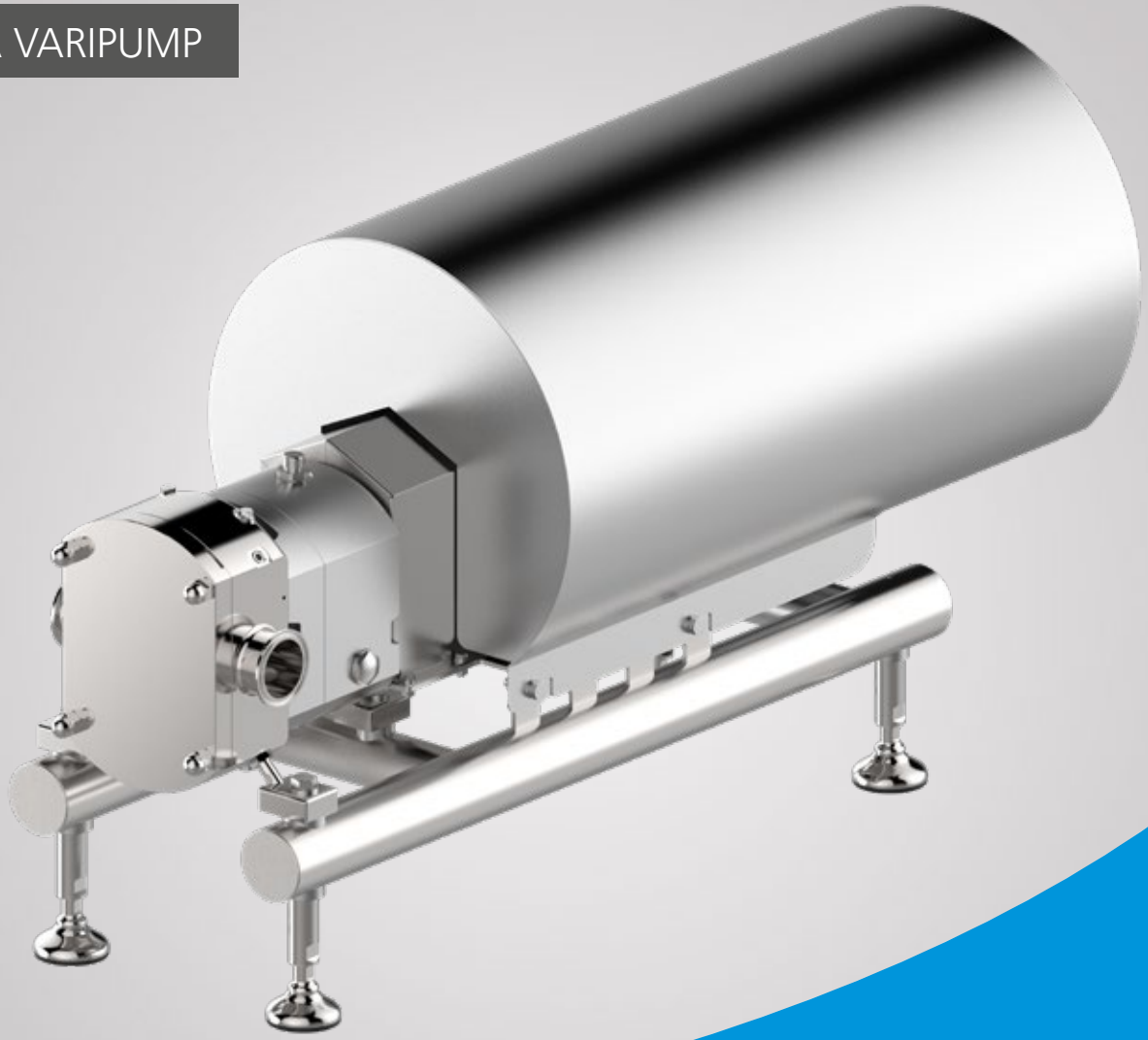
GEA VARIPUMP



GEA Hilge NOVALOBE

Rotary Lobe Pumps
Catalog 2019

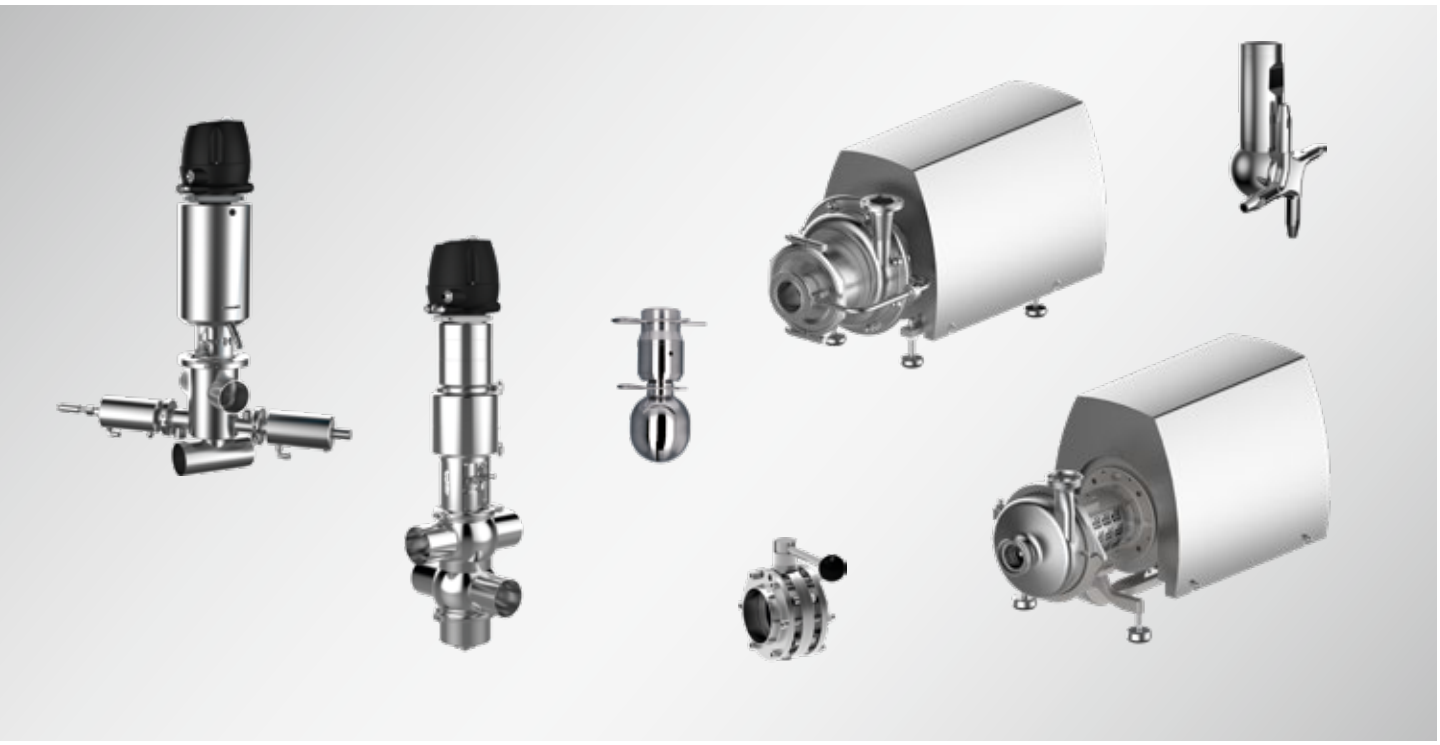
engineering for
a better world

gea.com

Legal notice

Publication date: March 2019

GEA Hilge
Niederlassung der GEA Tuchenhagen GmbH
Hilgestraße 37–47, 55294 Bodenheim, Germany
Registered Office: Büchen, Court of Registration: HRB 836 SB in Lübeck
Management Board: Tobias Dieckmann, Michael Wulle, Oliver Hegehofer
VAT-ID: DE 812589019, Tax No.: 105/5857/1004



Regardless of the application – for our customers product quality and profitability are what matters. This is what GEA Flow Components is known for. Our engineers are specialists in everything that flows.

Around one quarter of the milk processed is handled by GEA equipment

Roughly every second liter of beer is brewed using GEA equipment and solutions

Every fourth liter of human blood is handled by GEA equipment

GEA Group Aktiengesellschaft

GEA is one of the largest suppliers of process technology for the food industry and for a wide range of other industries. As an international technology group, the company focuses on world-leading process solutions and components for sophisticated production processes.

GEA Flow Components

GEA offers well-engineered process components and services to ensure smooth production processes in the treatment of liquid products. We develop and produce a comprehensive product range that includes valve technology for all hygienic classes (Hygienic, UltraClean, Aseptic), hygienic pumps and cleaning technology.

GEA Flow Components products and services are available around the world through the international GEA network.

State-of-the-art hygienic design

GEA Flow Components meet the highest hygienic standards where required, such as EHEDG and 3-A standards.

Hygienic valves and components from GEA form the core component of matrix-piped process plants.

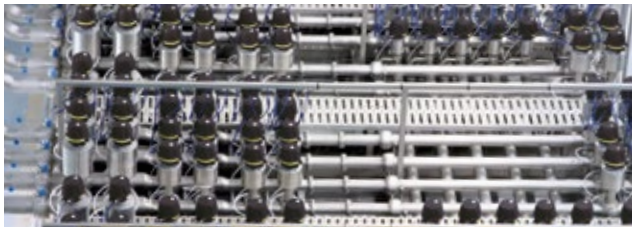
When it comes to sterile applications, GEA offers both UltraClean and Aseptic valves and systems. The hermetic sealing of the product area provides a maximum level of process line isolation and thus contributes to process and product safety.

The hygienic pump range from GEA includes centrifugal pumps (single-stage, multi-stage and self-priming), as well as rotary lobe pumps.

GEA cleaning devices – whether index, orbital, rotary or static – achieve optimum cleaning results in multiple industries. GEA product recovery systems help to recover valuable products and reduce both waste disposal costs as well as water and detergent consumption.

Applications

- Beverages
  - Beer, juice, smoothies, and more
- Dairy processing
  - Milk, yoghurt, cheese, and more
- Food
  - Sauces, pastes, ketchup, mayonnaise, and more
- Pharma/Biotech
  - Pharmaceuticals, biotech, cosmetics, health care, and more
- Chemicals
  - Fine chemicals, bulk chemicals, cleaning agents, and more



Hygienic Valve Technology

A complete range of economically designed Hygienic valves for complex tasks as well as basic functions, helping producers to achieve high product quality and efficiency.

Aseptic Valve Technology

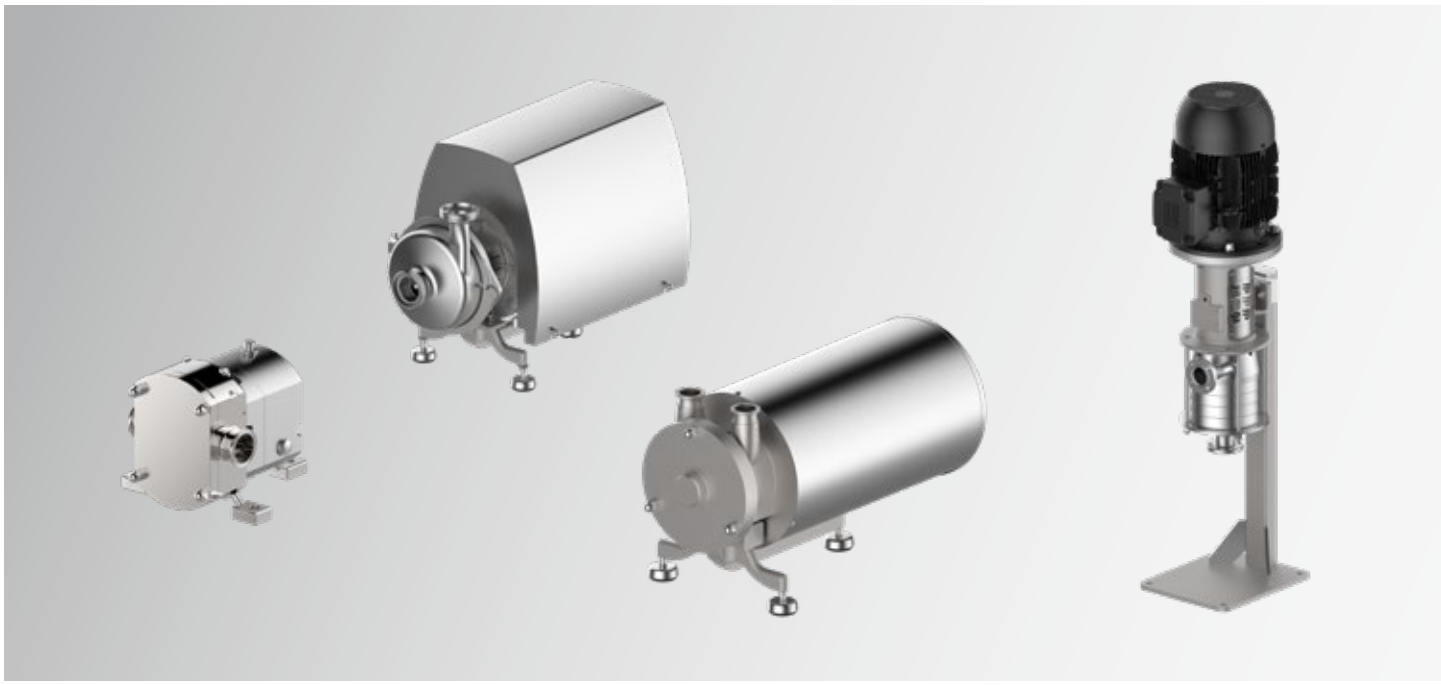
UltraClean and Aseptic valves are suitable for production processes which require a higher safety protection against contamination from the environment and thus warrant microbial stability of the product over the whole process.

Hygienic Pump Technology

A great variety of Hygienic pumps with sensibly rated high efficiency motors and carefully designed flow paths, driving economic efficiency and sustainable operation.

Cleaning Technology

Index, orbital, rotating and static cleaners in a complete range, developed with special emphasis on saving valuable resources in the cleaning process.



Gentle product handling, continued reliability and economic efficiency are key characteristics of the state-of-the-art hygienic pumps in the GEA Flow Components range.

Maximum reliability and cost control

Because GEA customers rely on the safe, continuous operation of their production systems, GEA pumps are optimized for uncompromising reliability in all applications. The great number of pumps currently in operation is proof of their robust design, long service life and ease of maintenance.

Applying GEA pumps to production processes can significantly reduce operational costs. Sensibly rated high-efficiency motors in all the required dimensions keep energy consumption as low as possible. The product is conveyed evenly and gently for higher product quality and improved processing and distribution options.

Economical
Higher product quality
Reduced consumption of energy, water and cleaning media
Reduced time and personnel costs for maintenance and cleaning

Hygienic and sustainable design

GEA pumps comply with all relevant hygiene standards and norms, with continuous documentation and up-to-date certifications safely ensuring judicial security.

Carefully designed flow paths free of dead zones ensure optimum cleaning and utilization of the conveying energy. Lower consumption of energy, water and chemicals helps to protect climate and environment, observe international regulations and promote the producer's standing with customers and authorities.

Long-term partnership

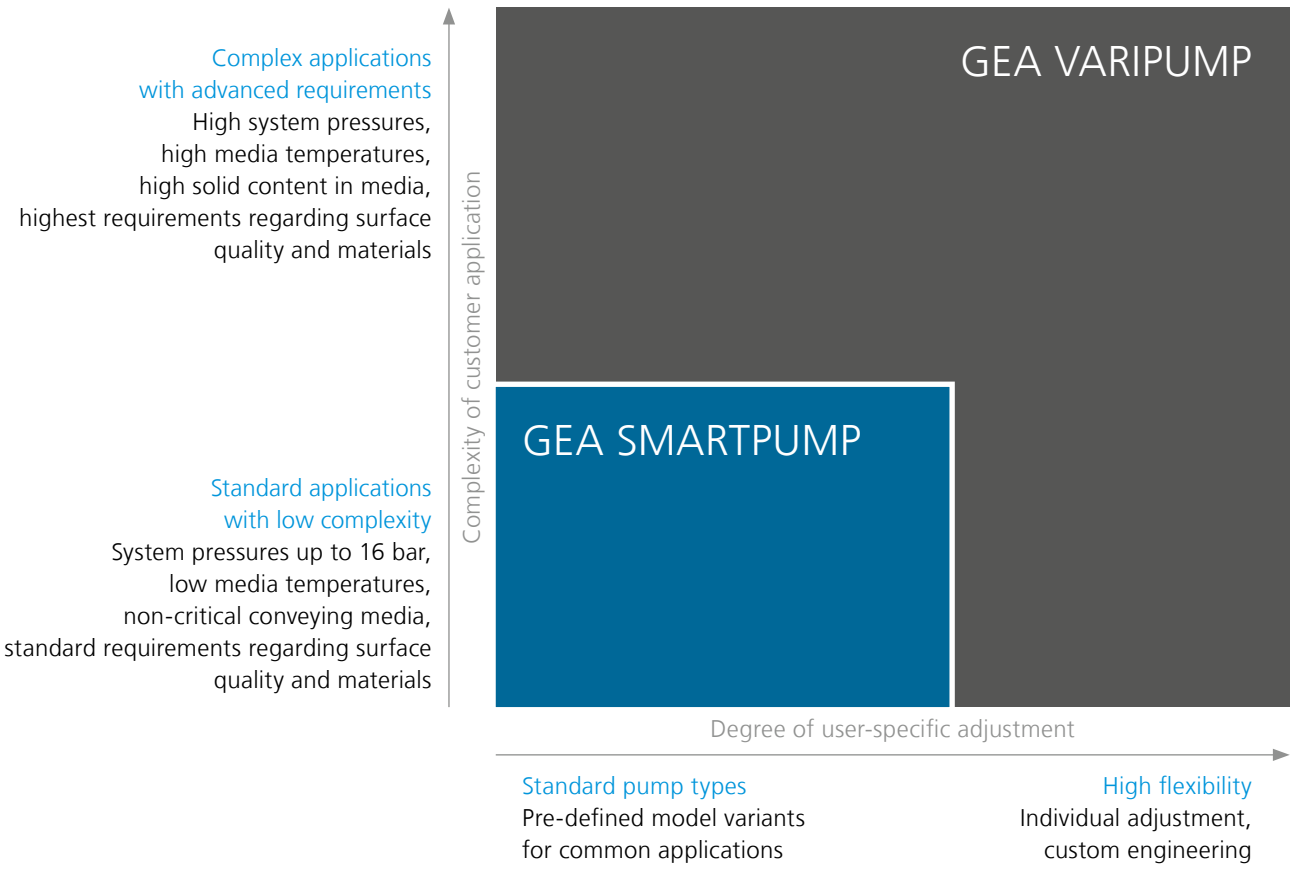
The GEA Hilge Hygienic Pumps Competence Center situated in Bodenheim, Germany, is the primary point of contact for GEA customers and partners to plan individual solutions. The worldwide GEA sales and service network provides further assistance with support offers covering the entire lifecycle of the pump.

Sustainable
Lower climate and environmental impact
Sustainable, environmentally friendly production processes
High standards for hygienic processing and care of products

Service-oriented
Individual engineering support
Shortest possible downtime of production
Individual service concept

Two modern pump lines for maximum efficiency

Two product lines, GEA VARIPUMP and GEA SMARTPUMP, form a highly versatile pump range with a multitude of adaption options to ensure simpler operation, higher-quality production, and reduced consumption of valuable resources.



GEA VARIPUMP

The pump series in the GEA VARIPUMP line have been conceived for extreme application demands. The pumps are individually optimized by GEA for each task.

GEA VARIPUMP models are made entirely without die-cast components, offering high-quality surfaces and materials that meet stringent demands even in the sensitive pharmaceutical industry, further ensured by complementing services, e.g. Witnessed Factory Acceptance Test (FAT).

With a great variety of set-up and customizing options the pumps can be adapted individually to any production process, for lower operational costs and maximum system efficiency.

- Developed for advanced application conditions
- Project-specific customization
- Surface roughness up to $R_a \leq 0.4$ µm
- Product-wetted materials according to specific requirements (e.g. no cast parts, $F_e \leq 1$ % optional)

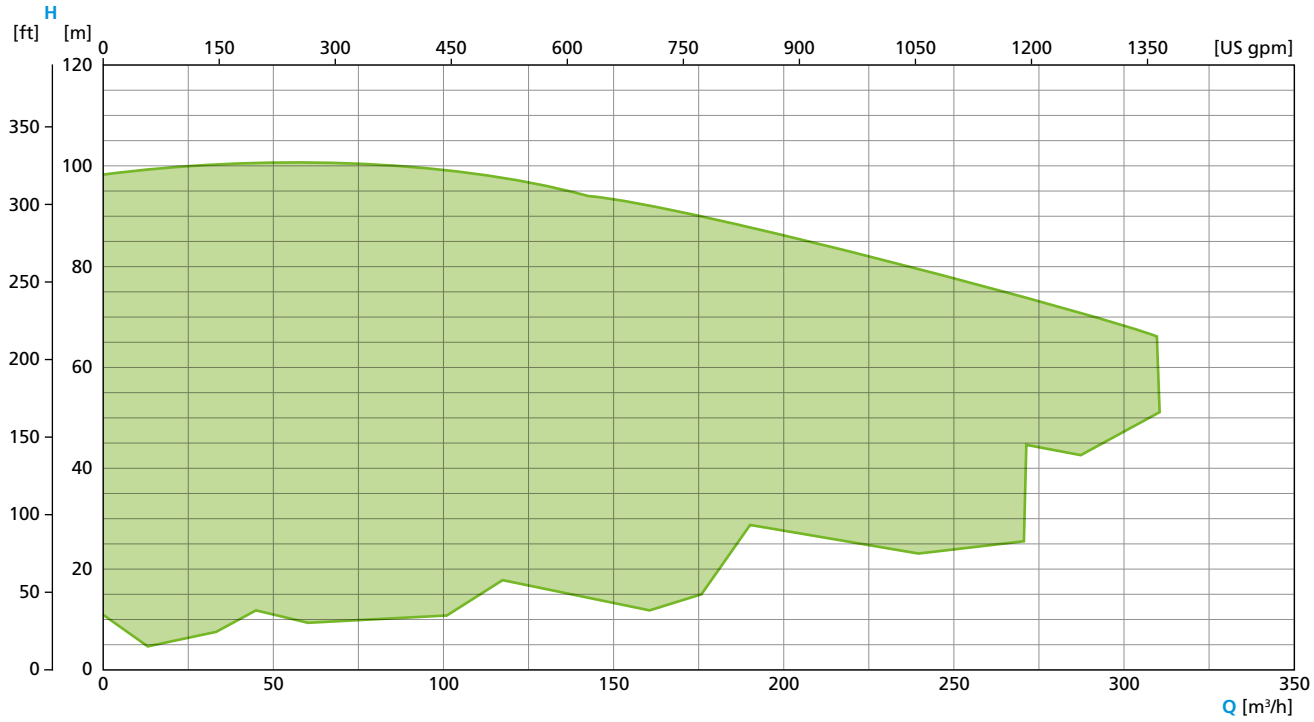
GEA SMARTPUMP

The GEA SMARTPUMP line comprises highly standardized and attractively priced pump series for common, often-used applications at standard conditions. The pumps are easy to select and ready for fast delivery. Within pre-defined parameters, the standard models can be configured to individual tasks.

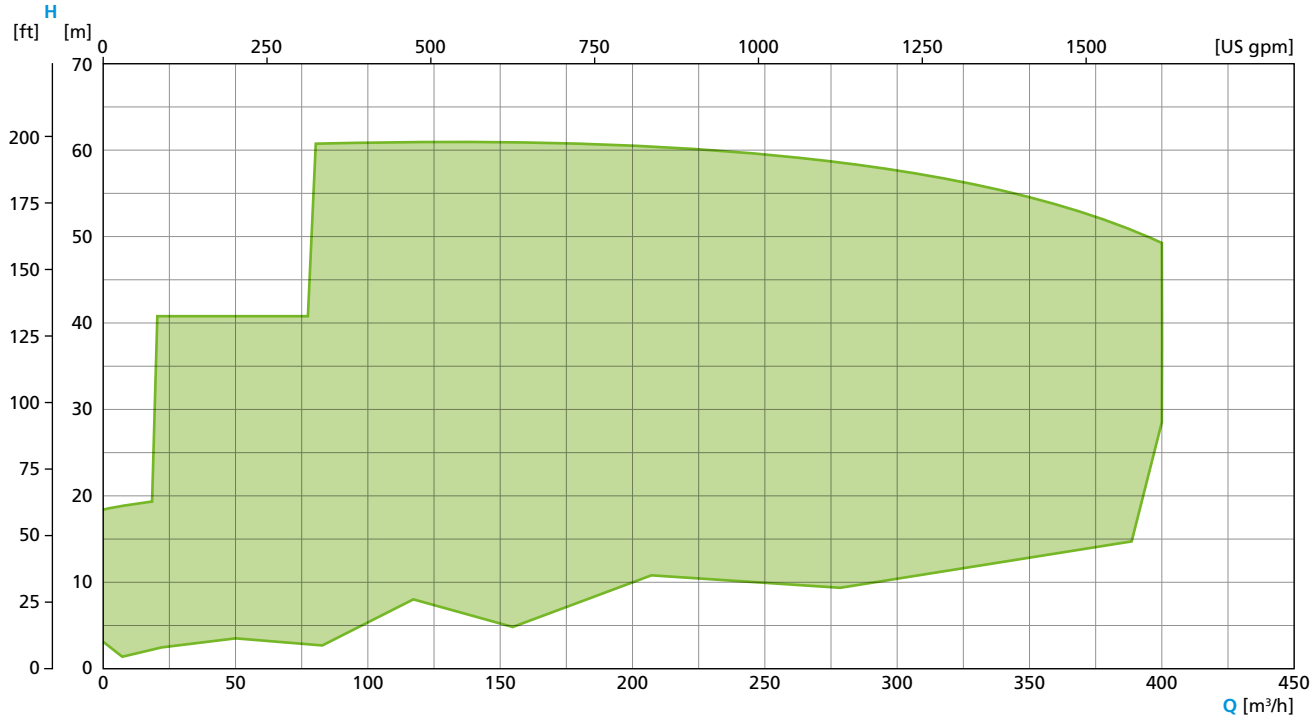
The modular construction using high-value materials, the proven “Hygienic Design” and easy-to-apply standardized spare parts all recommend GEA SMARTPUMP pumps for use in cost-critical production systems – at no compromise in terms of quality.

