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New Technology for Transverse Stretching of Biax Film

A revolutionary technology, aimed to replace chain track systems in all kind of biaxial film stretching lines, has been presented to the market for the first time at Arab Plast in January 2019.

The Rope Stretch Technology (RST) aims to replace current systems which are using very heavy and maintenance intensive clips and chains moving on tracks, with light weight and maintenance free ropes that are used to clip, transport and stretch the film in the TDO.

This new technology can be used to replace existing chain track systems in old machines as well as be installed in new projects. The advantages are significant, ranging from eliminating all weight and friction related issues by reducing the weight of the moving transport system from more than 20 tons to a few hundred kg, over to total elimination of oil usage for sliding systems and roller bearings on moving clips. All this results in a substantial overall cost reduction in terms of investment operation and maintenance.

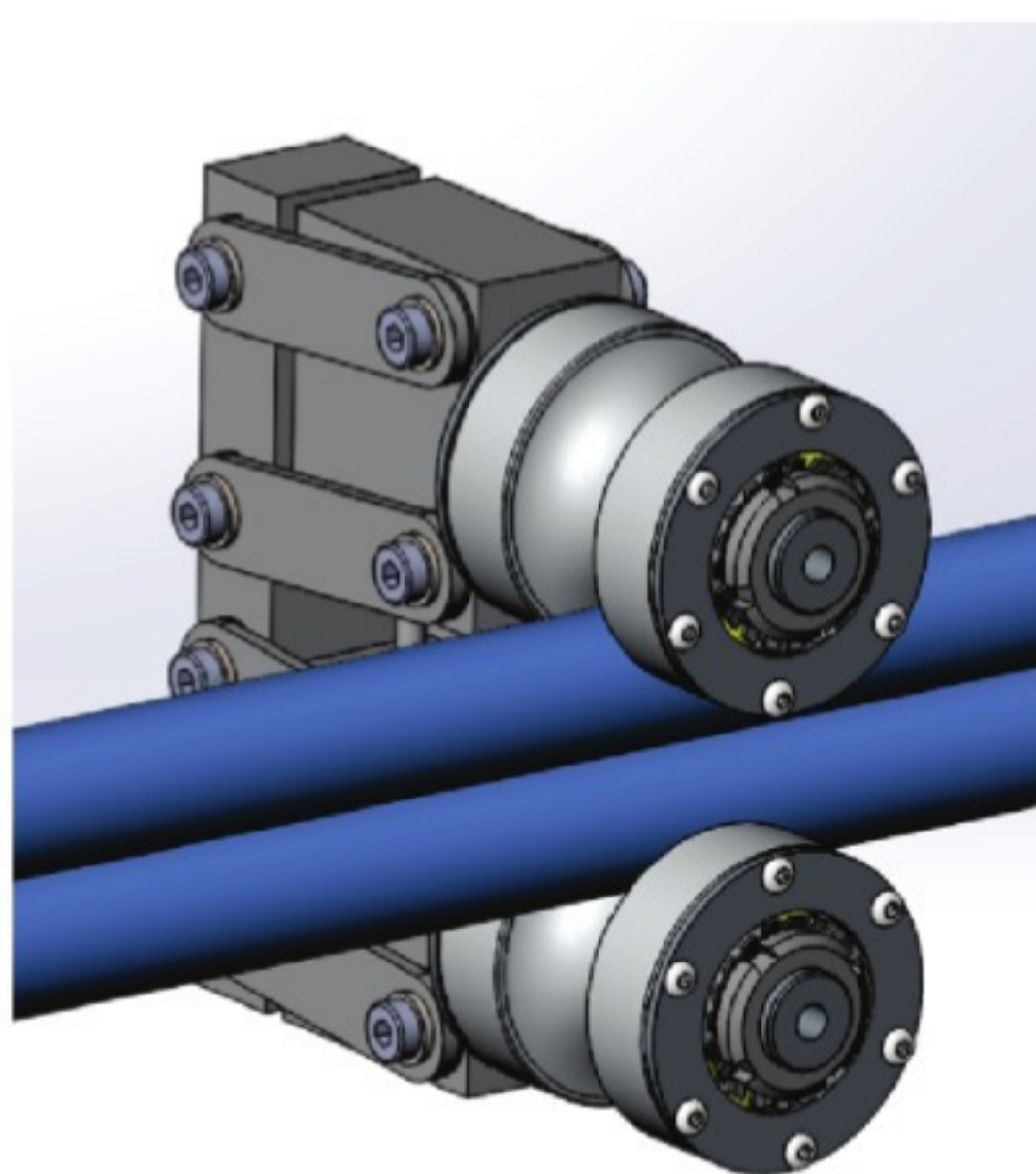
The biggest advantage in terms of reducing production cost is the low construction height of the RST system allowing for improved heat transfer values by up to 40 %. This improvement results in increased output of the TDO by the corresponding ratio as well as proportionally reduced energy cost, both factors directly saving energy cost per ton.

