MAAG Group
a DOVER company

PUMP & FILTRATION SYSTEMS ›

MAAG

Industrial Gear Pumps

www.maag.com

Industrial Gear Pumps

Gear pumps transport a wide variety of media in industrial production processes in general, in the chemical industry as well as in the pharmaceutical and food industries. The suitable gear pumps and pump systems can be found in MAAG's wide range of products by plant manufacturers and producers and processors of plastics.

The range of requirements in terms of viscosity, pressure, temperature and corrosivity of the media being conveyed is very wide in the industrial sector.

Our portfolio of industrial gear pumps has exactly the required application depth and, thanks to a sophisticated modular system we can even meet the most difficult requirements reliably.

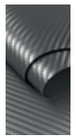
Thanks to our wide know-how in applications and our very own production, we can optimally design and manufacture the pump tailored to your process.

About us

The MAAG Group is a broadly diversified global solutions provider with integrated and customizable systems in process technology for the polymer, chemical, petrochemical, pharmaceutical and food industries. Its Pump & Filtration Systems, Pelletizing & Pulverizing Systems, Recycling Systems and Digitalization divisions consolidate the many years of experience and in-depth know-how of the AUTOMATIK, ETTLINGER, GALA, MAAG, REDUCTION, SCHEER and XANTEC product brands. The MAAG Group currently employs over 1,100 people at production sites in Switzerland, Germany, Italy, the USA, and China. Additional sales and service centers in France, Taiwan, Malaysia, India, Thailand and Brazil ensure close attention to customers' needs.

Applications for highly specific media

Carbon Fibres



MAAG pumps typically serve as Dope feed/transfer pumps in processing the carbon fibres. Considering the Polyacrylonitrile (PAN) in DMAc Solution, with about 20% of PAN in 80% solvent like DMAc (Dimethylacetamide) or DMSO (Dimethylsulfoxide), also consisting other components and small amounts of water, the mixture has to be pumped through a tiny injector into a chamber where the solvent evaporates and a solid fibre is left out. For this purpose, MAAG pumps are designed to convey and dose the solution with high efficiency.

Spandex

For this application, MAAG pumps are used as spinning or dosing pumps. Spandex or elastane is a synthetic stretchy chemical fibre known for its exceptional elasticity. It exhibits properties similar to rubber, but is more solid and significantly more durable. Possessing viscosity of up to 1,000,000 mPas, the entire process requires a short dwelling time and is carried out under nitrogen (N2) because the medium reacts to oxygen. MAAG pumps, with their special inlet and seal design, fulfills the necessary requirements of all stages.

Gum Base

Processing of Gum bases (Elastomers, Resins, Waxes, Fats, Emulsifiers, Fillers and Antioxidants) involves several stages such as melting of gum base, mixing with additives and rolling of finished gum. Here, MAAG pumps typically serve, as transfer pumps or as booster pumps in each stage.

Vinyl Alcohol

The production of Ethylene vinyl alcohol copolymer (EVOH) is a two-step process of polymerization and saponification. Ethylene and vinyl acetate are polymerized using an initiator/activator complex. MAAG pumps serve as a transfer pumps for all stages in the process.

Hot Melt - Resin

For Hot melt adhesives used primarily for packaging, textiles, labels, tapes, pressure sensitive applications and other disposable products like stamps, MAAG provides metering/transfer/loading pumps or Booster pumps; for instance, in front of a spray nozzle.

Lubrication and refinery products

MAAG offers customized solutions for simple applications such as grease lubrication, liquid oil, atomized oil (oil mist) or in demanding applications for refinery products like hydrocarbons, unrefined petroleum also in presence of hard particles with special bearings, special sealing designs and materials.

