WORLD WIDE WEAVE

Ideal answers to an urgent issue

GKD: Woven mesh belts for turbo-dewatering and drying of sewage sludge

With the upcoming amendment of the Sewage Sludge Ordinance (AbfKlärV) and the new prohibitions in the Fertiliser Ordinance (DüMV) which are due to come into force in 2017, municipal sewage plant operators are faced with enormous challenges. In combination, the two regulations mean the end of agricultural utilisation of sewage sludge. In order to ensure the compliant disposal of around 1.1 million tons of dry matter annually and the fulfilment of the new obligation to recover phosphorus from the sludge, thermal recycling is set to gain considerably in importance. Thermal recycling of waste sludge, in turn, calls for efficient methods of sewage sludge dewatering and drying. No wonder, then, that this was one of the dominant issues at the IFAT 2016. With its new filter belt type Speed-Drain and a wide range of dryer belts, the process belt experts from GKD – GEBR. KUFFERATH AG had attractive answers to the urgent questions currently on the minds of sewage plant managers and equipment manufacturers. "The people we talked to were all very impressed by the evidently higher performance capacity of our new belt types in comparison to conventional products," says Michael Seelert, Head of GKD's business unit WEAVE IN MOTION.

In order to keep the pollutants contained in sewage sludge off German fields, the Federal Government, with the consent of the EU, intends to put an almost complete stop to the spreading of sewage sludge on agricultural land in the medium term. This is due to the pollutant limit values that apply to fertilisers in the agricultural sector. These limit values are regulated in the

Fertiliser Ordinance, which has ben in force since 1 January 2015, and in the Sewage Sludge Ordinance, which is currently being amended. In addition to a prohibition of agricultural utilisation of sewage sludge from 2025 onwards, the latter regulation also stipulates that, from the beginning of the same year, the phosphorus content in sewage sludge must be retrieved, along with other nutrients. On the other hand, the Fertiliser Ordinance stipulates that, starting already in 2017, the use of synthetic polymers in sewage sludge treatment will be prohibited unless said polymers biodegrade within a ten-year period. In the absence of equivalent substitute materials for the dewatering of sewage sludge, this essentially means that prohibition on the agricultural spreading of sewage sludge conditioned by means of such polymers will actually come into effect much sooner. The inevitable consequence is a much stronger and much faster shift to thermal recucling as a viable option for sewage sludge disposal.

Substantially higher DM content

According to figures published by the Federal Statistics Office, 60% of sewage sludge in Germany was already being incinerated in 2015 – 5% more than in the year before. Experts expect this trend to keep on rising, especially in view of the upcoming regulation requiring phosphorus to be retrieved from the sewage sludge. The most effective way of retrieving the phosphorus – although currently not yet an economically viable option – is to recycle it on the basis of ash from mono-incineration plants. For this type of thermal recycling, the sewage sludge must have a dry matter (DM) content of at least 20%. One precondition for the requisite cost-efficiency and ecological compatibility in sewage sludge dewatering is a high-performance mechanical dewatering stage. At the IFAT, GKD presented a solution exactly tailored to meet this requirement in the form of Speed-Drain, a new process belt with unprecedented dewatering efficiency. It combines the properties of a highly efficient pre-dewatering press belt with those of a robust filter belt mesh. The

specific mesh construction with warp wires of various special plastic materials has considerably more but smaller mesh openings. This significantly increases the dewatering performance while at the same time improving the particle retention rate. Although the wires are only half as thick compared to the monofilaments of conventional standard meshes, this innovative mesh type is capable of withstanding enormous pressures. In comprehensive comparison tests in a range of wastewater treatment plants in Germany and Austria, the new filter belt type Speed-Drain has already convincingly demonstrated its excellent dewatering capabilities – even in the case of problematic sludge types. These tests verified an 0.8% improvement in DM content along with substantially reduced particle penetration – figures which the specialist visitors at the exhibition stand found extremely interesting.

