METERING

Quick STUDY

Hydra-Cell® Seal-less Pumps

www.Hydra-Cell.com

Location:	Netherlands
Application:	Concrete additives
Media:	• Water • Silica (fume powder)
Model No.:	H25XKCNCCEC
Flow Rate:	Dosing - 18 gpm (70 l/min) Circulating - 10 gpm (38 l/min)
Pressure:	Dosing - 101 psi (7 bar) Circulating - 29 psi (2 bar)
Hydra-Cell Advantages:	• Seal-less design allows pumping of abrasive particles in suspension • Accurate flow, proportional to pump speed • High pumping efficiency - low energy cost • Minimal maintenance

Injection of Strengthening Additive into Sand/Gravel Mix

Hydra-Cell pumps are widely used in the European cement and concrete industry for injecting additives into concrete mixes during production. In a typical application, a mix of water and silica fume (a crushed volcanic ore mined in Sweden) is pumped into a mixing silo, where it is combined with sand and other material to form a high strength concrete.

Air operated diaphragm pumps were initially used to dose this liquid into the mixing silo. However, the liquid has a high specific gravity (2.5 kg/dm3) so that these pumps had to be double the size as the same pump for water. Spare parts, regularly required because of the abrasive action of the liquid, were expensive, and air consumption was very high, also proving costly.

The introduction of the H25 solved the size problem because its flow capacity with the heavy additive was identical to its performance with water. The pump performs two duties. First, to prevent sedimentation, it circulates the liquid at 10 gpm (38 l/min) requiring the pump to run every 15 minutes for 3 minutes, 24 hours a day, 7 days a week. Second, every 20 minutes at a rate of 18 gpm (70 l/min) the pump delivers a controlled dose of liquid into the blending silo. It is switched off by means of a flow meter.

Characteristics of Fluid Pumped:

● Contains Abrasives ○ Corrosive ● Solids in Suspension ○ High-temp. (>158˚F/70˚C) ○ Non-lubricating ○ High-viscosity (>500 cPs)