

EXTRUSION DEGASSING

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Improving extrusion quality and sustainability with Edwards EXDM dry vacuum technology

Since its founding, Italian company M-ENG has been a key player in the extrusion market, specialising in the design and engineering of both standard and complex polycarbonate sheet extrusion lines. With more than 30 years of experience, M-ENG has established long term partnerships with customers around the world, combining innovation, automation, and engineering excellence to deliver high performance extrusion systems.

Their customers operate globally and are under constant pressure to produce more while consuming less, in energy, raw materials, and water. The highest Italian quality standards are reflected in all M-ENG solution's components.



EXDM system



Edwards nEDC dry claw vacuum pump



KEY FACTS

Application	Extruder degassing for polycarbonate production
Region	Italy
Sector	Plastics processing

BENEFITS

- Enhanced process automation and control
- Improved product quality and dimensional stability
- Reduced energy consumption and emissions
- Simplified maintenance and reduced downtime

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1. CHALLENGE

In the plastics industry, manufacturers must ensure high production rates, consistent quality, and energy efficiency in their production process. For M-ENG, maintaining stability during the degassing phase of extrusion was essential to achieve transparency, dimensional stability, and mechanical strength of the final polycarbonate sheets. The degassing process directly impacts the quality, transparency, and mechanical properties of the final product.

M-ENG required a vacuum system that offered precise process control, advanced automation, and minimal maintenance while supporting their commitment to energy efficiency and sustainability.



2. SOLUTION

After assessing M-ENG's extrusion and degassing requirements, Edwards proposed the EXDM (Extruder Degassing Module), a modular dry vacuum solution designed specifically for extrusion applications. The EXDM system incorporates the on site serviceable nEDC dry claw vacuum pump with stainless steel claws for corrosion free operation, engineered for frequent start and stop cycles.

"A well designed vacuum system reduces the risk of overpressure in the extruder and enhances process stability, thereby minimising scrap rates and unplanned production stoppages," explains Adrian Sandham, Business Line Manager, Edwards. "For M-ENG, our EXDM is a perfect fit because it excels in degassing applications, ensuring a more uniform and reliable process."

With its modular architecture, the EXDM can be configured with one or two filters and various accessories to handle condensable vapours and solid particles commonly present in extrusion processes. The fully automatic system manages filter operation, solvent flushing, and pressure regulation minimising manual intervention and improving process consistency.

"The EXDM is versatile for any degassing process," adds Andrea Harb, Area Sales Manager, North West Italy. "It can be customised for different polymers, including silicone, rubber, and food applications. For M-ENG, we tailored the EXDM with automatic control options for seamless performance and increased throughput."

3. OUTCOME

The implementation of Edwards' EXDM system has significantly supported the development of M-ENG's extrusion lines.

"One of the key advantages of the Edwards EXDM system is that it's a ready-to-use solution that's easy to install and fully pre-configured. It's modular architecture provides flexibility for integration into a variety of extrusion line configurations, while also ensuring long-term efficiency with minimal maintenance requirements", emphasised Milena, CEO, M-Eng.

"M-ENG are known on the market as being specialist in automated Extrusion system and Edwards EXDM helps us to provide even further automation on the vacuum line. The system automatically optimises running hours, filter conditions and purge cycles to make sure our extrusion lines are running in the best conditions."

There is no use of water, the filter change is automatic, and this automation significantly improves the process as there are no machine downtimes. The system's IE class motors ensure superior efficiency and performance.

"Reducing environmental impact is a top priority for Edwards," notes Adrian Sandham. "Our dry vacuum systems are inherently sustainable because they eliminate the need for oil, water, or lubricants, helping manufacturers achieve cleaner and greener operations."

For M-ENG, the EXDM solution not only meets but exceeds expectations, reinforcing their reputation as specialists in automated extrusion systems and enabling them to deliver smarter, more sustainable solutions to their customers.

By working together, M-ENG and Edwards continue to advance extrusion technology, offering customers innovative, energy efficient, and automated vacuum systems that support sustainable production worldwide.

"Our co-operation with Edwards started six years ago. We reached out to them because they are recognised as key players in vacuum technology, with strong technical expertise and a global presence. We appreciate that Edwards listens to us as true

partners and works with us to develop customised, innovative solutions.

It's very reassuring for us to know that the entire vacuum part of the process is managed by Edwards, a trusted partner with strong vacuum expertise.

Milena Redi | CEO, M-ENG