

MAG-DRIVE EXTERNAL GEAR PUMPS

VERDERGEAR PRODUCT OVERVIEW

Gear pumps made by Liquiflo



- ✓ Mag-drive pumps – Safe and leak-free
- ✓ Virtually no pulsation – ideal for metering applications
- ✓ Low NPSHr – smaller pipe diameters are required

GET IN TOUCH

With the hygienic pump manufacturer



Contact VERDER

If you would like to know more about VERDERGEAR pumps then please visit our website www.verderliquids.com where you will find the full breakdown of our pump range as well as application stories, latest news and technical datasheets and more.

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At VERDER, we are committed to providing you with excellent service globally. Our expanding network reaches out across all five continents, comprising our own branches in 24 countries, supplemented by experienced independent distributors. This ensures local support and easy access to spare parts for our customers, underlining our dedication to excellence and comprehensive coverage worldwide.



THE VERDER GROUP

Enabling progress

The VERDER group is a family-owned business founded in 1959 in the Netherlands; the group consists of a worldwide network of production and sales offices. Group companies are involved in the development and distribution of industrial and hygienic pump solutions, high-tech equipment for quality control and Research & Development into solid material (solids sample preparation and analytical technologies).

- 1 Company
- 24 Countries
- Pump experts since 1959
- 24 Manufacturing sites
- Global network
- Local distributors
- In-house service & maintenance
- A solution for every application
- In-depth knowledge of processes and applications

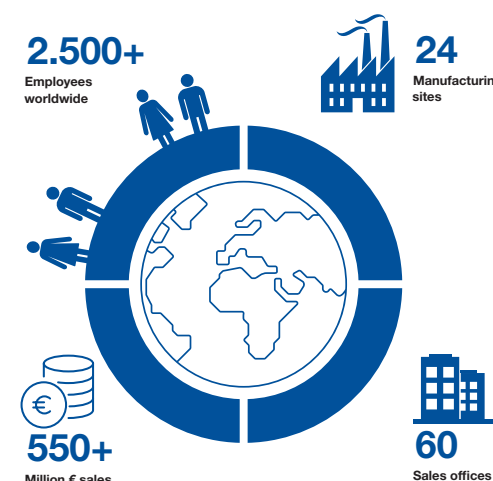
For years, Verder has led in innovation, driving our and our customers' success. Our global network of over 70 sales and manufacturing sites offers personalized sales and technical services, ensuring close customer relationships crucial for providing specific support and building lasting, trusting partnerships.

Verder is dedicated to making a positive impact by aligning with the UN's Sustainable Development Goals (SDGs) through our Environmental, Social, and Governance (ESG) program. Our goal is to lessen our environmental footprint, enhance employee well-being, and uphold ethical practices.

Inventing to make the world a better place

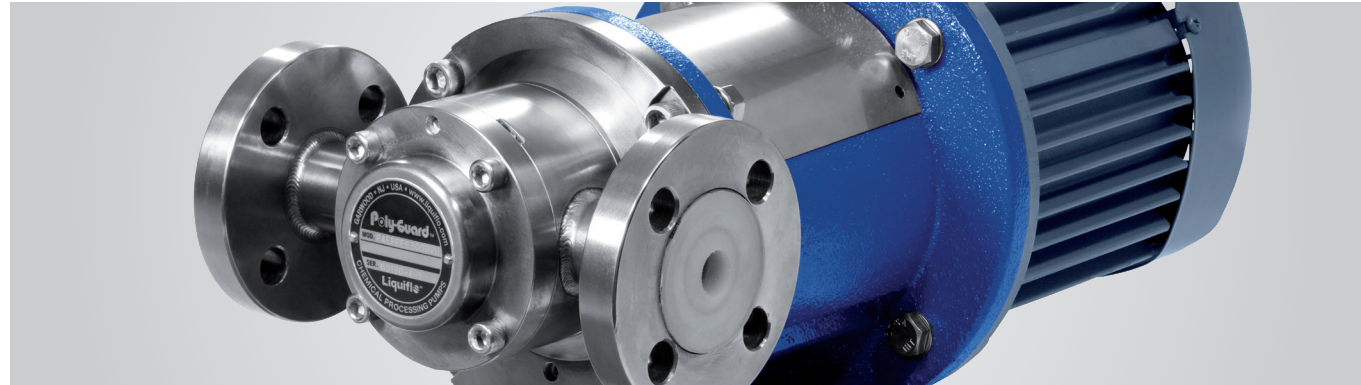
We leverage our expertise in sample preparation, analytical equipment, and professional pumping to empower our customers. We enable progress by improving their operations, we contribute to safer, more efficient, and sustainable processes, products, and services. Our contributions are pivotal in securing safe food supplies, ensuring responsive healthcare, and safeguarding clean drinking water in millions of households.

