CASE STUDY

PLASTIC EXTRUSION

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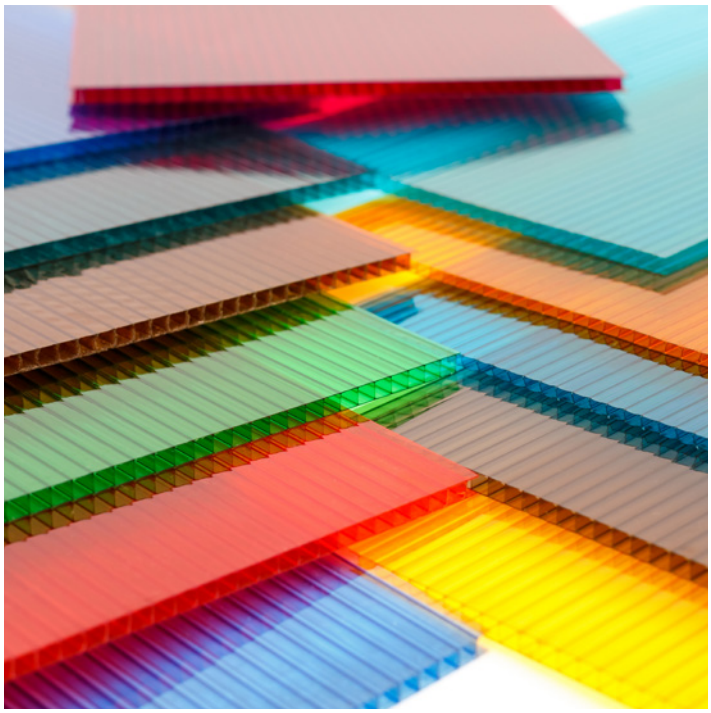
Edwards EXDM module supports clean, environmental-friendly plastic processing

Primex Plastics Ltd based in Newton Aycliffe UK is a world leader in producing thermoplastic sheets usually of ABS (Acrylonitrile Butadiene Styrene), a common thermoplastic polymer. They supply materials into many sectors such as automotive, medical, food and general thermoforming and fabrication across Europe. The company supplies the European market with high quality semifinished materials and is in the process of expanding to meet customer needs.

Primex is dedicated to high-quality output and ensures the cleanest material mix which helps to guarantee top-quality plastic products, even with regrind/recycled products. It is also an ISO 14001 accredited company that values sustainability. The site runs on 100% green energy and achieves a remarkable 99.5% total utilisation of raw materials with proper recycling processes in place too. This strong focus on product quality and environmental consciousness lead them to partner with Edwards Vacuum for their extrusion process.

Barry Wedgwood, Production Manager Primex and Jeff Croft, Sales Engineer Edwards

Edwards EDC150 dry claw vacuum pump



KEY FACTS

Customer	**Primex**
Region	**United Kingdom**
Sector	**Plastic extrusion**

BENEFIT

- **Reliable and consistent vacuum level**
- **Elimination of wastewater**
- **Low maintenance**

PLASTIC EXTRUSION

1. CHALLENGE

During the plastic extrusion process, vacuum is used to remove impurities and vapour from the material while it is compressed in the screw. The result is the production of a high-quality homogenous product which is rolled into the final sheet of specific colour, finish and thickness.

The Primex plant runs 24 hours, 5 days per week - this made reliability a key factor. They needed a pump that would perform with a stable vacuum over long periods to ensure all Primex products, from the first sheet to the thousandth, were in perfect quality. The Primex ABS extruder and co-extruder lines were originally installed with liquid ring technology which would create a lot of wastewater. This conflicted with their operational goals of a cleaner and environmentally friendly extrusion process.

2. SOLUTION

Primex selected our state-of-the-art Edwards EXDM (Extruder Degassing Module). The module features a single EDC150 dry claw vacuum pump, run/standby inlet filters, a chamber flush system and HMI graphic controller. Stable vacuum is a critical component for producing quality plastic film/sheet. The Edwards EXDM module is used to maintain vacuum on the extruder screw of a new production line at Primex – producing high quality sheet from regrade and virgin ABS.

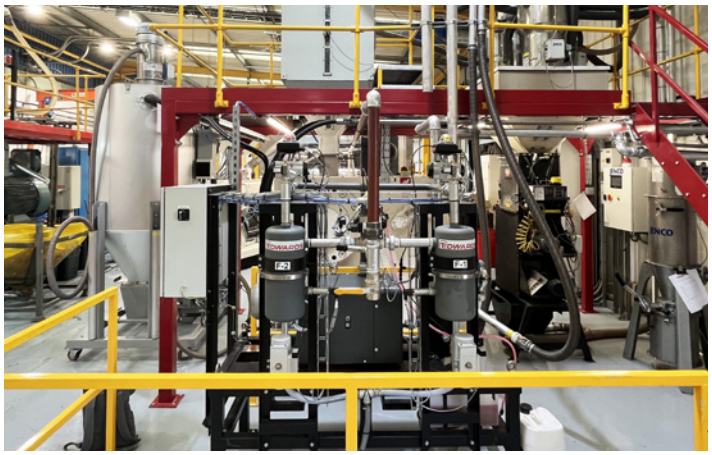
The reason the Edwards EXDM module was the perfect choice is because it is a pre-engineered package specifically designed for processing plastics. It is capable of handling solids, liquids and provides reliable vacuum with minimal environmental impact and can be integrated into an existing system. With the easy logic manual and intelligent automatic control options available, it is robust with customisable filtration and control options. Built with a state-of-the-art dry claw pump which is extremely reliable and low maintenance, the module is protected by inlet filters and features an automatic flush system to make sure the vacuum generator is kept in perfect working order even in the most continuous, demanding lines. It can tolerate a number of starts and stops without affecting the pump performance or the entire process.

The EXDM allows Primex to eliminate the water and waste that their old liquid ring technology would produce. The stainless-steel claw mechanism and a coated inner chamber housing of the EXDM does not generate wastewater or oil. Instead, it ensures minimum power usage and maximum uptime.

3. OUTCOME

Vacuum is one of the main forces that enables Primex to produce top-quality plastic sheets, made precisely to customer specification. Colour, strength, durability, finish, and many other variables undergo stringent checks. That's why they were clear on what they needed and expected, and Edwards proudly delivered. The EXDM is efficient, saves energy and helps to minimise the carbon footprint of the plant. The ultra consistent, low maintenance and clean dry technology effectively transformed Primex's extrusion process. They have plans to expand their ABS line and are set on partnering with Edwards once again to achieve their goals.

Primex is dedicated to high-quality output and ensures the cleanest material mix which helps to guarantee a top-quality plastic products, even with regrind/recycled products. This strong focus on product quality and environmental consciousness lead them to partner with Edwards Vacuum for their extrusion process.



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