Molten Sulfur

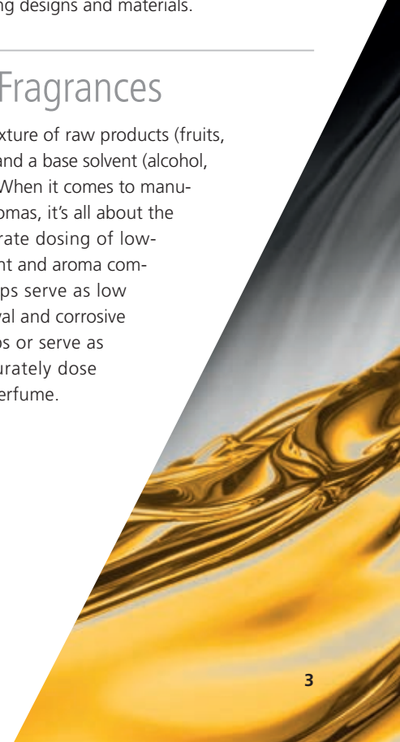
Its production is ever increasing in refineries, natural gas plants, sulphuric acid plants, chemical production such as rubber additives or even in food products. It is also rapidly reaching new industries. Hence, safe handling of molten sulfur and the associated hydrogen sulfide emissions is becoming critical. MAAG pumps usually aid as High Temperature transfer pumps for such precarious applications.

Flavours & Fragrances

Usually a mixture of raw products (fruits, herbs, etc.) and a base solvent (alcohol, acids, etc.). When it comes to manufacturing aromas, it's all about the highly accurate dosing of low-viscosity scent and aroma components. MAAG pumps serve as low viscous distillate removal and corrosive residue removal pumps or serve as dosing pumps to accurately dose flavor additives into perfume.

Food & Pharma

MAAG can offer food-compliant pump executions with stainless steel housings/shafts, ceramic bearings and FDA certified sealings. With their good priming capability, MAAG pumps are well suitable in the pharmaceutical process where the temperatures vary widely, media have low viscosity and accuracy of flow rates is extremely important.



Our promise to you

Technology

MAAG is known worldwide as a pioneer and technology leader in the development and manufacturing of gear pump systems and solutions. MAAG has always focused on keeping its technology up-to-date and tailor it to meet the needs of individual customers. We promise to go beyond your expectations in this regard.

Innovation

The result of our values and aspiration for customer satisfaction made our industrial pumps come alive. We are confident that the new optimized design, materials used, opens new doors in the application ranges. We promise that this innovation takes the flexibility and maintenance to the next level and ease the efforts put in by the customer in a pump's lifetime.

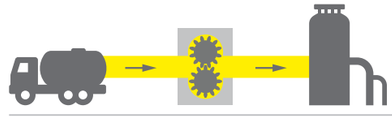
Quality

Our customer satisfaction has been our top-most priority. Hence, we dedicate a major part of our resources in maintaining and enhancing the quality time-to-time. We promise better standards of quality with our innovations.

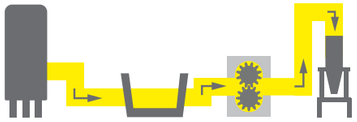
Applications at site

MAAG industrial gear pumps are used in various phases in production or media transfer. Gear pumps convey the media from one production phase to the next and therefore are required to work continuously and with reliability. They need to withstand high pressures, high temperatures and highly corrosive materials but at the same time with the highest possible safety for operation.

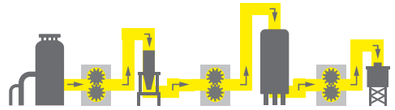
Unloading from truck to storage silos for various product range



Extraction from the container baths to the purifiers



Loading the storage silos from different phases of production



Unloading from the marine tankers to the process areas

Our pump benefits

- **Easy maintenance and replacement of internal parts**
- **Low NPSHr**
- **Corrosion resistance**
- **Extensive portfolio of seals**
- **In-house manufacturing of all core components**
- **Low shear**
- **Reliability and long life**
- **Precise displacement volume**
- **Energy efficient**
- **Dosing accuracy**
- **Less pulsation during pumping phase**
- **Wider range of temperature, pressure and viscosity**

Our portfolio at a glance

Gear pumps made by MAAG – a sturdy and reliable solution.