As a united family, we embrace our societal responsibilities with passion and a commitment to excellence. Our collective efforts are aimed at fostering a healthier, safer, and more sustainable world for all.



VERDERGEAR

Gear pumps



Verdergear mag-drive external gear pumps are made for the safe and leak-free pumping of high and low viscous fluids. They are the best solution for pumping a wide variety of media like additives, oils or polymers. Due to the virtually pulse free flow they are perfect for metering and dosing applications.

Verdergear characteristics

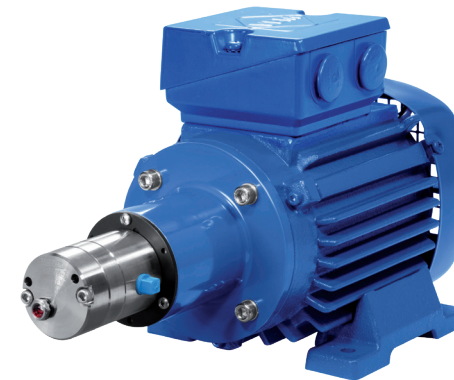
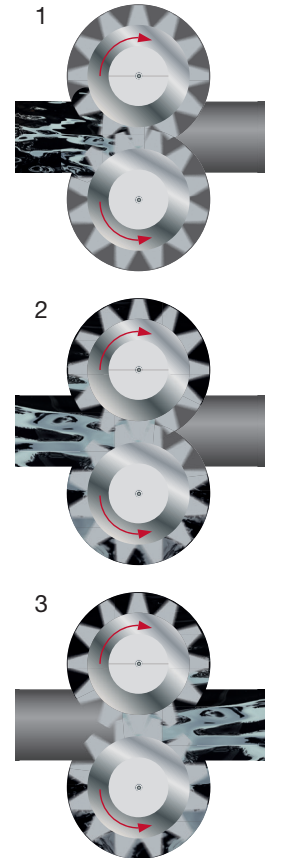
- Virtually no pulsation – ideal for metering applications
- A flow accuracy of 0,5 % can be achieved
- Magnetically-coupled pumps are safe and leak free
- Smaller pipe diameter due to low NPSHr
- A wide range of viscosity (0,3-100.000 mPas)

OPERATION PRINCIPLE

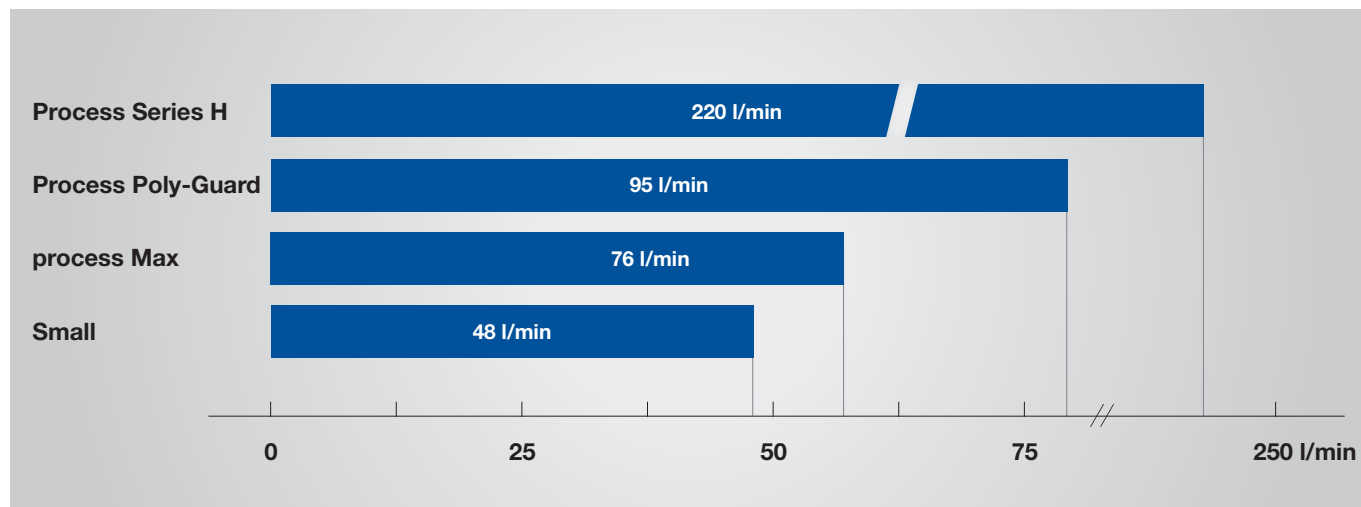
How does a gear pump work?