- Application for common and clearly defined “standard” process tasks
- Simple selection and configuration
- Fast delivery
- Standardized spare parts

Single-stage, VARIPUMP
2-pole, 50 Hz

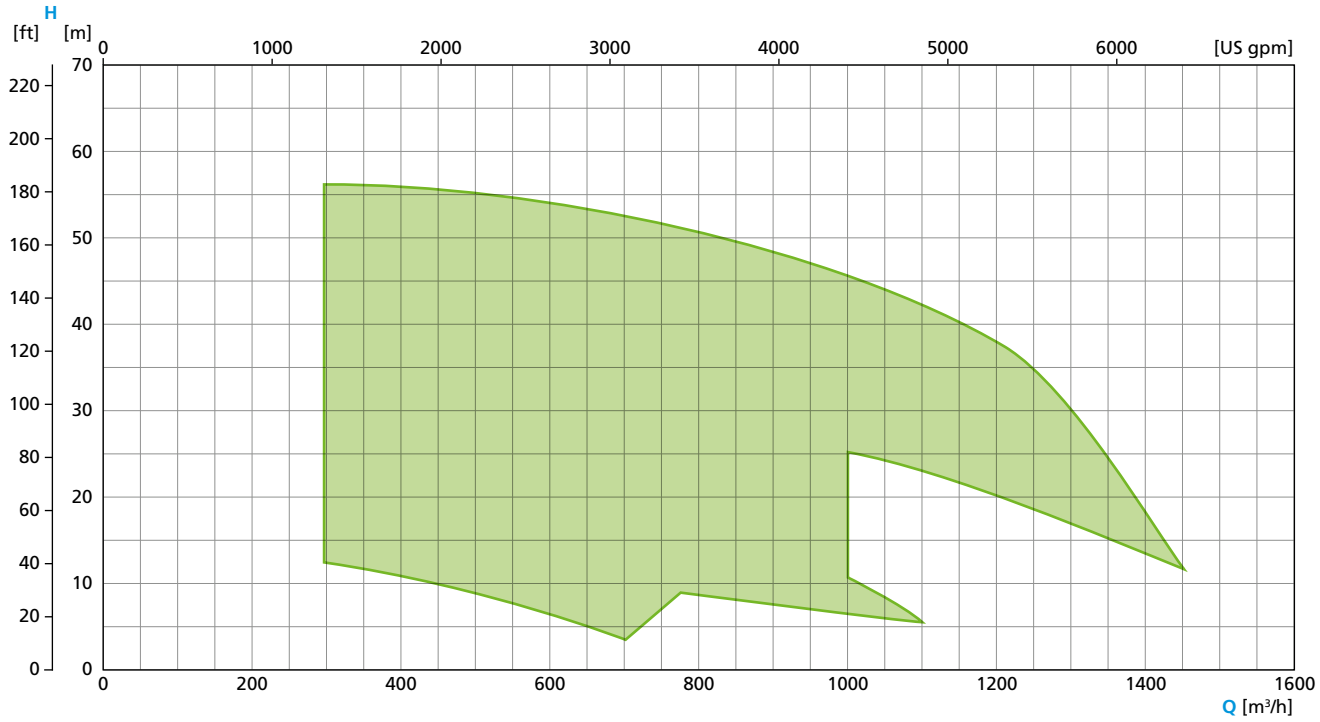


Single-stage, VARIPUMP*
4-pole, 50 Hz



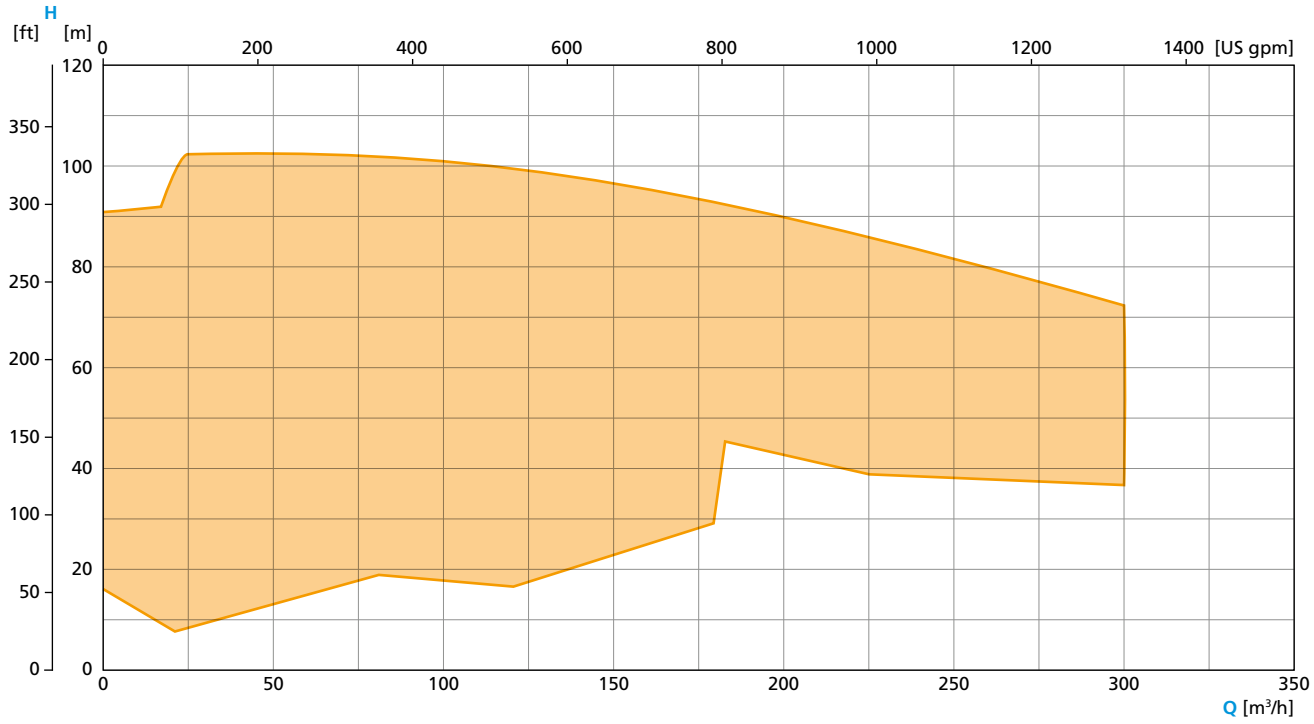
* GEA Hilge HYGIA & GEA Hilge MAXA (up to 150/400)

