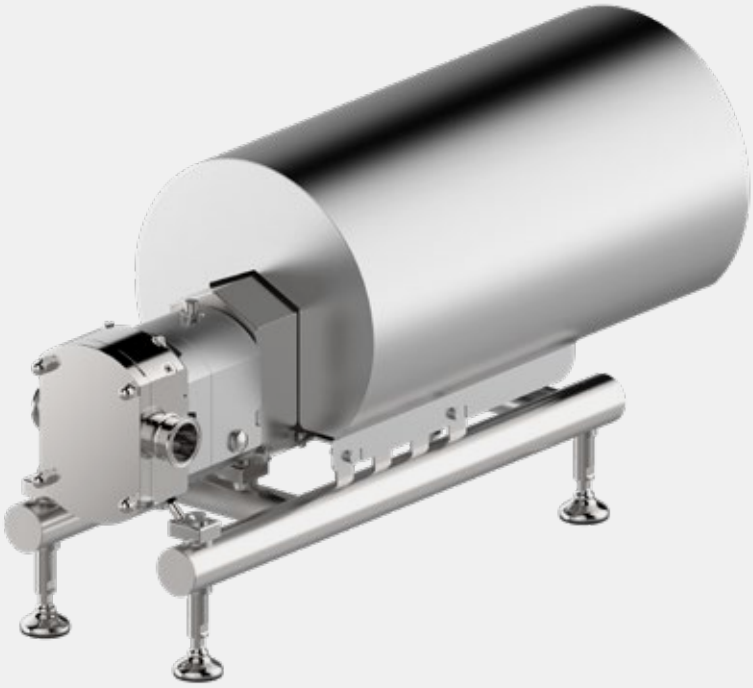


GEA HILGE NOVALOBE

Rotary Lobe Pumps
Catalog

Engineering for a better world.

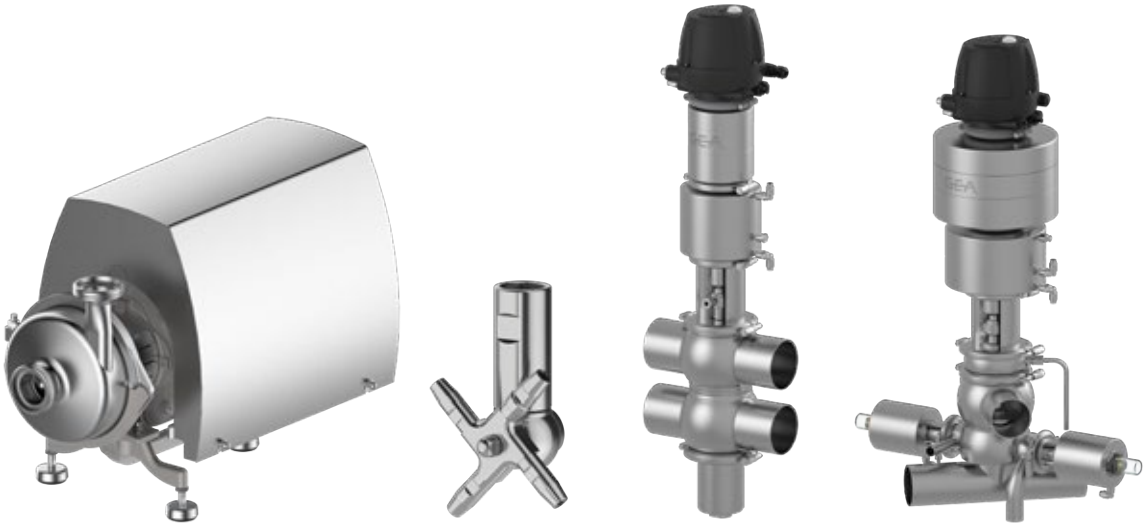
GEA.com

Legal notice
Publication date: March 2026

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

CONTENTS

ALWAYS IN MOTION WITH FLOW COMPONENTS



"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."

GEA Flow Components

The Flow Components Portfolio comprises hygienic pumps, valve technology and cleaning technology. Our products comply with the highest hygiene standards, such as EHEDG and 3-A. Our customers' success depends on the quality and profitability of their products. That is why they rely on advanced technology and on our decades of experience in ensuring smooth processing of liquid products. Our sophisticated process components and service offers for everything that flows are available worldwide from the international GEA sales network.

