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Press Release

The Oerlikon Manmade Fibers Segment presents innovative tape extrusion at Techtextil 2015

EvoTape – the (r)evolution of tape production

Remscheid/Frankfurt, May 6, 2015 – The Manmade Fibers Segment of the Swiss Oerlikon Group presents at this year's Techtextil in Frankfurt the latest development for tape production in hall 3, booth B06: The EvoTape and WinTape will be shown in a Virtual Reality Showroom in 3D.

The technology used for manufacturing tapes has remained the same for many years now. The application possibilities for extruded tapes were diverse. The range is from carpet backing fabrics, textile packaging via agricultural textiles all the way through to the increasingly coveted area of geotextiles.

In addition to systems and yarn quality, the operating expenses (OPEX) are a very considerable decision-making criterion for investors in view of ever-growing pressure on margins. Traditionally, Oerlikon Barmag extrusion systems are high-end with regards to the quality of the systems, the process and the yarn. To this end, the focus during the development of a new systems concept for tapes was on production costs and energy consumption.

Efficient tape extrusion with the EvoTape concept
With the EvoTape, a process for manufacturing tapes has been developed that has literally revolutionized the process used to date: depending on the configuration, the systems output can be increased by up to threefold. The EvoTape operates with a cold pre-drawing process with an approx. 1:3 ratio. In the subsequent, second drawing stage, the tapes are 'lighter'; they take on the heat from the hot-air oven more easily. These two drawing stages result in superior process stability, reaching the same tenacity values with higher speeds or superior properties at the same speed.

The splitting of the drawing process also ensures a low overall draw ratio. As the cut width of the overall drawing is defined, this is also reduced. Consequently, more tapes can be manufactured, which – in addition to the higher process speed – increase the system's output. Overall, the specific energy consumption per kg of output is therefore considerably reduced.

Cost advantages as a result of greater process stability
A further argument for the new EvoTape concept is its superior process stability: the changed process reduces tape breakages compared to conventional processes. Furthermore, the lower temperature transfer – for example during hot-air drawing – simplifies additional string-up of torn tapes.

WinTape – more output, less waste
Higher speeds reduce the package running time. This, in turn, requires an automatic winder. The automatic WinTape precision winder supplements the EvoTape concept in the take-up stage. Electronic crossing angle(s) ensure(s) perfect package build with optimum quality for the downstream further processing. As the tapes dwell in the yarn guide during package transfer, automatic take-up of folded tapes is possible. Further plus point: with two parking positions for full packages, the system configu-

ration for carpet backing fabrics can operate for 24 hours without package transfer, hence simplifying shift work.

Furthermore, identical package running lengths, which are common in an automatic take-up concept, reduce waste. Operating the WinTape in conjunction with the EvoTape systems opens up further benefits offered by the new precision winder: production waste occurring during package transfer can be directly routed back to the extruder.

EvoTape concept is available for many processes
Following the successful market launch for manufacturing tapes for carpet backing fabrics, the EvoTape process is now also revealing its strengths for other products. The focus of the development work over the past few months has been on the verification of speed potentials and a lower overall draw ratio for further products: to this end, the new concept currently offers solutions for the manufacture of carpet backing, agricultural textiles and geotextiles.

Carpet backing
The system configuration for carpet backing generates the familiarly high and, above all, homogeneous tape quality at simultaneously considerably higher process speeds. The EvoTape offers a process speed of 400m/min: by contrast, extrusion systems for carpet backing used to date operate at a speed of 320m/min, while systems manufactured before 2010 produce at just 180-280m/min. To this end, the considerably superior productivity of the new EvoTape system in conjunction with the WinTape take-up unit provides yarn producers with a significant expansion in capacity without substantial additional space requirements.

In this application configuration, the energy savings amount to up to 50% compared to equipment manufactured during the 1980s and 1990s, which is quite permissible for a system lifespan of 30 years and more.

Baler twine
The potential is particularly apparent in the case of baler twine: here, it is – in addition to higher process speeds – above all the reduction of the overall draw ratio that is significant. With this, it is possible to virtually double the output compared to established processes.

While the titers of carpet backing fabrics lie between 300 and 1500 dtex, the titers for baler twines are 20,000 dtex and higher. Instead of tape widths of between 0.9 and 2.5mm and thickness ranging from 35 to 45 µm, tapes with widths of between 20 and 90 mm and thicknesses of between 75 and 100 µm can be manufactured. The tapes are profiled or fibrillated and are twisted in the downstream process and wound onto tubeless packages.

