VACUUM & PRESSURE SOLUTIONS

FOR SUSTAINABLE PLASTIC & RECYCLING SOLUTIONS

Elmo Rietschle®

VAKUUM EXPERTEN

VACUUM

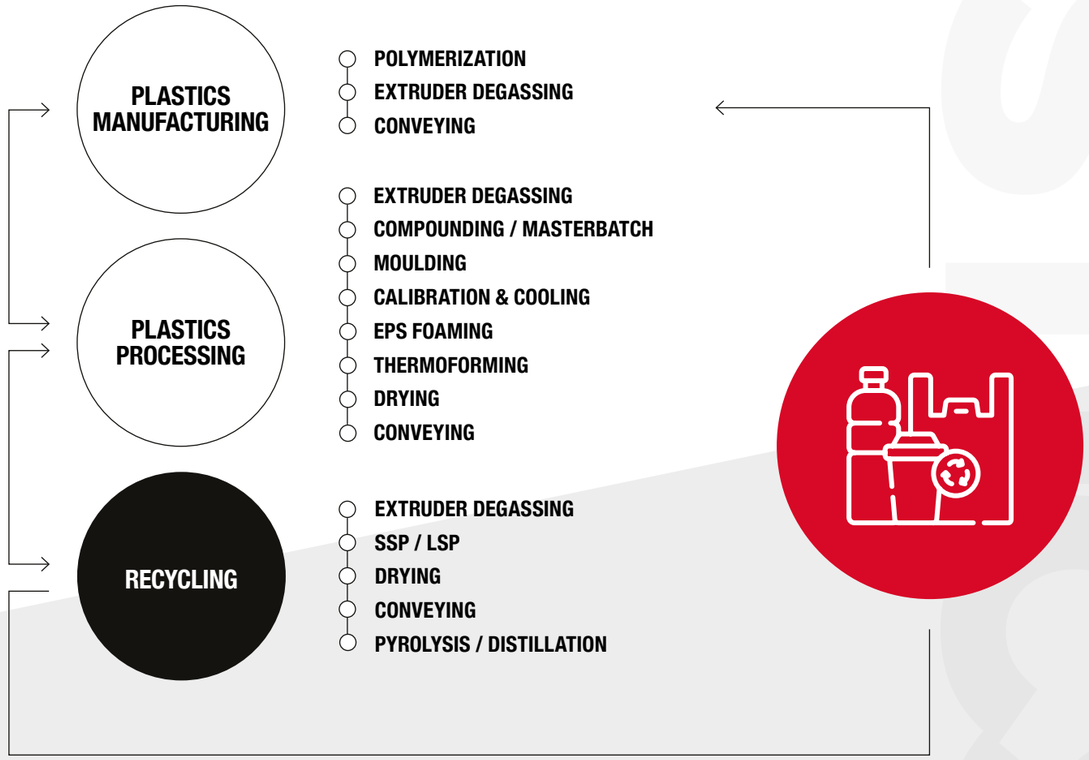
PRESSURE

VACUUM

PRESSURE

THE PLASTICS & RECYCLING INDUSTRY

In the plastics and recycling industry vacuum pumps are widely used in various application processes, like extrusion, masterbatch and compounding, drying, solid and liquid state polycondensation (SSP/ LSP), pneumatic conveying, calibration, cooling, moulding, thermoforming and eps forming. At Elmo Rietschle, we apply our knowledge to match the right product or system to the specific demands of a given application.



THE RECYCLING CHALLENGE

Plastic recycling has seen an impressive period of growth, creating a greater awareness of the need to recycle plastic across the whole of society. However, there remains a lot to do. According to Plastics Europe* in a new calculation methodology only 32% of plastic packaging is currently recycled.
The Packaging and Packaging Waste Directive (PPWD) is pushing for a target of 50% of plastics packaging to be recycled by 2025, increasing to 55% by 2030. To support this push Elmo Rietschle has a dedicated team to support plastic recycling applications and a wide range of dry vacuum pumps and blowers that provide a more sustainable solution.

TYPICAL APPLICATIONS

Extruder Degassing

Extruder degassing is an important process step in various plastic extrusion methods during plastics production and recycling. The basic function of vacuum degassing is to remove moisture, air inclusions, monomer residuals, solvents and reaction products from the polymer melt to obtain optimal quality of the end product. Our experts will help to choose the right vacuum technology and package configuration according to the polymer and process requirements.