Available with Quick Cleaning Kit™

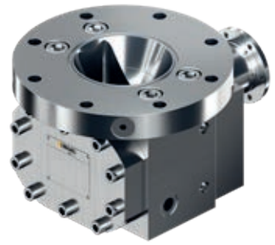
Pump	dosix™	flexinox™	cinox/ therminox	cinox V/ therminox V	refinex/ refitherm	hydrolub
	High		Chemical Resistance			Low
Example media						
Chemicals						
Acids	●	●	●			
Solvents	●	●	●			
Additives	●	●	●			
Watery media, cooling media, Detergents	●	●	●			
Paints varnishes	●	●	●		●	●
Flavours and fragrances	●	●	●			
Molten sulfur	●	●	●			
General	●	●	●			
Resin						
Polyurethane, Isocyanate		●	●			
Polyurethane, Polyol					●	●
Adhesives, Hotmelt		●		●	●	
Epoxy Resin		●	●	●	●	
General		●	●	●	●	
Plastics						
Spandex				●		
Carbon Fibres precursor		●	●			
Prepolymers, oligomers and monomers				●		
Cellulose derivatives and pulps		●	●			
PVA / EVOH		●	●			
General		●	●	●		
Refinery products & Lubrication						
Petrochemical products					●	●
Fuels					●	●
Bitumen, asphalt					●	
Waxes and paraffins					●	●
Lube oil						●
Mineral oils and fats					●	●
Silicons					●	●
General					●	●
Food & Pharma						
Food	●	●	●			
Pharmaceutical products	●	●	●			
Gum base		●	●	●		
General	●	●	●			

Application/Media: Chemicals Resin Plastics Food & Pharma Refinery products & Lubrication