The focus of the process is on high tenacities for the yarn and high tenacities for the knots when tying off the bales. To achieve the high tenacities desired, the tapes are drawn at a ratio of 1:12 in currently common standard processes. The high draw ratios mean that in the case of products with 70,000dtex, for instance, only 3 to 4 tapes can be run in parallel on the system.

With the EvoTape, these draw ratios can be reduced to just the one seventh or one eighth. Lower draw ratios simultaneously also mean cutting narrower tapes, hence allowing more tapes to fit on the godets. The output of the system is virtually doubled in conjunction with the speed increase from 250 to 350m/min: from 500kg/h (common market standard) to up to 1,000kg/h (EvoTape / WinTape con-

cept). To this end, the new systems concept saves space, handling and – above all – energy. Energy consumption of just 0.4kWh/kg is a further decisive argument for the EvoTape / WinTape solution.

Geotextiles
And the EvoTape process also showcases its advantages for geotextiles and agricultural textiles. Here, high tenacities are achieved with lower overall draw ratios as well. For some applications, the addition of LDPE as a 'drawing aid' can be dispensed with, additionally securing a reduction in raw material costs for this process.

EvoTape & WinTape – the perfect duo
In an age in which investment decisions are also influenced by sustainability considerations, the EvoTape / WinTape concept has set a new standard. Greater output with the reduced deployment of energy and personnel, less waste and a faster return-on-investment (ROI) make the new tape system from the Chemnitz-based Oerlikon Barmag extrusion technology experts a real alternative.

With the EvoTape / WinTape duo, the tape market now has a concept that is also a prudent replacement investment as a result of its immense efficiency. The concept only unveils its full potential as a duo of perfectly coordinated components: here, high extrusion process speeds can only be efficiently realized with an automatic winder. Conversely, although connecting an automatic winder to a standard extrusion system makes sense, it is unable to reveal its entire performance spectrum.

In terms of tape quality, the EvoTape & WinTape combination makes no compromises: the familiarly superlative product quality promises tape manufacturers a position within the high-end market.

Caption:

Fig 1_EvoTape_customer_open_house_BSZ
With more than 1,000 installed extrusion systems across the globe, Oerlikon Barmag is the market leader in high-end tape systems.

Fig 2_WinTape_customer_open_house_BSZ
Electronic crossing angles ensure perfect package build with optimum quality for the downstream processing.

Fig 3_InnovationTechnology_EvoTape_baler_twine
The focus of the baler twine process is on high tenacities for yarn and knots.

Fig 4_InnovationTechnology_EvoTape_carpet_backing
EvoTape for carpet backing offers a process speed of up to 400 m/min.

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About Oerlikon
Oerlikon (SIX: OERL) is a leading global technology Group, focusing on providing market-leading technologies and services for surface solutions, manmade fibers manufacturing, drive systems and vacuum pumps and components in growth markets. These cutting-edge technologies benefit customers by improving their product performance, productivity, efficient use of energy and resources, and also by contributing to a more sustainable environment. A Swiss company with over 100 years of tradition, Oerlikon has a global footprint of over 15 500 employees at more than 200 locations in 36 countries and sales of CHF 3.2 billion in 2014. The company invested CHF 121 million in R&D in 2014 and has over 1,300 specialists developing innovative and customer-oriented products and services.

For further information: www.oerlikon.com

About Oerlikon Manmade Fibers Segment
Oerlikon Manmade Fibers Segment with the product brands Oerlikon Barmag and Oerlikon Neumag is the world market leader for filament spinning systems used for manufacturing manmade fibers, texturing ma-chines, BCF systems, staple fiber spinning systems and artificial turf systems and – as an engineering services provider – offers solutions along the entire textile value added chain. As a future oriented company, the Oerlikon Group segment's research and development is driven by energy-efficiency and sustainable technologies. With the expansion of the product range to include polycondensation systems and their key components, the company now caters to the entire process – from the monomer all the way through to the textured yarn. The primary Oerlikon Barmag markets are in Asia, with Oerlikon Neumag's main markets in the US, Turkey and China. Correspondingly, the companies – with almost 2,500 employees – have a worldwide presence in 120 countries as part of the Oerlikon Manmade Fibers network of production, sales and distribution and service organizations. At the R&D centers in Remscheid, Neumünster and Chemnitz, highly-qualified engineers and technicians develop innovative and technologically-leading products for tomorrow's world.

For further information: www.oerlikon.com/manmade-fibers