



PIOVAN

Customers. The core of our innovation

Feeding&Conveying

Drying

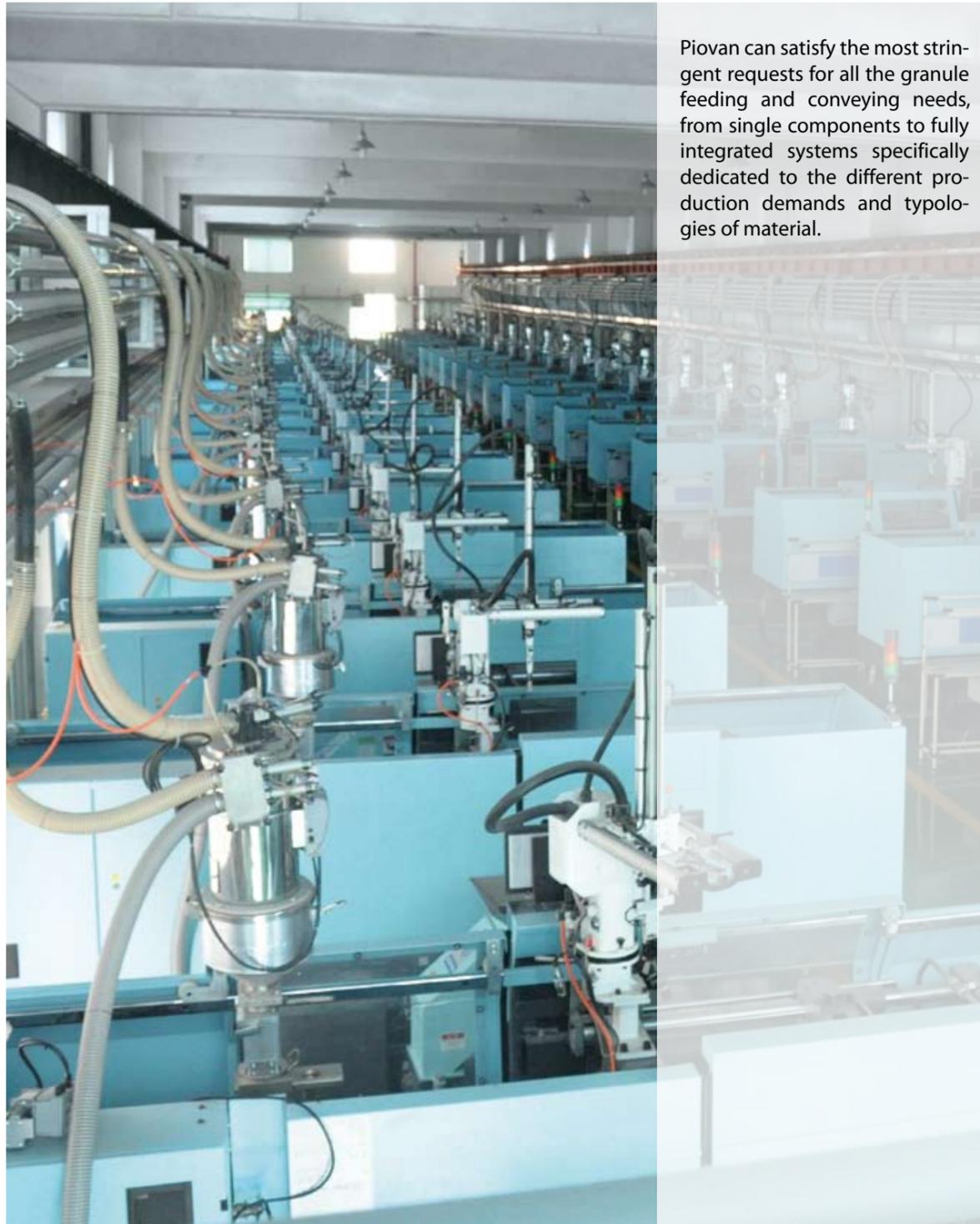
Dosing

Temperature Control

Refrigeration

Granulation

Integrated Conveying Technologies

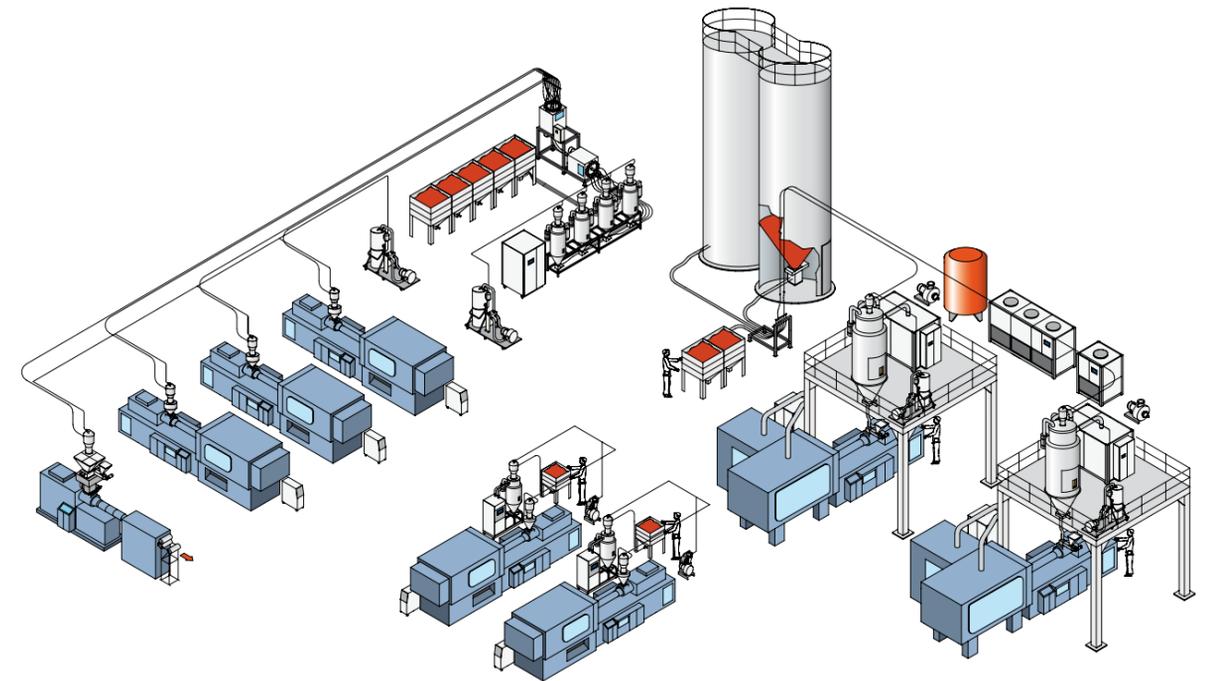


Piovan can satisfy the most stringent requests for all the granule feeding and conveying needs, from single components to fully integrated systems specifically dedicated to the different production demands and typologies of material.

Centralized systems

A centralized system allows to control from one position the complete handling process of the polymer, from the storage to conveying and feeding into the transforming ma-

