

# **VERDERGEAR**

Laboratory and dosing pumps

Solutions  
in Pumping  
technology



## VERDERGEAR pumps

The VERDERGEAR series of pumps comprises of two series of gear pumps: VERDERGEAR laboratory dosing pumps and VERDERGEAR industrial gear pumps.

In this brochure the VERDERGEAR series of laboratory and dosing pumps is described, providing numerous applications for laboratory and dosing applications. A separate brochure is available for the industrial gear pumps.

### VERDERGEAR laboratory and dosing pumps

The VERDERGEAR laboratory and dosing pumps are outstanding in providing solutions for difficult fluid handling applications. First, all VERDERGEAR pumps are manufactured with high precision which enables very accurate dosing, furthermore the VERDERGEAR pumps provide you with a pulse-less flow. The seal-less design also provides the means to pump hazardous or expensive chemicals without leakage or damage to the environment.

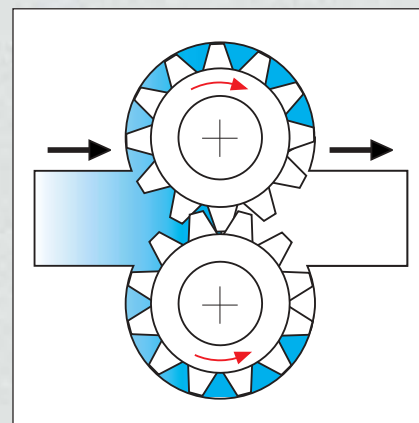
### The working principle

A gear pump is a positive displacement pump, which consists out of two or more gears. These gears grip into each other and rotate in opposite directions. The gears are surrounded by a precisely fitted housing. This housing has a suction and a discharge connection. One of the gears is directly driven by the motor drive. The other gear is rotated by the first gear. The VERDERGEAR range of laboratory and dosing pumps are externally constructed gear pumps. Because there are hardly any leakage losses and because no slip occurs, a gear pump is an excellent dosing pump.

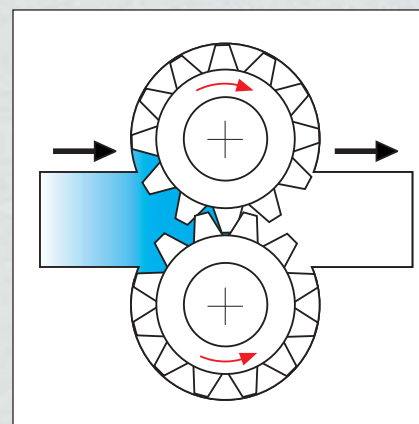
All VERDERGEAR laboratory and dosing pumps are magnetically coupled. An extended range of pump heads with many material options, provide capacity ranges from 0 to 480 l/h and discharge pressures up to 16 bar. With a standard pump head the maximum viscosity is 2000 cP. The standard housing material is 316 stainless steel. Gears can be supplied in a variety of materials to meet the needs of the application.

All VERDERGEAR laboratory and dosing pumps have a very low back-flow enabling the pump to produce a uniform flow, an ideal characteristic for dosing applications. All pump heads for the VERDERGEAR laboratory and dosing pump series can be mounted on several different types of drive to suit the required duty.

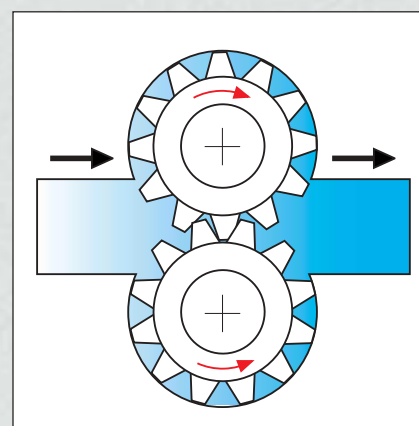
### External gear pumps



The liquid is being sucked into the empty space between two teeth.



The liquid trapped between the gear teeth is transported to the discharge side.