Single-stage, VARIPUMP*
4- and 6-pole, 50 Hz

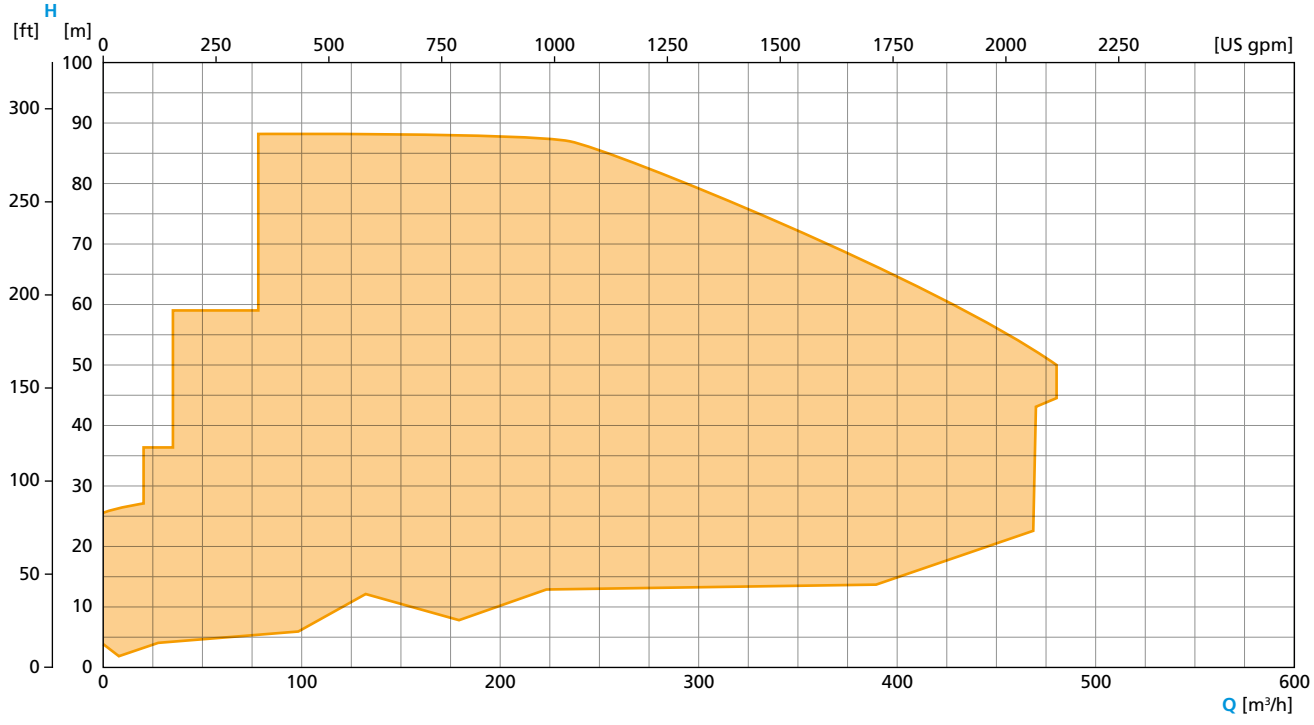


* GEA Hilge MAXA 200/400 and 250/400

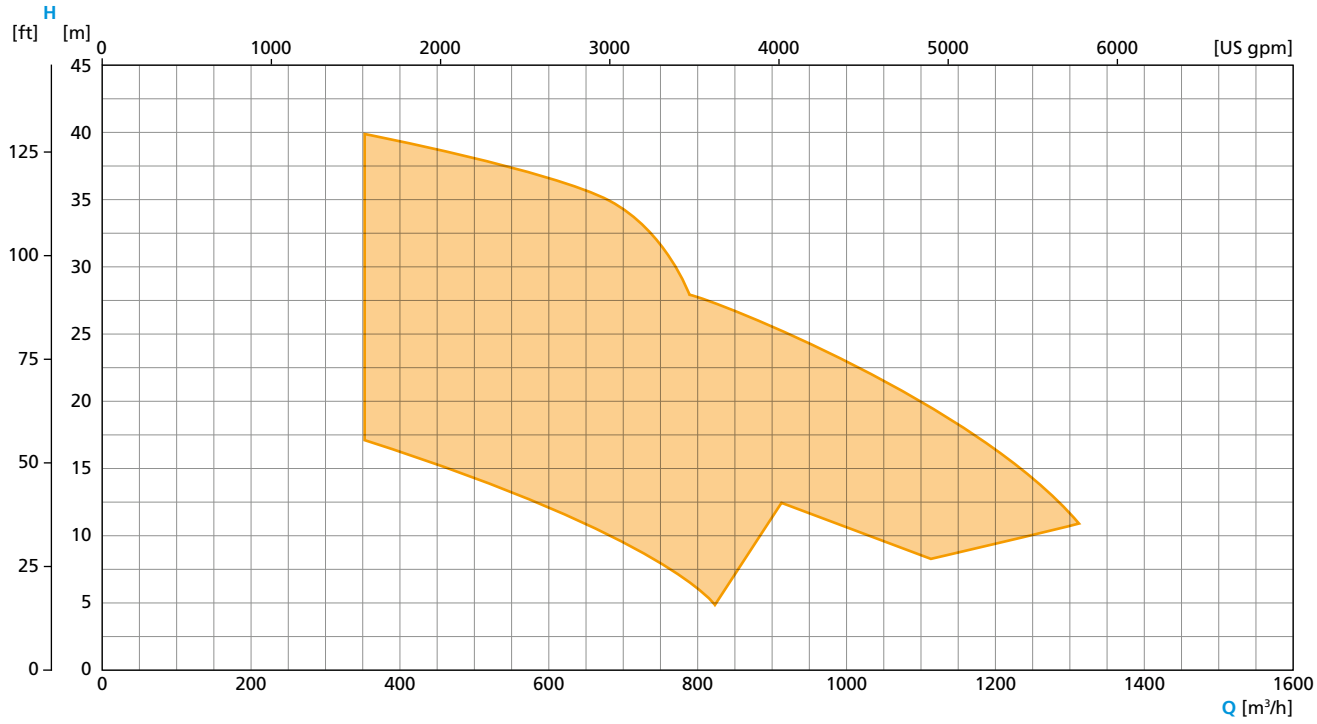
Single-stage, VARIPUMP
2-pole, 60 Hz



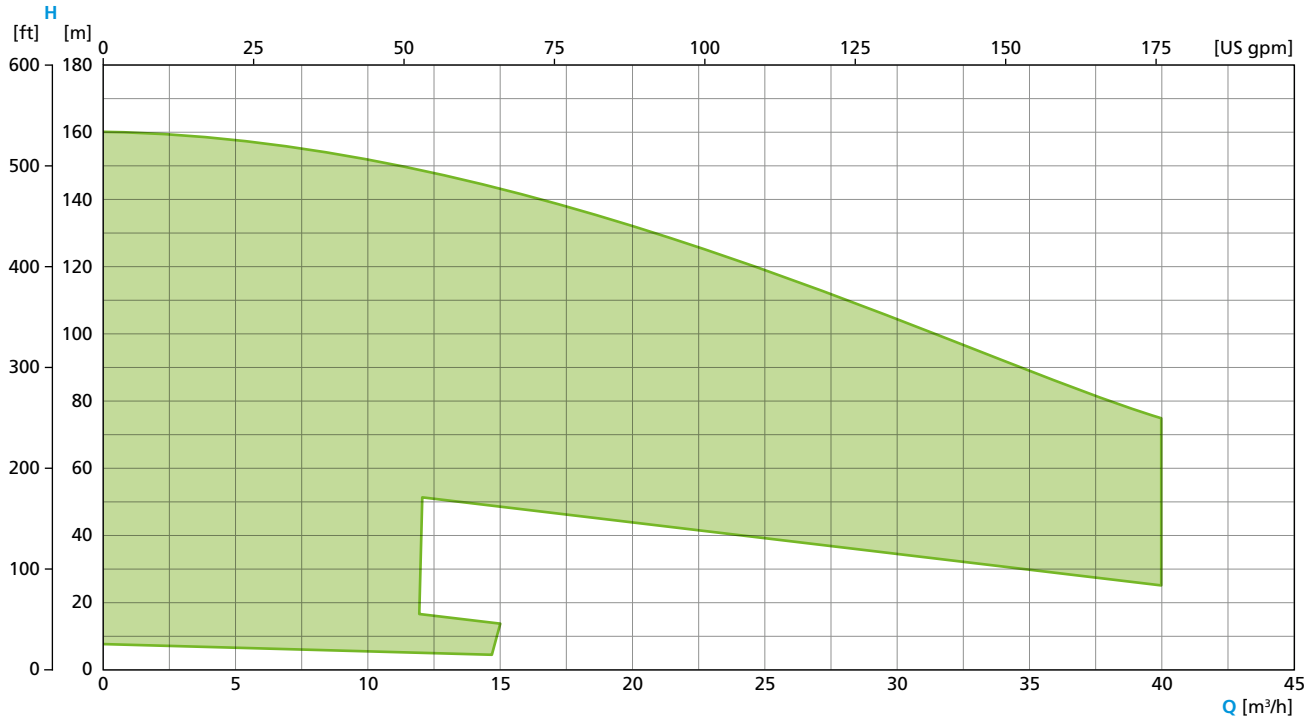
Single-stage, VARIPUMP
4-pole, 60 Hz



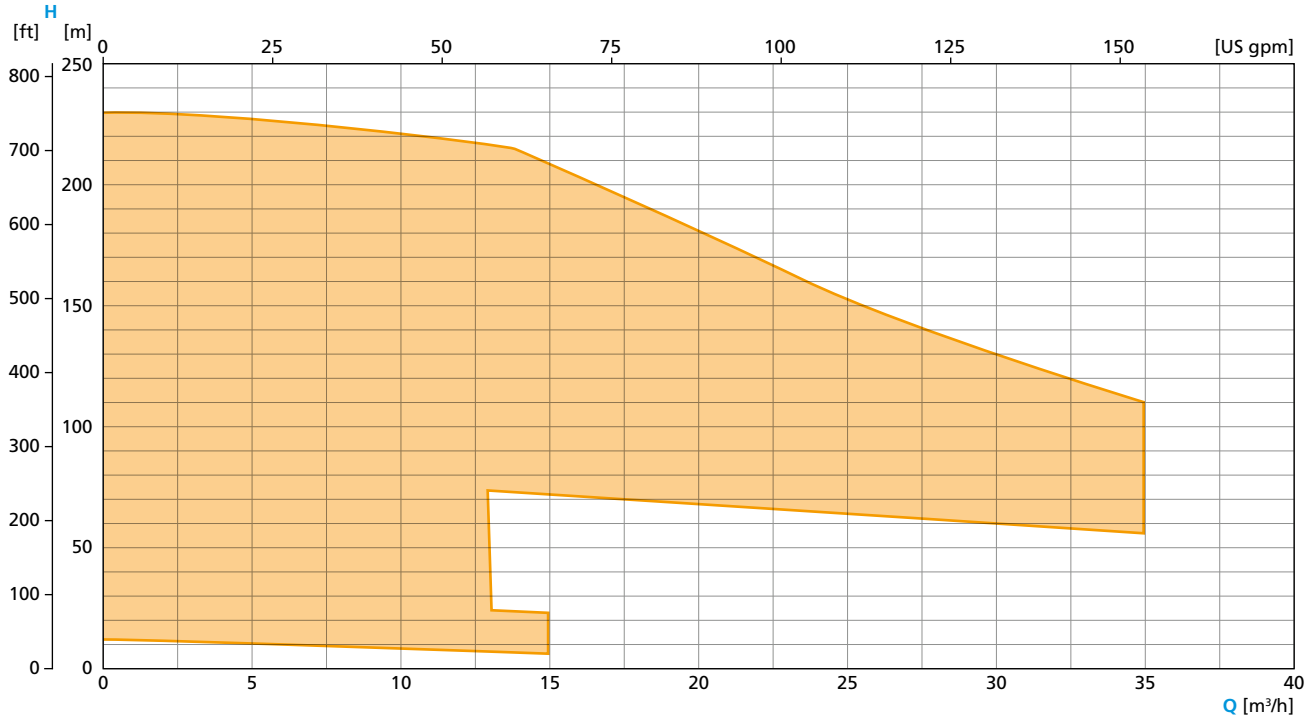
Single-stage, VARIPUMP
6-pole, 60 Hz



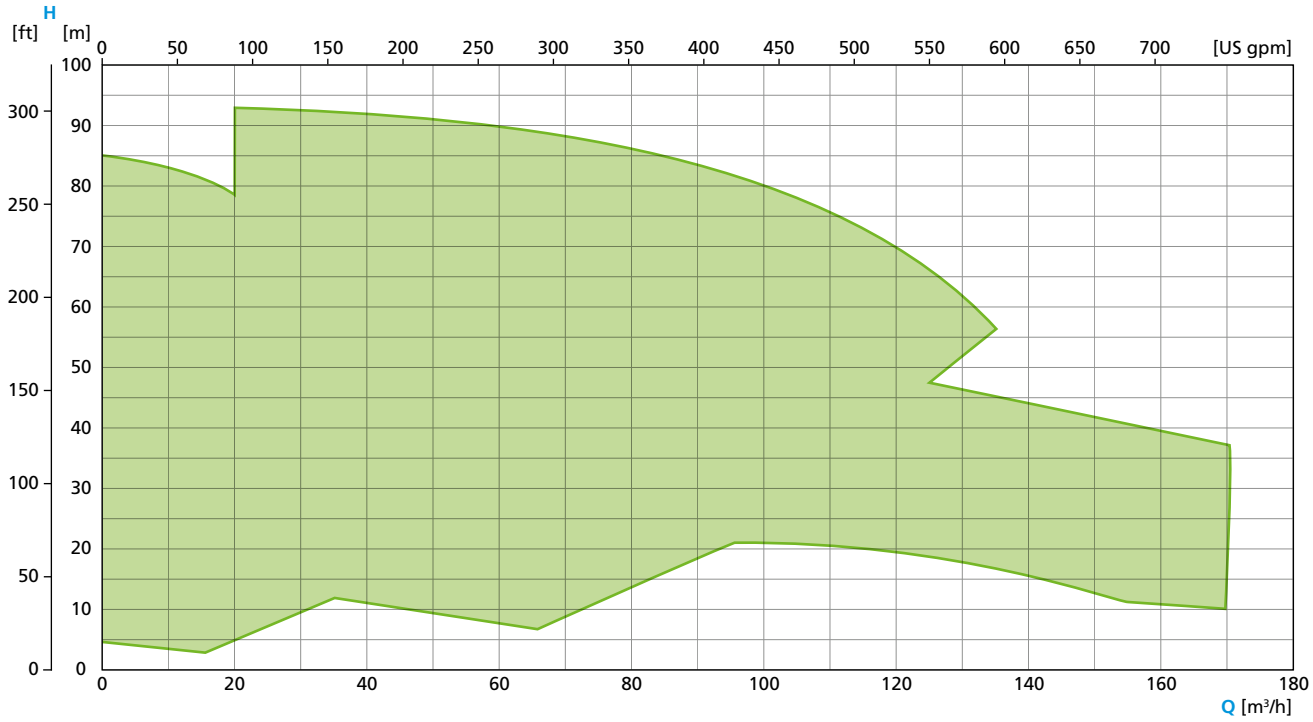
Multi-stage, VARIPUMP
2-pole, 50 Hz



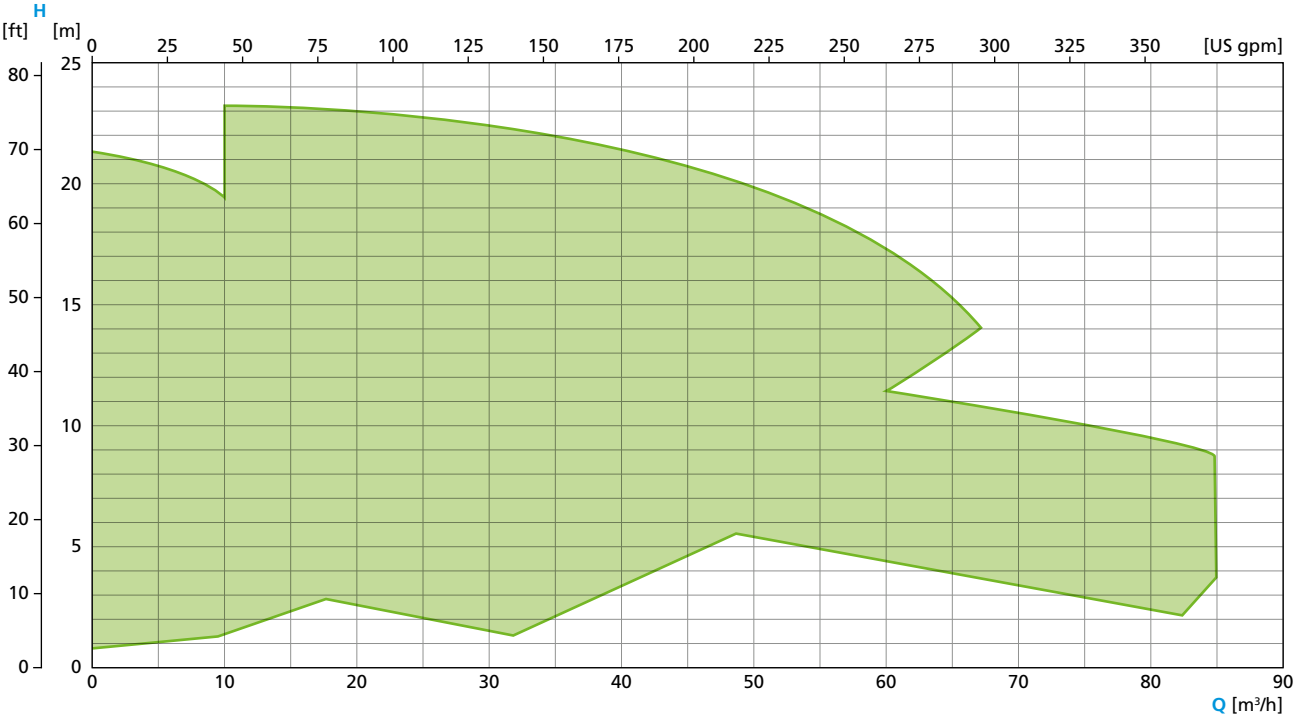
Multi-stage, VARIPUMP
2-pole, 60 Hz



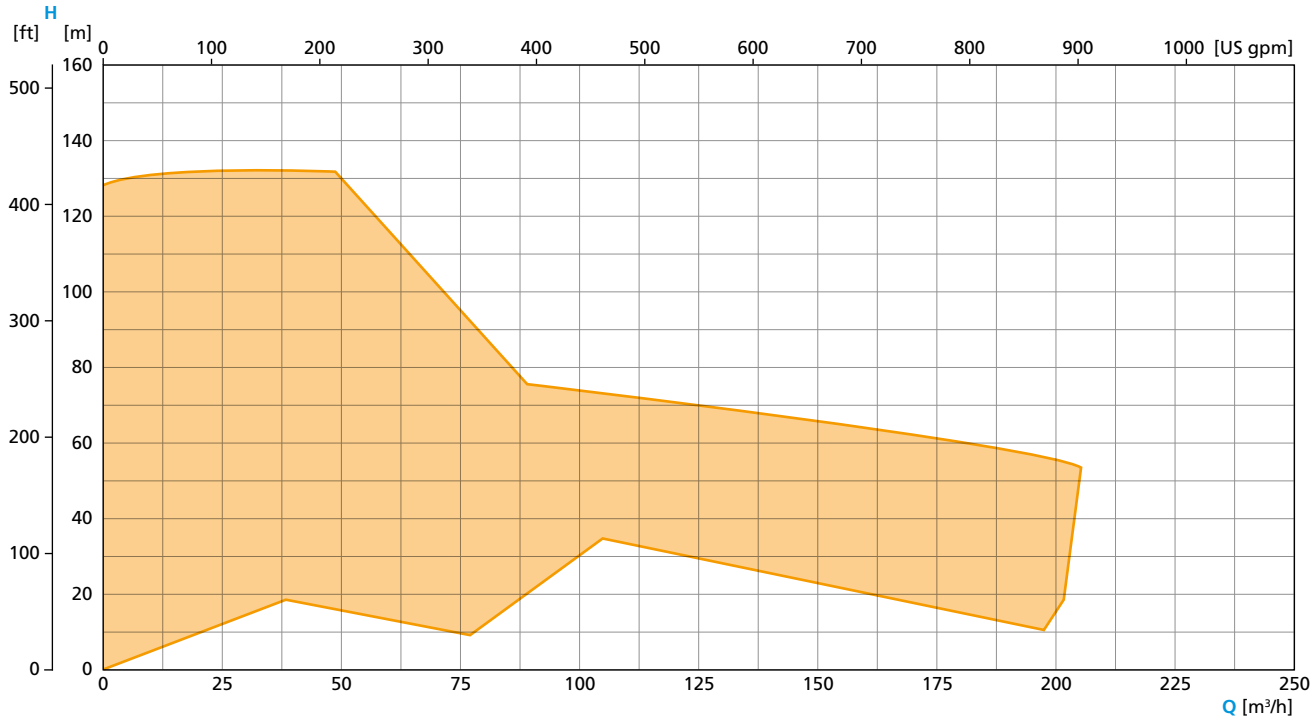
Single-stage, SMARTPUMP
2-pole, 50 Hz



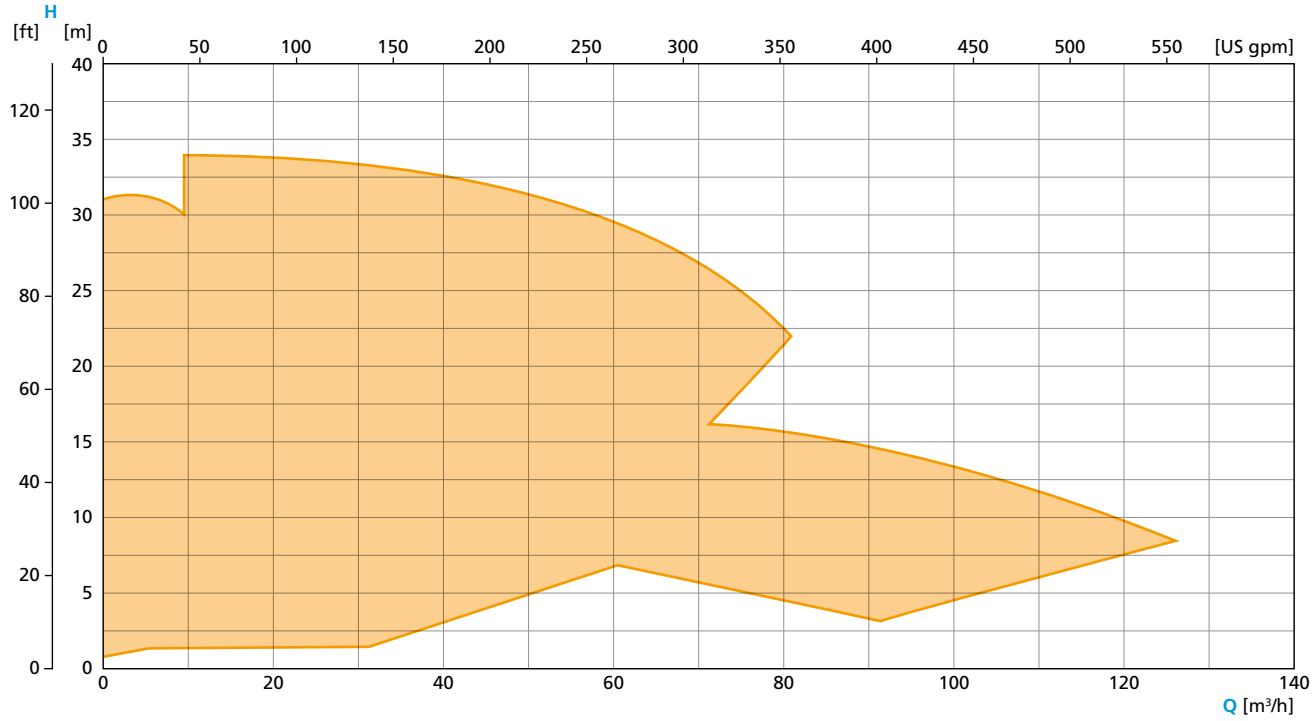
Single-stage, SMARTPUMP
4-pole, 50 Hz



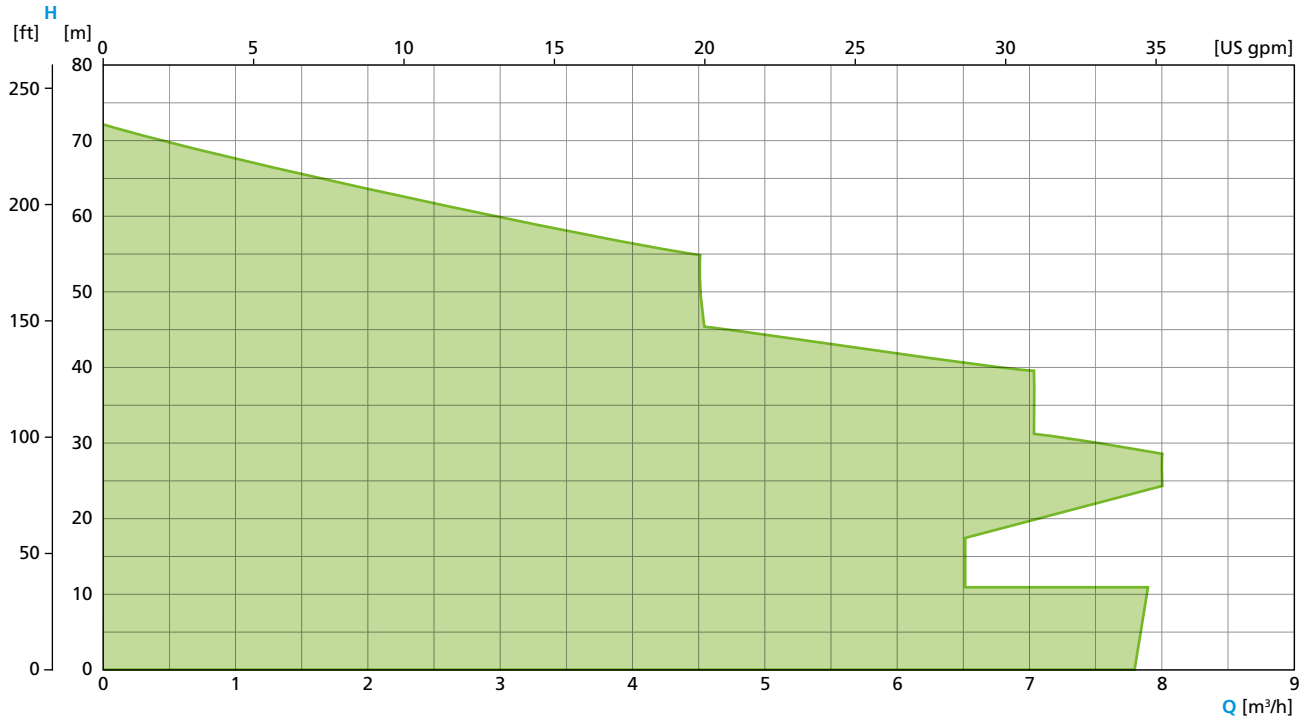
Single-stage, SMARTPUMP
2-pole, 60 Hz



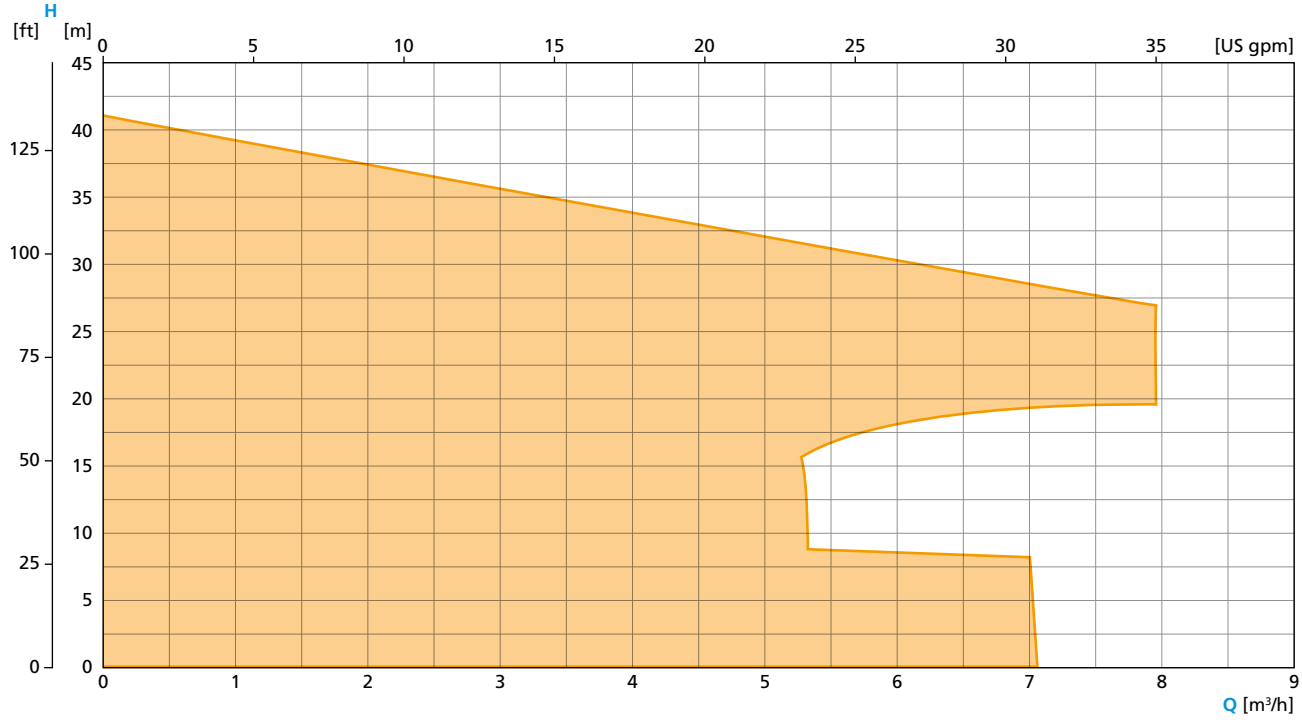
Single-stage, SMARTPUMP
4-pole, 60 Hz



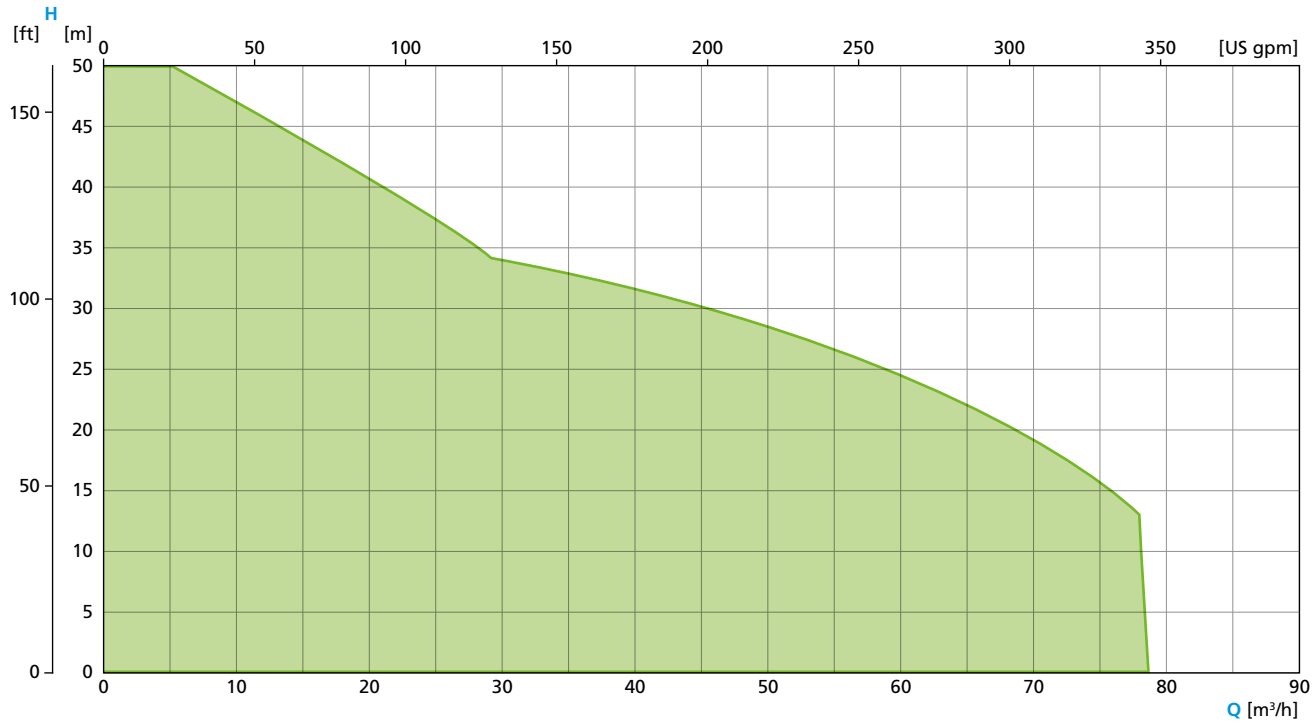
Multi-stage, SMARTPUMP
2-pole, 50 Hz



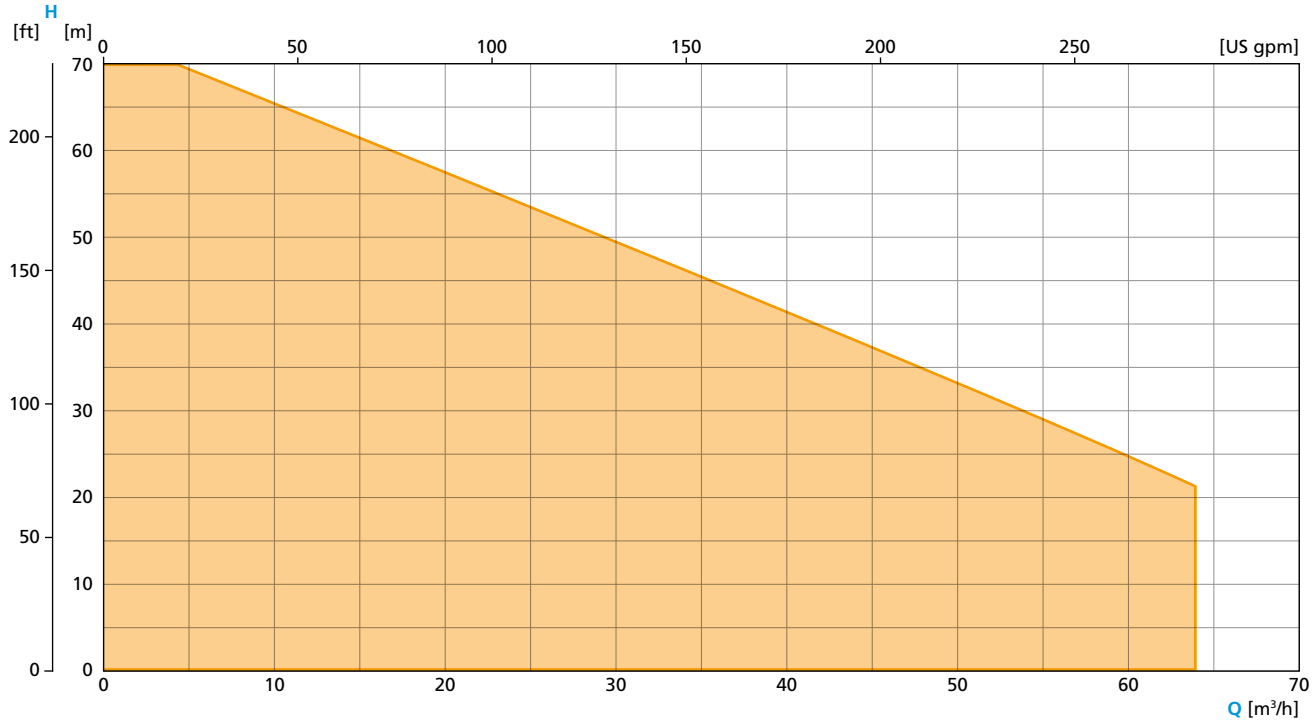
Multi-stage, SMARTPUMP
2-pole, 60 Hz



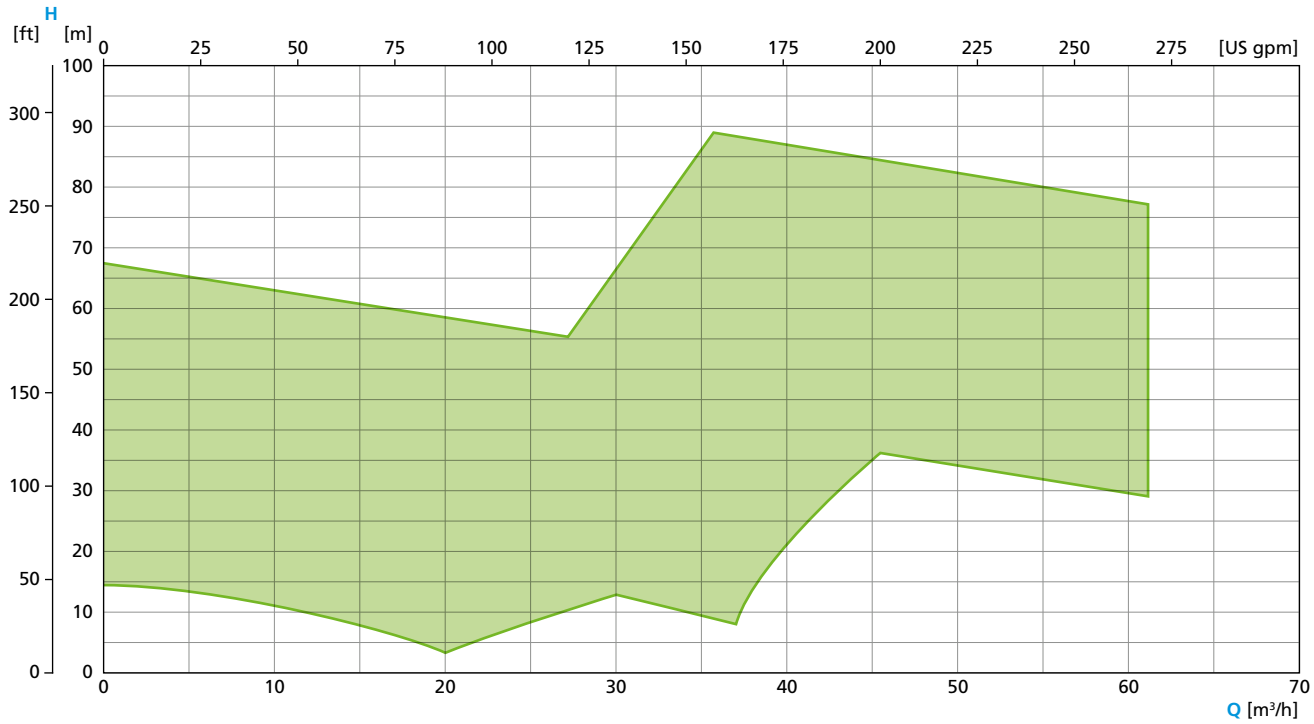
Single-stage, self-priming, VARIPUMP
4-pole, 50 Hz



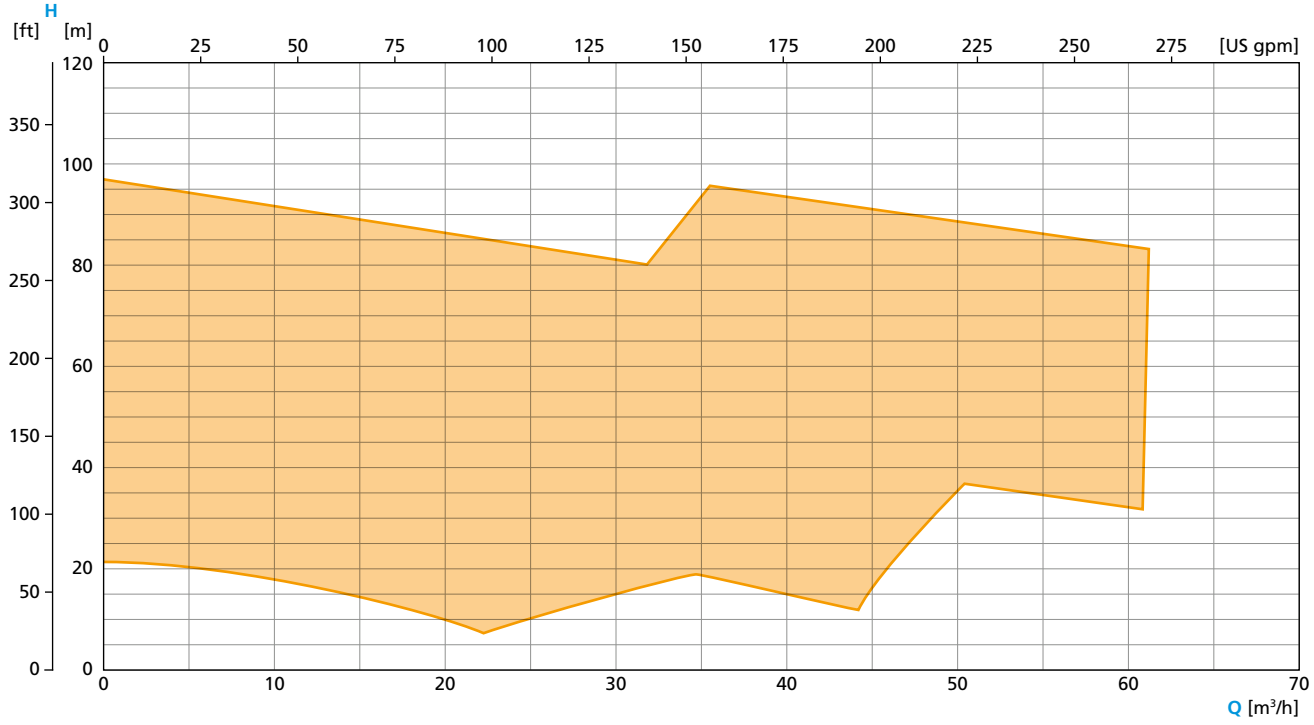
Single-stage, self-priming, VARIPUMP
4-pole, 60 Hz



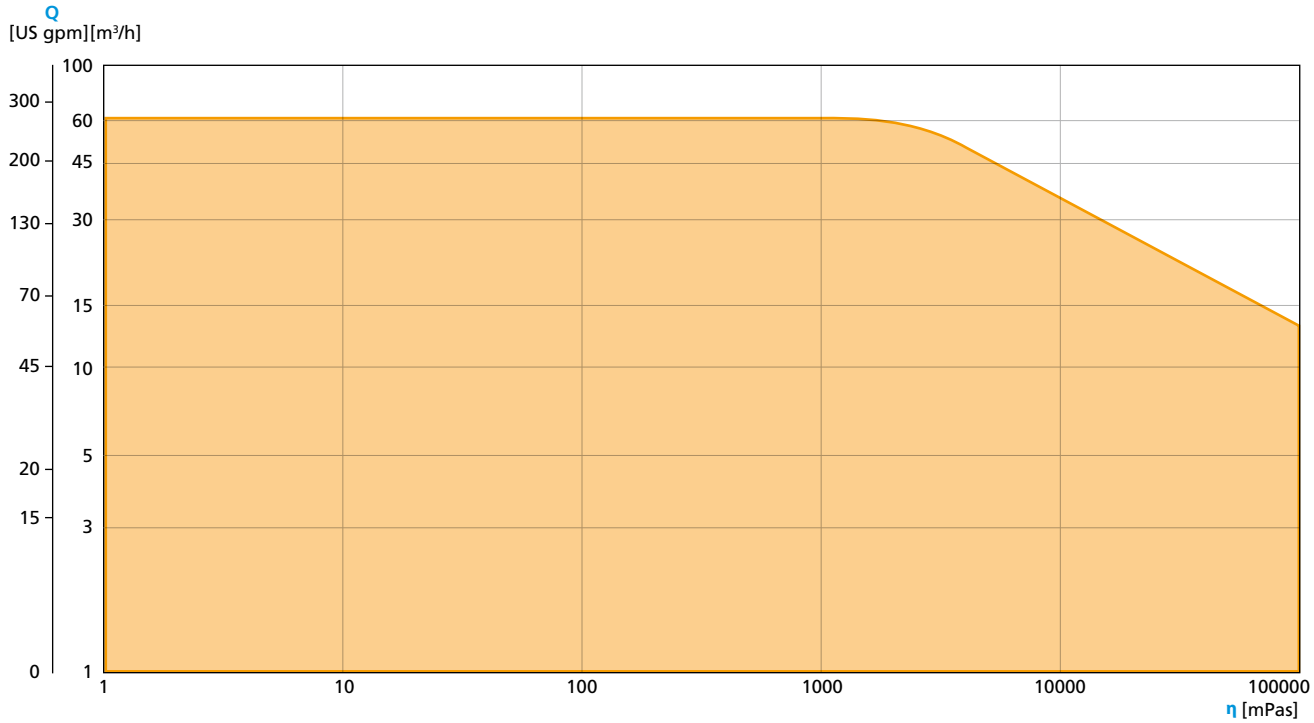
Single-stage, self-priming, SMARTPUMP
2-pole, 50 Hz



Single-stage, self-priming, SMARTPUMP
2-pole, 60 Hz



Rotary Lobe Pump, VARIPUMP



GEA Hilge HYGIA/HYGIA H

The “Swiss Knife” among the hygienic pumps. Premium quality and highest flexibility of customization ensure successful application in the food, beverage, and pharma industries. Also available as high-pressure execution.

