

Putzmeister Piston Pumps Convey Biomass

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Fig. 1
 The biomethanisation plant in Kössen (Austria) is using an EKO 1060 PP to convey and unwrap packaged foods that are past their expiry date.



Fig. 2
 At the Siam City Cement plant (Thailand), this Putzmeister high-density solid pump conveys substitute fuels (i.e. sludges of varying consistency) in incinerators which are up to 150 m away



Fig. 3
 KOS 25100 with Hydraulic power pack and twin-screw auger feed device, conveying biomass to the fermentation tank (Biogas plant in Leonberg, Germany).



aFig. 4
 In the biogas plant of Varenne-Jarcy (France), this PM high-density solid pump conveys biomass in a fermentation tank

Handling 20 Years of Experience in Biomass

With increasing energy demand and rising energy costs, the production of methane gas through biomass processing is becoming ever more important, especially through odourtight pipelines. Meanwhile, in cooperation with process engineering partners, the issue of foreign bodies which are disturbing tremendously the process, has been resolved. In addition, besides the different processes for biomass treatment, Putzmeister is specialised in pumping hazardous waste, substitute fuels and sewage sludges.

The core of the Putzmeister plant engineering are robust pump systems with well-proven low life cycle costs. For instance, there are EKO single-piston pumps that have been in constant operation for more than 60.000 hours. KOS double-piston pumps have also been documented to operate more than 160.000 hours without any significant incident

Depending on the installations, Putzmeister's scope of supply includes further different components for the processing and conveyance of organic waste material, such as food remains, and expired foods, animal carcasses and renewable raw materials (silage, straw and green waste).

For instance, a mixing device with one or two screws used to homogenize the material that has to be conveyed. Or metering devices that Putzmeister have developed for feeding the biomass in the fermentation tank.

Elimination of Foreign Bodies

Putzmeister can offer solutions for processing coarse foreign bodies, such as tins/cans, bottle caps, bones, stones, spoons, forks, plastic films or nails that can hinder the fermentation process and pump operation. In a joint venture, Putzmeister has developed a process for eliminating foreign particles when pumping biomass in the fermentation tank. Packaged foods can now therewith also be integrated in the fermentation process. For conveying such materials, Putzmeister suggests the single-piston pump of the EKO series.

In order to guarantee continuous operation of the biogas plant, even if there is a shortage of material supply, upstream Putzmeister silos, in various sizes, can be installed before the high-density solid pump. There are specific appliances for each sort of biomass, as well as for alternative fuels, located on the silo bottom that pull the material from the storage tank into the suction area of the high-density solid pump. The injection and pumping of the conveyed material into the bioreactor, or rotary kiln, is controlled by pressure or temperature. Various reference installations with this complex technology have been running in continuous operation for years and to the satisfaction of the plant operators.

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