

Self-feeding sludge pump KOS 1060 DSC on crawler track

Up to now it has not been possible to feed a piston pump autonomously. The newly developed Putzmeister KOS 1060 DSC combines all the benefits of self-priming pumps with the advantages of piston pumps. The innovative feed system loosens high-viscosity sludge or solid materials such as biomass and conveys them to the pump unit.

Areas of application include desludging bodies of water, cleaning tanks and even transporting corn silage from mobile silos, for example. It is also suitable for mining applications, including conveying coal slurry or ash in the area around the power plant.

Powerful Putzmeister high-density solids pumps are renowned for their ability to convey high-viscosity or soft materials. The feed unit has been combined with proven KOS pumping technology to create an autonomously operating unit which can directly convey a wide range of substrates from their storage location over long distances without the need for additional machinery.

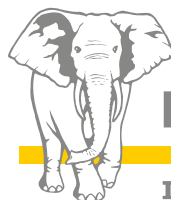
Proven, robust pumping technology adapted to unusual applications

The KOS 1060 DCS is a hydraulically powered S transfer tube pump with a 1,000 mm long delivery cylinder that is 200 mm in diameter. The underside of the hopper is open and fitted with a feeder spiral. The KOS pump moves into the material on a crawler track, while the feeder spiral whirls up the material and feeds it to the delivery cylinder.

The pump is designed for 30 m³/h and a conveying pressure of 50 bar. The downstream hydraulic unit with a 132 kW electric motor is mounted on a special frame. The pump and hydraulic unit are connected by hydraulic hoses approximately 20 metres in length, which give the delivery pump a large operating radius.

Easy disassembly and explosion protection open up a wide range of application areas

One important aspect that was considered during the design and layout of the complete unit was the option of dismantling it into individual assemblies so that it could be adapted easily to different materials and installation sites with restricted space. The final assembly is effected directly at the operational site.



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The KOS 1060 DSC runs into the coal-fly ash mixture.



The conditions at the planned operational site were simulated in the container positioned at a 10 ° slant.

One other option is explosion protection. We succeeded in developing a fully hydraulic pump unit with drive, which complies with the requirements in ATEX Guideline group 1, Device category M2, thereby opening up application areas such as tank cleaning or oil sludge pumping as well as use in chemical applications.

Putzmeister Solid Pumps has already received enquiries for similar applications, where the pumps should be fitted with diesel-powered engines instead of electric motors and the hydraulic unit should also be mounted on a crawler track.

Extensive testing under the most realistic conditions possible

A procedure for testing machine technology was developed based on knowledge from discussions and visits to customers. The pump was housed in a 40" container at an angle of 10° to simulate entry of the machine into the conveyed media at the place of installation. The hydraulic unit was located outside the container. The material was conveyed in a full circle along a delivery line approx. 30 m long. The test material was a mixture of coal containing coarse grain ash and fly ash and a fine grain material similar to the conveyed material.

In addition to the pumping and suction behaviour, newly developed assemblies such as the crawler and feed auger with height adjustment feature were also tested.

An excavator delivered the dry material to the container where it was mixed. The tests initially began with the dry material mixture. During a series of tests, the material was mixed with an increasing quantity of water to test individual components, e.g. the function of the feed auger and the switching behaviour of the S transfer tube, to see how they reacted to materials with different consistencies. The tests revealed the best consistency for automatically extracting and pumping the material from the pumping system and how different material mixtures and quantities of added water affected filling of the delivery cylinders.

All data recorded by the measuring system was then evaluated so that conclusions could be drawn about the performance of the redeveloped system.

The test results and experiences in this special field of application are used for future tasks with other applications and different conveyed media.

Benefit from our customer-based delivery solutions.



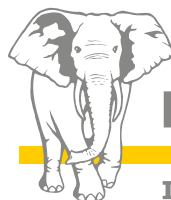
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