The chemical industry develops and produces a large variety of products for a very wide range of applications. On the one hand, the chemical industry produces primary products for other industries such as polymer processing, the automotive industry, or the construction industry. Basic chemicals and petrochemicals, polymers as well as the fine and specialty chemicals belong to these various groups of products.

On the other hand, chemical finished products are being used in the food and pharmaceutical industry, in environmental protection, or the cosmetics industry.

The product range of the chemical industry is subject to constant change due to new technologies and processes, changing demands, and strong competition. The chemical industry has particularly also a responsibility in the sector of environmental protection.

For decades Leistritz screw pumps and systems have been used in all areas of the chemical industry wherever it comes down to the highly efficient and dependable production of mostly high-viscosity products. Innovative pumping systems contribute to flexible, smooth, and cost-efficient operations. They are the cornerstones of an economic oil production and handling. Permanent improvement and development of latest technology in combination with strictly controlled quality is the basis for the globally recognized efficiency and reliability of Leistritz screw pumps.
Basic chemicals are at the beginning of the value added chain in the chemical industry. These base materials are mostly simple substances and serve as raw material for a lot of other industrial products such as synthetics, paint, glue and numerous other chemical products. They are manufactured as mass products in procedurally optimized large-scale plants.

1) Ship Unloading Pump
The pumps installed on board of vessels are used for unloading various organic and inorganic base chemicals e.g. silicates or benzene and highly viscous fluids like crude oil or bitumen. The preferred pumps for these raw materials delivering from ships to tank storages are Leistritz pumps of the L2 and L5 series. These self-priming pumps guarantee a smooth, low-pulsation delivery of low- to highly viscous fluids also containing solids.

2) Unloading pump
The unloading pumps, installed directly at the industrial site, discharge the raw products delivered via rail or road and transport them safely and reliably to the holding tanks. For this purpose Leistritz screw pumps, of the L2 and L5 series are suitable due to the fact that they can deliver large volumes and highly viscous substances, containing solids without difficulties.

3) Circulation pump
To keep the fluids in the storage tanks homogenous and to hold product temperatures, low pulsation Leistritz circulation pumps of the L2 series are used.

4) Drainage pump
To empty storage tanks to a certain limit and to deliver the raw products to their production process, Leistritz screw pumps of the L2 series are used. They can also be applied for draining of discharge pipes in reverse rotation.

5) Transfer pump
Leistritz transfer pumps of the L2 and L4 series are used for transportation of the basic and intermediate products in chemical production processes. Due to their operational characteristics at high viscosities and discharge pressures, they ensure a continuous and fit-to-demand operation.

L4MG as bitumen transfer pump
In a refinery, several competitor double volute pumps, were exchanged and the existing pipelines could be used. Only a new base frame and completely new electronics are part of the scope by Leistritz. Now the pump can afford higher flow volumes with a lower power requirement. Other advantages:

- Magnetic coupling extremely easy to maintain,
- Only one seal – compared to 4 shaft seals,
- Compliant to the German-Clean-Air-Act,
- Less spare parts
**FINE CHEMICALS**

In the fine chemistry high-quality, chemically pure substances are being developed and produced for the pharmaceutical, cosmetics and food industry. Rapid production changes, highest demands of product quality as well as a high process efficiency characterize the fine chemistry. Due to constantly shortening product life cycles and rising product and option variety a short "time-to-market" strategy becomes an increasing factor for success.

---

**4) Tank cleaning pump**

For the cleaning of storage tanks, pipelines and blending tanks Leistritz tank cleaning pumps of the L2 series are used in a closed flushing loop.

**5) Blending pump**

With L2-blending pumps various fluids with different consistencies are moved from tanks or containers into blending tanks. The exact controllability of the individual pumps ensures a high-quality finished product.

**6) Loading pump**

Finished or refined products are moved by Leistritz screw pumps, of the L2 and L4 series for consecutive transportation with ships, trains or tank trucks. These pumps have an excellent priming performance and can be adapted to the particular need by a flexible rpm-adjustment.