dosix™ and flexinox™

Corrosion-resistant gear pumps and dosing pumps for chemical processes

cinox®-V and therminox®-V



Stainless steel discharge pumps for chemical processes

cinox® and therminox®

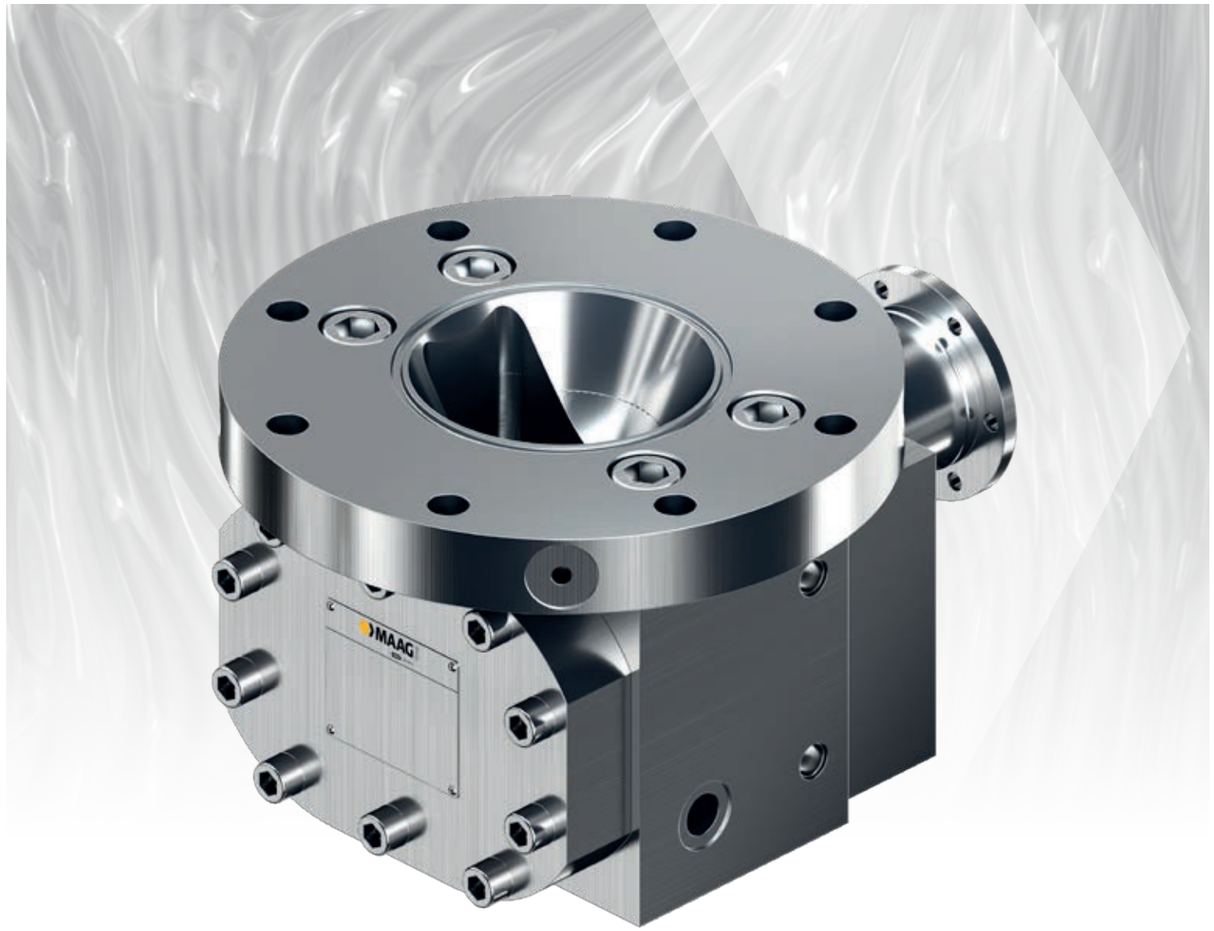
Corrosion-resistant gear pumps for chemical processes

refinex® and refitherm®

Cast steel gear pumps for refinery and petrochemical processes

hydrolub®

Grey cast iron gear pumps for industrial processes



cinox®-V therminox®-V

Stainless steel discharge pumps for chemical processes

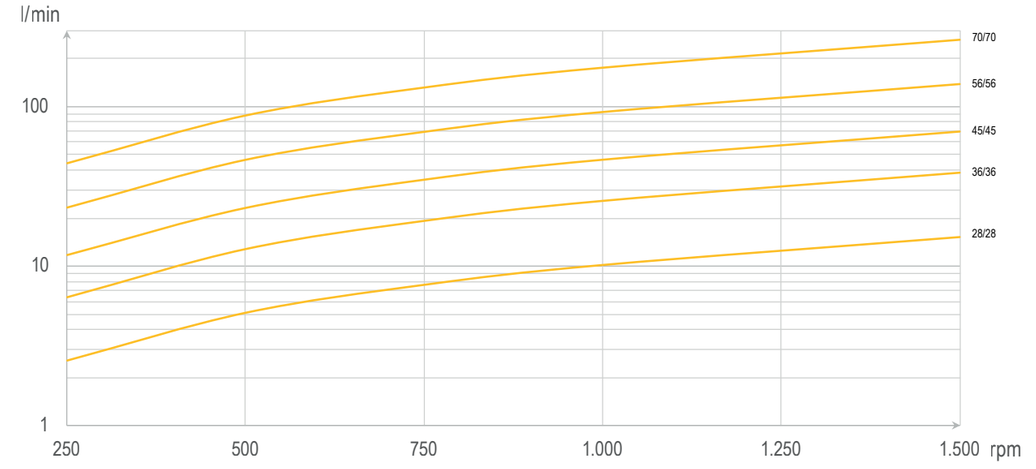
The pump models cinox®-V therminox®-V are discharge pumps. They have been designed for highly viscous fluids, which are gently extracted from reactors and degassing devices even when the inlet pressure is low, ensuring optimum filling characteristics and short dwell times. This new pump series combines the outstanding flow characteristics of the polymer pumps with the exacting requirements of the chemical industry.