Drying

Hygroscopic materials such as PC, PA and PET to name just three, attract moisture from the surrounding air, so that dehumidification of the raw materials before processing is essential for high quality of plastic products. More efficient systems employ air dryers where the air is conveyed by a blower first to a heater and then directed through the polymer granules or powder for drying. A dehumidifier positioned in the return airflow removes the moisture from the process air.

Vacuum Calibration & Cooling

Calibration units can determine strongly the visual and structural quality of the product. Vacuum calibration tables use vacuum pumps to force the molten profile into the correct position at calibrator wall during the cooling. High water content requires a vacuum pump which is optimized for the water carry over.

EPS-Foaming

Pre-expanded polystyrene beads are first stabilized and matured in dedicated storage silos after being cooled and dried. In the next step beads are blown into a mould by a side channel blower and then pressurized with steam and baked into moulded parts. A vacuum applied to the mould ensures correct shaping, cooling and moisture extraction.

*Plastics Europe (2024, March). The Circular Economy for Plastics, a European Analysis. https://plasticseurope.org/knowledge-hub/the-circular-economy-for-plastics-a-european-analysis-2024/

OUR PLASTIC & RECYCLING INDUSTRY SOLUTIONS

Claw.

Elmo Rietschle's C-Series generates contact-free vacuum efficiently and economically. Resulting in considerable energy savings, reduced maintenance and a lower cost of ownership compared to traditional technologies. This technology is a perfect match for a wide range of applications in the plastics and recycling sector.

Advantages at a glance

- **High efficiency**
- **Contact-less oil-free operation**
- **Low total cost of ownership**

Screw.

The screw vacuum pump product range represents state-of-the-art dry running vacuum technology that is not only extremely energy efficient and reliable but offers low life cycle costs. The S-Series is ideal where a deeper ultimate vacuum is required in a single stage and used in polycondensation and extruder degassing.

Advantages at a glance

- **Dry running, contact free operation**
- **High vacuum in one stage**
- **Low life cycle costs**

Side Channel Blower.

These blowers are versatile and ideal for polymer dryer and pneumatic conveying. They offer efficient, oil-free operation, performing flawlessly day in and day out with virtually no downtime. Elmo Rietschle's side channel blowers are available in a wide variety of performance ranges up to 3,000 m^3/h and differential pressures up to 1,000 mbar.

Advantages at a glance

- **Reliable and built-to-last, virtually maintenance free**
- **Compact and light-weight design**
- **Adjustable speed via external or integral converter**

Rotary Vane.

Our industry leading oil lubricated rotary vane vacuum pumps cater for a wide performance range. The time-tested rotary vane pumps are used for a wide range of industrial applications. The time-tested oil lubricated rotary vane pumps are typically used for generating vacuum.

Advantages at a glance

- **Robust and economical**
- **Long up time and easy to operate**
- **Easy to maintain**

Liquid Ring Pumps.

Well-suited for a wide variety of applications, the L-Series by Elmo Rietschle utilises high-quality materials such as stainless steel and ceramics to ensure reliability and constant operating performance. If lime scale, corrosion or abrasion have been challenges in the past this could be the ideal solution.

Advantages at a glance

- **Maximum abrasion resistance**
- **Excellent corrosion resistance**
- **No deposits and lime scale**

PART OF A WIDER FAMILY

Elmo Rietschle is part of Ingersoll Rand which gives our customers access to an even wider range of products and solutions. Ingersoll Rand has a very broad range of innovative and mission-critical air, fluid, energy and medical technologies, providing services and solutions to increase industrial productivity and efficiency.

PRODUCT MATRIX.

	TECHNOLOGY min. / max. pressure					
	CLAW 30 mbar a / 2000 mbarg	SCREW 0,08 mbar a	LIQUID RING 33 mbar a / 3500 mbarg	ROTARY VANE 0,5 mbar a / 1400 mbarg	SIDE CHANNEL 300 mbar a / 1100 mbarg	BOOSTER
Polymer Drying					★	
Vacuum Polymer Drying*	★	●		●		
Extruder Degassing*	★	●	★	●		
Plastics Recycling Extruder Degassing*	★	★	★	★		●
Compounding & Masterbatch*	●	★	★	★		★
Polycondensation (SSP)*	●	★	●	★		★
Pneumatic Conveying	★			●	★	
EPS Foaming	★		●	●		
Vacuum Calibration and Cooling	●		★	●		
Thermoforming	★			★		