**7) Dosing pump**

Leistritz screw pumps, of the L2 and L3 series are used to transport mixtures into big and small containers and barrels. Various fluids with different viscosities are precisely dispensed with low pulsation.

---

**L2NG PUMP**

Leistritz screw pumps of the L2NG/NT series are twin screw, single volute, self-priming, positive displacement pumps for low pressure duty, suitable for transport of slightly abrasive and corrosive, highly or low viscous fluids with poor or good lubricity, e.g. lube oils, crude oils, fuel oils, bitumen, tar, asphalt, grease, residues, paraffin.

**User advantages:**

- High efficiency → low operating costs
- Axially balanced rotors
- No axial forces to bearings
- Low axial flow velocity → excellent priming
- Only one shaft seal
- Easy maintenance, low costs
- Resistant against aeration
- Low noise, minimized vibration
- Availability of sealless design by magnetic drive
- Semi submersible pump design available
Specialty chemicals

SPECIALTY CHEMICALS

Special chemicals are substances which are either processed in the chemical–pharmaceutical industry or are used in numerous other segments of the industry for special effects. Pigments for cosmetics, process chemicals for chip production, additives for paint and enamel varishes, liquid crystals for screens and displays, and additives for detergents and cleansers are only a few products of the special chemistry.

High investments in research and development are an essential requirement to endure the growing competition in the long run. Compared to mass-produced basic chemicals, manufacturing costs are usually very high in the special chemistry.

6) Stripping pump
For specialty chemicals Leistritz L2 pumps are used for stripping barrels, small containers or IBC containers. Various fluids are transported gently with low-pulsation. An rpm-adjustment via a frequency inverter is often used during the stripping of containers in order to achieve a high dosing accuracy.

7) Booster pump
Different types of oil can be boosted up to high differential pressures with our Leistritz twin screw or triple screw pumps. The usage of variable speed drives ensures a flexible, economic and reliable run during changing operation conditions and start up.

Comparison L2/L5 pumps vs. L4 pumps

**SINGLE VOLUTE SCREW PUMP – API PLAN 53 A**

**DOUBLE VOLUTE SCREW PUMP – API PLAN 54**
HERMETICALLY SEALED SCREW PUMPS

To meet the chemical industry’s high demands in environmental compatibility, safety and economic efficiency, Leistritz constantly develops efficient pump solutions for specific applications.

Leistritz magnetic-driven screw pumps are hermetically sealed and provide the chemical industry a high level of safety in those fields, where poisonous, hazardous, explosive or corrosive liquids have to be transported. Leistritz Screw Pumps meet the requirements for explosion protection according to ATEX 94/9/EG as well as the requirements of API 676 and the new machinery directive 2006/42/EG.

Batch-operation
During batch-operation various kinds of polymers (up to 10,000 cSt) or isocyanides are being pumped from blending containers for some hours. Before use of a new polymer, the production system has to be cleaned with a solvent. For these special applications and demands of the chemical industry, Leistritz developed a hermetically sealed screw pump, of the L2 series for the flushing process in close cooperation with the operator. The pump is equipped with special bearings and a special magnetic coupling. It reliably transports high poisonous liquids like isocyanides as well as volatile solvents. The vertical arrangement of the pumps allows a complete draining after shut down.

Polyurethane production
High viscosities as well as abrasive fillers and low temperatures are characteristic for the transportation of polyol and isocyanides (polyurethane). Due to these aggressive substances, conventional mechanical seals wear quickly. Leistritz developed an innovative L3 screw pump with a magnetic coupling, which transports the fluids gently even at high rpm with zero leakage.

The hermetically sealed magnetic coupling prevents air inlet and leakage. The dead-space-free construction - here in pedestal design - effectively prevents the hardening of polyol and isocyanides.