Depending on the layout of machines, the use of the RST will significantly reduce the investment, maintenance and production cost which are key to economic success in today's challenging market environment. This revolutionary technology will be used to upgrade existing machines, as well as to

dramatically increase the efficiency and speed of new machines. Production speeds of up to 1000m/min will come into play soon.

The Rope Stretch Technology simply uses guide elements guiding two ropes, an upper and a lower one, through specially designed rollers. By pneumatic force, the rollers press the two ropes together thereby clamping the film. Each guide element can be controlled individually and apply needed force on the ropes as needed in the different zones of the TDO.

Therefore, in the zones where film is just transported with no lateral stretching forces required, less guide elements and lower pressing force will be used, to only create the specific gripping power needed. In the stretching zones such guide elements will be next to each other, using the gripping power as needed for the film to be stretched.



With this innovative technology, another notable advantage comes into play which is called the "snake effect". The ropes will distribute the stretching angle applied equally between all guide elements

allowed to turn in relation to each other. This offers total flexibility in regarding the adjustment of stretching angles within the stretching zones and consequently offers a highly sought-after process improvement that normal chain track systems cannot offer.

Special ropes have been developed, meeting all needs of this highly efficient process. The tension of the ropes can easily be controlled and adjusted, allowing for simple width adjustment and free design of the ropes back run inside or outside the machine. This improvement also offers new and improved possibilities of maintaining and cleaning the ropes. The fact, that only the ropes move and the guide elements with the rollers and pneumatic devices are fixed, allows ground breaking new features to control forces temperatures and process parameters.

The Rope Stretch Technology has been invented by Dr. Wolfgang Pinegger. All worldwide patent rights are held by his companies which will thus be the licensing partner for all interested users of this revolutionary technology. The Austrian machine building company K-Industries GmbH has been acting as the development partner acquired a worldwide license to manufacture the needed parts and also can serve as the engineering partner for all installations into film production lines. The final mechanical, electronic and design development has been done in cooperation with the Technical University of Vienna and its institute for Production Technology. There all prototypes and test equipment can currently be viewed.

At this point GloBra and K-Industries have started promoting the RST with a main focus on upgrading existing lines. Initial discussions with several interested

Awards & Recognition

AZL demonstrates new Ultra-Fast Consolidator Machine (Finalist for the JEC Award 2019) at the JEC World in Paris

After many years of successful cooperation on JEC World since 2015, the Aachen Center for Integrative Lightweight Production (AZL) renewed the cooperation with the JEC Group for 2019:



At the dedicated exhibition area called “Composites in Action - JEC Group in partnership with AZL”, AZL and its 9 Partner Institutes of RWTH Aachen University present their latest research and development results. The innovations covering the whole composite value chain including research results of AZL, Fraunhofer Institute for Production Technology IPT and Fraunhofer Institute for Laser Technology ILT, the Institute of Plastics Processing (IKV) in Industry and the Skilled Crafts as well as RWTH Aachen University institutes including the Laboratory for Machine Tools and Production Engineering (WZL), the Welding and Joining Institute (ISF), the “Institut für Textiltechnik” (ITA), the Institute for Automotive Engineering (IKA), the Institute of Structural Mechanics and Lightweight Design (SLA). Following companies are sponsoring partners of

this booth and will present their latest products and services: Hille Engineering, Maru Hachi, TELENE and Textechno.

This year, AZL is very proud to present a new machine system development at their booth: The real machine setup of the “Ultra-Fast Consolidator Machine” will be shown at the AZL booth which is one of three finalists for the JEC AWARD 2019 in the category “Industry and Equipment”.

The new Ultra-Fast Consolidator Machine offers both high flexibility and mass production of tailored thermoplastic laminates with reduced scrap. Fully consolidated multi-layer with different fiber directions and minimized scrap (tailored blanks) can be produced in cycle times below 5 seconds. This individualized mass production is accomplished by a combination of laser-assisted tape placement with in-situ consolidation and a piece-flow principle, which is state of the art in the printing industry but has not been used in such a way within composite production.

The achievable productivity is enhanced to more than 500 kg/hour by this piece-flow principle with carriers moved through multiple application stations which are equipped with multiple tape placement applicators. The new machine is scalable: multiple application stations can be added, e.g. for each layer one station for mass production or for each fiber direction one station with a carrier- conveyor carousel: here the carriers are moved multiple times through the application stations.

For more details:
www.azl-aachen-gmbh.de

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clients are in progress and appear promising.

Licenses will be output related and granted on a per machine basis. Customers may choose between annual fees or one time payments.

The RST will be licensed and sold direct to film producers, but also engineering partners like the manufacturers of biax

lines may be involved. Such companies may apply to become authorized



engineering partners which consequently will enable them to purchase parts and license packages for their customers.

Early customers who help us gain more production experience will be granted special license deals and packages.

For more details:
www.glbrain.com