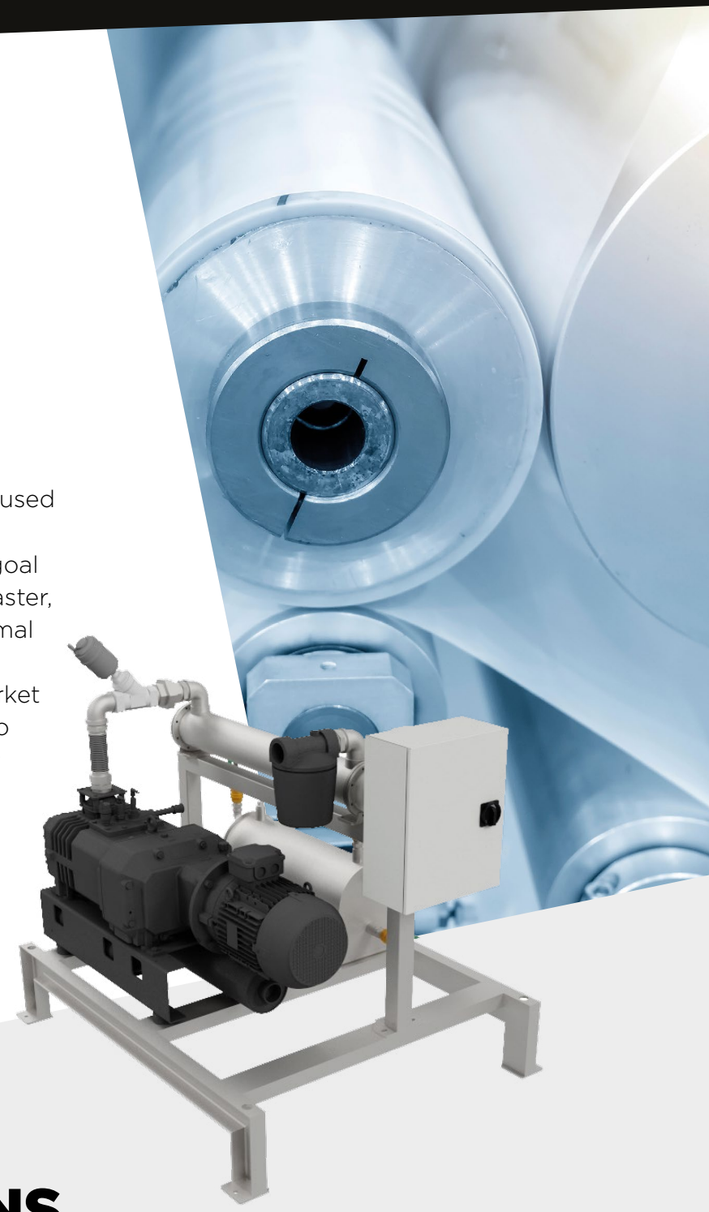
*Systems solutions on skid, incl. pump protection systems (filters, separators, dehumidifiers, washing) and control.

★ PERFECT MATCH
● GOOD SOLUTION

This table is intended as a guide only. Speak to an Elmo Rietschle representative to discuss your application in full and they will be happy to evaluate the best solution tailored to your individual needs.

CUSTOM BUILT TO MATCH NEEDS PRECISELY.

Our dedicated product engineers are focused on developing world leading industrial vacuum and low-pressure systems. Our goal is to make your manufacturing process faster, safer, and increasingly efficient with minimal downtime. In the plastics and recycling industry a modular package with our market leading technologies can be developed to produce an easy to install system with an intelligent controller.



WHY CHOOSE ELMO RIETSCHLE?

Optimum Performance
Constant vacuum and low pressure

Lower Total Cost of Ownership
Reduce maintenance & energy consumption

Sustainability
Embracing eco-friendly technologies and production methods

Flexibility
Wide product range to adapt to different application demands

YOUR SOLUTIONS PARTNER.

When looking for solutions to support your vacuum or low pressure system we consider ourselves an expert partner you can trust. Our extensive product range, technical knowledge and experience enable us to continue to engineer tailored solutions for a wide array of applications.