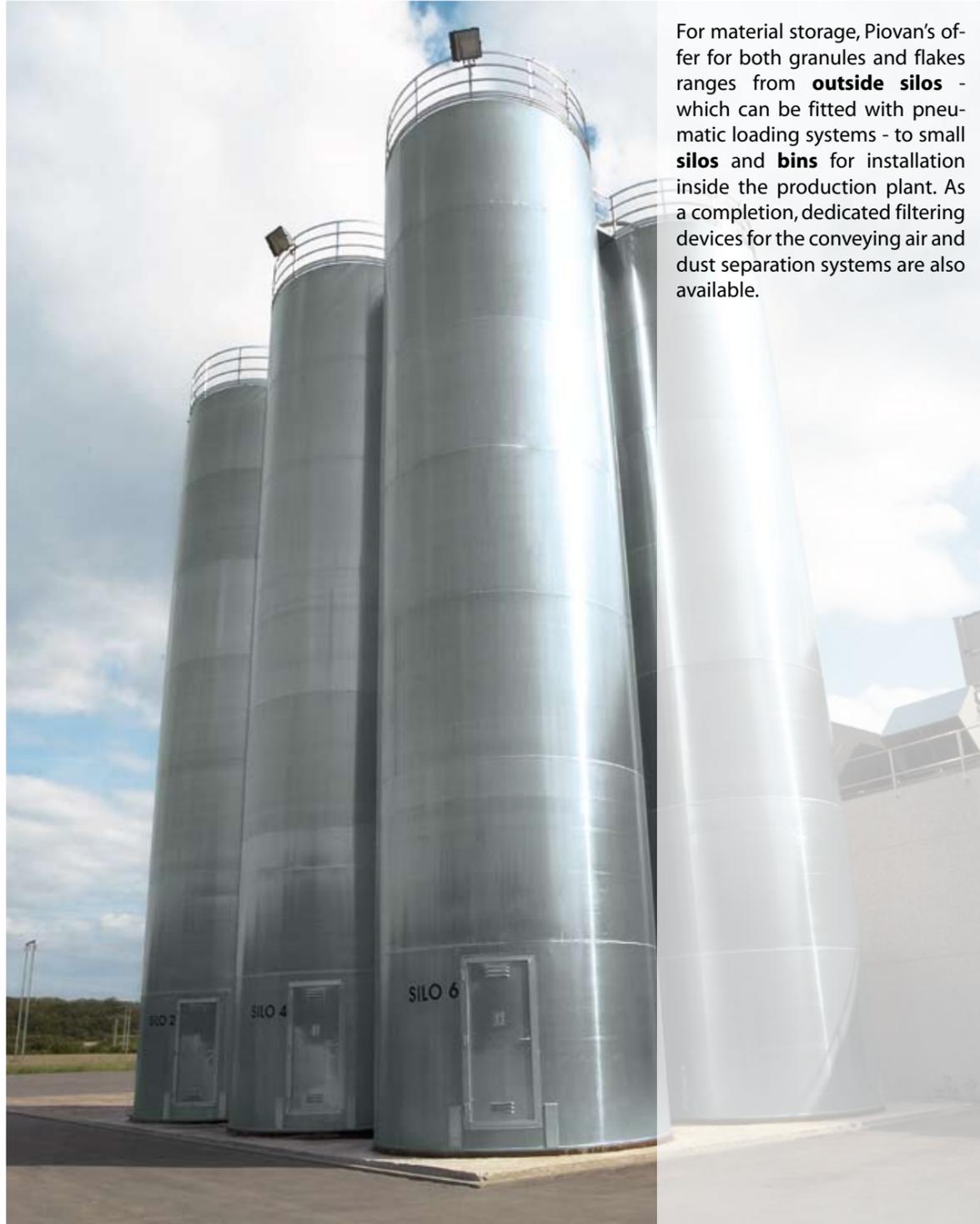
chine. Immediate reduction of material wastage and matching mistakes, complete process automation, intelligent management of storage and consumption information.



Benefits

- **Flexible, quick and safe handling** of polymers without any material wastage and risk of mistake.
- **No material degradation or formation of dust;** pneumatic conveying of granules is carried out at controlled speed.
- **Accurate management of stocks and production jobs,** with the possibility to constantly monitor both storage and consumption data.
- A rational and organized distribution ensures **higher production rhythms and constant quality.**
- **Optimization of energy consumption,** thanks to the adoption of a centralized group of vacuum pumps.
- **Opening to future enlargements** and to the creation of new work islands without the necessity to review the logic of the system.

Storage



For material storage, Piovan's offer for both granules and flakes ranges from **outside silos** - which can be fitted with pneumatic loading systems - to small **silos** and **bins** for installation inside the production plant. As a completion, dedicated filtering devices for the conveying air and dust separation systems are also available.

Optimised and controlled management of silos is carried out by means of level sensors and loading cells, which allow monitoring of the job consumption and the integrated management of material

quantities. **Octabin-overturning units** and **big bag unloading stations** are also available. The latter can be equipped with a dosing station, particularly ideal in the case of critical materials.



Specific devices

Piovan has a wide vision of the conveying technology, so including reliable material decontamination devices, such as dedusting systems designed in particular for recycled or dusty materials and for large volumes of flakes.

Furthermore metal separators and vibrating screening systems are available; they carry out decontamination of material lots, ensuring constant production quality.



Big bag unloading stations

Distribution



The distribution to the final destinations can be carried out through a flexible variety of piping, choosing among the most appropriate solution for any kind of material; polymers are sorted by means of manual or automatic coupling stations.



(1) piping with glass bends



(2) piping with ceramic bends



(3) manual coupling station

Stainless steel piping has a diameter ranging from 40 mm to 100 mm, with all related components. This allows conveying flexibility and maximum adaptability to the different typologies of installations. The range comprehends specific versions for hot material, able to keep the correct temperature of the granules, and polished piping with roughness lower than 0.4 micron for the optical and medical sector. In the case of **abrasive materials**, the **glass (1)** or **ceramic coated bends (2)** solve any problem of wear out.

Available in manual or automatic version, the coupling stations by Piován sort the correct material to the final destination.

Manual coupling stations (3) can be equipped with a material identification system, so allowing to trace back the route with no possibility of mistake. In the **automatic version**, the coupling station ensures the correct combination without any human intervention as well as

the total absence of contamination (pipe cleaning cycles at every loading operation).