After the liquid arrives at the delivery side the teeth of the two gears re-mesh expelling the liquid out of the discharge port.



VG 1000 drive



VERDERGEAR

## Drives for VERDERGEAR laboratory and dosing pumps

### VG 1000

This is a specially designed electronic drive for the VERDERGEAR series of laboratory and dosing pumps which can be applied for all pump heads up to 200 l/h. The VG 1000 drives give easy electronic control and are standard IP 55 protected and built according to CE directives. There are two options for control of the pump:

VG1000 drive: basic and digit The VG1000 basic and the VG 1000 digit are both excellent drives for almost all dosing and transfer applications. Because of the robust construction and the IP 55 protection class, this drive can be used in laboratories as well as in severe duties in industry. The high precision of the rotation speed ensures continuous and reproducible flow for all applications. The drive is easy to operate through the clear tip to control panel.

- VG 1000 Basic  
Analogue controlled. This version gives the possibility to control pump speeds manually from 100 - 4000 rpm
- VG 1000 Digit  
Analogue controlled. This version gives the possibility to control pump speeds manually from 40 - 4000 rpm or remotely via a 0 - 10 V, or 4 - 20 ma signal.

### Single or 3 phased motors

Apart from the normal AC and 3 phased motors, also explosion proof and electrical controlled models can be mounted to serve your application. DC motors are available on request.

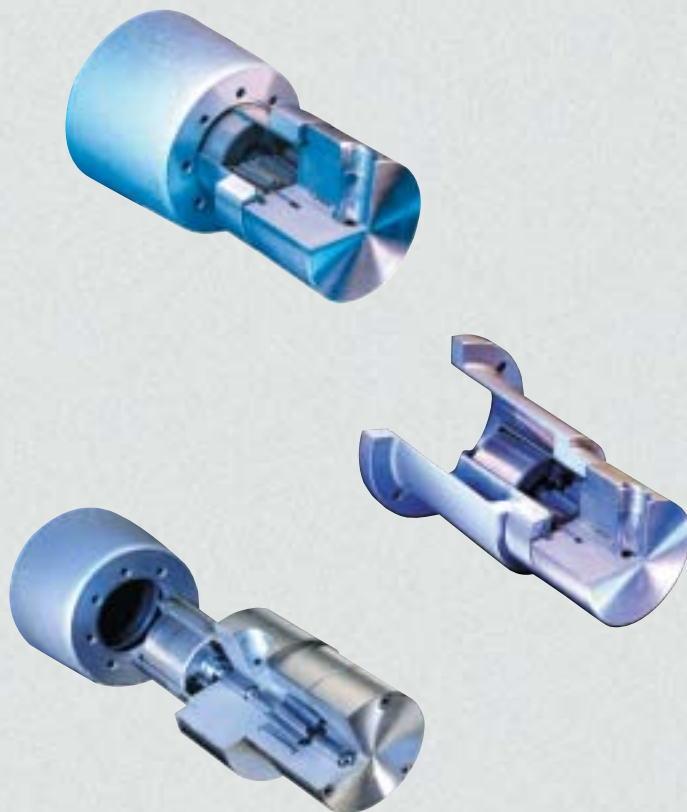
The standard motor speed is 2900 rpm, however other speeds are available on request. In addition, the pumps can also be fitted with either a Eex-e (increased safety) or Eex-de (flame proof) drive.

## Pump heads for VERDERGEAR pumps

The VERDERGEAR pump heads are excellent for a capacity of max. 480 l/h against pressures of 7 to 16 bar. All pump heads have a magnetic coupling; shaft seals are not necessary. This ensures a leak free operation for extra security in environmental applications.

The material combination SS 316 and PEEK for the gears enable this pump to be applicable for numerous aggressive and corrosive fluids. The high quality manufactured housing and gears show stable flow characteristics and take care of a high operating precision. With the built-in bypass valve, an effective flow control and a good pressure limitation can be preset.