Technical data	50 Hz	60 Hz
Flow rate	200 m³/h	175 m³/h
Head	72 m	105 m
System pressure	16/25/64 bar	

GEA Hilge MAXA

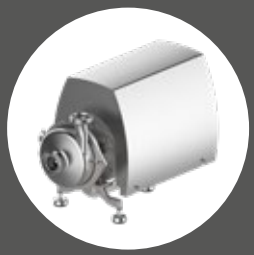
A single-stage centrifugal pump designed for heavy-duty operation in industrial processes. The major dimensions and characteristics of these pumps correspond to DIN EN 733 and DIN EN 22858.

Technical data	50 Hz	60 Hz
Flow rate	1,450 m³/h	1,320 m³/h
Head	100 m	100 m
System pressure	10 bar	

GEA VARIPUMP

Wide model range with numerous variants. Customization to specific customer requirements

GEA Hilge HYGIA



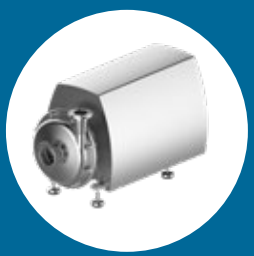
GEA Hilge MAXA

Single-stage end-suction centrifugal pumps

GEA SMARTPUMP

Clearly defined list of models, limited to standard requirements, no other variants

GEA Hilge TP



GEA Hilge TP

The GEA Hilge TP is the smart solution for standard applications. The single-stage centrifugal pump suits a wide range of applications and offers uncompromising hygiene and quality.

Technical data	50 Hz	60 Hz
Flow rate	210 m³/h	240 m³/h
Head	90 m	130 m
System pressure	16 bar	

GEA Hilge SIPLA

A single-stage self-priming side channel pump, especially suited for SIP/CIP return systems and applications with high gas content. Right- and left-hand rotation can be freely adjusted for additional application options.

Technical data	50 Hz	60 Hz
Flow rate	78 m³/h	64 m³/h
Head	47 m	60 m
System pressure	10 bar	

GEA Hilge CONTRA

Single- and multi-stage centrifugal pumps are available in this series. The hygienic design in every detail provides perfect solutions to numerous tasks in sterile and hygienic processes.

Technical data	50 Hz	60 Hz
Flow rate	40 m³/h	35 m³/h
Head	160 m	230 m
System pressure	25 bar	

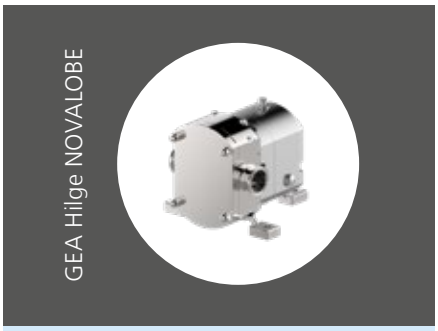
GEA Hilge NOVALOBE

This rotary lobe pump has been specifically designed for highly viscous media – and for applications where gentle pumping or dosing is required. The pump is fully drainable and EHEDG certified.

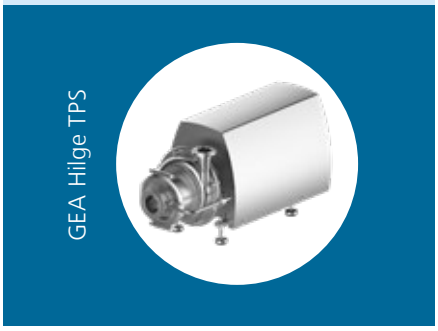
Technical data	50 / 60 Hz
Cavity volume	2.1 rev
System pressure	10/16 bar

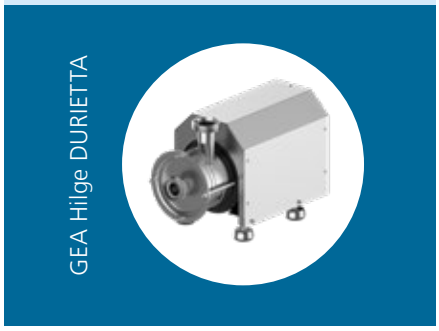
Single-stage self-priming centrifugal pumps

Multi-stage centrifugal pumps



Rotary lobe pumps





GEA Hilge TPS

This self-priming centrifugal pump is the solution of choice especially for emptying tanks as well as for conveying products containing gas, e.g. CIP return systems.

Technical data	50 Hz	60 Hz
Flow rate	125 m³/h	155 m³/h
Head	95 m	138 m
System pressure	16 bar	

GEA Hilge DURIETTA

This end-suction single- or multi-stage centrifugal pump in a very compact design has been created for applications with low flow rates at high flow heads.

Technical data	50 Hz	60 Hz
Flow rate	8 m³/h	8 m³/h
Head	72 m	41 m
System pressure	8 bar	

The certificates listed here are valid for corresponding GEA pump models. Pumps conforming to the requirements of the European Hygienic Engineering and Design Group (EHEDG) as well as 3-A Sanitary Standards, Inc. (3-A SSI) are available for numerous fields of application.

EHEDG certificates apply only to the specific pump type as listed. However, they may be transferred to specific other pump types, owing to identical housing designs and flow path geometries.

Moreover, independent, standardized tests have confirmed the efficient, problem-free cleaning ability of numerous pumps – for optimum safety and economic gain.

Document	GEA Hilge HYGIA / HYGIA H	GEA Hilge TP / TPS	GEA Hilge CONTRA	GEA Hilge MAXA	GEA Hilge DURIETTA	GEA Hilge SIPLA	GEA Hilge NOVALOBE
3-A Sanitary Standard	•	•					
EHEDG certificate	•*	•	•*				•*
FDA declaration of conformity	•	•	•	•	•	•	•
Declaration of compliance with the order 2.1 acc. to EN 10204	•		•	•	•	•	•
Test report 2.2 acc. to EN 10204	•	•	•	•	•	•	•
Inspection certificate 3.1 acc. to EN 10204	•	•	•	•		•	•
EAC-Certificate	•	•	•	•	•	•	•
Surface roughness test report	•	•	•	•			•
Delta ferrite test report	•		•				•
Acoustic measurement test report	•	•	•	•	•	•	•
USP Class VI – declaration of conformity	•	•	•			•	•
Certificate in acc. with the regulation (EG) No. 1935/2004	•	•	•	•	•	•	•
Certificate DIN EN ISO 9001:2015	•	•	•	•	•	•	•

Many more certificates on request
Subject to change without notice.
* registered for certification/recertification

GEA Hilge NOVALOBE 30 and GEA Hilge NOVALOBE 60

Technical Data	
Displacement	0.06–2.1 l/U
System pressure	10/16 bar
Operating temperature	95 °C
Sterilization temperature	150 °C (SIP)
Max. viscosity	1,000,000 mPas

Applications

The GEA Hilge NOVALOBE pump range is suitable for the following application areas:

Food and beverage industry
- Dairies (fruit yogurt, butter, soft cheese, etc.)
- Food production (sauces, dressings, baby food, etc.)
- Soft drinks (syrup, fruit juice, etc.)
- Sweets (caramel, chocolate, etc.)
- Meat production (sausage meat, animal fat, etc.)
- Breweries (yeast)

Pharmaceutical, biotechnology and cosmetics
- Vaccines
- Fermentation broth
- Blood plasma
- Shampoo, lotions, etc.

Other industrial applications
- Paper industry
- Textile industry
- Chemistry (oils, fats, etc.)

The pumps of the GEA Hilge NOVALOBE range are robust rotary lobe pumps for the transport of highly viscous liquids. Besides the special hygiene requirements in sterile processes, the gentle transport of the medium was of primary concern in the development.

The GEA Hilge NOVALOBE was developed as a robust and high-performance pump range. The rigid shaft geometry, in which the gear wheels are arranged between the bearing points, enables smaller spacing and a higher differential pressure capacity. The connection between the gearbox and pump casing was designed in a way that minimizes the heat transfer between the two elements. This solution enables the following:
- Reduction of the temperature-based dimensional changes
- Improved bearing performance

Pumps with vertical suction and discharge ports are fully self-draining through the discharge port.

The GEA Hilge NOVALOBE pump range provides a reliable, efficient and hygienic operation under a wide variety of demanding operating conditions. The pumps can be operated in both rotational directions.

Among others, the construction meets the following requirements:
- QHD criteria
- EAC
- EHEDG (registered for recertification)
- GMP Regulations

Certification

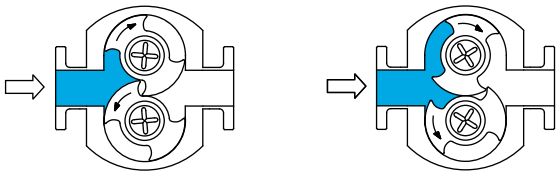
ATEX
For use in potentially explosive areas, pumps are available. These pumps, which possess an EC declaration of conformity in accordance with the ATEX guideline 2014/34/EU, correspond to device categories 2 or 3, and can be used in zone 1 or 2. ATEX is not applicable to GEA Hilge NOVALOBE 60.

ATEX-Symbol

The pumps fulfil the following surface requirements in terms of the wet end parts:
- Standard: $R_a \leq 0.8$ µm
- Optional: $R_a \leq 0.4$ µm

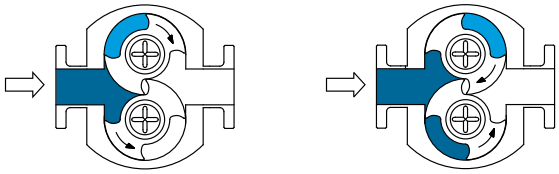
GEA Hilge NOVALOBE – Operating principle

Two precisely synchronized rotors rotate in opposite directions; one clockwise, the other counter-clockwise.



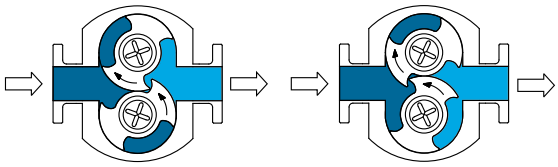
Operating principle, step 1

1. Since the rotors turn in opposite directions, the increased volume between the rotors creates a vacuum forcing the medium into the pump.



Operating principle, step 2

2. The pumped medium is captured in the chamber between the rotor and the rotor housing and is transported to the discharge.



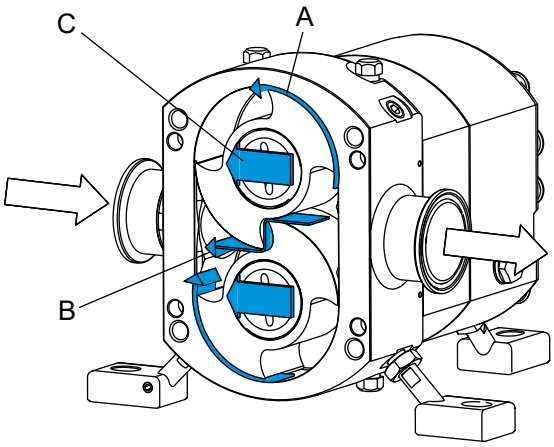
Operating principle, step 3

3. Once the pumped medium has reached the discharge, the opposing rotating rotor pushes it out of the chamber. At this point the chamber volume decreases, so that the pressure on the discharge side is increased.

Note: During operation against a closed valve the rotary lobe pump abruptly generates more pressure since liquids cannot be compressed. This can destroy the pump or system components. Institute appropriate protective measures.

Loss of reverse flow

The rotors are neither in contact with the pump casing nor with each other. Gaps between the housing and the rotors cause a transport loss in which pumped medium is moved from the discharge side back to the suction side. The reverse flow is the difference between the theoretical displacement and the actual transport flow.



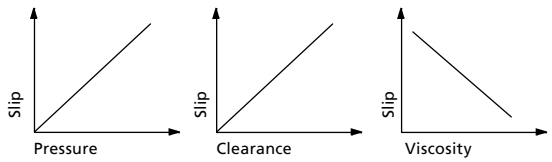
Slippage

Slip A
Reverse flow between rotor and pump casing

Slip B
Reverse flow through the rotor intervention point

Slip C
Reverse flow between
- the front cover and the rotor
- the pump casing's rear wall and the rotor

The reverse flow (loss) is affected by three factors:



Reverse flow factors

Pressure
Higher pressure = more reverse flow

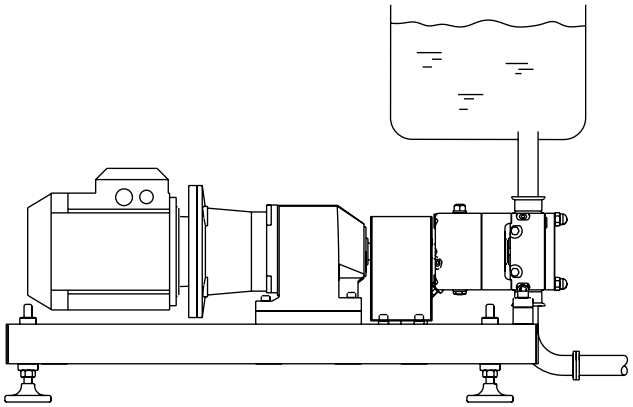
Clearance
Larger gap = more reverse flow

Viscosity
Higher viscosity = less reverse flow

Operating conditions

Rotational speed
The GEA Hilge NOVALOBE pump is usually driven by a motor through a gear reducer. The flow rate of displacement pumps is controlled via the rotational speed. Attention: The pump size should be selected carefully. A small pump size can supply a high flow at a high rotational speed - however, a higher rotational speed negatively affects the pumped medium. GEA supports you in selecting the right pump for your particular medium and required flow.

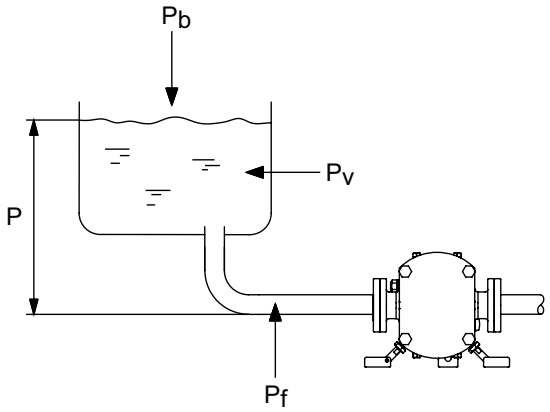
Optimal suctioning
Install your pump at the lowest point, as close as possible to the tank. This prevents cavitation and ensures optimal suctioning conditions. Correct installation reduces pressure loss on the suction side. This is particularly important when pumping highly viscous media.



Optimal installation

Minimal inlet pressure
Ensure a minimum pressure on the pump's suction side to prevent cavitation.
- NPIPa > NPIPr
- NPIPa: Net Positive Inlet Pressure available
- NPIPr: Net Positive Inlet Pressure required

NPIPr can be calculated on the basis of the curves.



Principle drawing

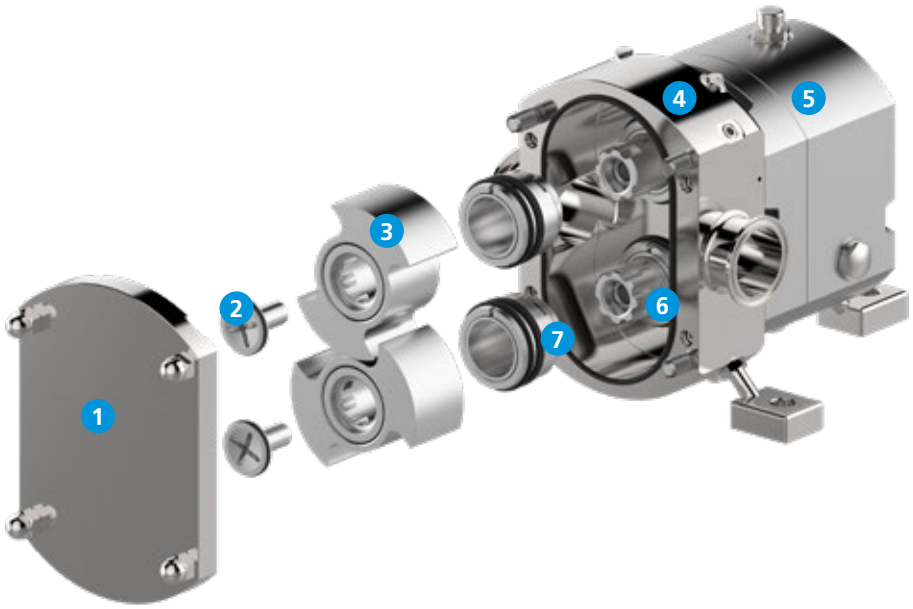
The calculation of the NPIPr is shown in the following table.

$NPIPa = P_b \pm P - (P_f + P_v + P_s)$

Symbol	Explanation
P_b	• Absolute air pressure in bar • In open systems, the air pressure can be set at 1 bar • In closed systems, P_b indicates the system pressure in bar
P	• Static suction pressure of the medium in bar • P = H × SG ÷ 10 • H: Static suction head in meters • SG: Specific gravity of the medium
P_f	• Friction loss in the suction pipeline in bar • $P_f = H_f \times SG \div 10$ • H_f: Friction loss in meters • SG: Specific gravity of the medium
P_v	Vapor pressure of the medium in bar
P_s	Safety margin; minimum 0.05 bar

Materials

GEA Hilge NOVALOBE 30



Materials overview GEA Hilge NOVALOBE 30

Item	Component	Material	No.
1	Housing cover	CrNiMo steel	316L (1.4404/1.4435)
2	Screw	CrNiMo steel	316L (1.4404/1.4435)
3	Rotor	CrNiMo steel	316L (1.4404/1.4435)
4	Pump casing	CrNiMo steel	316L (1.4404/1.4435)
5	Gear housing	Gray cast iron / stainless steel*	GJS40 or 304 (1.4301)
6	Motor shaft	CrNiMo steel	316Ti (1.4571)
7	Mechanical seal	SiC/SiC, SiC/Carbon, WC/WC	

* GEA Hilge NOVALOBE 10, 20, 60, other sizes optional

Coating

Non-stainless-steel parts are equipped with coatings as follows, depending on model variant:

Version	Paint/coating	Coating thickness
Primer	2K epoxy resin	30–60 µm
	KTL coating	15–25 µm
Top coating	2K epoxy resin	50–70 µm
	2K polyurethane color	60 µm
	KTL coating	15–25 µm

Rotor

The GEA Hilge NOVALOBE pump is able to accommodate different lobe shapes within the same rotor housing configuration. This feature makes the pump suitable for a wide range of applications and ensures that, depending on your transport task, you can always work with an optimally suited rotor.

Uni-wing rotor

Uni-wing rotors are designed for gentle handling of product with big particles and dough-like products.

Bi-wing rotor

Bi-wing rotors are the standard design for most applications. They offer a robust and popular choice for most standard applications even with particles and solids.

Multilobe rotor

Multilobe rotors offer low shear and gentle product handling with a low pulsation level. The rotor is also designed for operation at highest speed and lowest noise level.

Shaft seals

GEA HILGE offers the following seal designs:
- Single-acting mechanical seal
- Single-acting mechanical seal, flushed
- Double-acting mechanical seal
- Single O-ring seal
- Double O-ring seal

For information about mechanical seals, see page 42.

Surface finish

As a standard, all components in contact with the media are made of corrosion-resistant chromium-nickel-molybdenum steel. The surfaces of all pump components that come in contact with the media are electro-polished and have a surface quality of $R_a \leq 0.8$ µm. Pumps with surface roughness of $R_a \leq 0.4$ µm and a low ferrite content < 1 % are available upon request.

Pump connections

As a standard, GEA Hilge offers the threaded connection DIN 11851 for the GEA Hilge NOVALOBE pump range. Additional connections are available upon request. Additional information can be found in the connection selection guide starting on page 39 and in the program overview starting on page 50.

Size of solid particles in the medium

The maximum size of particles for non-abrasive solids refers to the displacement of the pump and the rotor hub.

GEA Hilge NOVALOBE pump	Particle size (soft, non-abrasive)
10/0.06	12
20/0.12	16
30/0.33	23
40/0.65	29
50/1.29	35
60/2.1	41

Noise emissions

Noise emissions caused by the pump are significantly affected by the pump's use. They strongly depend on the rotational speed and/or the pumped medium. Suitable protective measures must be taken once the sound pressure level exceeds 80 dB[A]. For detailed information please contact GEA.

Design variations

GEA offers the GEA Hilge NOVALOBE pump range in the following designs.

Port position
GEA Hilge NOVALOBE pumps are suitable for horizontal or vertical installation. GEA Hilge NOVALOBE pumps in vertical installation can be completely drained.

GEA Hilge NOVALOBE, horizontal installation

GEA Hilge NOVALOBE, vertical installation

Design variants

Standard version	Description
Pump with bare shaft end	Pumps with bare shaft ends are supplied without a motor coupling and base and are often used as replacement pumps. The motor coupling and base is provided by the customer.
Pump on base frame	The pump is mounted on a stainless steel base frame. The base frame is constructed with a round tube that is easy to clean; it is optionally available with sterile machine feet.
SUPER	GEA Hilge NOVALOBE rotary lobe pumps in the SUPER design are equipped with a stainless steel shroud.
Trolley	GEA Hilge NOVALOBE rotary lobe pumps on a trolley enable a location-independent, flexible use.
With frequency converter	GEA Hilge NOVALOBE with integrated frequency converter allows a flexible adaptation of the rotational speed without the need for an external frequency converter.

GEA Hilge NOVALOBE on Base Frame

GEA Hilge NOVALOBE SUPER

GEA Hilge NOVALOBE on Trolley

GEA Hilge NOVALOBE with integrated Frequency Converter

Features and benefits

Features	Benefits
EHEDG certified*	Proven cleanability
Easy modification of the pump (shaft seal and rotors)	Hight plant availability, less down time
Better flushing of shaft seal, no rubbed-off metal parts in the product	Long-time reliability
Easy change of front-loaded mechanical seal	Ease of installation and service-friendliness
Pump can be retrofitted to cover different applications	High versatility
Fully drainable in vertical installation, high surface quality	Hygienic design
Large shaft diameter, short shaft overhang, patented rotor mounting	Safe operation at high viscosities
Professional support throughout the whole life cycle process	Proven competence as pump experts over decades

* registered for recertification

Type code

GEA Hilge NOVALOBE	50	1.29	80	80	ML	11.0	4	469	S
Pump range									
Size									
Displacement (l/revolution)									
Nominal width suction branch (DN)									
Nominal width discharge branch (DN)									
Rotor design									
Motor power (kW)									
Number of poles									
Rotational speed of the drive of the gear motor									
Stainless steel casing (SUPER)									

Rotor shapes

Key	Rotor design
UW	Uni-wing
BW	Bi-wing
ML	Multilobe

Motors

GEA Hilge NOVALOBE

Motor power [kW]	Model size (4-pole)					
	10/0.06	20/0.12	30/0.33	40/0.65	50/1.29	60/2.1
0.25	•	•				
0.37	•	•	•			
0.55	•	•	•	•	•	
0.75	•	•	•	•	•	
1.1	•	•	•	•	•	
1.5	•	•	•	•	•	
2.2	•	•	•	•	•	
3.0	•	•	•	•	•	
4.0			•	•	•	•
5.5			•	•	•	•
7.5				•	•	•
11.0				•	•	•
15.0					•	•
18.5					•	•
22.0						•

Design
The motors are totally enclosed, fan-cooled standard motors with main dimensions according to IEC and DIN standards. Electrical tolerances according to IEC 60034.