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

Approx. one in three instant coffee lines has been built by GEA

Hygienic Pumps

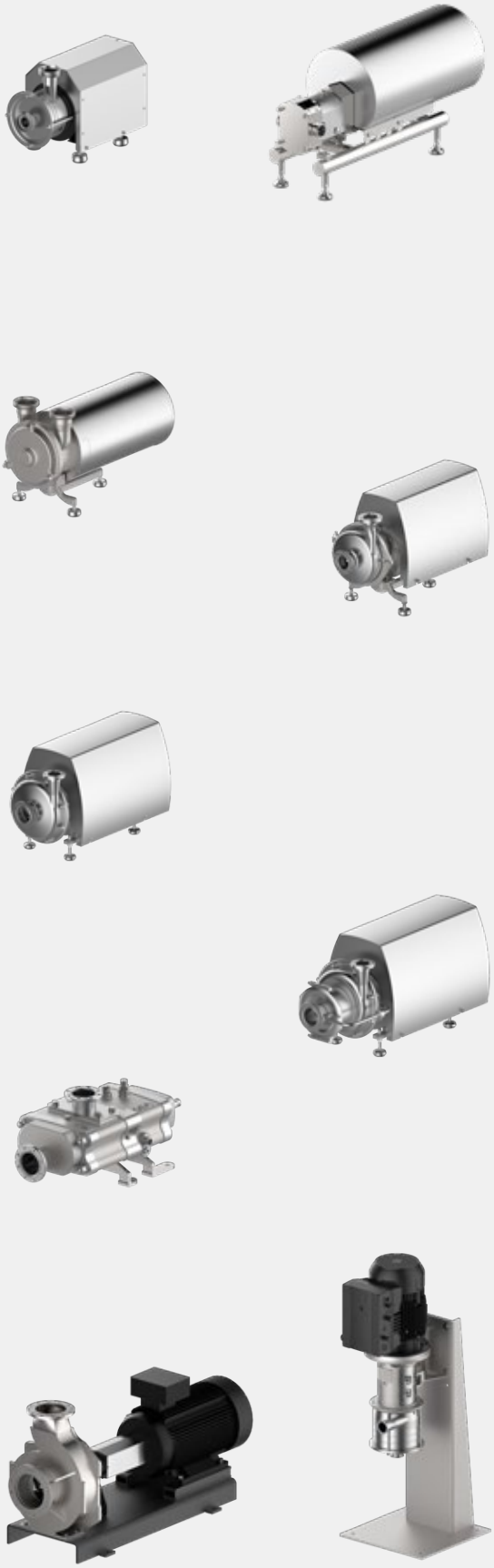
GEA Hilge Hygienic Pumps – The heart of every process
GEA Hilge offers a versatile range of centrifugal and positive displacement pumps for a wide variety of sensitive applications in the beverage, food and pharmaceutical industries.

Our pumps with their sophisticated design ensure particularly gentle conveyance of the respective medium, offer lasting reliability and are characterized by economic efficiency. After all, hygienic pumps are used in processes that directly affect the product and production. They are the heart of every process.

State-of-the-art pump technology, made to our customers' preferences
At the GEA Hygienc Pumps Competence Center we develop innovative pumps and processes together with our customers. Our decades of up-close experience with operations and systems at our customers' production sites ensure optimum selection and configuration of the right pumps for every application.

Maximum efficiency
Two product lines, GEA VARIPUMP and GEA SMARTPUMP, enable our customers to choose from a highly versatile pump range with a multitude of smart adaption options to achieve simpler operation, higher-quality production, and reduced consumption of valuable resources. Special construction features of our many types of pumps provide for exceptionally gentle product handling, delivering top-quality products to consumers.

