GKD scores a hat trick

Premiere for three new mesh types and processes at the FILTECH

At the FILTECH in Cologne, the world’s leading event and conference for filtration, the SOLIDWEAVE business unit from GKD – GEBR. KUFFERATH AG will be presenting ground-breaking findings on the erosion behaviour of plain dutch weave meshes and the resulting new product development Porometric. This three dimensional mesh construction offers considerably higher porosity and air permeability while at the same time practically halving local pore velocity, thus surpassing all other high-performance filter meshes on the market in its efficiency. The second highlight at the trade fair will be GKD's flow-optimised mesh type ODW 6 for mechanical wastewater processing. With a pore size of just 6 µm and – compared to other products on the market – a 3-times higher throughput rate, this single-layer mesh construction represents the long awaited alternative to sand filters. And, to round off its hat trick, SOLIDWEAVE will be featuring the GKD-developed method for numerical simulation of the bubble point test. With this method, the mesh experts can quickly and precisely determine the largest pore size for all conventional filter meshes and can thus fulfil the most stringent of performance standards for filter media.

3D mesh with slot structure

A study jointly conducted by a major oil and gas exploration and production company and GKD into the erosion behaviour of filter media in well pipes revealed the influence of pore geometry on the degree of mechanical stress that a filter mesh surface is exposed to. Following through on the findings,
GKD – a technology leader in application-specifically optimised filter media – has developed a three-dimensional mesh type with rectangular pores. While maintaining a constant volume flow rate, the higher porosity of this mesh construction reduces local pore velocity by up to 40%, with the throughput increasing by a similar factor. Particles above the required cut point are quickly and reliably separated. The lower pore velocity reduces the erosion caused by material abrasion on the filter media, and thus significantly increases the service life of the well pipes. With a performance portfolio like this, GKD's three-dimensional Porometric mesh outshines all other meshes in this sector. Porometric mesh with a geometric pore size of 150 µm is already being field-tested by a leading oil field equipment supplier. Currently, GKD is working on the development of this new mesh type with a pore size of just 20 µm.

**Flow-optimised mesh type ODW 6**

For the industrial and municipal wastewater treatment sector, SOLIDWEAVE will also have a new, already field-tested mesh construction on show. The flow-optimised mesh type ODW 6 combines a geometric pore size of just 6 µm with a high throughput rate, a low tendency to clog, and optimal backwashing capability. The rectangular, slot-shaped pore geometries on the surface of the mesh are smaller than the pores in the interior of the mesh. So particles above the required cut point are reliably separated on the mesh surface, while smaller particles pass freely through the larger inner pores. This special pore geometry gives the meshes a high dirt-holding capacity combined with a very low flow resistance. Compared to conventional fine filter meshes, ODW 6 meshes have considerably more stainless steel wire in the mesh surface. This explains the extraordinarily high degree of pore stability and mechanical strength of the single-layer mesh construction. Its porous structure enables excellent flow performance at separation rates down to 6 µm. No wonder, then, that ODW 6 mesh is attracting a great deal
of attention as an alternative to sand filters for mechanical wastewater treatment.

**Numerical simulation of the bubble point test**

Time-consuming screenings and uncertainties in the determination of capillary correction factors for establishing maximum pore diameter are now a thing of the past at GKD. On the basis of a multiphase simulation model, this manufacturer of high-precision filter media can now establish the size of the largest pore in a matter of seconds – and with a deviation from screening in the range of mere tenths of a micron. This is done on the basis of the virtually generated 3D models of the mesh stored in GKD’s simulation software GeoDict. Further CFD tools are then used to create a computational grid and establish a stable value for the correction factor constant – for each individual mesh type and not just for each weave type. In the meantime, GKD has established the correction factor constants for all its most popular mesh types. Now, using the respective correction factor constant and the measured bubble point pressure, the size of the largest pore can be calculated precisely in seconds. The numerical simulation of the bubble point test brings benefits for quality control during production runs, application-specific optimisation and the development of new mesh types – a genuine breakthrough which reinforces GKD’s claim to leadership in the production of precision industrial meshes. At the FILTECH in Cologne, the experts for demanding filtration tasks will be available for problem-solving discussions with visitors on this topic or other real-world challenges in the filtration sector. At the accompanying FILTECH Conference Dominik Herper, Development Engineer at GKD, will be giving a talk on the *Numerical Simulation of the Bubble Point Test* on Tuesday, 12 October 2016 at 5:35 pm.
We look forward to welcoming you at our stand:

GKD – GEPR. KUFFERATH AG
at the FILTECH in Köln
11 – 13 October 2016
Hall 11.1
Stand G2

5,625 characters incl. spaces

GKD – GEPR. KUFFERATH AG
The owner-run technical weaver GKD – GEPR. 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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