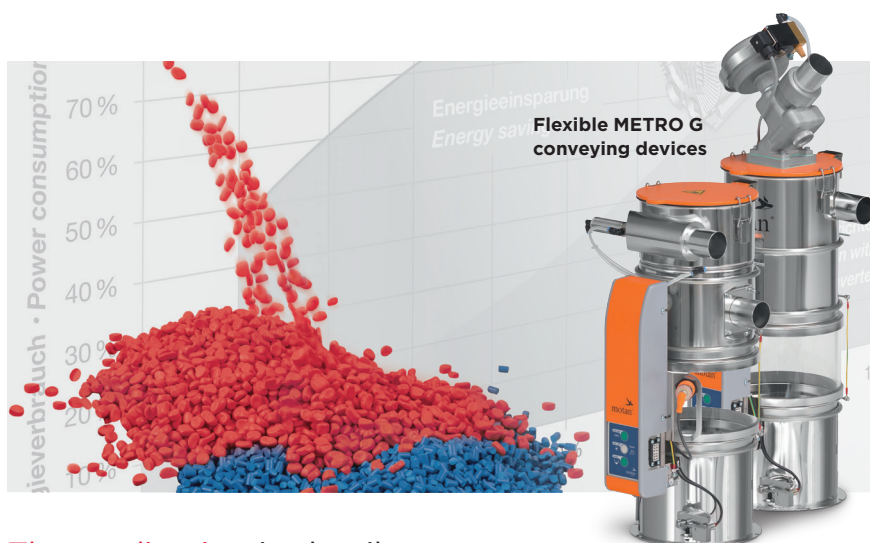


Interconnected material handling in the plastics industry

Flexible, intelligent conveying systems with speed-controlled vacuum generators

Utilizing Elmo Rietschle side-channel compressors and vacuum pumps, motan's METRO G and GRAVICOLOR product lines offer a prime example of how process flow digitalization is improving material flow and productivity across the plastics industry.



The application in detail

Thanks to a design adjustment made with the Elmo Rietschle Engineering team, motan has ensured that its METRO G line of plastics-focused material loaders provides value far greater than the sum of its parts.

The conveying devices' pressure and vacuum generators now incorporate the latest converter technology. As a result,

the side-channel compressors and claw vacuum pumps form compact, process-guided, and controllable units with high suction power and low noise levels. Whether for material- or machine-related reasons, the single or multi-stage pumps, which can be controlled in a wide range of pressures, can be used flexibly and linked with higher-level control systems. The power range of the frequency-

Value added at a glance

- Air volume adjustment through frequency-controlled converter technology for tailored, economical material conveying, adapted to the requisite material throughput
- Robust and low-maintenance compressors and vacuum pumps
- Compact, process-guided, controllable units with high suction power with low noise levels
- The control system-related interplay between the compressors and vacuum pumps with frequency-controlled drive lines and their flexible adaptation to system technology unlock further potential for sustained cost savings

User

motan holding gmbh
www.motan-colortronic.com

Usage site

Monterrey,
Mexico

Application

Fully automated
material handling in
plastics processing

Installed OEM components

Velocis frequency-controlled
side-channel compressors
with up to 22 kW

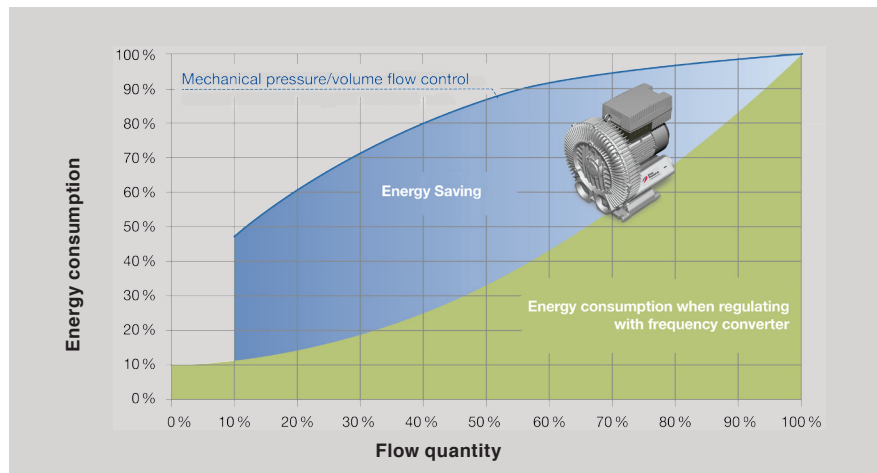
C-VLR 301 claw vacuum
pump with frequency-
controlled IE3 motor

controlled, energy-efficient side-channel compressors has been expanded to a peak value of 22 kW.

To convey plastic granules without damage, with minimum wear to the pipelines, a consistent conveying speed is necessary. Since a specified speed has to be achieved for pneumatic conveying, irrespective of the pipe length and the granule size, the volume flow is adjusted accordingly. The frequency converter then controls the speed of the side-channel compressor, thus adjusting the conveying speed / quantity to the current requirement. The processing machines are reliably supplied at peak times, thus minimising downtimes.

The chart illustrates the energy saving through the use of intelligent converter technology at varying flow quantities. A calculation example for the operation of a single frequency-controlled 11 kW side-channel compressor over 20,000 operating hours shows a saving of €3,900 if just 10% less electricity is consumed at a price of €0.13/kW.

The opportunity for sustained cost savings is far greater, however. The low-noise, low-maintenance compressors and vacuum pumps all have a modular design with adaptive, needs-based control. Therefore, equipment builders and even users can exploit significant reserves through the control system-related interplay of the frequency-controlled drive line and its flexible adaption to the system technology.



Energy saving through the use of intelligent converter technology using the side-channel compressor.