The external gear pump employs a positive displacement working principle, generally used for the transfer and metering of liquids. A drive gear rotates an idler gear in the opposite direction. As the gear rotates, the liquid is trapped in between the gear teeth and transferred from the inlet side to the outlet side. As the fluid is moved around the gears at a constant speed, a pulsation-free flow is maintained.

- 1 The pump is primed with the fluid filling the empty space between the two gears.
- 2 The fluid is then caught between the gears and is transported to the discharge side.
- 3 The fluid exits from the discharge side.



Verdergear Performance Overview



What are your benefits using a VERDERGEAR pump?

Safe and leak-free

Mag-drive pumps are ideal to use for difficult-to-seal applications that involve hazardous or volatile chemicals. The patented Dual-Kan controls the temperature and compensates eventual eddy current losses.

Virtually no pulsation

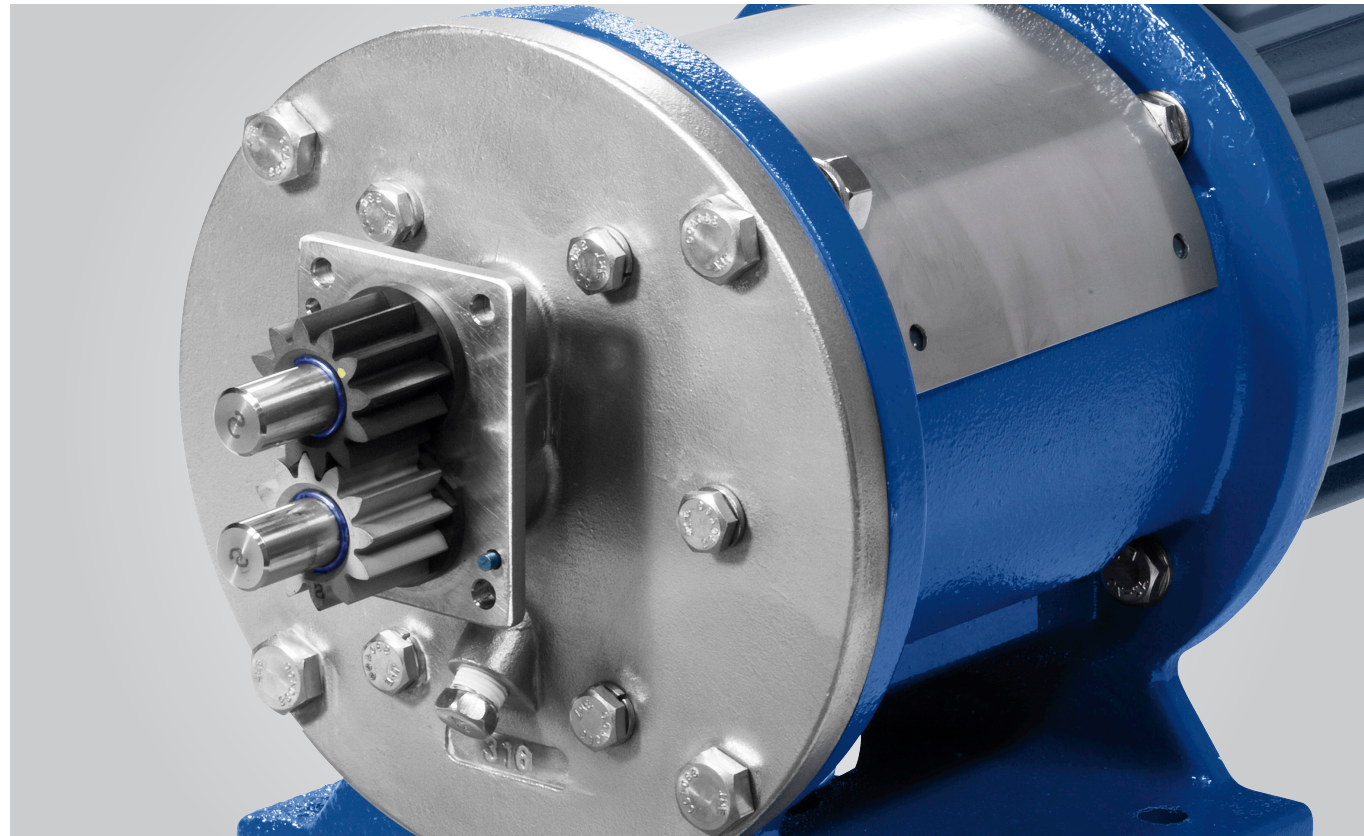
This allows flows to be easily and accurately measured with standard flow meters. Pipe diameters can be much smaller in relation to those used with pulsating pumps, whose pipe diameters are based on high instantaneous flow rates.