VERDERGEAR V pump heads can be combined with various drive units, enabling every transport or dosing application within industry, but also an excellent model for research and laboratory purposes.



VG096.97



VG108.05



VG160.10



VG5000



## Technical details

### Variable drives VG 1000

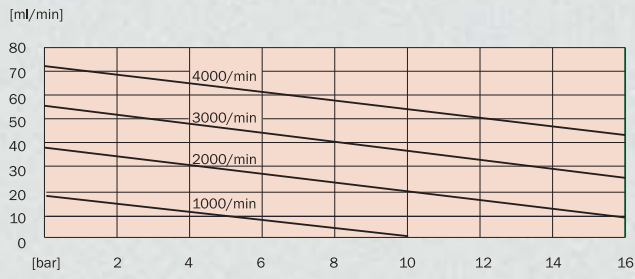
#### Output quantities [l/h] (max. flow)

Pump head	Range	VG004	VG006	VG015	VG60	VG120	VG200	VG300
1000 basic	1:40	4.4	10	23	100	162	288	0/A
1000 digit	1:100	4.4	10	23	100	162	288	0/A
Pressure max.	6 bar	6 bar	6 bar	6 bar	6 bar	5 bar	5 bar	5 bar
Measured with water at 25 °C and free outflow								
<b>Features</b>								
		1000 basic			1000 control			
Max. r.p.m.		4000/min			4000/min			
Range		1:40			1:100			
Voltage		210-240VAC,50/60Hz;130W			210-240VAC,50/60Hz;130W			
Manual control system		1000 basic start/stop; turning speed			1000 control start/stop; turning speed; set-up			
External control system		Start/Stop; 4-20mA; 2-10V			Start/Stop; 0-10V; 0-5V, 0-20mA; 4-20mA			
Operating mode		Continuous operation			Continuous operation			
Standard		CE; IP55			CE, IP55			
Weight		12 kg			12 kg			

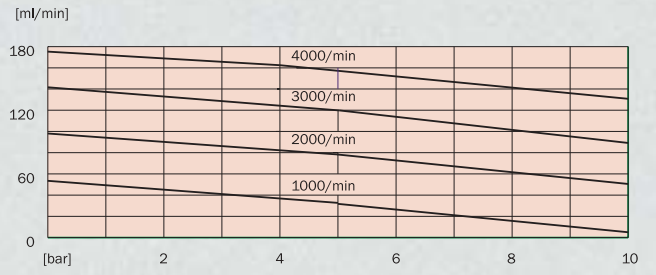
#### Technical data constant drives

For Pumps VG004-VG200						
	1500 1/min		3000 1/min			
Model	KA151	KA153	KA153E	KA301	KA303	KA303E
Power supply [kW]	0.18	0.18	0.18	0.18	0.18	0.18
Voltage [V]	230	230/400	230/400	230	230/400	230/400
Standard[IP]	44	55	EEX e T3 IP54	44	55	EEX e T3 IP54
Motor type	63	63	63	63	63	63
Phases	1	3	3	1	3	3
For pumps VG300						
	1500/min		3000/min			
Model	KB151	KB153	KA153E	KB301	KB303	KB303E
Power	0.37 kW	0.37 kW	0.37 kW	0.37 kW	0.37 kW	0.37 kW
Voltage	230VAC	230/400VAC	230/400 VAC	230VAC	230/400VAC	230/400VAC
Standard	IP44	IP55	EEX e T 3 IP54	IP44	IP55	EEX e T3 IP54
Motor size	71	71	71	71	71	71
Phase	1	3	3	3	1	3