Relative air humidity: Max. 95 %
Enclosure class: IP55
Insulation class: F according to IEC 85
Ambient temperature: Max. 40 °C (standard motor)

In humid locations, the lowest drain hole in the motor must be opened. In such cases, the motor enclosure class is IP44.

Motor protection
Three-phase motors should be connected to a motor-protective circuit breaker.

All three-phase mains-operated standard motors can be connected to an external frequency converter. When a frequency converter is connected, the motor isolation is often overloaded, making the motor louder than during normal operation. In addition, large motors will be exposed to bearing currents caused by the frequency converter.

The following should be taken into account when operating a frequency converter:
- In the event of special noise protection requirements, motor noise can be reduced by using a dU/dt filter between the motor and the frequency converter. For noise-sensitive environments, we recommend using a sinus filter.
- The length of the cable between motor and frequency converter affects the motor load. For this reason, check whether the cable length corresponds to the specifications issued by the supplier of the frequency converter.
- For supply voltages between 500 and 690 V, fit either a dU/dt filter to reduce voltage peaks, or use a motor with reinforced insulation.
- For supply voltages of 690 V, use a motor with reinforced insulation, and fit a dU/dt filter.

Selecting according to the application

The table below is intended as a general guide. Selection of connection often depends on on-site conditions.

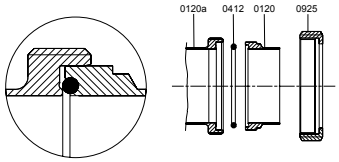
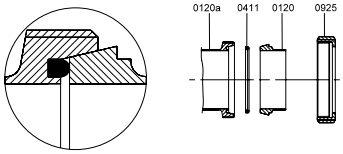
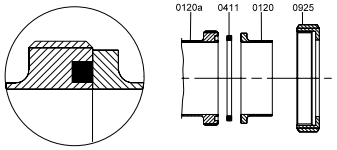
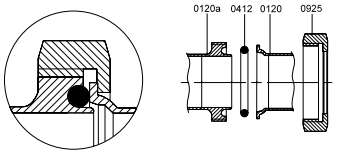
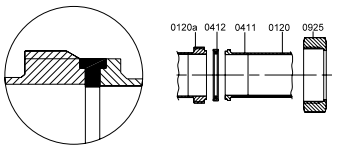
Connection			Application																						
Type		Standard	Beverages					Food						Pharma and cosmetics			Industrial applications						Cleaning	
			Beer	Wine	Juice	Alcohol	Soft drinks	Confectionery	Dairy products	Frying oil	Food	Syrup	Meat	Pure water, WFI	Biotechnology products	Perfumes and lotions	Glue and paint	Purification products	Chemical products	Environmental protection	Surface treatment products	Biofuel	CIP	SIP
Threads	Aseptic threaded connection	DIN 11864-1	•	•	•	•	•	•	•	•	•	•	•	•	•	•							•	•
	Threaded connection	DIN 11851	•	•	•	•	•	•	•	•	•	•	•										•	
	Threaded connection, SMS	ISO 2037	•		•		•		•			•											•	
	Threaded connection, RJT	BS4825-5	•	•	•	•	•	•	•	•	•	•	•										•	
	Threaded connection, IDF	ISO 2853 BS 4825-4	•	•	•	•	•	•	•	•	•	•	•										•	
Flanges	Aseptic flange	DIN 11864-2	•	•	•	•	•	•	•	•	•	•	•	•	•	•							•	•
	Flange APV-FN1/APV-FG1	ISO	•	•	•	•	•	•	•	•	•	•	•										•	
	Flange	DIN EN 1092-1	•	•	•	•	•	•	•	•	•	•					•	•	•	•	•	•	•	
	ANSI 150 LB RF Flange																•	•	•	•	•	•	•	
Clamps	Tri-clamp	DIN 32676	•	•	•	•	•	•	•	•	•	•	•	•	•	•							•	•

• Typical application

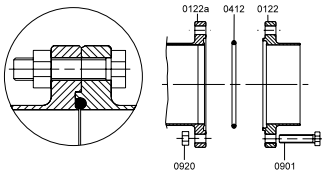
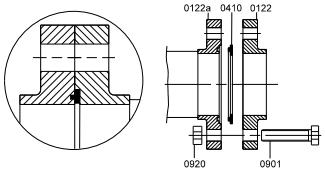
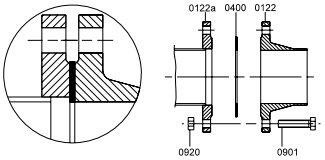
Design

The following tables show the design of the different connection types.

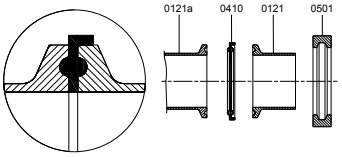
Threads

Applications	Standard	Design	Description of the components
Aseptic Thread			
• Biotechnology / Pharmaceutical Industry	DIN 11864-1/ 11853-1		0120a: Threaded connection at pump casing 0120: Threaded connection 0412: O-ring 0925: Grooved union nut
Thread			
• Beverage Industry • Food Industry	DIN 11851		0120a: Threaded connection at pump casing 0120: Threaded connection 0411: Joint ring 0925: Grooved union nut
• Beverage Industry • Food Industry	SMS (ISO 2037 DS 722)		0120a: Threaded connection at pump casing 0120: Threaded connection 0411: Joint ring 0925: Grooved union nut
• Beverage Industry • Food Industry	RJT (BS 4825-5)		0120a: Threaded connection at pump casing 0120: Threaded connection 0412: O-ring 0925: Grooved union nut
• Beverage Industry • Food Industry	IDF (BS 4825-4)		0120a: Threaded connection at pump casing 0120: Threaded connection 0411: Joint ring 0412: O-ring 0925: Grooved union nut

Flanges

Applications	Standard	Design	Description of the components
Aseptic Flange			
• Biotechnology / Pharmaceutical Industry • Beverage Industry	DIN 11864-2/ 11853-2 Form A		0122a: Flanged connection at pump casing 0122: Flanged connection 0412: O-ring 0901: Hexagon head screw 0920: Hexagon nut
Flange			
• Food Industry • Beverage Industry	APV-FN1/ APV-FG1		0122a: Flanged connection at pump casing 0122: Flanged connection 0410: Profile gasket 0901: Hexagon head screw 0920: Hexagon nut
• Industrial Applications	DIN EN 1092-1/ ANSI 150 LB RF Flange		0122a: Flanged connection at pump casing 0122: Flanged connection 0400: Gasket 0901: Hexagon head screw 0920: Hexagon nut

Clamps

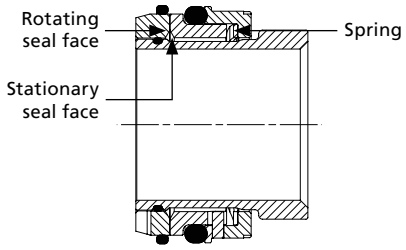
Applications	Standard	Design	Description of the components
• Food Industry • Biotechnology / Pharmaceutical Industry	DIN 32676 Series A (DIN 11866) Series B (ISO) Series C (Tri-Clamp® / ASME BPE)		0121a: Clamp connection at pump casing 0121: Clamp connection 0410: Profile gasket 0501: Clamp ring

Two shaft seal variants are available for the GEA Hilge NOVALOBE range:
- Mechanical seals
- O-ring shaft seals

The GEA Hilge NOVALOBE allows a simple exchange of the bi-directional shaft seals. The shaft seals can be replaced via the front cover without requiring the deinstallation of the pump from the pipeline. The mechanical seal's robust and simple design ensures that the reinforcing spring does not come in contact with the pumped medium. The mechanical seals are designed to withstand high pressure and temperatures.

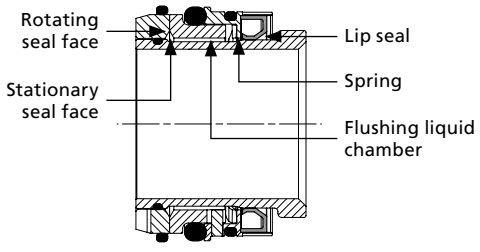
Design of mechanical seals	Material pairing Stationary ring / rotary ring
Single	SIC / SIC (optional) WOC / WOC (optional)
Single flushed	Carbon / SIC SIC / SIC (optional) WOC / WOC (optional)
Double	SIC / SIC WOC / WOC (optional)
EPDM, FKM (Viton) or FFKM/FEP-S are available as elastomers.	The elastomer of the static seals equals the elastomer of the mechanical seals.

Single mechanical seal
Designed for hygienic applications, the single mechanical seal covers the most common operating conditions in terms of operating pressure, temperature and speed.



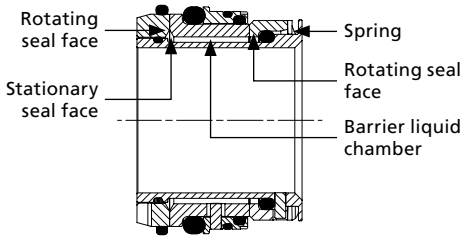
Single mechanical seal

Single flushed mechanical seal
The single flushed mechanical seal is suitable for applications where media tend to crystallize or harden due to contact with the atmosphere.



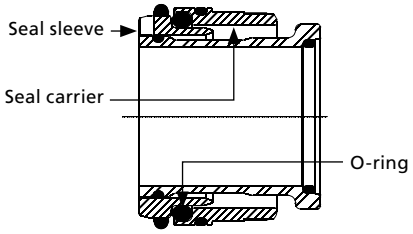
Single mechanical seal, flushed

Double mechanical seal
The robust and simple double mechanical seal is suitable for typical sterile applications where high temperatures are required.

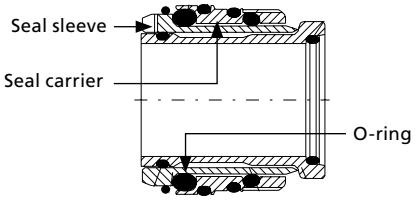


Double mechanical seal, flushed

O-ring shaft seal
The O-ring shaft seals have a simple design and work with standard O-rings. You can chose between single and double O-ring shaft seals. The shaft seal with O-rings can serve as a convenient alternative to a mechanical seal. However, it is important that a sufficient lubrication of the O-ring is ensured and the maximum rotational speeds listed below are not exceeded.



O-ring shaft seal, single



O-ring shaft seal, double

Guidelines for the operation of O-ring shaft seals

GEA Hilge NOVALOBE	Operating life (1/min)		
	normal	restricted	short
10	0–155	155–180	18–215
20	0–120	120–140	140–170
30	0–90	90–105	105–128
40	0–70	70–80	80–95
50	0–55	55–65	65–80
60	0–40	40–50	55–65

The operating life of the O-ring shaft seal depends on the transport task and the materials used. Based on experience, FKM provides the longest operating life.

Flushed seal
The following GEA Hilge NOVALOBE shaft seals can be flushed:
- Double O-ring seals (size 10–50)
- Single flushed mechanical seal
- Double mechanical seal

The flushing system is the same for all seal arrangements. Upon delivery, the ⅛" flushing connections are closed.

Flushing liquid
The flow of the flushing liquid cleans and cools the mechanical seals. The flushing liquid requires a high flow speed to ensure the removal of viscous sediments. The mechanical seals can be flushed in both directions. A flow meter should be installed on the outlet sides of both mechanical seals.

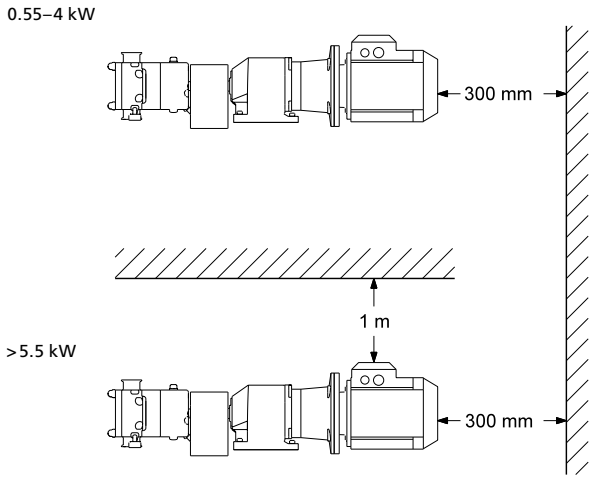
Note: Make sure that both shaft seal flushing systems operate independent of each other.

Mechanical installation

Always install the pumps in a way that no tension can be transferred from the pipe network to the pump casing.

Space requirements

- Pumps fitted with motors up to and including 4 kW require a 300 mm clearance behind the motor.
- Pumps fitted with motors of 5.5 kW and up require at least a 1 meter clearance above the motor and 300 mm behind it to allow the use of lifting equipment.



Space requirements

Piping

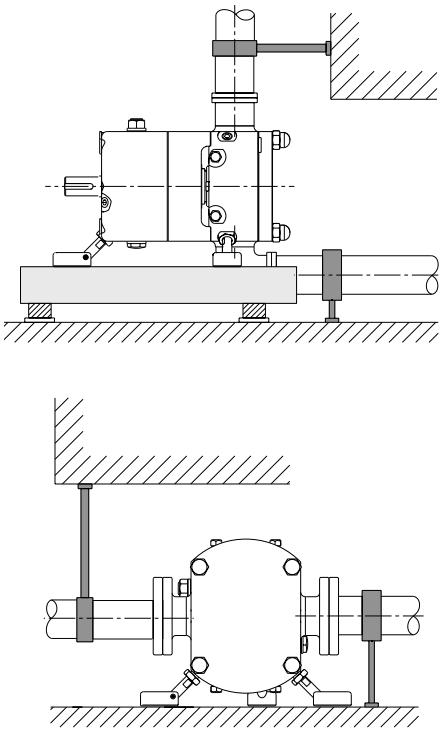
The suction and pressure lines must be suitably dimensioned, taking into account the medium and the suction pressure. The piping affects the pump both mechanically and hydraulically.

Mechanical effects

- Ensure that the weight of the piping does not affect the pump or that the piping puts stress on the pump.
- Make sure that the supports and brackets absorb the weight of the piping and the pumped medium.
- Pay attention to and minimize temperatures that can expand or contract the piping.
- Do not exceed the permissible load for the pump's connection pipe.

Hydraulic effects

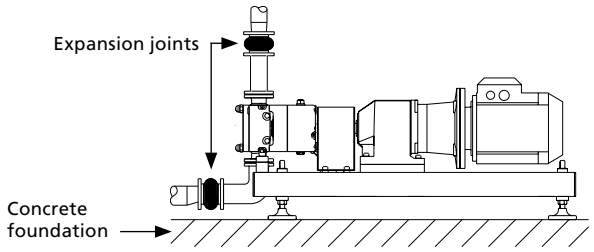
- Keep the suction pipeline short. This achieves the best NPIP.
- Keep the pipe diameter large. This minimizes loss due to friction and pulsation.
- Avoid branching, bends, changes in the pipe's cross section, constrictions, fittings, etc.
- Design the piping in such a way that the pump can easily be vented and air pockets are being avoided.



Piping support

Elimination of noise and vibrations

Noise and vibrations are caused by the pulsating flow through the rotor and the flow through the pipelines. The effects on the environment are subjective. They depend on the correct installation and the composition of the remaining system. Expansion joints reduce noise and vibrations.



GEA Hilge NOVALOBE with expansion joints

Expansion joints
Expansion joints provide the following benefits:
- They absorb length expansions/length reductions in the pipelines caused by fluctuating medium temperatures.
- They reduce mechanical tension that occur in connection with pressure surges.
- They absorb system-related noise in the pipelines (only rubber expansion joints).

Attention: Expansion joints should not be used to compensate for inaccuracies in pipe union, such as eccentric flanges.

Expansion joints are installed both on the suction side and the outlet side. The minimum distance from the pump should be 1 to 1.5 times the nominal diameter. This prevents turbulences within the expansion joints and leads to improved suction conditions. In addition, this reduces pressure losses on the outlet side.

In case of high flow speeds and viscosities it is advisable to install correspondingly larger expansion joints for the pipelines.

Surface / foundation

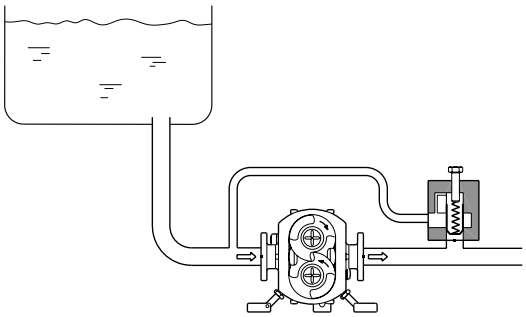
We recommend installing the pump on a level and firm surface with a sufficient load-bearing capacity.

Protection against pressure overload

Displacement pumps abruptly build up pressure if they transport against a closed valve, thereby destroying the pump. A pressure overload typically occurs when a valve is closed, a filter is clogged or a second pump starts up in parallel. To avoid a pressure overload and prevent damage to the pump, we urgently recommend
- an installed pressure relief valve
- an external pressure relief valve

Installed pressure relief valve
GEA offers an optional pressure relief valve that is connected to the pump's front cover. The valve allows a backflow inside the pump casing. This prevents a pressure overload, since the valve opens once the preset pressure has been reached.

External pressure relief valve
A bypass via an external pressure relief valve offers an alternative to an installed pressure relief valve. This protects the pump and the system against pressure overload, pressure spikes and clogging in the pressure line.

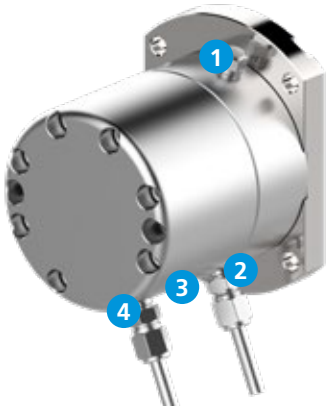


External pressure relief valve

Integrated pressure relief valve

GEA offers an optional pressure relief valve that is connected to the pump's front cover. The opened valve allows a backflow inside the pump casing. This prevents a short-term pressure overload, since the valve opens once the preset pressure has been reached.
Attention: The pressure relief valve only offers a short-term protection against damages to the pump and the system.
The following options are available with an integrated pressure relief valve:

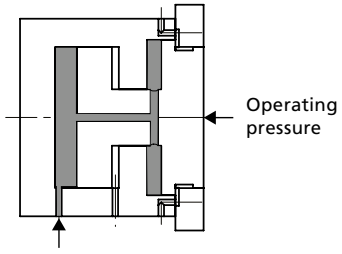
- Adjustable air-load pressure can be set to maximum allowable operation pressure
- Air-lift makes is possible to lift the valve for cleaning purposes or forced bypass
- Efficient cleaning (CIP/SIP) of the O-ring in contact with the pumped medium
- Optional mounting of a sensor for the valve position detection



Connections at the pressure relief valve

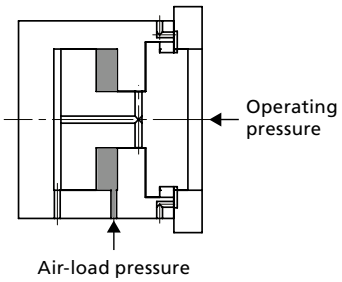
Pos.	Component
1	Inlet cleaning liquid
2	Air lift connection
3	Outlet cleaning liquid
4	Air load connection

Air load
The pressure-relief valve is kept closed by pressurized air. The air-load pressure (closing pressure) can be adjusted to keep the pressure-relief valve closed up to allowable operation pressure. The closing pressure works on approximately twice the surface area as the system pressure. This allows use of low pressure, standard air supply which is normally available on site. The required air pressure is approx. ¼ of the system pressure (maximum 4 bar).



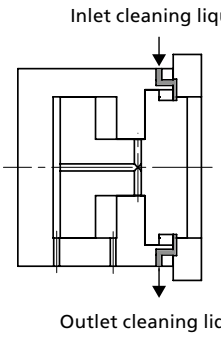
Valve closed

Air lift function
In the operating range of the GEA Hilge NOVALOBE rotary lobe pump, general hygiene requirements must be met. The cleaning of the entire piston surface is facilitated when the piston is lifted. If necessary, the air lift function can also be used to generate a bypass.



Valve open

Cleaning the pressure relief valve
For cleaning, the valve is lifted via pneumatic control. It is recommended to clean the pressure relief valve at the same time as the pump. The cleaning of the rotor area is accomplished on both sides of the main O-ring seal. The valve is suitable for CIP processes and works in both flow directions.



Cleaning the pressure relief valve

Aseptic front cover

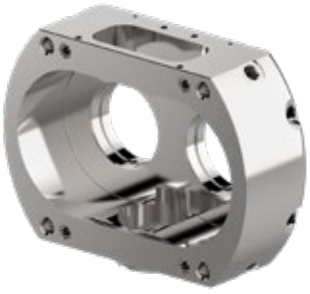
The GEA Hilge NOVALOBE is available with a double-sealed, aseptic front cover. The circulating barrier liquid, the aseptic front cover and the double mechanical seal safely encapsulate the pumped medium. This achieves the following benefits:
- Increased resistance against the intrusion of bacteria
- Improved treatment of bacteria/viruses
- Improved cleaning capability
- Improved sterile/hygienic design

Aseptic front cover

Rectangular inlet

The rectangular inlet is a special large inlet at suction side to pump highly viscous media like dough, pudding and cheese. The benefits are improved inlet conditions and prevention of cavitation.

Furthermore it increases the net flow area into the pump. This reduces the NPIP requirement of the pump.



Rectangular inlet

Thermal jacket

The GEA Hilge NOVALOBE is available with a thermal jacket for the front cover and /or rotor housing. This allows simple access to the pump in case that maintenance is required.

Thermal jacket, rotor housing

The temperature of the pump and the pumped medium can be controlled via the housing. The thermal casings can be used both for heating and cooling. Heated housings are primarily intended to keep transport media that solidify at room temperature in a liquid state by increasing the heat of the pump casing.

Jacketed front cover
A groove is machined into the front cover in a way that ensures a high thermal efficiency by a large surface contact area.