Water-based paint application
To meet the high environmental restrictions of the automotive industry, screw pumps with magnetic couplings are used to produce water-based paint. The pumps are hermetically sealed towards the atmosphere and ensure a safe operation with critical fluids of the water-based paint production.

Leistritz screw pumps, which transport and blend water- and solvent-containing, low- or high-viscous liquids safely and eco-friendly, meet the requirements of the German directive TA-Luft.

CUSTOMIZED PUMPS
In close cooperation with a manufacturer of gas turbines, Leistritz developed the screw pump type L4HK, which transports methanol for fuel-feeding a gas turbine featuring:

- Gentle transportation of highly flammable and volatile liquids with extremely low viscosities ≤ 0.6 cSt
- Discharge pressure ≥ 60 bar
- Speed range up to 3,800 rpm
- Optimum control of flow rate to the burner nozzle by frequency inverter-operation

SEMI SUBMERSIBLE PUMP L4NT
Leistritz screw pumps of the L4NT series are submerged rotary positive displacement pumps for pumping corrosive liquids, or liquids with solid content, liquids containing gases and liquids of high and low viscosity.

- 100% dry running ability with flushed mechanical seal
- Pumping of products with a gas content of 100%
- Reversible transportation made by reverse rotation
- Excellent NPSH values ≤ 1 mWC
- Operation at extremely low viscosities ≤ 1 cSt
- Speed range up to 3,600 rpm
- Gearwheels and bearings in separate oil bath (outside pumped liquid), therefore universal application
- Gentle transportation
- Simple installation and maintenance

During batch-operation various kinds of polymers (up to 10,000 cSt) or isocyanides are being pumped from blending containers for some hours. Before use of a new polymer, the production system has to be cleaned with a solvent. For these special applications and demands of the chemical industry, Leistritz developed a hermetically sealed screw pump, of the L2 series for the flushing process in close cooperation with the operator. The pump is equipped with special bearings and a special magnetic coupling. It reliably transports high poisonous liquids like isocyanides as well as volatile solvents. The vertical arrangement of the pumps allows a complete draining after shut down.

High viscosities as well as abrasive fillers and low temperatures are characteristic for the transportation of polyol and isocyanides (polyurethane). Due to these aggressive substances, conventional mechanical seals wear quickly. Leistritz developed an innovative L3 screw pump with a magnetic coupling, which transports the fluids gently even at high rpm with zero leakage.

The hermetically sealed magnetic coupling prevents air inlet and leakage. The dead-space-free construction - here in pedestal design - effectively prevents the hardening of polyol and isocyanides.

To meet the high environmental restrictions of the automotive industry, screw pumps with magnetic couplings are used to produce water-based paint. The pumps are hermetically sealed towards the atmosphere and ensure a safe operation with critical fluids of the water-based paint production.

Leistritz screw pumps, which transport and blend water- and solvent-containing, low- or high-viscous liquids safely and eco-friendly, meet the requirements of the German directive TA-Luft.

In close cooperation with a manufacturer of gas turbines, Leistritz developed the screw pump type L4HK, which transports methanol for fuel-feeding a gas turbine featuring:

- Gentle transportation of highly flammable and volatile liquids with extremely low viscosities ≤ 0.6 cSt
- Discharge pressure ≥ 60 bar
- Speed range up to 3,800 rpm
- Optimum control of flow rate to the burner nozzle by frequency inverter-operation

SEMI SUBMERSIBLE PUMP L4NT
Leistritz screw pumps of the L4NT series are submerged rotary positive displacement pumps for pumping corrosive liquids, or liquids with solid content, liquids containing gases and liquids of high and low viscosity.

