
- No gearbox costs needed (oil, bearings, retainer)

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