Your benefits

- Optimum fill characteristics due to enlarged inlet and optimum inlet geometry
- Low pulsation
- High efficiencies thanks to application-specific clearances
- Reliability
- Longevity
- Safety

Optimal for those media:

cinox®-V therminox®-V 28-70 flow rate @ 0 bar ΔP



Application limits:

Viscosity:	0.3 to 4,000,000 mPas
Temperature:	-30 to 320 °C
Suction pressure:	Vacuum up to 16 bar
Discharge pressure:	Vacuum up to 200 bar
Flow rate[1]:	2.5 to 265 l/min

Technical specifications:

Housing:	■ Stainless steel
Gear shafts[2]:	■ Stainless steel
Bearing[2]:	■ Hardened tool steel
Shaft seal:	■ Double mechanical seal ■ Interlock or heater connections available ■ Seal ring from a range of materials ■ Packing gland throttled (optional spring loaded)
Connections:	■ Flanges (other optional) ANSI, DIN
Enlarged inlet:	■ Enlarged inlet geometry for low NPSH at high viscosities

A range of typical pumping media

- Prepolymers, oligomers, and monomers
- Dopes
- Spandex
- Resins
- Adhesives
- Silicones
- Waxes and paraffins
- Emulsifying agents
- Gum base

Accessories

- Product connecting flanges
- Motors and gear reducers
- Universal cardan shafts, hubs
- Frequency converters
- Sealing liquid system

Certificates[3]

- ATEX certificate
- 3.1 certificate
- German Air Quality certificate (TA-Luft)
- Performance test certificates

Options

- Electrical heating
- Heated product flanges

[1] Higher flow rates upon request.
[2] Other materials and designs available.
[3] Other certificates and conformities upon request.

Service around the clock. Worldwide.

Face-to-face. Digital.

For MAAG Group, "service" is far more than just supplying spare parts. Contacting and supporting a wide range of customers, from small and specialized ones to large multinational manufacturers, has provided us with expert service knowledge found nowhere else in the industry.

Our experts within our fields of competence support our customers remote or face to face by presenting solutions that fit their unique requirements. We start with the important step of a comprehensive process analysis. Only if all individual components of a system are ideally matched and coordinated, minimized waste, reduced downtimes, improved product quality, optimized production and reduced energy costs can be achieved. Thanks to networked machines, we can use real-time data to perform predictive maintenance on the customer's plant and optimize its operation and service life. Even remote start-ups are already possible today.

With a very large number of machines and systems installed at over 25,000 customers worldwide, MAAG Group has over the past decades built up a high level of expertise in pump technology, filtration, pelletizing, pulverizing, and recycling that is unique in the world. With a high level of expertise in control system technology and data processing, the digitalization experts of the MAAG Group develop investment projects with their customers - from the first rough idea to the handover of the operational plant. Specialized consulting and process support is an essential part of MAAG Group's current range of products and services and its extensive global network of services.

MAAG Group maintains service centers in Germany, Switzerland, Italy, Malaysia, the USA, Brazil, China, Thailand, and India. With these worldwide locations and their associated proximity to customers, we have earned a reputation for providing prompt, reliable service to our customers – before, during, and after the purchase. In addition, an extensive inventory of wear and spare parts is always available for immediate shipment. Since all spare parts are manufactured to original specifications, our customers can always rely on their design, quality, and reliability to keep their systems running at peak performance.

Learn more about the wide range of services offered by MAAG Group and our strong product brands AUTOMATIK, ETTLINGER, GALA, MAAG, REDUCTION, SCHEER and XANTEC. We look forward to collaborate with you!

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You can find detailed information about our products in our print media at **www.maag.com/brochures.**

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