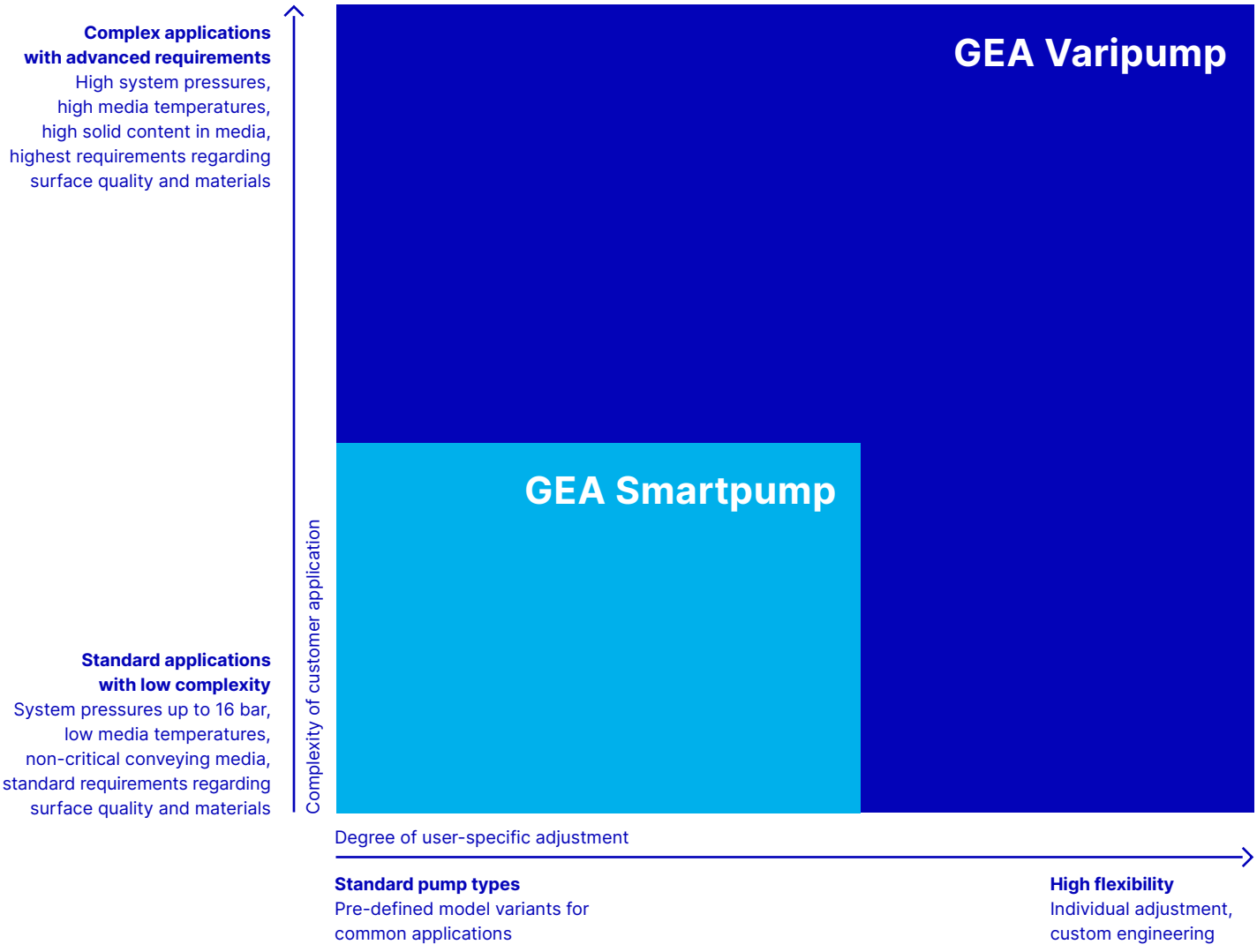
Maximum reliability
Our customers rely on the safe, continuous operation of their production processes without unplanned breaks or disturbances. That is why GEA pumps are optimized for uncompromising reliability in all applications. Thanks to their robust design and long service life, they are known as "workhorses" for their ease of maintenance and outstanding service, proven over decades, and for the great number of pumps currently in operation. Of course, GEA pumps also comply with all relevant hygiene standards and norms with continuous documentation and up-to-date certifications safely ensuring judicial security.



Hygienic Pumps
Introduction

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.

Selecting and configuring the right pump requires a high level of experience. The selection matrix provides initial guidance.



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 (not applicable for GEA Hilge MAXA)
- Selection of materials in contact with product according to specific requirements (e.g. no cast parts, $F_e \leq 1\%$ optional)