Experience
Over 70 years of vacuum and low pressure application experience

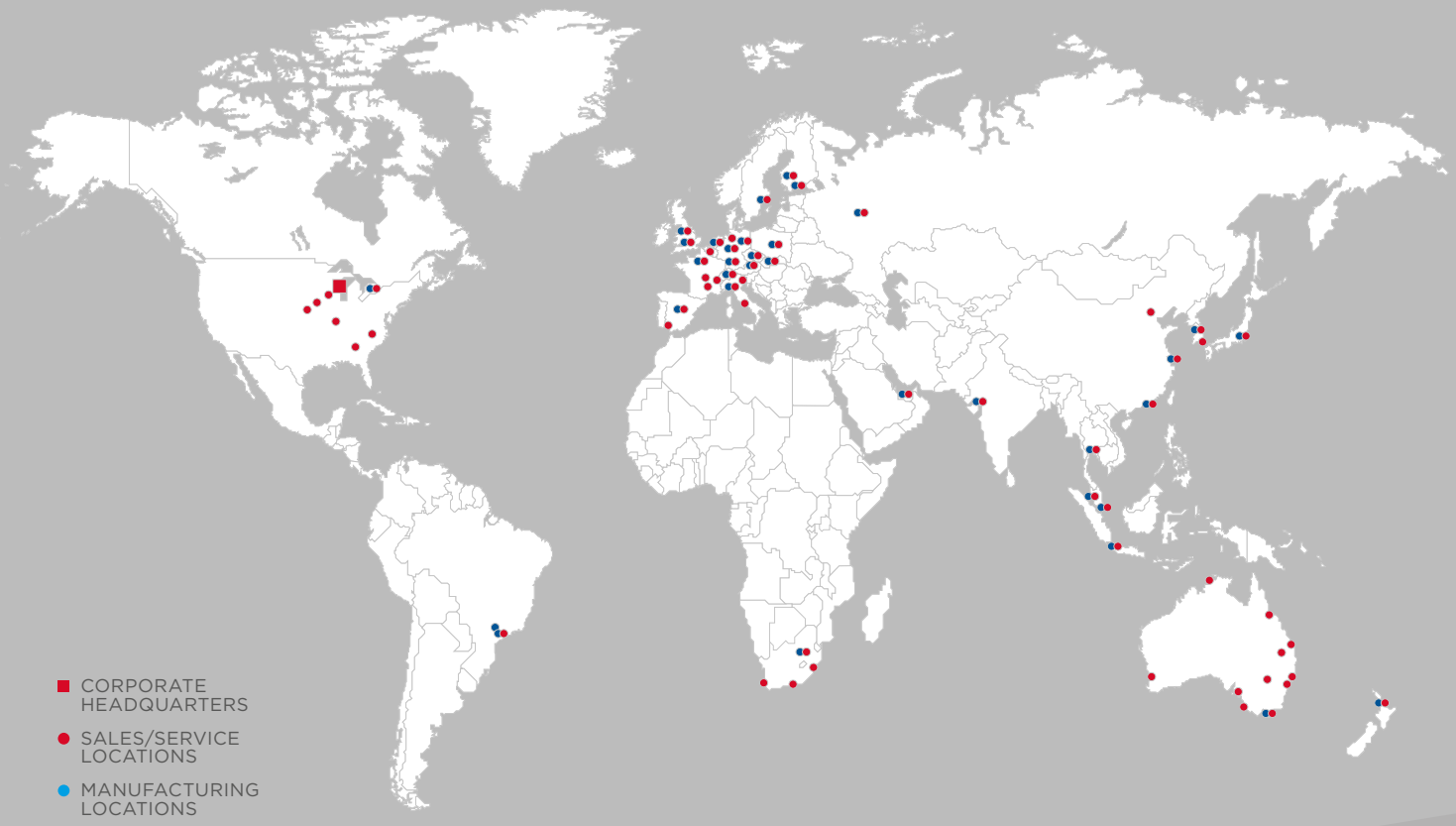
Knowledge
Engineering expertise to develop customised systems and solutions

Quality
High quality products renowned for reliability and performance

Support
Worldwide after sales care and technical support

We have locations throughout the world to better supply and support you. Our expert local service personnel speak your language.

Elmo Rietschle®



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LOW PRESSURE & VACUUM SOLUTIONS
www.elmorietschle.com

F-SERIES Radial
G-SERIES Side Channel
L-SERIES Liquid Ring
V-SERIES Rotary Vane
R-SERIES Rotary Lobe
C-SERIES Claw
S-SERIES Screw
X-SERIES Systems

Ingersoll Rand