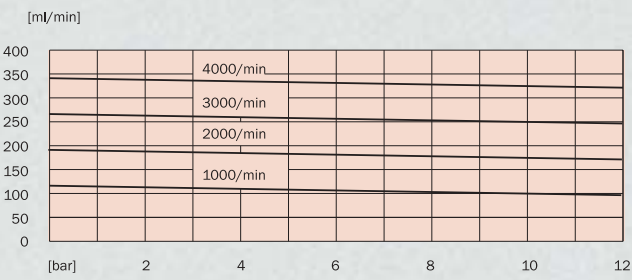
### V 004



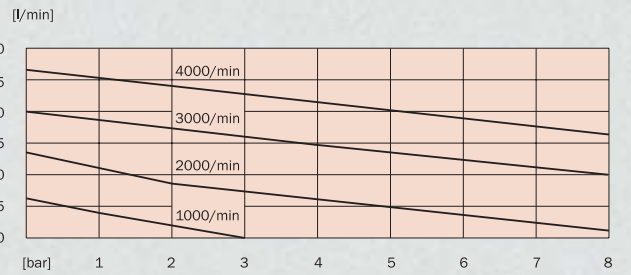
### V 120



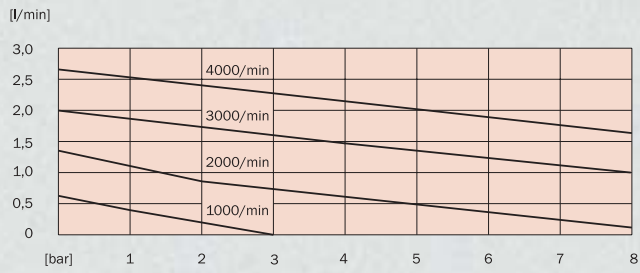
### V 006



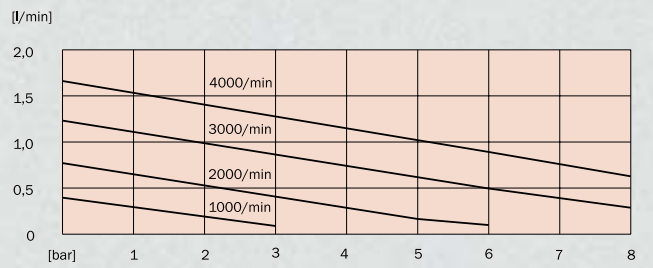
### V 200



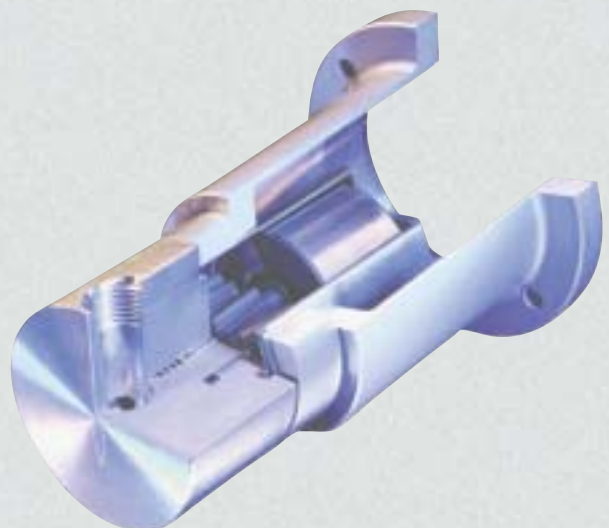
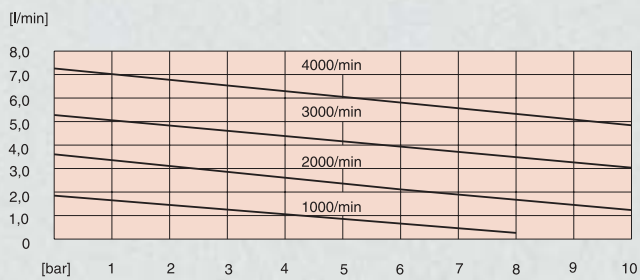
### V 015