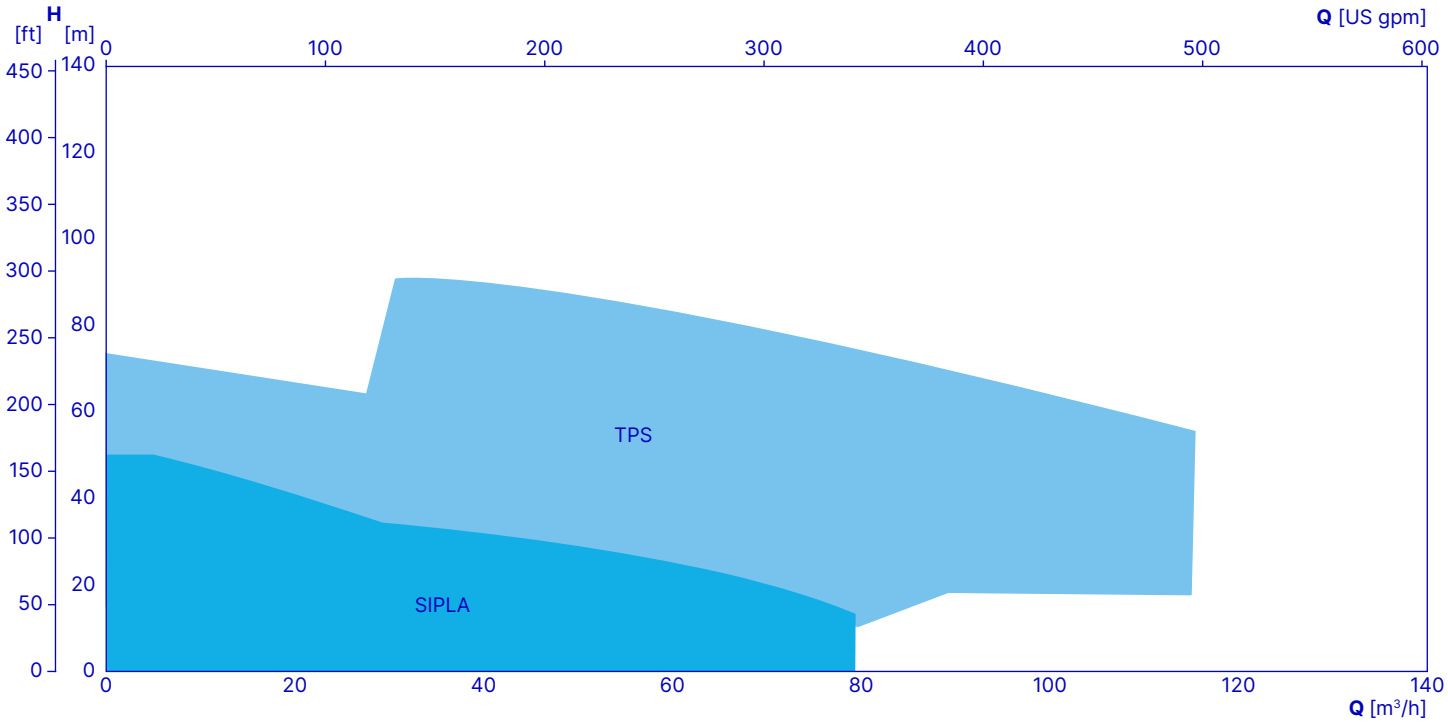
GEA Smartpump
The GEA Smartpump line comprises highly standardized and attractively priced pump series for common, often-used applications at standard conditions. The pumps are easy to select and ready for fast delivery. Within pre-defined parameters, the standard models can be configured to individual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