Visible process reliability

GKD also set impressive new standards with another innovation, this time for screen presses. Contrast-coloured interior wires are a reliable indicator for mechanical abrasion due to defective equipment components or process-related attrition. One sewage plant operator from Slovenia is already experiencing the benefits of this new mesh type first-hand – and free of charge – in his own treatment plant, having won a complete set of the belts in a raffle that GKD had organised for visitors to their IFAT stand.

Efficient sewage sludge drying

Due to the imminent challenges posed for municipal sewage treatment plants by the upcoming statutory restrictions, there was also a great deal of interest in GKD's tried-and-tested drying belts. Up to eight metres wide and – depending on the specific application – made of polyester, polyamide or PPS, these drying belts make a significant contribution to the efficiency of the sewage sludge drying process. In addition, dryer belts made of meshes from

the CONDUCTO® range – with bronze wires woven into their warp – effectively prevent electrostatic charging and ensure cost-effective, resource-friendly and environmentally compatible sewage sludge dewatering. The positive response from sewage plant operators and equipment manufacturers alike made it very clear that, with the process belt innovations presented at the IFAT, GKD had really hit the nail on the head in terms of addressing urgent concerns in the sector. For Michael Seelert, this was both reassuring and, at the same time, highly motivating: "The huge number of valuable dialogues we had with visitors at the stand shows that not only our established clientele but also new prospective customers are coming to us because of our expertise. Our job now is to put the specific requests we received into practice."

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GKD – GEBR. KUFFERATH AG

The owner-run technical weaver GKD – GEBR. KUFFERATH AG is the global market leader for metal and plastic woven solutions as well as transparent media facades. Under the umbrella of GKD – WORLD WIDE WEAVE the company combines three independent business units: SOLID WEAVE (industrial meshes), WEAVE IN MOTION (process belt meshes) and CREATIVE WEAVE (architectural meshes). With its six plants – including the headquarters in Germany and other facilities in the US, South Africa, China, India and Chile – as

well as its branches in France, Great Britain, Spain, Dubai, Qatar and worldwide representatives, GKD is never far from its customers.

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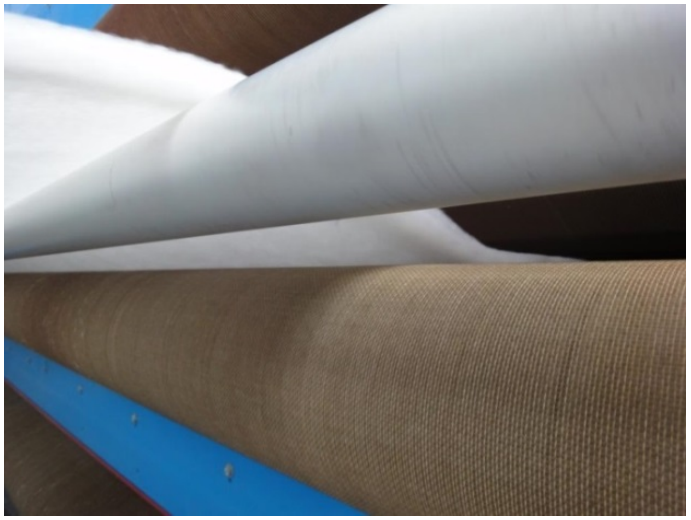
Picture 1: The spreading of sewage sludge on agricultural land is put to an almost complete stop in the medium term. This is due to the pollutant limit values that apply to fertilisers in the agricultural sector.

Picture 2: With Speed-Drain, GKD presents a filter belt type, which combines the properties of a highly efficient pre-dewatering press belt with those of a robust filter belt mesh.



Picture 3: GKD's tried-and-tested drying belts make a significant contribution to the efficiency of the sewage sludge drying process.

Picture 1, 2 © GKD

Picture 3 © GKD/Ziegler

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