### V 300



### V 060





Paper mill



Pharmaceutical



Pharmaceutical



Chemical

## Example applications for VERDERGEAR gear pumps.

- Water treatment* : dosing of polymer solutions.
- Drinking water* : pumping of water cleaning agents.
- Pharmaceutical* : pumping of peroxide solutions.  
: pumping of dyes and fragrances.  
: pumping of perfumes.
- Chemical* : transporting and/or dosing of hazardous chemicals.
- Sugar industry* : pumping of acids or caustics.
- Brewing* : pumping of the hop solution.
- Food industry* : pumping of additives, flavours and fragrances.
- Chocolate industry* : pumping of hot cocoa mass.
- Oil industry* : diesel transfer on oil rigs.  
: pumping of chemicals under system pressures to 150 bar.  
: pumping of drilling chemicals.
- Oil refining* : pumping of fuel additives.  
: pumping of acids
- Paint and laqguer* : pumping of paint and colours
- Petrochemical Industry* : diesel/ultra pure water
- Plastics industry* : pumping of resin.
- Fragrance and flavours* : batch pumping of additives and chemicals.
- Textile industry* : pumping of dyes and pigments.
- Pulp and paper industry* : pumping of dyes, inks additives.
- Steel manufacture* : dosing of acids and caustics.
- Detergent industry* : pumping of dyes, detergents, acids, and caustics.
- Photography* : pumping of developer solvents.
- OEM equipment* : analyser builders and the pumping of analyser fluids.

---

## The VERDER Group

The VERDER Group consists of a number of technical trading, franchising and production companies operating in the fields of liquids, solids and plastics materials technologies. With affiliates in all technical European centers and partnerships in the USA and Africa VERDER provides world wide industrial solutions.

The UK branch of the Group comprises VERDER Ltd (liquids handling) and RETSCH UK Ltd (solids handling). In addition there are two self-contained production units where several of VERDER's own name product ranges a.o. VERDERFLEX and GLOBAL are manufactured and tested.

### Liquids Handling

Since the Group's formation in the 1950s, a large share of the overall delivery program has been comprised of hermetically closed and sealless pumps. However by the 1990s a change in direction had taken place - by acquiring some well-known production companies, concluding joint venture/private label agreements and with continuous R&D, the former distribution company developed into a major manufacturer and supplier for the industrial process markets, with well-known brand labels as VERDERFLEX, VERDERLAB, VERDERMAG, VERDERAIR, VERDERMIX, VERDERGEAR and VERDERFOOD. Such changes ensure numerous benefits for customers: they can deal directly with VERDER as the manufacturer, or they are covered by VERDER's comprehensive two year European guarantee schemes and standard warranty package for distribution of other pump brands.

VERDER has invested substantially in the development of its range of hermetically closed pumps, and to capitalise on this there are direct links between R&D, market research and production, creating immediate interaction between customer need and product development. One of the major benefits are direct qualitative improvements, which are seen as a natural consequence of all design work and emphasis is laid on maximum interchangeability. Another important benefit is the excellent knowledge of VERDER in markets and specific applications. VERDER knows technical processes and can offer you the solution, based on application experience.

Having restructured its production and distribution capacities, VERDER then looked to the future. A full program of service products has recently been developed to cover, for example, items such as maintenance and stock option contracts and on site inventory, where the actual product forms only one part of the overall supply contract. Based on its extensive experience of the process markets, from the position of supplier as well as from the customer's point of view, VERDER can provide tailor-made programs to address the many and varied requirements of its customers - contact us today to explore the many aspects of our Optimum Delivery Program! (ODP)



[www.verder.com](http://www.verder.com)

VERDER Ltd, Whitehouse Street, Hunslet, Leeds LS10 1AD, Tel.: +44 (0)113-222 02 50, Fax: +44 (0)113-246 56 49, E-mail: [sales@verder.co.uk](mailto:sales@verder.co.uk)  
Affiliated companies: A - Wien • B - Elversele • CZ - Praha • D - Haan • DK - Ringsted • F - Eragny s/Oise • GB - Leeds • H - Budapest • PL - Katowice • RO - Bucuresti

GEAR 08-01