Low NPSHr

Gear pumps require less NPSH because of their steady non-pulsating flow characteristics. The NPSHa increases further as the viscosity of the fluid increases. No ancillary components such as pulsation dampeners are needed.

THE VERDERGEAR PROGRAM

An overview



VERDERGEAR VGS 230V INVERTER

Precise and repeatable pumping

Ideally suited for pumping of hazardous liquids or expensive chemicals. They operate pulsation-free and due to the magnetic coupling they are absolutely leakage-free.

Max. flow	21 l/min
Max. pressure	17 bar



VERDERGEAR PROCESS POLY-GUARD

Polymer-lined stainless steel gear pump

The PFA lined gear pump is the best choice for inorganic acids, alkalis and salts. The PFA lining provides an excellent chemical resistance against corrosion, and makes the use of an expensive metal alloy pump superfluous.

Max. flow	57 l/min
Max. pressure	7 bar

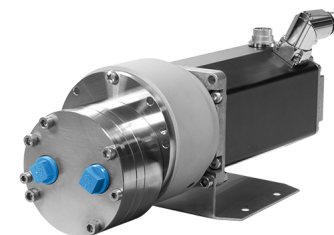


VERDERGEAR SMALL

Small, compact and powerful gear pump

These mag-drive gear pumps have no shaft seals and are therefore absolutely leak-free. These pumps are ideal as an OEM pump and capable of dosing very small quantities precise and reproducible.

Max. flow	48 l/min
Max. pressure	17 bar



VERDERGEAR VGS 24V OEM

Small, compact and powerful gear pump

Perfectly suitable for demanding applications in fluid transfer for dangerous liquids or expensive chemicals. They produce a very constant pulsation free flow without leakage.

Max. flow	21 l/min
Max. pressure	17 bar

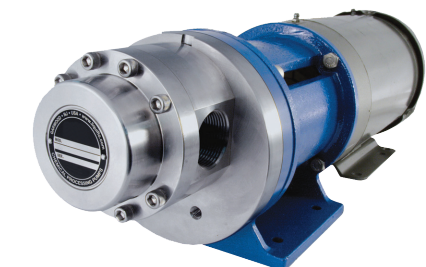


VERDERGEAR PROCESS H

Powerful process gear pump

The Verdergear Process series consists of twelve models for a wide variety of performance areas. The over-dimensioned bearings, shafts and screws guarantee a long life.