Jacketed front cover

A groove is machined into the rotor housing. The integral heating jacket provides these benefits:
- High heat transfer efficiency
- Heat transfer at pump center
- No crevices for bacteria to collect
- No bulky jacketing

Catalogs
Hygienic Valve Technology

Catalogs
Hygienic Pump Technology

Catalogs
Aseptic Valve Technology

Catalogs
Cleaning Technology

GEA VARIPUMPS

GEA Hilge HYGIA

GEA Hilge MAXA

GEA Hilge SIPLA

GEA Hilge CONTRA

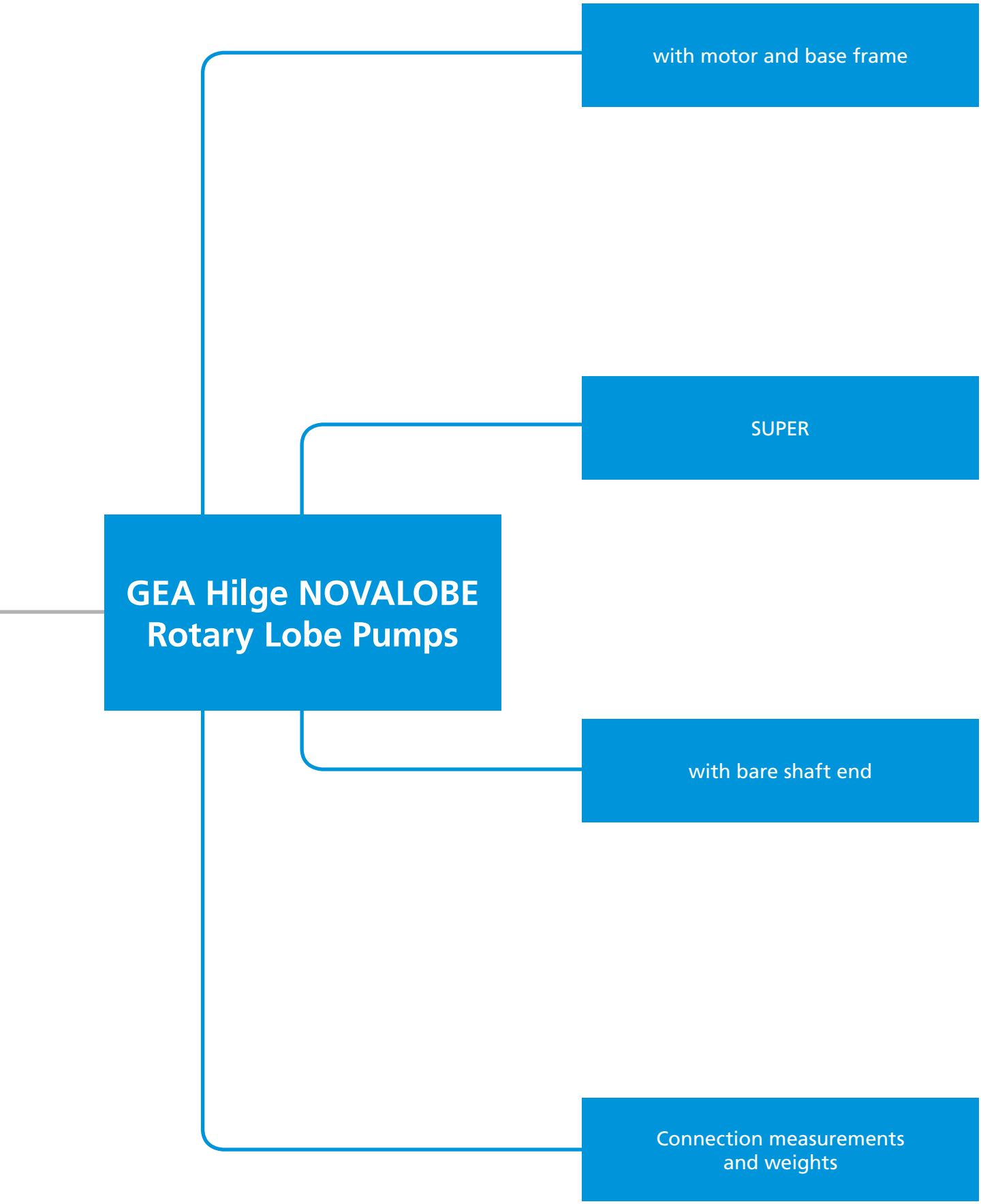
GEA Hilge NOVALOBE

GEA SMARTPUMPS

GEA Hilge TP

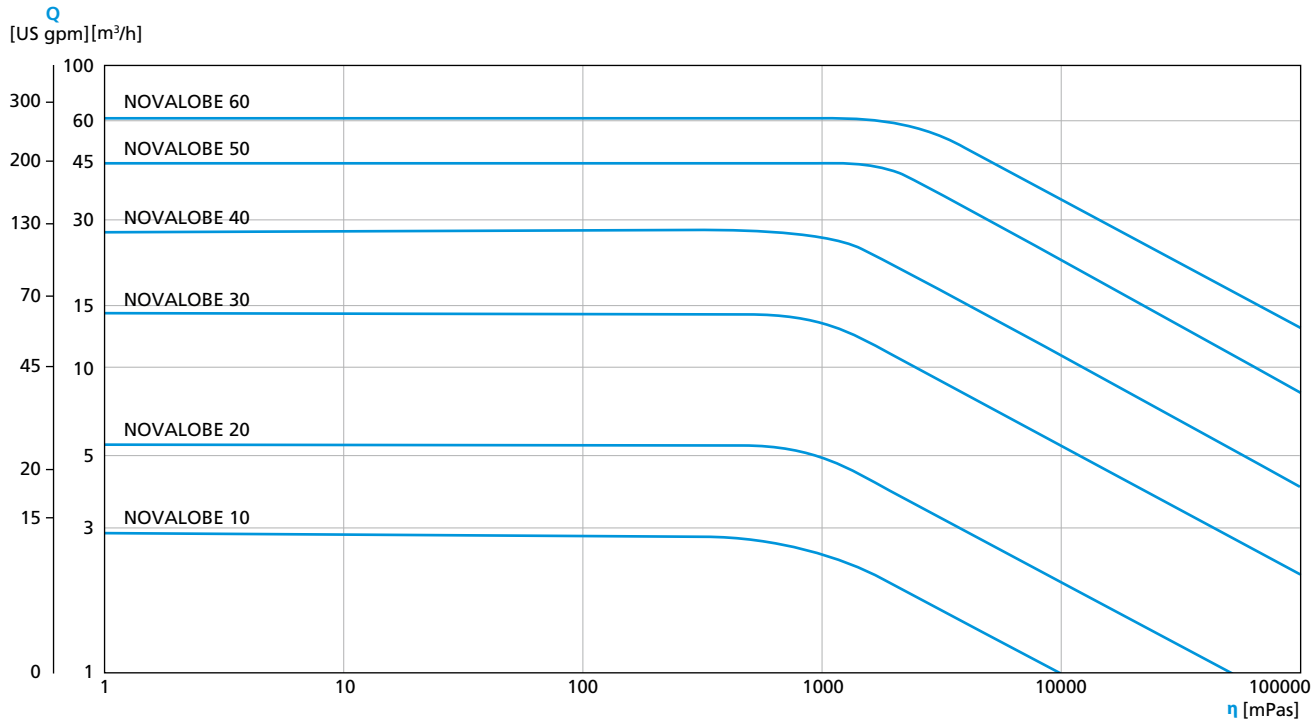
GEA Hilge TPS

GEA Hilge DURIETTA

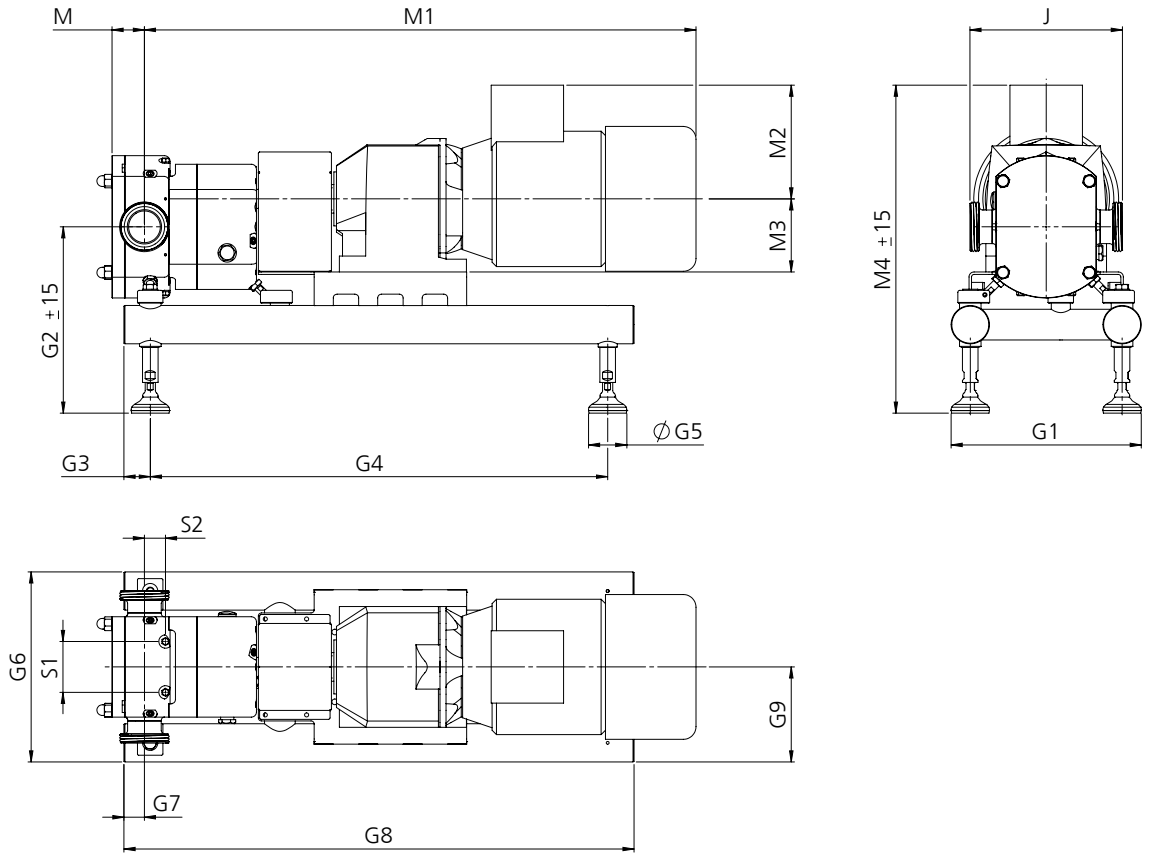

GEA Hilge NOVALOBE
Rotary Lobe Pumps
with motor and base frame
SUPER
with bare shaft end
Connection measurements
and weights

Pump range GEA Hilge NOVALOBE	10/0.06	20/0.12	30/0.33	40/0.65	50/1.29	60/2.1
Pump data						
Max. displacement [l/revolution]	0.06	0.12	0.33	0.65	1.29	2.1
Max. operating temperature [°C]			95			
Max. differential pressure [bar]	16	16	16	16	16	10
Max. system pressure [bar]	16	16	16	16	16	10
Max. viscosity [cP]			1,000,000			
Rotor shapes						
Uni-wing	○	○	○	○	○	
Bi-wing	×	×	×	×	×	×
Multilobe	○	○	○	○	○	○
Material, parts in contact with medium						
1.4404, $R_a \leq 0.8$ µm	×	×	×	×	×	×
1.4435, Ferrite < 1 %, $R_a \leq 0.8$ µm	○	○	○	○	○	
1.4404, $R_a \leq 0.4$ µm	○	○	○	○	○	
1.4435, Ferrite < 1 %, $R_a \leq 0.4$ µm	○	○	○	○	○	
Material, shaft						
1.4571	×	×	×	×	×	
1.4021						×
Material, gear case						
Gray cast iron			×	×	×	
Stainless steel 1.4301	×	×	○	○	○	×
Elastomer						
EPDM	×	×	×	×	×	×
FKM (Viton)	○	○	○	○	○	○
FFKM/FEP-S (front cover)	○	○	○	○	○	○
Shaft seals						
Single mechanical seal, carbon/SIC	×	×	×	×	×	×
Single mechanical seal, SIC/SIC	○	○	○	○	○	○
Single mechanical seal, WOC/WOC	○	○	○	○	○	
Single mechanical seal, flushed carbon/SIC	○	○	○	○	○	○
Single mechanical seal, flushed WOC/WOC	○	○	○	○	○	
Single mechanical seal, flushed SIC/SIC	○	○	○	○	○	○
Double mechanical seal, SIC/SIC/SIC	○	○	○	○	○	○
Double mechanical seal, WOC/WOC/WOC	○	○	○	○	○	
Simple O-ring/shaft seal	○	○	○	○	○	○
Double O-ring/shaft seal	○	○	○	○	○	○
Connections						
Thread DIN 11851, PN 16	×	×	×	×	×	×
Clamp DIN 32676 pipe acc. to 11866 A, PN 10	○	○	○	○	○	○
Clamp DIN 32676 pipe acc. to 11866 C, (ASME) Tri-Clamp, PN10	○	○	○	○	○	○
Flange APV PN 10	○	○	○	○	○	○
Aseptic thread DIN 11864-1, pipe n. 11866 A, PN 16	○	○	○	○	○	○
Aseptic flange DIN 11864-2, pipe n. 11866 A, PN 16	○	○	○	○	○	○
Aseptic clamp DIN 11864-3, pipe n. 11866 A, PN 16	○	○	○	○	○	○
Flange DIN 1092-1, type 11	○	○	○	○	○	○
SMS, PN 10	○	○	○	○	○	○
RJT, PN 10	○	○	○	○	○	○
IDF, PN 10	○	○	○	○	○	○
BSP, PN 10	○	○	○	○	○	○
Flange ANSI 150 LB RF, PN 16	○	○	○	○	○	○
Rectangular connection on the suction side (screwed)	○	○	○	○	○	○
Options						
Jacketed front cover	○	○	○	○	○	○
Thermal jacket	○	○	○	○	○	○
Aseptic front cover	○	○	○	○	○	
Integrated pressure relief valve	○	○	○	○	○	
Integrated frequency converter (tronic)	○	○	○	○	○	○
Stainless steel casing (gear motor)	○	○	○	○	○	○
Trolley	○	○	○	○	○	
Stainless steel base frame with sterile machine feet	○	○	○	○	○	○

× Standard ○ Available on request


Q
[US gpm]
[m³/h]
300
200
130
70
45
20
15
0
100
60
45
30
15
10
5
3
1
NOVALOBE 60
NOVALOBE 50
NOVALOBE 40
NOVALOBE 30
NOVALOBE 20
NOVALOBE 10
1
10
100
1000
10000
100000
η [mPas]

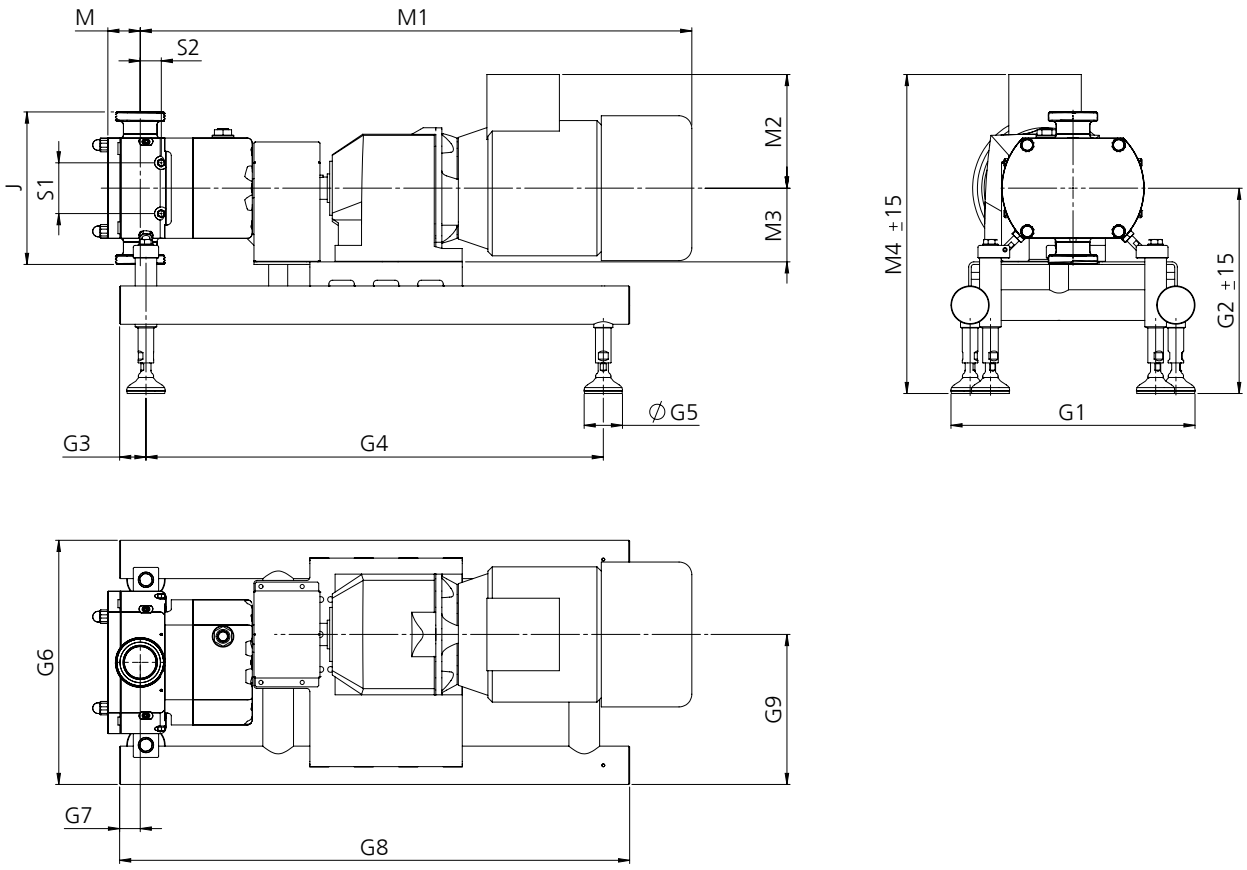
Horizontal mounting



Dimension tables for geared motors from page 56

Dimensions													
Model size	G1 [mm]	G2 [mm]	G3 [mm]	G4 [mm]	Ø G5 [mm]	G6 [mm]	G7 [mm]	G8 [mm]	G9 [mm]	G10 [mm]	SP ["]	S1 [mm]	S2 [mm]
10/0.06	254	295	42	570	60	242	32	653	121	323	G 1/8	55.0	20.5
20/0.12	256	300	42	620	60	256	34	703	128	323	G 1/8	62.6	20.3
30/0.33	299	325	42	720	60	299	33	803	150	373	G 1/8	80.0	33.1
40/0.65	376	395	52	810	60	405	37	903	202	562	G 1/8	97.0	41.3
50/1.29	453	445	52	1,010	60	494	41	1,103	247	562	G 1/8	113.0	47.5
60/2.1	765	585	100	1,200	65	814	72	1,400	457	512	G 1/8	162.0	51.5

Vertical mounting

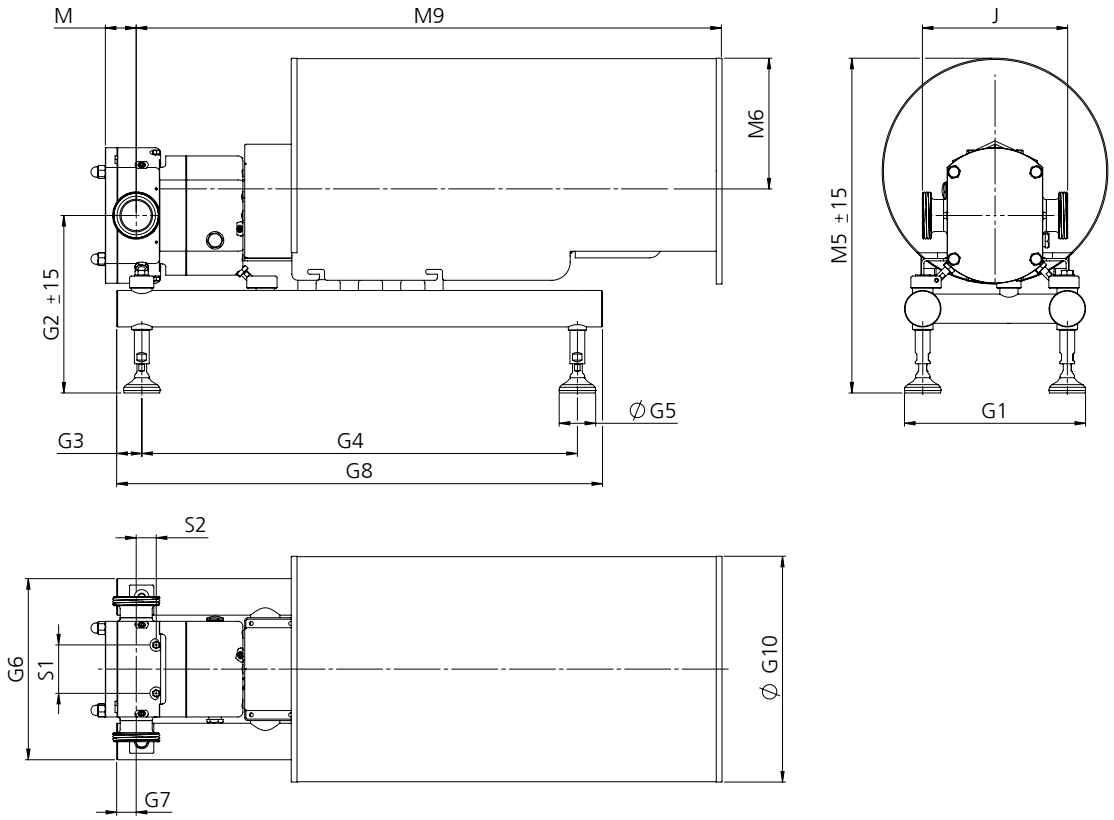


Dimension tables for geared motors from page 56

Dimensions

Model size	G1 [mm]	G2 [mm]	G3 [mm]	G4 [mm]	Ø G5 [mm]	G6 [mm]	G7 [mm]	G8 [mm]	G9 [mm]	G10 [mm]	SP ["]	S1 [mm]	S2 [mm]
10/0.06	270	318	42	570	60	258	32	653	154	323	G 1/8	55.0	20.5
20/0.12	327	330	42	620	60	327	34	703	196	323	G 1/8	62.6	20.3
30/0.33	384	354	42	720	60	384	33	803	236	423	G 1/8	80.0	33.1
40/0.65	466	428	52	810	60	495	37	903	304	488	G 1/8	97.0	41.3
50/1.29	550	495	52	1,010	60	592	41	1,103	366	562	G 1/8	113.0	47.5
60/2.1	765	503	100	1,200	65	814	72	1,400	457	512	G 1/8	162.0	51.5

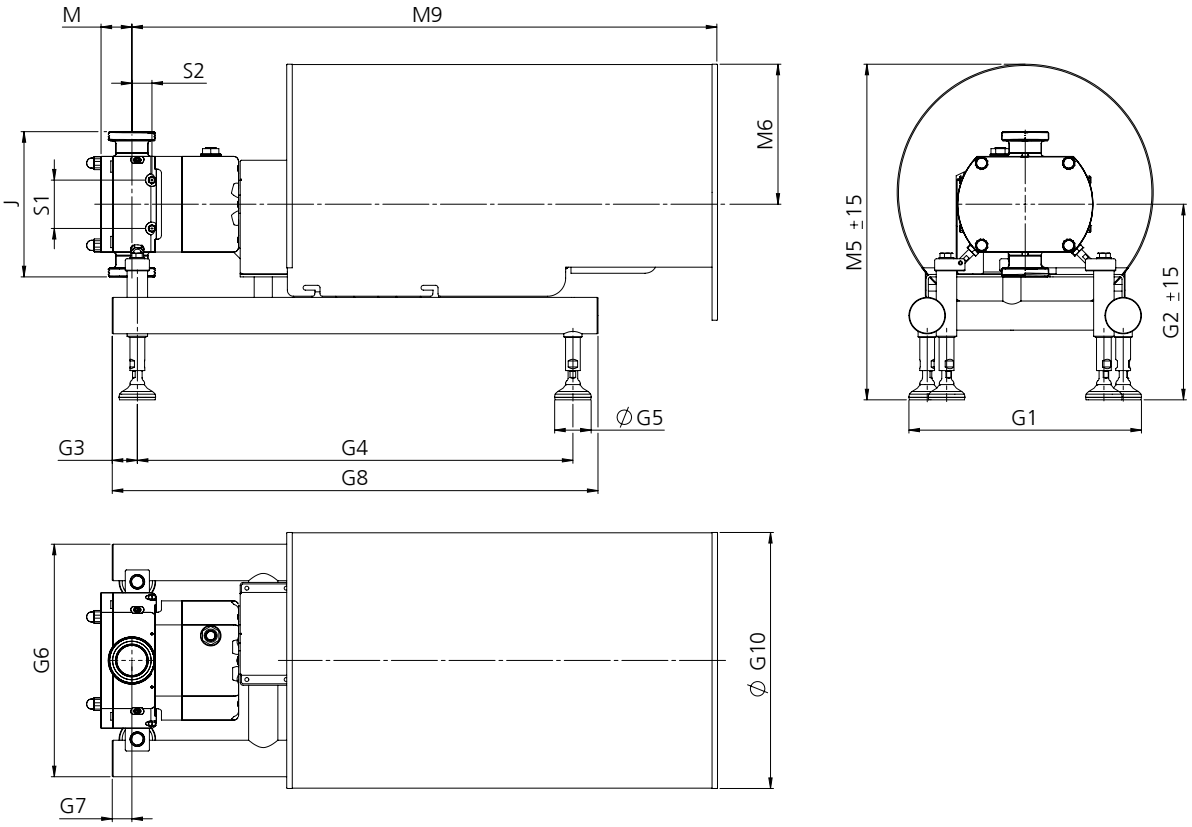
Horizontal mounting



Dimension tables for geared motors from page 56

Dimensions													
Model size	G1 [mm]	G2 [mm]	G3 [mm]	G4 [mm]	Ø G5 [mm]	G6 [mm]	G7 [mm]	G8 [mm]	G9 [mm]	G10 [mm]	SP ["]	S1 [mm]	S2 [mm]
10/0.06	254	295	42	570	60	242	32	653	121	323	G 1/8	55.0	20.5
20/0.12	256	300	42	620	60	256	34	703	128	323	G 1/8	62.6	20.3
30/0.33	299	325	42	720	60	299	33	803	150	373	G 1/8	80.0	33.1
40/0.65	376	395	52	810	60	405	37	903	202	562	G 1/8	97.0	41.3
50/1.29	453	445	52	1,010	60	494	41	1,103	247	562	G 1/8	113.0	47.5
60/2.1	765	585	100	1,200	65	814	72	1,400	457	512	G 1/8	162.0	51.5

Vertical mounting



Dimension tables for geared motors from page 56

Dimensions

Model size	G1 [mm]	G2 [mm]	G3 [mm]	G4 [mm]	Ø G5 [mm]	G6 [mm]	G7 [mm]	G8 [mm]	G9 [mm]	G10 [mm]	SP ["]	S1 [mm]	S2 [mm]
10/0.06	270	318	42	570	60	258	32	653	154	323	G 1/8	55.0	20.5
20/0.12	327	330	42	620	60	327	34	703	196	323	G 1/8	62.6	20.3
30/0.33	384	354	42	720	60	384	33	803	236	423	G 1/8	80.0	33.1
40/0.65	466	428	52	810	60	495	37	903	304	488	G 1/8	97.0	41.3
50/1.29	550	495	52	1,010	60	592	41	1,103	366	562	G 1/8	113.0	47.5
60/2.1	765	503	100	1,200	65	814	72	1,400	457	512	G 1/8	162.0	51.5

GEA Hilge NOVALOBE 10

Dimensions								
Geared motor	Power [kW]	M1 [mm]	M2 [mm]	M3 [mm]	M4 [mm]	M5 [mm]	M6 [mm]	M9 [mm]
SK 172.1 – 71S/4 TF	0.25	531	124	75	444	525	206	728
SK 172.1 – 71L/4 TF	0.37	531	124	75	444	525	206	728
SK 372.1 – 80S/4 TF	0.55	631	142	90	462	525	206	728
SK 172.1 – 80S/4 TF	0.55	553	142	75	462	525	206	728
SK 373.1 – 80LP/4 TF	0.75	631	142	90	462	525	206	728
SK 372.1 – 80LP/4 TF	0.75	631	142	90	462	525	206	728
SK 172.1 – 80LP/4 TF	0.75	553	142	75	462	525	206	728
SK 372.1 – 90SP/4 TF	1.10	672	147	90	467	525	206	728
SK 172.1 – 90SP/4 TF	1.10	593	147	75	467	525	206	728
SK 372.1 – 90LP/4 TF	1.50	672	147	90	467	525	206	728
SK 172.1 – 90LP/4 TF	1.50	593	147	75	467	525	206	728
SK 372.1 – 100LP/4 TF	2.20	702	169	90	489	525	206	728
SK 372.1 – 100AP/4 TF	3.00	702	169	90	489	525	206	728