Fully automated material handling

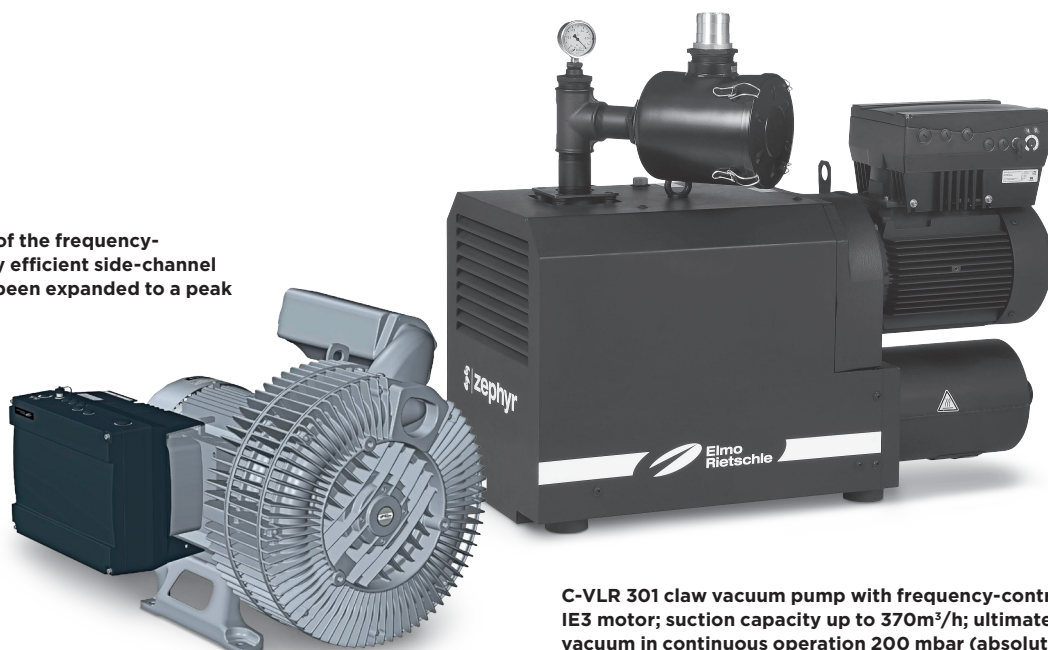
A large customer with a production facility in Monterrey, Mexico, is capitalizing on these energy saving opportunities. At the site, motan-colortronic supplied and installed all the equipment for fully automated and centrally monitored material handling. More than 500 gravimetric mixing and dosing devices from motan's GRAVICOLOR series are used with more than 1,500 conveying devices. The Ethernet-based control system concept, in conjunction with a higher-level display facility, enables the integration of the control systems required for drying, mixing, conveying and storage.

Every production line, each with around 25 injection moulding machines for new goods and ground material, is supplied by two Velocis side-channel compressors from Gardner Denver's Elmo Rietschle division.

With regard to operational reliability, Detlev Schmidt, Sales Director at motan-colortronic, explains the primary benefits derived from the system concept. "The compressors function absolutely maintenance-free and are extremely low-noise," he says.

As a further advantage, he also mentions that the frequency-controlled devices are suitable for achieving economical conveying with air volumes adjusted to match requisite material throughput.

The power range of the frequency-controlled, energy efficient side-channel compressors has been expanded to a peak value of 22 kW.



C-VLR 301 claw vacuum pump with frequency-controlled IE3 motor; suction capacity up to 370m³/h; ultimate vacuum in continuous operation 200 mbar (absolute). The sound pressure level was able to be reduced considerably through sound engineering.



For the production location of a large customer in Monterrey in Mexico, motan-colortronic supplied and installed all the equipment for the fully automatic and centrally monitored material handling system.

motan holding gmbh

The motan group, based in Überlingen, on Lake Constance, was founded in 1947. As a leading provider of continuous raw material handling equipment, it is active in the fields of injection moulding, blow moulding, extrusion and compounding. The company's application-focused product range includes innovative, modular system solutions for storage, drying and crystallisation, as well as for conveying, dosing and mixing raw materials for the plastics-producing and processing industries.



METRO G modular construction system

Gardner Denver Industrials Group

The Gardner Denver Industrials Group supplies a wide range of compressed air and vacuum solutions. These cover a wide range of pump and compressor technologies for end and OEM customers around the world. The reliable and energy efficient machines and systems are used in a variety of production and process applications and are designed to conserve resources through lower energy use and reduce emissions, with greater efficiency.

The varied range of products includes compressors for diverse low and high pressure application systems, blowers, and one of the most extensive lines of pumps for vacuum and pressure. Custom-specific solutions are available for all sectors, including the steel, automotive, air construction, medical technology, chemical, food and beverage, plastics and energy production industries. In the field of environmental technology, the solutions are used for drinking water production, wastewater treatment,

sewer cleaning and biogas production as well as recycling waste and reusable materials.

A wide range of global aftermarket services complement the product portfolio.

The Gardner Denver Industrials Group is part of Gardner Denver, Inc. The company's headquarters is located in Milwaukee, Wisconsin, USA. Gardner Denver was founded in 1859 and today it has around 7,000 employees in more than 30 countries.

www.gd-elmorietschle.com

www.gd-industrials.com

er.de@gardnerdenver.com

Gardner Denver Schopfheim GmbH

Johann-Sutter-Straße 6+8
79650 Schopfheim · Germany
Phone +49 7622 392-0
Fax +49 7622 392-300

Gardner Denver Deutschland GmbH

Industriestraße 26
97616 Bad Neustadt · Germany
Phone +49 9771 6888-0
Fax +49 9771 6888-4000



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V-Series
Rotary valve



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C-Series
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