Max. flow	220 l/min
Max. pressure	15 bar



VERDERGEAR PROCESS MAX

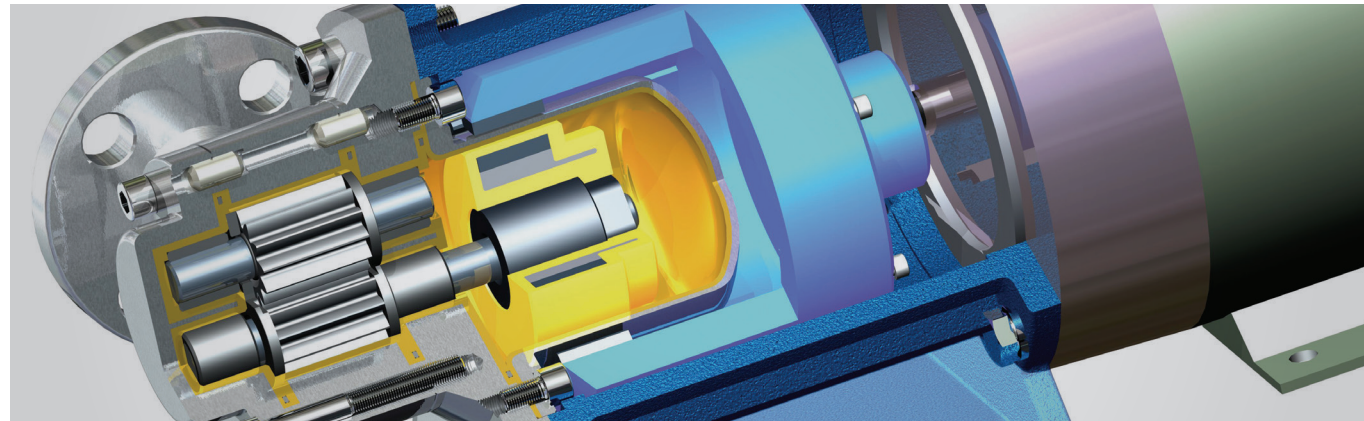
High pressure gear pump

The Verdergear Max series is designed for high pressures up to 24 bar. The newly developed helical gears reduce the tooth flank forces to create a calmer and quieter pumping action.

Max. flow	76 l/min
Max. pressure	24 bar

KEY FACTS

How VERDERGEAR pumps make the difference



The perfect pumps for your chemical application

- ✓ Improved corrosion resistance
- ✓ Handling high-viscosity materials
- ✓ Increased efficiency
- ✓ Pumping low-viscosity materials

With an extensive selection of corrosion-resistant and wear-resistant materials, sealing configurations and ancillary options, VERDERGEAR gear pumps can be custom engineered to handle a wide range of chemical pumping applications.

Metering

Liquiflo gear pumps are used in metering systems where the motor rpm is controlled to regulate the pump output. Flow rate, pH levels or rpm can trigger the control of feedback signals.

High-viscous Fluids

Water treatment polymers and food materials up to 100,000 mPas are typical of the high-viscosity service of the H-Series gear pumps. When pumping high-viscosity materials, it is normally preferred to use larger size pumps running at slower speed to allow these thicker materials to enter the pump and fully fill the gear teeth cavities. Since slip is not a concern with high-viscosity fluids, gear outer diameters are usually trimmed to increase the pump efficiency. Running larger pumps at lower speed has the additional benefit of extending pump life, decreasing pipe friction losses and reducing fluid shear.

Low-viscous Fluids

Liquiflo specializes in pumping low viscosity liquids using gear pumps. Since low viscosity fluids have little to no lubricating properties, Liquiflo uses gears made from carefully chosen engineered plastics such as PEEK or Teflon that have substantial self-lubricating properties as well as excellent wear and corrosion resistant properties. In addition, we use hard-coated shafts that exhibit extreme resistance to wear in the journal-bearing areas even when pumping extremely thin fluids. Liquiflo has pumped liquids with viscosities as low as 0.3 mPas with impressive results. We have documented applications of pumps running in excess of 24,000 hours on 0.6 mPas liquids.

WHY CHOOSE VERDERGEAR?

All the advantages at a glance

Crystallizing Fluids

Crystallizing fluids can be problematic for pumps with single mechanical seals. Fluids that crystallize when exposed to air can cause a crystal build-up around the edges of the seal faces, causing damage and premature seal failure. For this service, Liquiflo offers pumps with double mechanical seals or sealless magnetic drives. In both cases, the pumped fluid is isolated from the air, preventing crystallization. The double seal uses a pressurized barrier fluid system to contain the pumpage and flush the seal faces.