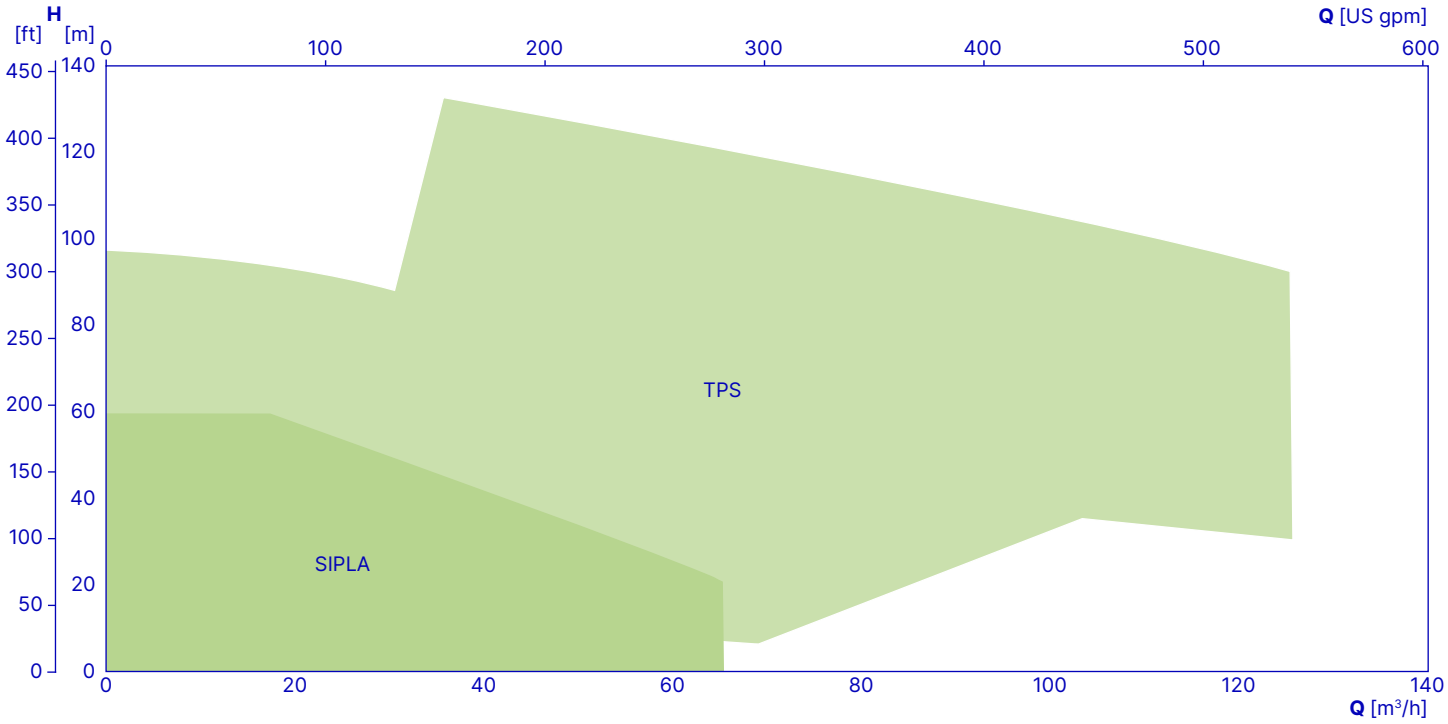
- Application for common and clearly defined “standard” process tasks
- Simple selection and configuration
- Fast delivery
- Standardized spare parts
- Surface roughness up to $R_a \leq 0.8$ µm (not applicable for GEA Hilge DURIETTA)