- 100% dry running ability with flushed mechanical seal
- Pumping of products with a gas content of 100%
- Reversible transportation made by reverse rotation
- Excellent NPSH values ≤ 1 mWC
- Operation at extremely low viscosities ≤ 1 cSt
- Speed range up to 3,600 rpm
- Gearwheels and bearings in separate oil bath (outside pumped liquid), therefore universal application
- Gentle transportation
- Simple installation and maintenance
MAGNETIC DRIVE

Leistritz pumps with magnetic drive are used in many fields of application such as oil firing-, energy-, ship-, and offshore-technology as well as in the chemical and petrochemical industry. Hot heavy fuel oils and a wide variety of chemicals can be pumped by this hermetically sealed aggregate without any problem. Due to our extensive modular principle a wide range of customer demands can be met.

Our leakage free pumps avoid high operating costs.
- Critical pumping medias with toxic substances are not released into the environment
- No waste of valuable fluids
- Sensitive pumping medias are not exposed to aerial oxygen and therefore the pumping process remains uninterrupted
- At overload the magnetic rotors act like a sliding clutch; the parts will not be destroyed

USER ADVANTAGES
- Pedestal aggregate
- Base aggregate on base frame
- Wall mounted aggregate with steel welded intermediate bracket
- Execution with / without safety valve
- Safety valve with / without handwheel
- Cast pump casing of different materials
- Steel welded pump casing with almost any flange position and flange size
- Steel welded heatable pump casing in double casing execution
- Driving side cover steel welded with ring channel heating
- Separate casing insert

OPERATING CONDITIONS L2NG MAK

- Pump type: L2NG 40 - 220/... - MAK
- Application range: chemical industry, petrochemical industry
- Pressure range max.: 16 bar (232 psi)
- Temperature max.: 180°C (356 °F)
- Flow rate max.: 900 m³/h (3,960 GPM)

Our leakage free pumps avoid high operating costs.
- Critical pumping medias with toxic substances are not released into the environment
- No waste of valuable fluids
- Sensitive pumping medias are not exposed to aerial oxygen and therefore the pumping process remains uninterrupted
- At overload the magnetic rotors act like a sliding clutch; the parts will not be destroyed

An after-sales service that can be reached at any time and the immediate global availability of service technicians and spare parts are essential in the modern era. Thus, our service personnel are highly qualified and motivated in order to be able to provide technical support beyond the product itself.

» The Leistritz 24/7 service hotline provides you with advice and assistance in the event of an emergency: +49 911 4306-690 «

Our service sites:
- Leistritz Italia srl., Milan
- Leistritz Advanced Technologies Corp., Allendale
- Leistritz Machinery (Taicang), Co.,Ltd., Taicang
- Leistritz SEA, Pte. Ltd., Singapore
- Leistritz Middle East FZE, Sharjah, UAE
- Leistritz India Pte. Ltd., Chennai
Rising demands on pump manufacturers regarding wear protection, service life or flow rate require the use of state-of-the-art machine technology and process chains that are ideally coordinated with one another. These are the prerequisites to facilitate the high-quality manufacturing of pump components.

To accomplish this high standard, we produce the screws and housings, i.e. the core elements of the Leistritz pumps, ourselves in Germany - under the aspect of the ultimate precision and with a high level of production knowledge vertical integration. This is particularly due to the symbiosis of the various products of the Leistritz Group in the form of superior materials know-how and in-house metal processing technologies, such as whirling. In addition to our numerous machines, it is particularly our team that convinces our customers with its well-founded expertise and extensive manufacturing know-how.

This list offers a general overview of the standard pump range by Leistritz. Various options and systems are individually configured according to customer requirements and tested on our test bench (drive power up to 4 MW) in Nuremberg.
PUMP TECHNOLOGY

Available for you all over the world

USA
Leistritz Advanced Technologies Corp., Allendale

GERMANY
Headquarters
Leistritz Pumpen GmbH, Nuremberg

CHINA
Leistritz Machinery (Taicang), Co., Ltd., Taicang

ITALY
Leistritz Italia srl., Milan

UNITED ARAB EMIRATES
Leistritz Middle East FZE, Sharjah, UAE

INDIA
Leistritz India Pte. Ltd., Chennai

SINGAPORE
Leistritz SEA, Pte. Ltd., Singapore