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Essential Technology & Information for Plastics Processors and Molders



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Liquid crystal polymers for thin-wall medical devices

– Mr. Kelvin Lim, Field Development Manager, Celanese Singapore Pte Ltd



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Liquid crystal polymers for thin-wall medical devices

Kelvin Lim, Field Development Manager at Celanese Singapore Pte Ltd. cites the many advantages of liquid crystal polymers (LCP) in the production of medical devices.

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Maximum flexibility and optimum performance from linear robots

The new generation of KraussMaffei LRX linear robots is targeted at plastics processors given its wide selection of axis lengths and wrist axes, optimal integration of peripherals and great flexibility in challenging processes.



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Maximising the value of regrind

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UFlex worked on the development of Accuslit-25, a 2500mm wide slitter, best suited for slitting all kinds of films and flexible packaging laminates and substrates.



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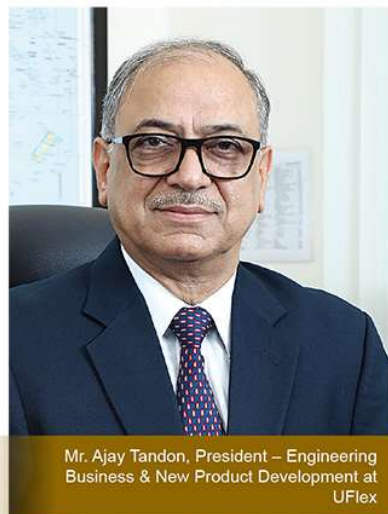
Extrusion

By MR. AJAY TANDON
President - Engineering Business, UFlex

Packaging is the fifth largest sector of the Indian economy and is also one of the fastest-growing sectors worldwide. As per a report by Invest India, the packaging sector was worth over US\$917 billion in 2019, and is expected to grow at CAGR of 2.8% to reach US\$1.05 trillion by 2024. The flexible packaging market was valued at US\$233.32 billion in 2020 and is projected to be worth US\$300.18 billion by 2026, at a CAGR of 4.37% as per Mordor Intelligence.

Since the pandemic outbreak, the demand for flexible packaging has been growing faster than many other forms. Not just the customers, but even the consumers are willing to pay extra to avail attributes of safety, convenience and added functionalities, which open doors for innovation in packaging space. A feature-rich, convenient and world-class packaging is certainly an outcome of carefully engineered concepts in the development of value-added packaging.

UFlex' engineering business began its operations in 1985, with a commitment to provide high-performance machines and customised solutions that meet and exceed global standards



Mr. Ajay Tandon, President – Engineering Business & New Product Development at UFlex

High-speed slitter benefits films production



UFlex Accuslit-25, a 2500mm wide slitter, best suited for slitting all kinds of films.

while reducing total cost of ownership. The company's innovations stem from a gap in the market that needs to be filled through consistent modifications and upgrades. UFlex's Engineering business has strengthened its position and has emerged as a reliable supplier of wide range of machines in the packaging & converting space including slitters for its customers across the globe.

The world of packaging is incomplete without slitting. It is one of the key processes that play a major role in producing quality finished packs. While there are slitting machines used on a daily basis by UFlex to manufacture finished packaging films and products, there comes a need for custom slitting too, to meet specific requirements of the customer. The packaging films come in the form of a jumbo roll and is required to be slit in parts to suit various packaging requirements. A primary slitter serves the purpose of slitting packaging films in a

specific width only within the film-making process, however for slitting into smaller sizes the need to develop secondary slitters was imperative so as to meet the requirement of next operations.

Slitting plastic films

Before the development of Accuslit-25 by UFlex, all slitting machines in India were imported majorly from Europe. There were several challenges including close-tolerance, wider widths, non-availability of necessary machining and difficulty in balancing equipment, complications in programming and recipes etc. These machines were expected to slit jumbo rolls with a web width of up to 2.5 meters into smaller widths of 400mm to 1300mm, without compromising on the film quality in terms of barrier and edge flushing, however sometimes there were errors reported in retention of barrier properties.

The consumption of flexible packaging is on a constant rise and so is the derived demand for flexible packaging films. The increase in number of packaging film production lines in the last couple of years is an attestation for the same. For better productivity and other commercial considerations, packaging films production lines across the world are getting wider, and with each passing day it

is necessitating multiple levels of slitting to bring it to usable widths at the converter' end. Additionally, the rising barrier places emphasis on the need for quality secondary slitters, thus the inception of the secondary slitter for customers.