Dimension sheets from page 66

GEA Hilge NOVALOBE 20

Dimensions								
Geared motor	Power [kW]	M1 [mm]	M2 [mm]	M3 [mm]	M4 [mm]	M5 [mm]	M6 [mm]	M9 [mm]
SK 172.1 – 71S/4 TF	0.25	562	124	75	456	535	203	809
SK 172.1 – 71L/4 TF	0.37	562	124	75	456	535	203	809
SK 372.1 – 80S/4 TF	0.55	662	142	115	474	535	203	809
SK 172.1 – 80S/4 TF	0.55	584	142	75	474	535	203	809
SK 373.1 – 80LP/4 TF	0.75	662	142	90	702	535	203	809
SK 372.1 – 80LP/4 TF	0.75	662	142	90	474	535	203	809
SK 172.1 – 80LP/4 TF	0.75	584	142	75	474	535	203	809
SK 372.1 – 90SP/4 TF	1.10	703	147	90	479	535	203	809
SK 172.1 – 90SP/4 TF	1.10	624	147	75	479	535	203	809
SK 372.1 – 90LP/4 TF	1.50	703	147	90	479	535	203	809
SK 172.1 – 90LP/4 TF	1.50	624	147	75	479	535	203	809
SK 372.1 – 100LP/4 TF	2.20	733	169	90	501	535	203	809
SK 372.1 – 100AP/4 TF	3.00	733	169	90	501	535	203	809

Dimension sheets from page 66

GEA Hilge NOVALOBE 30

Dimensions								
Geared motor	Power [kW]	M1 [mm]	M2 [mm]	M3 [mm]	M4 [mm]	M5 [mm]	M6 [mm]	M9 [mm]
SK 172.1 – 71L/4 TF	0.37	603	124	75	493	585	216	958
SK 372.1 – 80S/4 TF	0.55	703	142	90	511	585	216	958
SK 172.1 – 80S/4 TF	0.55	625	142	75	676	585	216	958
SK 373.1 – 80LP/4 TF	0.75	703	142	90	511	585	216	958
SK 372.1 – 80LP/4 TF	0.75	703	142	90	511	585	216	958
SK 172.1 – 80LP/4 TF	0.75	625	142	75	676	585	216	958
SK 572.1 – 90SP/4 TF	1.10	464	147	115	841	585	216	958
SK 372.1 – 90SP/4 TF	1.10	744	147	90	795	585	216	958
SK 172.1 – 90SP/4 TF	1.10	665	147	75	516	585	216	958
SK 572.1 – 90LP/4 TF	1.50	464	147	115	841	585	216	958
SK 372.1 – 90LP/4 TF	1.50	744	147	90	795	585	216	958
SK 172.1 – 90LP/4 TF	1.50	665	147	75	516	585	216	958
SK 572.1 – 100LP/4 TF	2.20	820	169	115	538	585	216	958
SK 372.1 – 100LP/4 TF	2.20	774	169	90	538	585	216	958
SK 572.1 – 100AP/4 TF	3.00	820	169	115	538	585	216	958
SK 372.1 – 100AP/4 TF	3.00	774	169	90	538	585	216	958
SK 572.1 – 112MH/4 TF	4.00	843	179	115	548	585	216	958
SK 572.1 – 132SP/4 TF	4.00	929	204	115	573	585	216	958

Dimension sheets from page 66

GEA Hilge NOVALOBE 40

Dimensions								
Geared motor	Power [kW]	M1 [mm]	M2 [mm]	M3 [mm]	M4 [mm]	M5 [mm]	M6 [mm]	M9 [mm]
SK 372.1 – 80S/4 TF	0.55	692	142	90	594	810	358	1,071
SK 373.1 – 80LP/4 TF	0.75	692	142	90	594	810	358	1,071
SK 372.1 – 80LP/4 TF	0.75	692	142	90	594	810	358	1,071
SK 572.1 – 90SP/4 TF	1.10	453	147	115	599	810	358	1,071
SK 372.1 – 90SP/4 TF	1.10	733	147	90	599	810	358	1,071
SK 572.1 – 90LP/4 TF	1.50	453	147	115	599	810	358	1,071
SK 372.1 – 90LP/4 TF	1.50	733	147	90	599	810	358	1,071
SK 672.1 – 100LP/4 TF	2.20	885	469	130	621	810	358	1,071
SK 572.1 – 100LP/4 TF	2.20	809	169	115	621	810	358	1,071
SK 372.1 – 100LP/4 TF	2.20	763	169	90	621	810	358	1,071
SK 672.1 – 100AP/4 TF	3.00	885	469	130	621	810	358	1,071
SK 572.1 – 100AP/4 TF	3.00	809	169	115	621	810	358	1,071
SK 372.1 – 100AP/4 TF	3.00	763	169	90	621	810	358	1,071
SK 772.1 – 112MH/4 TF	4.00	897	179	140	631	810	358	1,071
SK 672.1 – 112MH/4 TF	4.00	908	179	130	631	810	358	1,071
SK 572.1 – 112MH/4 TF	4.00	832	179	115	631	810	358	1,071
SK 772.1 – 132SP/4 TF	5.50	983	204	140	656	810	358	1,071
SK 672.1 – 132SP/4 TF	5.50	1,003	204	130	656	810	358	1,071
SK 572.1 – 132SP/4 TF	5.50	918	204	115	656	810	358	1,071
SK 772.1 – 132MP/4 TF	7.50	983	204	140	656	810	358	1,071
SK 672.1 – 132MP/4 TF	7.50	1,003	204	130	656	810	358	1,071
SK 572.1 – 132MP/4 TF	7.50	918	204	115	656	810	358	1,071
SK 772.1 – 160MP/4 TF	11.00	1,058	242	140	694	810	358	1,071

Dimension sheets from page 66

GEA Hilge NOVALOBE 50

Dimensions								
Geared motor	Power [kW]	M1 [mm]	M2 [mm]	M3 [mm]	M4 [mm]	M5 [mm]	M6 [mm]	M9 [mm]
SK 372.1 – 80S/4 TF	0.55	666	142	90	675	800	285	1,140
SK 373.1 – 80LP/4 TF	0.75	666	142	90	675	800	285	1,140
SK 372.1 – 80LP/4 TF	0.75	666	142	90	675	800	285	1,140
SK 572.1 – 90SP/4 TF	1.10	427	147	115	662	800	285	1,140
SK 372.1 – 90SP/4 TF	1.10	707	147	90	662	800	285	1,140
SK 572.1 – 90LP/4 TF	1.50	427	147	115	662	800	285	1,140
SK 372.1 – 90LP/4 TF	1.50	707	147	90	662	800	285	1,140
SK 672.1 – 100LP/4 TF	2.20	859	469	130	684	800	285	1,140
SK 572.1 – 100LP/4 TF	2.20	783	169	115	684	800	285	1,140
SK 372.1 – 100LP/4 TF	2.20	737	169	90	684	800	285	1,140
SK 672.1 – 100AP/4 TF	3.00	859	469	130	684	800	285	1,140
SK 572.1 – 100AP/4 TF	3.00	783	169	115	684	800	285	1,140
SK 372.1 – 100AP/4 TF	3.00	737	169	90	684	800	285	1,140
SK 772.1 – 112MH/4 TF	4.00	871	179	140	694	800	285	1,140
SK 672.1 – 112MH/4 TF	4.00	882	179	130	694	800	285	1,140
SK 572.1 – 112MH/4 TF	4.00	806	179	115	694	800	285	1,140
SK 872.1 – 132SP/4 TF	5.50	1,027	204	180	719	800	285	1,140
SK 772.1 – 132SP/4 TF	5.50	957	204	140	719	800	285	1,140
SK 672.1 – 132SP/4 TF	5.50	977	204	130	719	800	285	1,140
SK 572.1 – 132SP/4 TF	5.50	892	204	115	719	800	285	1,140
SK 872.1 – 132MP/4 TF	7.50	1,027	204	180	719	800	285	1,140
SK 772.1 – 132MP/4 TF	7.50	957	204	140	719	800	285	1,140
SK 672.1 – 132MP/4 TF	7.50	977	204	130	719	800	285	1,140
SK 572.1 – 132MP/4 TF	7.50	892	204	115	719	800	285	1,140
SK 872.1 – 160MP/4 TF	11.00	1,107	242	180	757	800	285	1,140
SK 772.1 – 160MP/4 TF	11.00	1,032	242	140	757	800	285	1,140
SK 872.1 – 160LP/4 TF	15.00	1,107	242	180	757	800	285	1,140
SK 772.1 – 160LP/4 TF	15.00	1,032	242	140	757	800	285	1,140
SK 872.1 – 180MP/4 TF	18.50	1,246	259	180	774	800	285	–
SK 972.1 – 180MP/4 TF	18.50	1,302	259	225	774	–	–	–

Dimension sheets from page 66

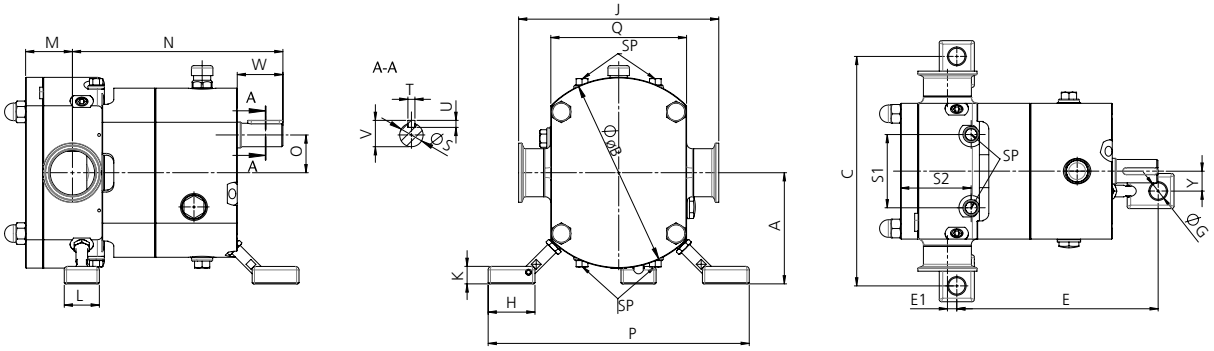
GEA Hilge NOVALOBE 60

Dimensions								
Geared motor	Power [kW]	M1 [mm]	M2 [mm]	M3 [mm]	M4 [mm]	M5 [mm]	M6 [mm]	M9 [mm]
SK 772.1 – 112MH/4 TF	4.00	1,116	179	140	935	990	232	1,380
SK 672.1 – 112MH/4 TF	4.00	1,127	179	130	935	990	232	1,380
SK 572.1 – 112MH/4 TF	4.00	1,106	179	115	935	990	232	1,380
SK 872.1 – 132SP/4 TF	5.50	1,235	204	180	960	990	232	1,380
SK 772.1 – 132SP/4 TF	5.50	1,177	204	140	960	990	232	1,380
SK 672.1 – 132SP/4 TF	5.50	1,188	204	130	960	990	232	1,380
SK 572.1 – 132SP/4 TF	5.50	1,151	204	115	960	990	232	1,380
SK 872.1 – 132MP/4 TF	7.50	1,235	204	180	960	990	232	1,380
SK 772.1 – 132MP/4 TF	7.50	1,177	204	140	960	990	232	1,380
SK 672.1 – 132MP/4 TF	7.50	1,188	204	130	960	990	232	1,380
SK 572.1 – 132MP/4 TF	7.50	1,151	204	115	960	990	232	1,380
SK 872.1 – 160MP/4 TF	11.00	1,356	242	180	998	990	232	1,380
SK 772.1 – 160MP/4 TF	11.00	1,298	242	140	998	990	232	1,380
SK 872.1 – 160LP/4 TF	15.00	1,356	242	180	998	990	232	1,380
SK 772.1 – 160LP/4 TF	15.00	1,298	242	140	998	990	232	1,380
SK 872.1 – 180MP/4 TF	18.50	1,454	259	180	1,015	990	232	1,380
SK 972.1 – 180MP/4 TF	18.50	1,510	259	225	1,015	990	232	1,380
SK 872.1 – 180LP/4 TF	22.00	1,454	259	180	1,015	990	232	1,380
SK 972.1 – 180LP/4 TF	22.00	1,510	259	225	1,015	990	232	1,380
SK 872.1 – 180LP/4 TF	30.00	1,454	259	180	1,015	990	232	1,380
SK 972.1 – 180LP/4 TF	30.00	1,510	259	225	1,015	990	232	1,380

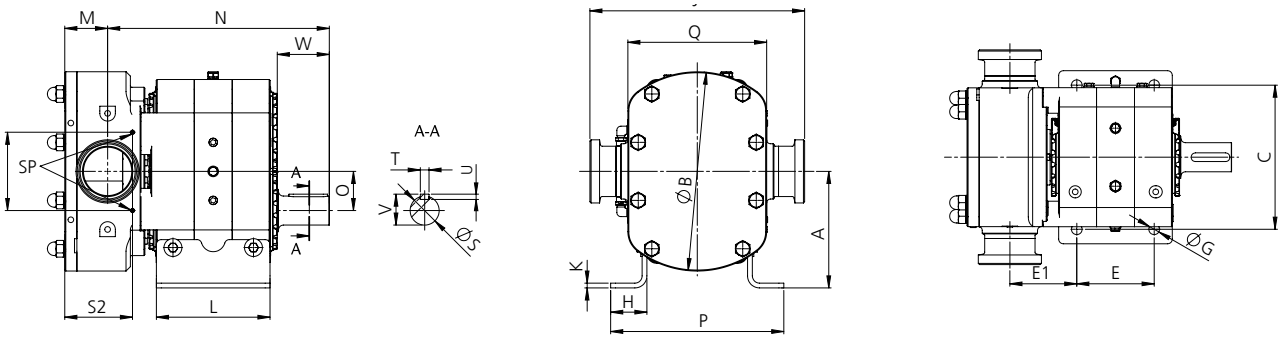
Dimension sheets from page 66

Horizontal suction and discharge port

GEA Hilge NOVALOBE 10–50



GEA Hilge NOVALOBE 60

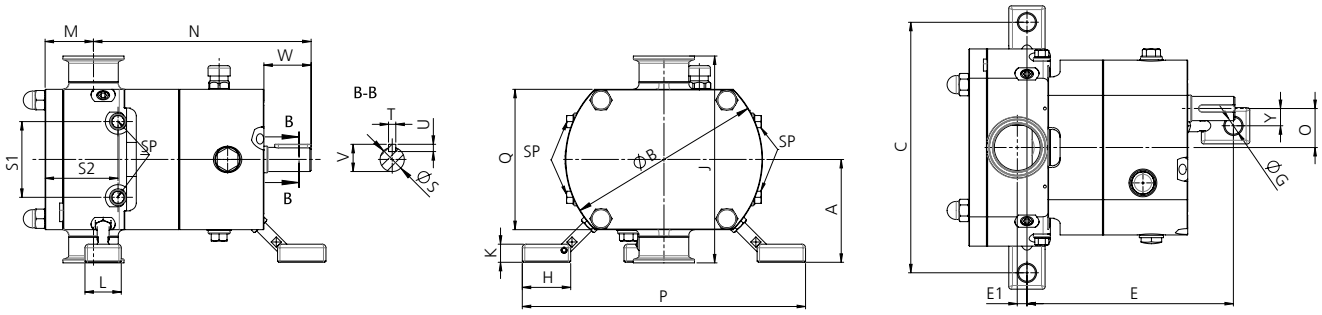


Dimensions													
Type	DN [mm]	A [mm]	ØB [mm]	C [mm]	E [mm]	E1 [mm]	G [mm]	H [mm]	J [mm]	K [mm]	L [mm]	M [mm]	N [mm]
10/0.06	25	75	126	146	138	9.0	12	30	See page 66	15	30	30.0	149
20/0.12	40	95	163	196	172	8.0	14	40		15	30	40.0	180
30/0.33	50	120	224	239	204	9.0	16	50		20	40	51.0	221
40/0.65	65	155	228	316	235	15.0	20	60		25	50	62.0	266
50/1.29	80	190	340	393	294	10.5	20	60		25	60	74.5	338
60/2.1	100	241	412	298	160	–	22	75		10	235	88.5	458

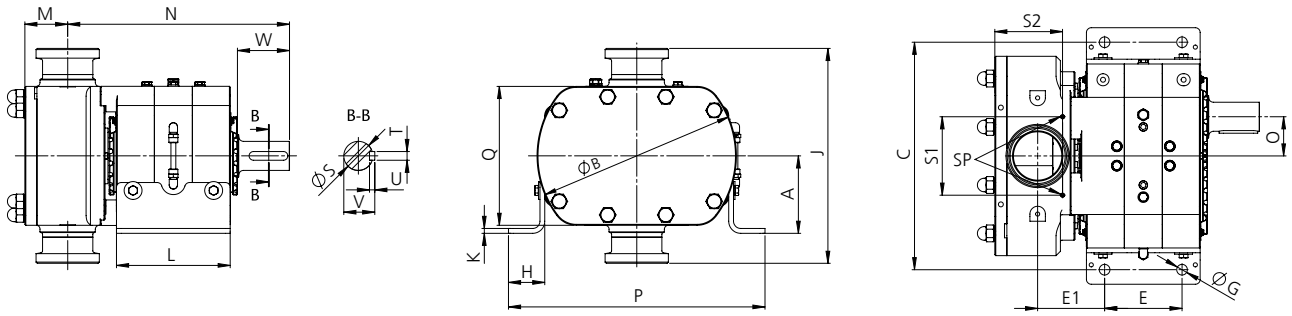
Type	DN [mm]	O [mm]	P [mm]	Q [mm]	S [mm]	T [mm]	U [mm]	V [mm]	W [mm]	Y [mm]	SP ["]	S1 [mm]	S2 [mm]
10/0.06	25	25.0	165	90	16	5	5	18.0	31	20.0	G 1/8	55.0	48.0
20/0.12	40	32.3	223	116	20	6	6	22.5	39	17.0	G 1/8	62.6	60.3
30/0.33	50	44.0	278	158	28	8	7	31.0	45	23.0	G 1/8	80.0	84.1
40/0.65	65	57.0	363	205	38	10	8	41.0	61	37.5	G 1/8	97.0	103.3
50/1.29	80	70.0	432	250	48	14	9	51.5	85	37.0	G 1/8	113.0	122.0
60/2.1	100	81.0	358	287	60	18	11	64.0	107	–	G 1/8	162.0	140.0

Vertical suction and discharge port

GEA Hilge NOVALOBE 10–50



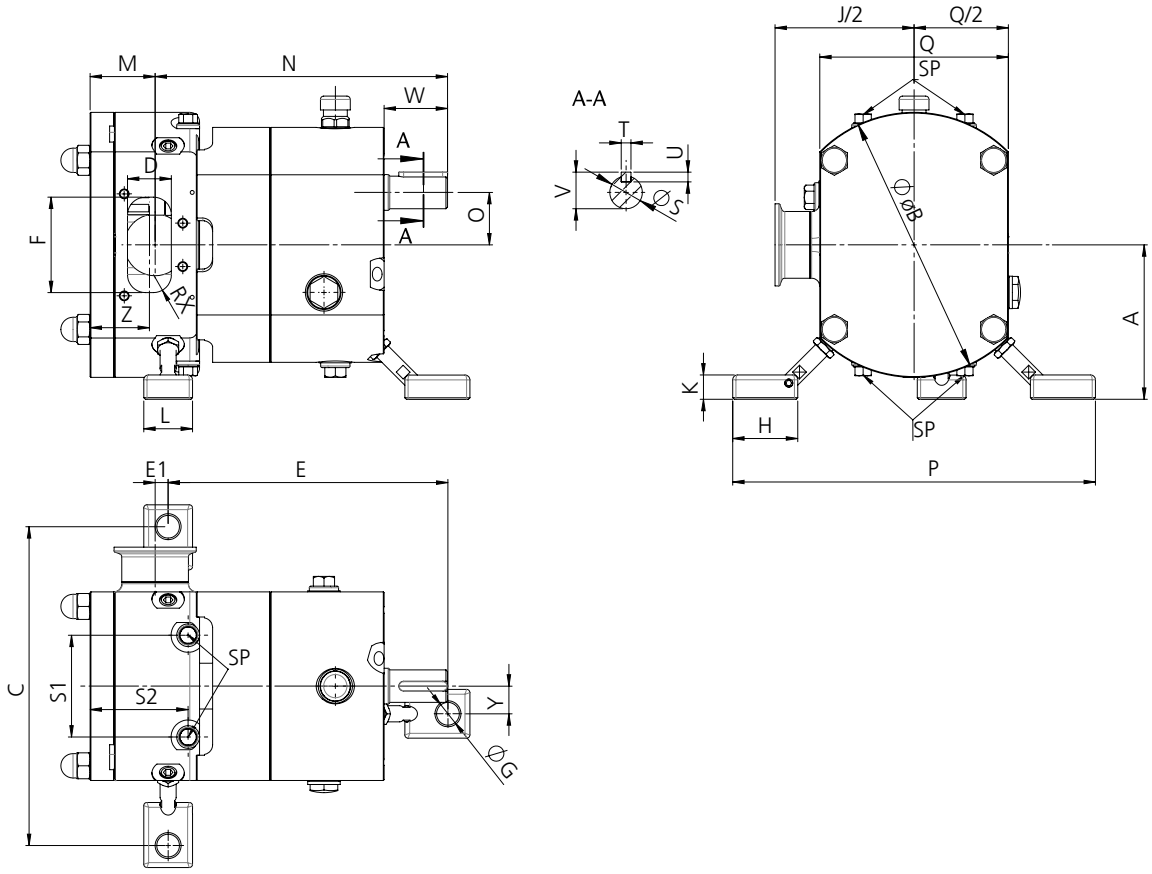
GEA Hilge NOVALOBE 60



Dimensions													
Type	DN [mm]	A [mm]	ØB [mm]	C [mm]	E [mm]	E1 [mm]	G [mm]	H [mm]	J [mm]	K [mm]	L [mm]	M [mm]	N [mm]
10/0.06	25	70	126	163	138	9.0	12	30	See page 66	15	30	30.0	149
20/0.12	40	85	163	207	171	8.0	14	40		15	30	40.0	180
30/0.33	50	109	224	259	207	9.0	16	50		20	40	51.0	221
40/0.65	65	140	228	316	238	15.0	20	60		25	50	62.0	266
50/1.29	80	170	340	387	295	10.5	20	60		25	60	74.5	338
60/2.1	100	160	412	470	160	–	22	75		10	235	88.5	458

Type	DN [mm]	O [mm]	P [mm]	Q [mm]	S [mm]	T [mm]	U [mm]	V [mm]	W [mm]	Y [mm]	SP ["]	S1 [mm]	S2 [mm]
10/0.06	25	25.0	182	90	16	5	5	18.0	31	11.0	G 1/8	55.0	48.0
20/0.12	40	32.3	234	116	20	6	6	22.5	39	14.3	G 1/8	62.6	60.3
30/0.33	50	44.0	298	158	28	8	7	31.0	45	22.0	G 1/8	80.0	84.1
40/0.65	65	57.0	354	205	38	10	8	41.0	61	27.0	G 1/8	97.0	103.3
50/1.29	80	70.0	426	250	48	14	9	51.5	85	40.0	G 1/8	113.0	122.0
60/2.1	100	81.0	530	287	60	18	11	64.0	107	–	G 1/8	162.0	140.0

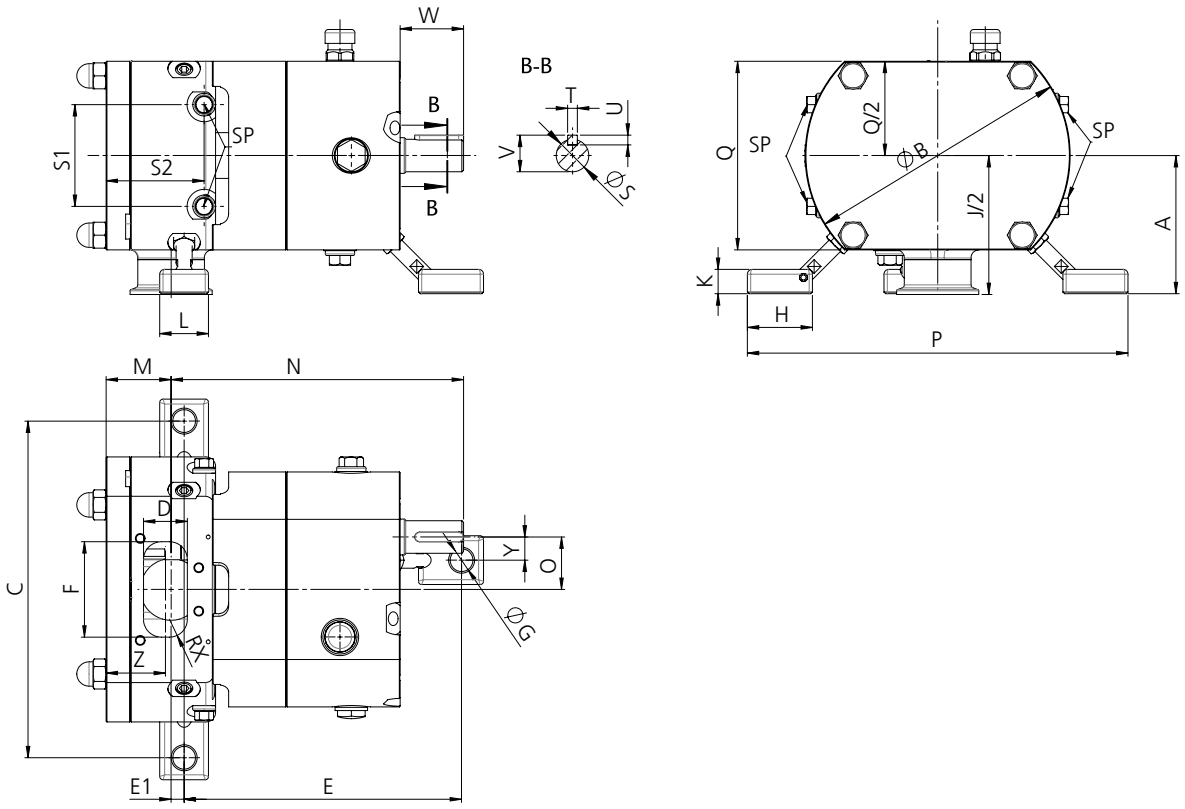
Rectangular horizontal inlet



Dimensions																
Type	DN [mm]	A [mm]	ØB [mm]	C [mm]	D [mm]	E [mm]	E1 [mm]	F [mm]	G [mm]	H [mm]	I [mm]	J/2 [mm]	K [mm]	L [mm]	M [mm]	N [mm]
10/0.06	25	75	126	146	19	138	9.0	42.9	12	30	45.0	See page 66	15	30	30.0	149
20/0.12	40	95	163	196	27	172	8.0	58.7	14	40	58.0		15	30	40.0	180
30/0.33	50	120	224	239	41	204	9.0	88.0	16	50	79.0		20	40	51.0	221
40/0.65	65	155	228	316	56	235	15.0	115.8	20	60	102.5		25	50	62.0	266
50/1.29	80	190	340	393	72	294	10.5	123.6	20	60	125.0		25	60	74.5	338