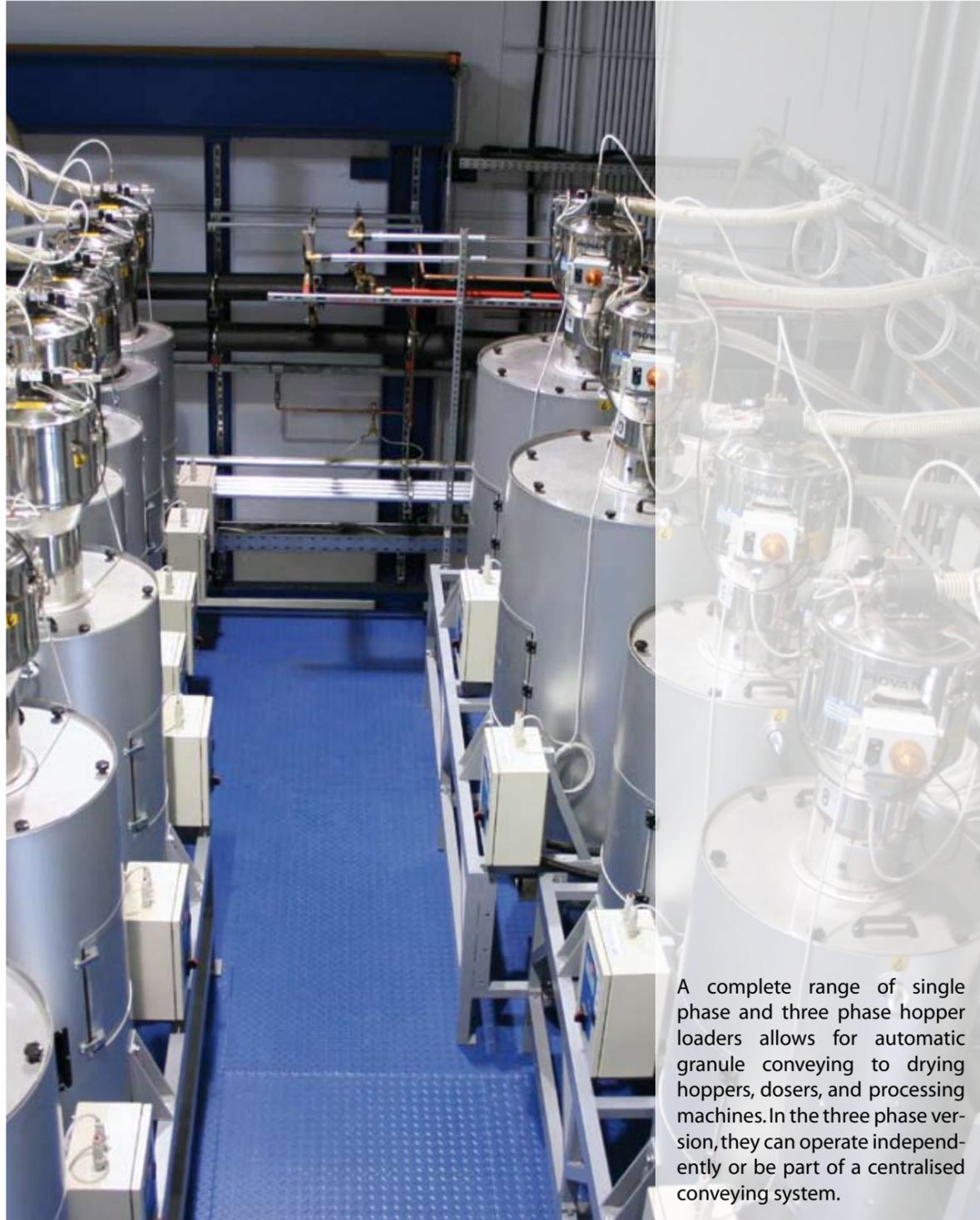
Material distribution in the storage area, starting from the silos, bins or big bag unloading stations, is carried out by means of **suction boxes**, designed to ensure constant and fluid flow.

The source can be selected automatically, through **pneumatic deviating valves** which operate in an alternated, sequential or mixed manner. They ensure optimised consumption of stocks according to the material used and process typology.



(4) material selection valves

Conveying



A complete range of single phase and three phase hopper loaders allows for automatic granule conveying to drying hoppers, dosers, and processing machines. In the three phase version, they can operate independently or be part of a centralised conveying system.