Low-Temperature Fluids

Antifreeze, refrigerants or liquefied gases are typically pumped at temperatures below 20 °C. Liquiflo has successfully pumped cold or cryogenic liquids with mag-drive pumps using special purpose materials and equipment. The Liquiflo Temperature Control Jacket and Dual Kan® are available for applications where low liquid temperatures must be precisely controlled.



High-Temperature Fluids

Solid or high viscous chemicals at room temperature can be effectively pumped once they are heated to a more fluid state. Liquiflo offers several materials and ancillary options for this purpose. Liquiflo's pump selection process evaluates the effect of temperature on any nonmetallic components inside the pump. If necessary, these parts will be trimmed to ensure effective and efficient operation at the pumping temperature. The ancillary options include the Liquiflo Temperature Control Jacket, Dual Kan® and Power Frame.



Hazardous Fluids

Toxic, noxious, flammable, corrosive or other dangerous liquids are best handled using sealless mag-drive pumps. These pumps have no dynamic seals and therefore completely contain the pumpage. Liquiflo was one of the first companies to apply magnetic-drive technology to gear pumps. Because of their simplicity, and importance to safety and the environment, all Liquiflo pump models are available in mag-drive configuration.



VERDERGEAR Small

Small, compact and powerful gear pump



Key features

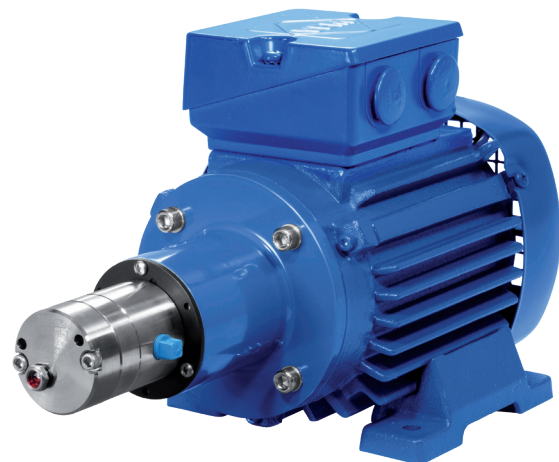
- ✓ **Magnetic coupling for safe and reliable transfer of hazardous liquids**
- ✓ **Great flexibility, even for OEM applications**
- ✓ **Internal bypass to protect pump and pipe work**
- ✓ **Precise dosage thanks to pulsation-free flow**
- ✓ **Various drive options**

Verdergear Small pumps are compact yet having a robust design. They are ideal for demanding fluids and can pump viscous liquids up to 10,000 mPas. With their precisely manufactured gears these pumps can overcome a suction height of up to 9 meters with flooded suction line. Available in 15 sizes they offer up to 2,880 l/h (48 l/min).

Within the range there are also pumps available for reliable and reproducible dosing of very small quantities. An internal bypass prevents overpressure. The maximum pressure can be set directly on the pump head, no additional overflow valves are required. Various drive options are available.

Verdergear gear pumps are ideal for OEM applications. The Verdergear Small series offers a variety of models with flow ranges up to 48 l/min, flexible and reliable. Successful applications are found in various industries, from cooling systems through medical technology to fuel cell technology.

Max. flow	48 l/min
Max. viscosity	1-2000 cPs
Max. pressure	17 bar
Max. temperature	-46 to +176 °C



VERDERGEAR VGS 24V OEM

Small, compact and powerful gear pump



Verdergear gear pumps are perfectly suitable for demanding applications in fluid transfer for dangerous liquids or expensive chemicals. They produce a very constant pulsation free flow without leakage.

The magnetically driven gear pumps have no shaft seals and are 100% leak free. The pumps are perfect for dosing and metering applications and ensure a repeatable and accurate flow. This model is equipped with a brushless 24VDC motor with integrated speed controller. Speed can be adjusted with an external control analog signal 0 – 10V.

