NETZSCH

Efficient recycling helper:

Progressing cavity pumps allow smooth conveyance of waste paper

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The recycling of waste paper has been long established as an environmentally friendly and especially cost-effective method in paper production. But the recycled waste paper, which is mixed with fibres and fillers, poses certain challenges to processing plants: To avoid wet waste paper being overly dehydrated during conveyance, meaning that the paper would no longer be conveyable, it must not be exposed to shear forces or other exposures which could cause excessive dehydration. That is why one of the world's leading companies in this sector relies, i. a. in their paper factory in Schongau, Bavaria, on the special characteristics of the NEMO® progressing cavity pumps of NETZSCH Pumpen & Systeme GmbH.

In this type of pump a rotor turns with an oscillating rotary motion within a geometrically adapted fixed stator, so as to form conveying chambers with the same shape between the two conveying components. These conveying chambers are continuously filled through the feeding area and convey the medium from the inlet to the discharge side protected as in sealed capsules. The stator inlet shaped as a hopper assists whilst filling the chambers with the viscous medium. The coupling rod is equipped with a patented feeding screw in order to ensure the exact force needed to optimise the product feed. Shear forces, pressure fluctuations and pulsation, which are mostly inevitable with other pump technologies, are thus avoided to such an extent that the water contained in the waste paper is not already uncontrollably separated from the cellulose components during the transport. At the same time, the conveying chambers ensure a constant volumetric flow, so the raw material can be fed into the process precisely with the required quantity. This ensures a basic prerequisite for the flatness and homogeneity of the final paper sheets.

In the Bavarian paper factory, this progressing cavity pump technology is used for feeding a 3 metres wide screen belt inside of a concentrator. Around 50 m³/h of the 55 °C hot pulp, which has an abs. dryness (wood moisture) of eleven to twelve per cent, is evenly and continuously applied to the belt concentrator with 3.5 bar.

After this dehydration process, surplus waste paper, which cannot be immediately processed, is brought to another production site with spare capacities. Now the waste paper is almost dry with 42 % abs. dryness and is loaded onto a lorry using a wheel loader.

Thanks to the smooth conveying principle, valuable waste paper is retained in phases of overproduction and put to further reasonable use.

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For more than 60 years, NETZSCH Pumps & Systems has served markets worldwide with NEMO® progressing cavity pumps, TORNADO® rotary lobe pumps, NOTOS® screw pumps, grinding machines, barrel emptying systems, dosing systems and accessories, providing customised, sophisticated solutions for applications in every type of industry. With a workforce of over 2,000 and a turnover of more than 275 million euros (2018 financial year), NETZSCH Pumps & Systems is the largest business unit with the highest turnover in the NETZSCH Group, alongside NETZSCH Analysing & Testing and NETZSCH Grinding & Dispersing.

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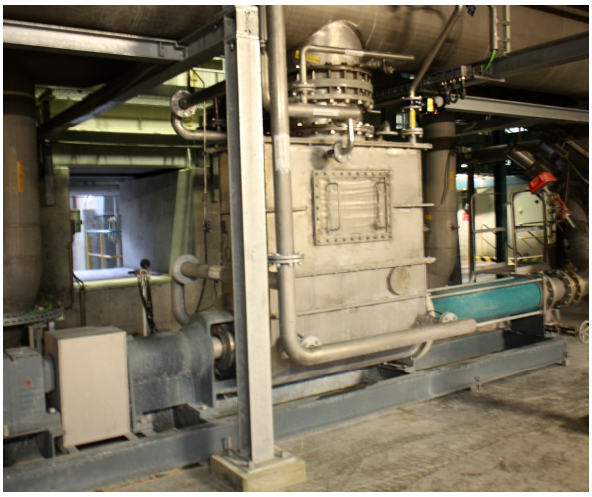
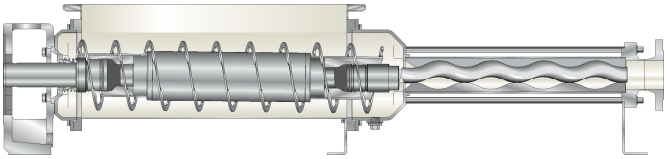
Photos:

	The recycling of waste paper allows a particularly environmentally friendly and cost-effective paper production. In order to further increase efficiency in this area and also be able to put surplus to use, one of the world's largest manufacturers is using progressing cavity pump technology of the German company NETZSCH.
	The NEMO® pumps stand out for their particularly smooth conveying principle without pulsation and shear forces. This ensures that the waste paper is not uncontrollably dehydrated during transport and does not harden.
	Pitt Mair, Area Sales Manager