- Granule receivers

A complete range of vacuum receivers is available for **granules, micro-granules**, materials with a **low melting point** and **flakes** also of the **multi-layer type**.

Specific filtering devices solve the problems of all the types of material and ensure constant functioning, as well as the design of the receiver and of the cone for uniform material flow.

- Single and three-phase hopper loaders

Single phase hopper loaders: Suitable for short and medium distance conveying, they incorporate the motor so assuring a compact design.

The high reliability is guaranteed by the soft start function which reduces the wear out of the brushes, controlled by a specific warning signal.

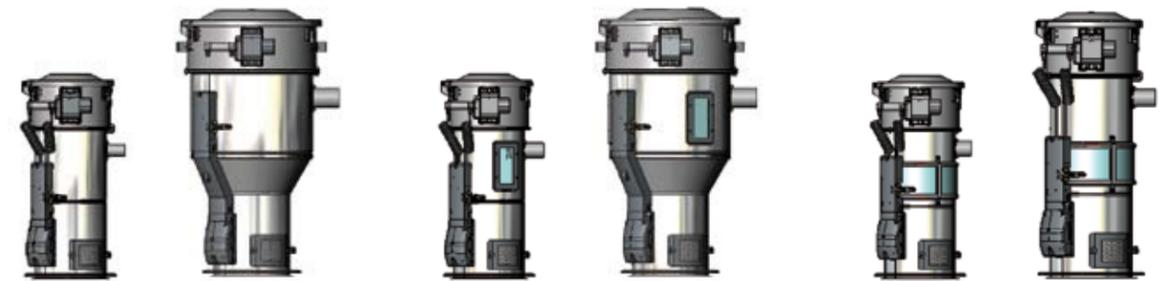
For direct utilisation of regrind material a specific electro-pneumatic proportional valve conveys both virgin and regrind material.



Three phase hopper loaders: In the case of higher conveying requirements, the three-phase receivers

are fitted with an independent three phase vacuum unit, that can be equipped with filter or filtering unit

with cyclonic effect. This ensures the absence of dust and preserves the granule from contamination.



Stainless Steel Body

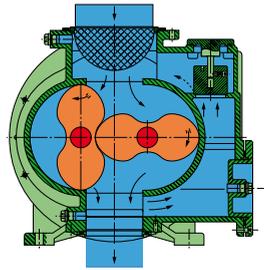
Sight glasses (120°)

Glass ring

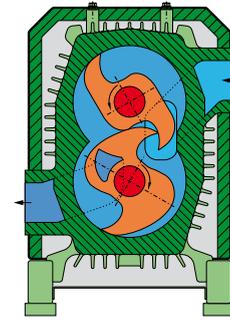
- Vacuum generation

Piovan offers **vacuum units** equipped with side channel or rotary lobe blowers, or else claw-technology pumps.

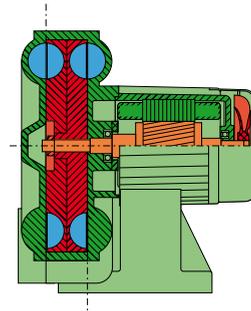
For specific engineering solutions, Piovan supplies centralised vacuum pump groups, for granule conveying in the whole department. It is possible to include a stand-by pump, which starts up in a manual or automatic manner in the case of malfunctioning of one of the system units, thus guaranteeing production continuity. All the vacuum units can be managed either manually or automatically by using the Piovan Easy3System control or the PLC.



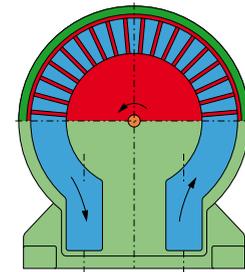
(1) Rotary lobe volumetric blower



(2) Claw technology pump



(3) Side Channels blower (lateral view)



(3) Side Channels blower (frontal view)

Supervision and management of the complete feeding and conveying system.



All the Piovan equipment for feeding and conveying are suitable for the WinFactory software; it allows intervention directly on the production activity, regulating the functioning parameters of the auxiliary appliances in order to optimise their performance.

WinFactory has specific advanced functions for the feeding & conveying systems designed to increase efficiency and operational simplification:

- silos management: it displays the material trend distinguished for storage units and polymer, the hourly consumption and self-sufficiency time, thus permitting accurate control of stocks;
- source management, a fundamental tool for identifying the suction points in those systems equipped with coupling stations; it makes it automatic the

setting of suction times and pipe cleaning times in line with the distance from the suction point;

- all alarms and events are stored, so allowing a full traceability of the historic functioning of the system.



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