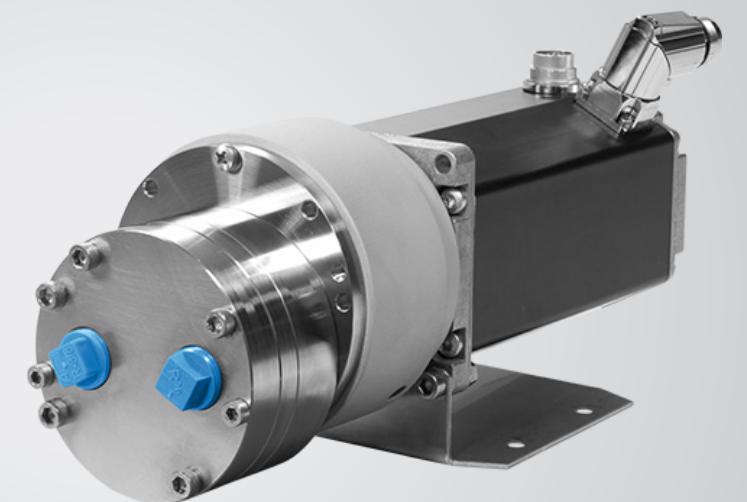
Max. flow	21 l/min
Max. viscosity	2,000 mPas
Max. pressure	17 bar
Max. temperature	176 °C

Key features

- ✓ **Wide range of flow control**
- ✓ **Pulsation free flow**
- ✓ **Highly reliable**
- ✓ **High dosing accuracy**
- ✓ **Corrosion-resistant materials**

This is what makes the VGS perfect for OEM applications

- ✓ **Self-priming**
- ✓ **Very user-friendly**
- ✓ **The target speed can be set using a 0...+10 V analog voltage input**
- ✓ **Ultra compact design**



VERDERGEAR VGS 230V Inverter

Small, compact and powerful gear pump



Key features

- ✓ Very reliable, pulsation-free pumping
- ✓ High dosing accuracy
- ✓ Corrosion resistant materials
- ✓ Very service-friendly
- ✓ Large adjustment range
- ✓ No external frequency converter required
- ✓ One motor for different pump heads

Verdergear gear pumps are ideally suited for the precise and repeatable pumping of hazardous liquids or expensive chemicals. They operate pulsation-free and due to the magnetic coupling they are absolutely leakage-free.

This pump can be equipped with a 230 V (1 phase) AC motor and has a frequency converter incl. potentiometer as well as an internally wired forced cooling fan. A speed range of 50-5000 rpm is adjustable. The frequency inverter is configured via an integrated adjustment module with digital display.

The pump is controlled by a potentiometer or interfaces such as 0-10 V, 4-20 mA or RS485. As an option, common interfaces such as Profi Bus, CANopen, EtherCAT, Mod Bus RTU or sercos are of course also available.

Max. flow	21 l/min
Max. viscosity	1-2000 cPs
Max. pressure	17 bar
Max. temperature	-46 to +176 °C



VERDERGEAR Process H

Powerful process gear pump



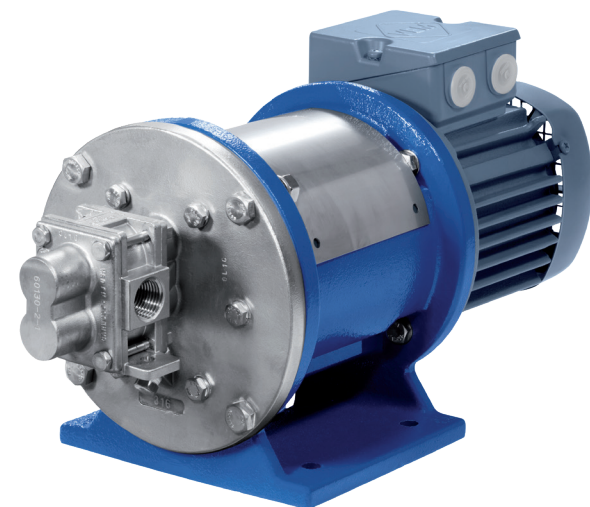
Key features

- ✓ Pulse-free flow
- ✓ Corrosion-resistant materials
- ✓ Self-priming
- ✓ Very easy to operate
- ✓ Sealless, magnetic-coupled construction
- ✓ Ideal for high pressures and low flow rates

For heavy-duty, industrial applications, the H series provides a robust pump for medium-flow transfer and dosing applications.

The pump is constructed to provide a long service life with sturdy flange connections configured to industrial standards and a robust pump housing and bearing-shaft assemblies sized for significant loads. The 'H' series can handle fluids of up to 100,000 mPas. The gear mechanism is available in different tolerances and in high-grade alloy material.