Type	DN [mm]	O [mm]	P [mm]	Q [mm]	S [mm]	T [mm]	U [mm]	V [mm]	W [mm]	RX [mm]	Y [mm]	Z [mm]	SP [“]	S1 [mm]	S2 [mm]
10/0.06	25	25.0	165	90	16	5	5	18.0	31	7	20.0	30.5	G 1/8	55.0	48.0
20/0.12	40	32.3	223	116	20	6	6	22.5	39	11	17.0	36.5	G 1/8	62.6	60.3
30/0.33	50	44.0	278	158	28	8	7	31.0	45	14	23.0	48.5	G 1/8	80.0	84.1
40/0.65	65	57.0	363	205	38	10	8	41.0	61	18	37.5	58.0	G 1/8	97.0	103.3
50/1.29	80	70.0	432	250	48	14	9	51.5	85	22	37.0	69.0	G 1/8	113.0	122.0

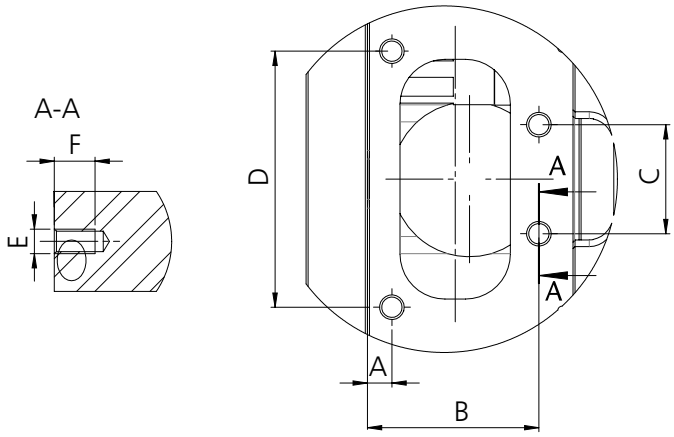
Rectangular vertical inlet



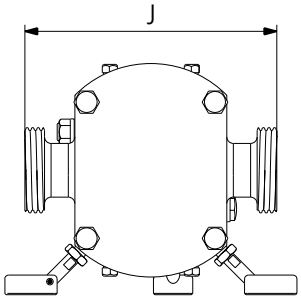
Dimensions															
Type	DN [mm]	A [mm]	ØB [mm]	C [mm]	D [mm]	E [mm]	E1 [mm]	F [mm]	G [mm]	H [mm]	J/2 [mm]	K [mm]	L [mm]	M [mm]	N [mm]
10/0.06	25	70	126	163	19	138	9.0	42.9	12	30	See page 66	15	30	30.0	149
20/0.12	40	85	163	207	27	171	8.0	58.7	14	40		15	30	40.0	180
30/0.33	50	109	224	259	41	207	9.0	88.0	16	50		20	40	51.0	221
40/0.65	65	140	228	316	56	238	15.0	115.8	20	60		25	50	62.0	266
50/1.29	80	170	340	387	72	295	10.5	123.6	20	60		25	60	74.5	338

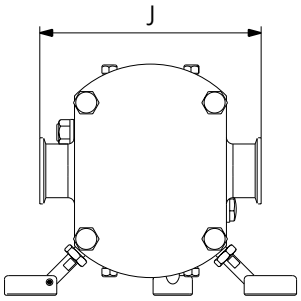
Type	DN [mm]	O [mm]	P [mm]	Q [mm]	S [mm]	T [mm]	U [mm]	V [mm]	W [mm]	RX [mm]	Y [mm]	Z [mm]	SP [“]	S1 [mm]	S2 [mm]
10/0.06	25	25.0	182	90	16	5	5	18.0	31	7	20.0	11.0	G 1/8	55.0	48.0
20/0.12	40	32.3	234	116	20	6	6	22.5	39	11	17.0	14.3	G 1/8	62.6	60.3
30/0.33	50	44.0	298	158	28	8	7	31.0	45	14	23.0	22.0	G 1/8	80.0	84.1
40/0.65	65	57.0	354	205	38	10	8	41.0	61	18	37.5	27.0	G 1/8	97.0	103.3
50/1.29	80	70.0	426	250	48	14	9	51.5	85	22	37.0	40.0	G 1/8	113.0	122.0

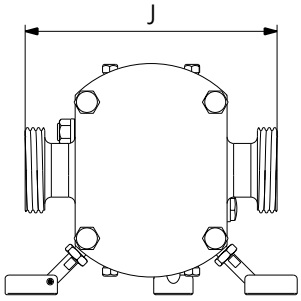
Detail of rectangular inlet



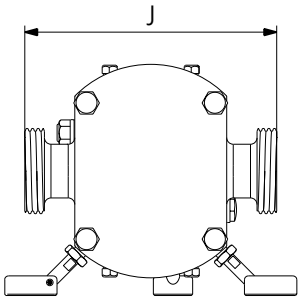
Dimensions							
Type	DN [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
10/0.06	25	4.5	34.0	9.5	23.5	6	10
20/0.12	40	6.0	42.0	13.5	31.5	6	10
30/0.33	50	5.0	60.0	14.0	47.0	6	12
40/0.65	65	5.5	74.0	24.0	58.0	6	12
50/1.29	80	8.0	91.5	28.5	67.5	12	24

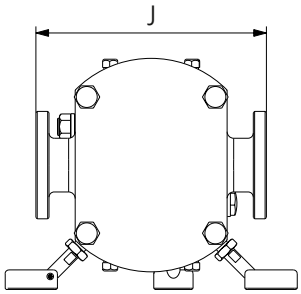


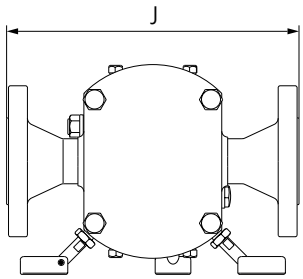




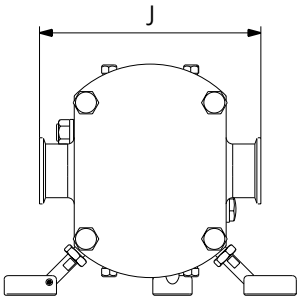
Dimensions		Thread DIN 11851		Clamp DIN 32676 pipe acc. to 11866 A (DIN)		SMS	
Type	DN [mm]	J [mm]	Weight [kg]	J [mm]	Weight [kg]	J [mm]	Weight [kg]
10/0.06	25	160	9.19	145	9.08	160	9.22
20/0.12	40	194	18.80	171	18.60	194	18.80
30/0.33	50	240	44.10	213	43.70	240	44.20
40/0.65	65	297	85.70	273	85.30	297	85.80
50/1.29	80	352	147.00	318	147.00	352	148.00
60/2.10	100	444	230.00	392	229.00	442	230.30

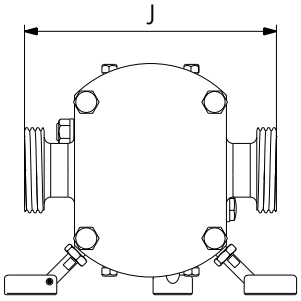




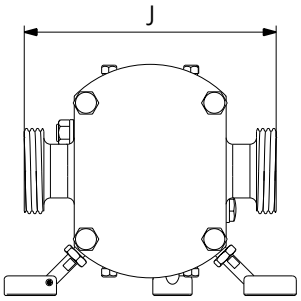


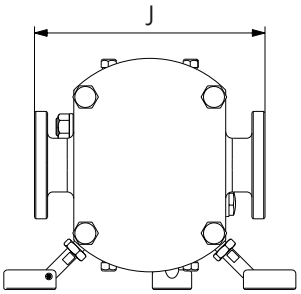
Dimensions		Aseptic thread DIN 11864-1		Aseptic flange DIN 11864-2		Flange ANSI 150	
Type	DN [mm]	J [mm]	Weight [kg]	J [mm]	Weight [kg]	J [mm]	Weight [kg]
10/0.06	25	160	9.24	150.0	9.44	192	10.90
20/0.12	40	194	18.90	176.0	19.10	248	21.90
30/0.33	50	240	44.10	218.0	44.30	290	48.70
40/0.65	65	297	85.80	265.0	85.90	357	93.00
50/1.29	80	352	148.00	314.0	148.00	402	157.00
60/2.10	100	436	230.10	433.4	230.60	–	–





Dimensions		Clamp DIN 32676 pipe acc. to 11866 C, Clamp BS4825, Tri-Clamp		RJT	
Type	DN [mm]	J [mm]	Weight [kg]	J [mm]	Weight [kg]
10/0.06	25	145	9.23	145	9.23
20/0.12	40	171	19.00	171	19.00
30/0.33	50	213	44.30	213	44.30
40/0.65	65	260	86.10	260	86.10
50/1.29	80	305	148.00	305	148.00
60/2.10	100	392	230.00	425	230.00





Dimensions		IDF		EN 1092-1	
Type	DN [mm]	J [mm]	Weight [kg]	J [mm]	Weight [kg]
10/0.06	25	145	9.23	202	9.50
20/0.12	40	171	18.90	258	19.20
30/0.33	50	213	44.20	310	44.40
40/0.65	65	260	85.90	357	86.00
50/1.29	80	305	148.00	402	148.50

INQUIRY SHEET · ROTARY LOBE PUMPS 1/2

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GEA Hygienic Pumps

Contact Data

Company:

Contact Person: E-mail:

Phone: Country:

Liquid Data

*Liquid: Solids: ☐ No ☐ Yes:

*Liquid temperature [°C/°F]: Kind of solids:

*Density [kg/dm³]: Size of solids [mm]:

*Viscosity [mPas]: Abrasive: ☐ No ☐ Yes

Concentration [%]: Shear sensitive: ☐ No ☐ Yes

Max. allowed media speed:

Operating Conditions

*Duty point 1 *Flow [m³/h/gpm]: *Diff. Pressure [bar]:

Inlet pressure [bar]: Vacuum at inlet: ☐ No ☐ Yes:

Vacuum, abs. [mbar]:

Cleaning / Sterilization

CIP with another pump: ☐ No: ☐ Yes SIP (Pump stopped): ☐ No ☐ Yes:

CIP Temperature [°C/°F]: SIP Temperature [°C/°F]:

CIP Flow [m³/h/gpm]: SIP Duration [min]:

CIP Head [m lc]:

Pump execution

***Connection Type**

☐ Tri Clamp (DIN 32676) ☐ ANSI Flange ☐ DIN 11851

☐ DIN 11853-2/11864-2 ☐ Other:

Connection Size DN_i/DN_o:

Other:

Drainable: ☐ No ☐ Yes

Execution and Design

☐ Horizontal port orientation ☐ Vertical port orientation

☐ Pump with bare shaft end

☐ Pump on stainless steel base with geared motor and coupling

☐ Pump in stainless steel trolley with geared motor and coupling

☐ With stainless steel motor shroud

Surface Roughness

☐ $R_a \leq 0.8$ µm

☐ $R_a \leq 0.4$ µm

Ferrite Content

☐ Not specified

☐ Fe < 1%

Rotor Profile

☐ Multilobe

☐ Bi-wing

☐ Uni-wing

Shaft Seal

☐ Single mechanical seal

☐ Flushed mechanical seal

☐ Double mechanical seal

☐ Single O-ring shaft seal

☐ Double O-ring shaft seal

INQUIRY SHEET · ROTARY LOBE PUMPS 2/2

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GEA Hygienic Pumps

Material Shaft Seal

- ☐ Carbon/SiC
- ☐ SiC/SiC
- ☐ TuC/TuC

Elastomer

- ☐ EPDM
- ☐ FKM (Viton)
- ☐ FFKM/FEP-S
- ☐ Other: _____

Options

- ☐ Integrated pressure relief valve
- ☐ Aseptic front cover
- ☐ Thermal jacket for front cover
- ☐ Thermal jacket for rotor case
- ☐ Stainless steel pump gearbox

Motor Data

Power supply:

- ☐ 3~ 400V/50 Hz
- ☐ 3~ 200V/50 Hz
- ☐ other: _____
- ☐ 3~ 460V/60 Hz
- ☐ 3~ 200V/60 Hz
- ☐ 3~ 380V/60 Hz

PTC-Thermistors: ☐ No ☐ Yes

Variable speed drive ☐ No ☐ Yes:

- ☐ External frequency converter (not on motor)
- ☐ Integrated frequency converter (on motor)

Explosion protection ☐ No ☐ Yes

ATEX ☐ No ☐ Yes:

Ex-Zone: _____

Temperature class: _____

Ambient temperature [°C/°F]: _____

EXP Motor ☐ No ☐ Yes:

Temperature class: _____

Ambient Temperature [°C/°F]: _____

Class: _____

Division: _____

Group: _____

Certificates/Documentation

- ☐ Inspection certificate 3.1 acc. to DIN EN 10204
- ☐ Test report 2.2 acc. to DIN EN 10204
- ☐ FDA declaration of conformity
- ☐ Further certificates and documentation: _____
- ☐ Surface roughness test report
- ☐ Delta ferrite test report

Further Information

** Fields marked with an asterisk are mandatory for a pump selection*

V1.0-2018

2.1		Works certificate according to DIN EN 10204: Declaration of the compliance with the order. This certificate is issued by the manufacturer.
2.2		Test report according to DIN EN 10204: Declaration of the compliance with the order under specification of the results of non-specific tests. This certificate is issued by the manufacturer.
3.1		Inspection certificate 3.1 according to DIN EN 10204: Declaration of the compliance with the order under specification of the results of specific tests. This certificate is issued by an authority which is independent of manufacturing and is validated by the manufacturers authorized inspection representative.
3-A		3-A Sanitary Standards, Inc. (3-A SSI) is an independent, non-profit corporation dedicated to advancing hygienic equipment design for the food, beverage, and pharmaceutical industries.
AS-i		Actuator Sensor Interface. BUS-System for the lowest field level.
ASME-BPE		Standard of the ASME's – bioprocessing equipment association
ATEX		Atmosphères Explosibles. ATEX comprises the directives of the European Union in the area of explosion protection. For one thing, this is the ATEX equipment directive 94/9/EC, for another, the ATEX workplace directive 1999/92/EC.
cCSAus		Test of a product by CSA according to applicable safety standards in Canada and the USA.
CE		Conformité Européenne. By affixing the CE mark, the manufacturer confirms that the product complies with the European directives applicable to the specific product.
CSA		Canadian Standards Association. A non-governmental Canadian organization which issues standards as well as checking and certifying the safety of products. It is now globally active.
cULus		Test of a product by UL according to applicable safety standards in Canada and the USA.
DIN EN ISO 9001:2015		This norm is the basis for a multitude of varied organizations in different industries worldwide for quality assurance and quality management. It is the most widespread standards of ISO (International Organisation for Standardization).
EAC		Euroasion conformity. The symbol is used similar to the European CE mark. The manufacturer or supplier confirms that the machine has passed all necessary compliance procedures in one of the Member States of the customs union.
EG 1935/2004		Materials in contact with the product used in pumps from GEA Hilge are in accordance with EC regulation 1935/2004. This defines a general framework for materials and objects intended to come into contact with foodstuffs.
EHEDG		European Hygienic Engineering & Design Group. European supervisory authority for foodstuffs and pharmaceuticals. This authority issues approvals and certificates for products and materials that are used in the foodstuffs and pharmaceuticals industries.
FDA		Food and Drug Administration. US supervisory authority for foodstuffs and pharmaceuticals. This authority issues approvals and certificates for products and materials that are used in the foodstuffs and pharmaceuticals industries.
QHD		The QHD (Qualified Hygienic Design) is a two-phase testing system for the hygienic design and cleanability of components, machinery and plants for aseptic or sterile applications. The system ensures that all surfaces can be cleaned in place (CIP). The QHD symbol is used by manufacturers to indicate compliance with the QHD criteria.
UL		Underwriters Laboratories. An organization founded in the USA for checking and certifying products and their safety.
USP Class VI		The United States Pharmacopeial Convention (USP) is a scientific nonprofit organization that sets standards to help protecting public health. Class VI administer tests and impacts of material and their substances on animal and human tissues.

Abbreviation	Explanation
°C	Degrees Celsius, unit of measurement for temperature
°F	Degrees Fahrenheit, unit of measurement for temperature
3D	Three-dimensional
A	Ampere, unit of measurement of current intensity or Output, term used in automation
AC	Alternating Current
ADI free	All elastomer compounds are free of animal-derived ingredients
AISI	American Iron and Steel Institute, association of the American steel industry
ANSI	American National Standards Institute, American body for standardizing industrial processes
approx.	approximately
AS-i	Actuator Sensor interface, standard for fieldbus communication
ASME	American Society of Mechanical Engineers, professional association of mechanical engineers in the USA
ASME-BPE	Standard of the ASME's – bioprocessing equipment association
ATEX	Atmosphères Explosibles, synonymous with the directives of the European Union for potentially explosive areas
bar	Unit of measurement for pressure. All pressure values [bar/psi] refer to positive pressure [bar_g/psi_g], unless specifically stated otherwise.
bar_g	Unit of measurement for pressure relative to atmospheric pressure
CAN	Controller Area Network; asynchronous serial bus system
CE	Conformité Européenne, administrative symbol for the free movement of industrial products
CIP	Cleaning In Place, designates a process for cleaning technical process systems.
CRN	Canadian Registration Number, is issued by a Canadian Jurisdiction and covers pressure vessels, fittings, or pressure piping. It is a necessary authorization allowing these components to be in operation in Canada.
CSA	Canadian Standards Association, a non-governmental Canadian Standardization organization
Cv	The Cv value corresponds to the water flow rate through a valve (in US gal / min) at a pressure differential of 1 PSI and a water temperature of 5 °C to 30 °C. kv = 14,28 Cv (USA).
Cvs	The Cv values of a valve at nominal stroke (100 % opening) is designated the Cvs value.
dB	Decibel, one tenth of a bel, named after Alexander Graham Bell and used for identifying levels and dimensions
DC	Direct Current
DIN	Deutsches Institut für Normung e. V. Standardization organization in the Federal Republic of Germany, DIN = synonym for standards issued by the organization

Abbreviation	Explanation
DIP	Dual Inline Package, design of a switch
DN	Diameter Nominal, DIN nominal width
Device Net	Network system used in the automation industry to interconnect control devices for data exchange
E	Input, term used in automation
EAC	Certification of technical conformity from the customs union of Russia/Belarus/Kazakhstan
Pressure Equipment Directive 97/23/EC	Directive of the European Parliament and the Council Directive for layout and conformity evaluation for pressure equipment and assemblies with a maximum pressure (PS) of more than 0.5 bars.
EG No. 1935/2004	Regulation of the European Parliament which lays down common rules for materials which come, or may come, into contact with food, either directly or indirectly.
EHEDG	European Hygienic Engineering and Design Group. Consortium of equipment manufacturers, food industries, research institutes as well as public health authorities
EN	European standard, rules of the European Committee for Standardization
EPDM	Ethylene propylene diene rubber, acronym acc. to DIN/ISO 1629
Ex	Synonym for ATEX
FDA	Food and Drug Administration, official foodstuffs monitoring in the United States
FEM calculation	Finite Element Method; calculation process for simulating solids
FKM	Fluorinated rubber, acronym acc. to DIN/ISO 1629
GOST	Gosudarstvennyy Standart, Certification of conformity for components according to standards and regulations of the Russian Federation
H	Henry, unit of measurement for inductance
HNBR	Hydrated acrylonitrile butadiene rubber, acronym acc. to DIN/ISO 1629
Hz	Hertz, unit of frequency named after Heinrich Hertz
I	Formula symbol for electrical current
IEC	International Electrotechnical Commission, international standardization organization for electrical and electronic engineering
IP	Ingress Protection/International Protection, index of protection class acc. to IEC 60529
IPS	Iron Pipe Size, American pipe dimension
ISA	International Society of Automation, international US organization of the automation industry
ISO	International Organization for Standardization, international organization that produced international standards, ISO = synonym for standards from the organization
kg	Kilogram, unit of measurement for weight
Kv	The Kv value corresponds to the water flow rate through a valve (in m^3/h) at a pressure differential of 0.98 bar and a water temperature of 5 °C to 30 °C.

Abbreviation	Explanation
Kvs	The Kv values of a valve at nominal stroke (100 % opening) is designated the Kvs value
L	Conductive
LED	Light-Emitting Diode
mm	Millimeter, unit of measurement for length
M	Metric, system of units based on the meter or Mega, one million times a unit
m^3/h	Cubic meters per hour, unit of measurement for volumetric flow
max.	Maximum
NAMUR	Standardization working association for measuring and control technology in the chemical industry, synonym for the interface type of the organization, especially for potentially explosive atmospheres
NC	Normally Closed; valve or solenoid valve control which is closed in idle status
NO	Normally Open; valve or solenoid valve control which is open in idle status
NOT-element	Logic element, NOT gate
NPN	Signal transmission against reference potential, current-consuming
NPT	National Pipe Thread, US thread standard for self-sealing pipe fittings
OD	Outside Diameter, pipe dimension
ODVA	Open DeviceNet Vendor Association, global association for network standards
PA 12/L	Polyamide
Pg	Armored thread
PN	Nominal pressure for pipeline systems according to EN 1333, rated pressure in bar at room temperature (20 °C)
PNP	Signal transmission against reference potential, current-supplying
PPO	Polyphenylene oxide, thermoplastic material
PS	Maximum permitted operating pressure at which the components can operate safely at maximum allowable temperature (TS)
psi	Unit of measurement for pressure, pound-force per square inch, 1 psi = 6894.75 Pa. All pressure values [bar/psi] refer to positive pressure [bar_g/psi_g], unless specifically stated otherwise.
psi_g	Unit of measurement for pressure relative to atmospheric pressure
PV	Solenoid valve
R_a in µm	Average roughness value, describes the roughness of a technical surface
International Protection-Code IP67, IP66, IP69K	Classifies and rates the degree of protection provided against intrusion dust, accidental contact, and water

Abbreviation	Explanation
SES	GEA Tuchenhagen control head for Ex areas, control top system of GEA Tuchenhagen
SET-UP	Self-learning installation, the SET-UP procedure carries out all necessary settings for generating messages during commissioning and maintenance.
SIP	Sterilization in Place, refers to a process for cleaning technical process systems
SMS	Svensk Mjölk Standard, Scandinavian pipe dimension
SW	Indicates the size of a tool spanner, "Schlüsselweite"
TA-Luft VDI 2440	If a product is certified according to TA Luft it meets the requirements for proof of high grade performance according to TA Luft of 1.0x 10-4 mbar x l / (s x m) at service conditions under the VDI guideline 2440. The product will hence be tested for tightness.
TS	Maximum permitted operating temperature
UL	Underwriters Laboratories, a certification organization established in the USA
USP Class VI	The United States Pharmacopeial Convention (USP) is a scientific nonprofit organization that sets standards to help protecting public health. Class VI administer tests and impacts of material and their substances on animal and human tissues.
UV	Ultraviolet, ultraviolet radiation is a wavelength of light
V	Volt, unit of measurement for voltage
VMQ	High-polymer vinyl methyl polysiloxane, silicone rubber, MVQ = synonym
W	Watt, unit of measurement for power
Y	Control air connection for the working cylinder, designation from pneumatic systems
µ	Micro, one millionth of a unit
Ω	Ohm, the unit of electrical resistance named after Georg Simon Ohm

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GEA is a global technology company with multi-billion euro sales operations in more than 50 countries. Founded in 1881 the company is one of the largest providers of innovative equipment and process technology. GEA is listed in the STOXX® Europe 600 Index. In addition, the company is included in selected MSCI Global Sustainability Indexes.

GEA Germany
GEA Hilge
Niederlassung der GEA Tuchenhagen GmbH
Hilgestraße 37–47
55294 Bodenheim, Germany

Tel +49 6135 7016-0
Fax +49 6135 1737

sales.germany@gea.com
gea.com