The birth of Accuslit-25

While on one hand the requirement

is on the rise, on the other hand there are not many manufacturers who can tend to these slitting needs, especially for covering specific applications like smooth mechanizing, close tolerance, and to top all one that retains barrier properties in the film.

UFlex worked on the development of a secondary slitter with 2.5 metre width that retains barrier properties of

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Extrusion

the film during the process of slitting. This development resulted in the birth of Accuslit-25, a 2500mm wide slitter, best suited for slitting all kinds of films (BOPP, BOPET or CPP), and flexible packaging laminates and substrates.

Being the first mover in any category certainly offers advantages, but it throws equal number of challenges, too. In the first place, making a mark in the domestic market was a challenge in itself for UFlex, as finding suitable vendors and suppliers who could understand the mechanical requirements was not an easy task. The next challenge was to procure materials and find a supplier in the middle of the pandemic, which was one of the toughest situations to deal with. All of these, coupled with the pressure to get it right on the first go was an added strain for UFlex, but the outcome of was certainly worthwhile.

To develop a perfect slitting marvel in first attempt, UFlex followed the standard procedure of brainstorming on the available alternatives, and strategizing on the most viable approach. It also followed a backward approach as well by understanding



slitting expectations of the technician on the shop-floor. This combination of working towards the development with user's expectations on mind in parallel was helpful to draft a specification enriched blue-print of Accuslit-25.

Despite a clear roadmap for Accuslit-25 design, the development team faced the obstacles of chucks and trim blowing systems which required the R&D team to re-think and test certain possibilities to overcome the same, and after a few combinations, the team successfully developed Accuslit -25 that surpassed the targeted deliverables on all films, laminates and substrates without compromising on barrier properties,

speed, accuracy.

Accuslit-25 has been made in line with latest standards so as to move on a linear scale that yields accurate positioning through tempo sonic sensors. The development of Accuslit-25 allows the flexibility to the converters to have up to six rewinders with the possibility to slit in a minimum width of 400 mm. Each of these unwinders that are individually driven, provide the opportunity to handle 3 & 6 inches cores with an advanced floor pick-up capability. In addition to these, the custom setting on the slitter allows the possibility to equip the machine with a razor blade and a rotary cutter so as

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to best suit the substrate properties. The slitter also addresses the need to achieve higher accuracies and achieve minimum drag with its pre-installed carbon fibre rollers. With its high speed of 800 mpm, Accuslit-25 has already garnered a lot of interest from packaging converters worldwide.

Precision and reduced wastage

After successful installation of the first machine, the Engineering business of UFlex has been able to help the customer achieve precision and has been able to reduce wastage in the slitting jobs. With this achievement, it has further widened its horizons with bigger widths and has developed big slitters with 3000 mm and 3350 mm width.

The pandemic brought challenges to UFlex in its development of Accuslit-

25 as it placed UFlex in a unique situations that it had never anticipated, thus driving the company to find innovative solutions instead of dwelling on the problems. After the first wave of coronavirus in 2020, the packaging & printing Industry saw a significant boom. Not only converters but machines manufacturers received plenty of orders. UFlex too received a number of orders and bookings. However, the second wave affected everyone substantially. Having said that, UFlex foresees a high potential for growth with anticipated rise in orders.

Future of slitters in the packaging sector

The fraction of slitting jobs is set to grow in direct proportion to the growth of flexible packaging. With more demand

for flexible packaging ever since the pandemic outbreak especially due to hygiene concerns, the demand for slitters is trending towards north as well. As per a report by Market Watch, the global Slitting & Rewinding Machine market was valued at US\$439.8 million in 2020, and is expected to reach US\$576.6 million by the end of 2026, at a CAGR of 3.9%. The engineering business of UFlex holds a state-of-the-art Research & Development capacity that works on developing machines that aims to create value, add convenience and deliver unmatched finesse in the course of the development of packaging. With the spirit of innovation in its DNA, UFlex is determined to innovate and deliver nothing short of a superlative slitting experience that will open doors of opportunities and possibilities for packaging converters. **IRNA**

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