Max. flow	220 l/min
Max. viscosity	100,000 mPas
Max. pressure	15 bar
Max. temperature	260 °C



VERDERGEAR Process Poly-guard

Polymer-lined stainless steel gear pump



Liquiflo's PFA-Lined Gear Pump is an excellent choice for inorganic acids, bases and salts, that are difficult to handle with or require expensive alloys in metallic pumps, such as: Hydrochloric Acid, Ferric Chloride, Sulfuric Acid, Hydrofluoric Acid, Sodium Hypochlorite, Nitric Acid, Sodium Hydroxide and Chromic Acid to name a few. Another key application area is for high purity services where contact with metallic components must be avoided.

This combination of the toughest exterior and the most chemically resistant interior is the ultimate solution for your most difficult pumping applications.

Traditional pressure integrity expected of metal pumps except from wicking problems associated with fiber reinforced housings.

Limits the effects of heat entrapment and corresponding thermal expansion issues.

Max. flow	95 l/min
Max. viscosity	500 mPas
Max. pressure	7 bar
Max. temperature	93 °C

Key features

- ✓ Traditional pressure integrity expected of metal pumps
- ✓ Reduced thermal issues
- ✓ Limits the effects of fluid absorption
- ✓ Increased strength and durability



VERDERGEAR Process Max

High pressure gear pump



Key features

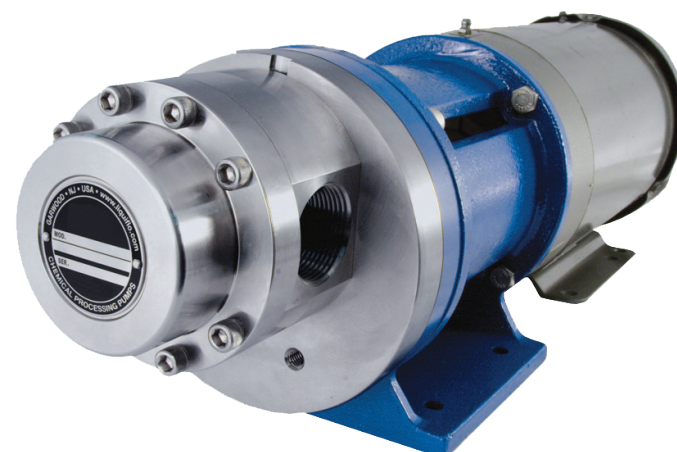
- ✓ **Extremely durable thanks to heavy duty construction**
- ✓ **Easy to maintain**
- ✓ **The most compact heavy duty gear pump on the market**
- ✓ **Quieter operating volume because of the helical gear design**

The unique and robust design of the Verdergear Liquiflo Max range pump assures extended life even in high pressure pumping applications where other gear pumps could fail. The pumps in the Max range will handle differential pressures up to 24 bar and flows up to 76 l/min.

The Max Series pump features helical gears with a new design to reduce separation forces placed on the the gear mechanism, creating a smoother and quieter operation.

The shaft and bearing assembly are built to operate at high differential pressures for extended periods of time. To avoid any possibility of the pipeline being distorted, the flange connections are joined with oversized bolts. The pump mounting bracket is made from stainless steel to eliminate corrosion even when exposed to the harshest environments.

Max. flow	76 l/min
Max. viscosity	100,000 mPas
Max. pressure	24 bar
Max. temperature	260 °C



ACCESSORIES AND OPTIONS

Extensive program of accessories and spare parts



Frequency inverter (VGS only)

Different terminal box covers will be available with following operating elements: Power switch, right/left-button, start/stop-button, manual/external-button and a setpoint potentiometer for manual setting of speed between 0 and 100%.



Relief valve

Verdergear Liquiflo pumps should always be installed with a relief valve in the discharge line, to protect the pump and piping against any type of line blockage, including the inadvertent closing of an isolation valve.



Heating jacket

To avoid changes in the characteristics of the medium from fluctuations in temperature, a heating jacket can be mounted at the pump head. This reduces the risk in changes of viscosity and/or degradation, particularly for temperature sensitive media.



Multiple flange

Verdergear Liquiflo gear pumps can be installed very easily as the large number of flange options allows compatibility with most major industry standards like ANSI & DIN and threaded in NPT and BSPT.





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The leading pump manufacturer

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