Hygienic Pumps
Introduction
Performance Curves

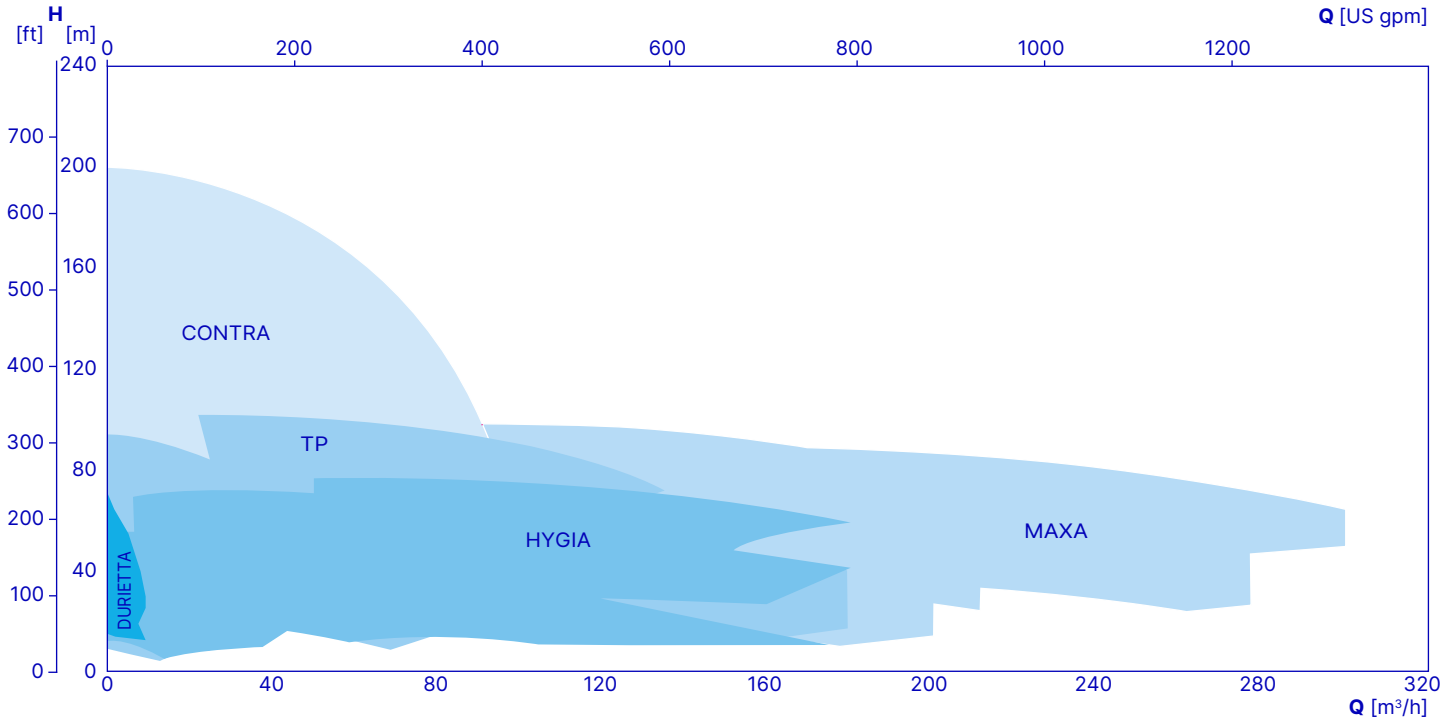
Self-priming Pumps, 50 Hz



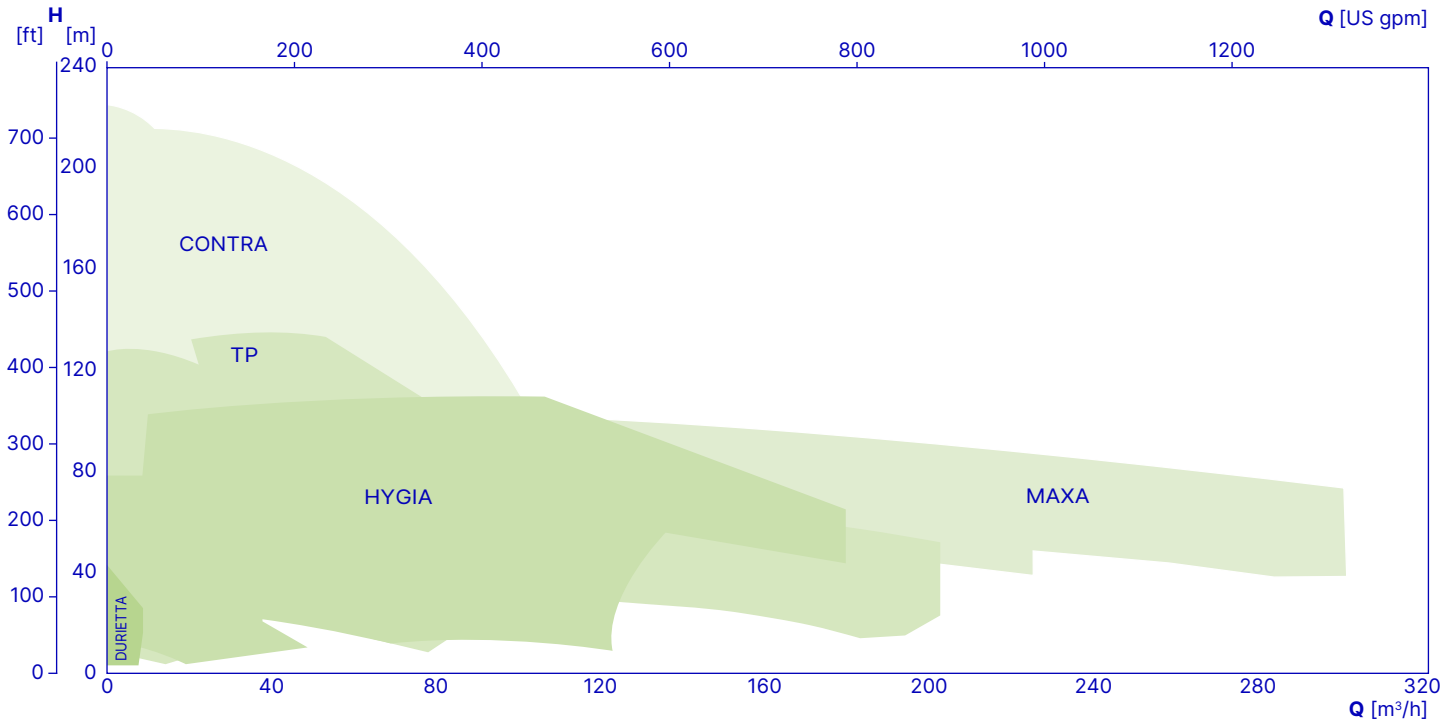
Self-priming Pumps, 60 Hz



Centrifugal Pumps, 2-pole, 50 Hz

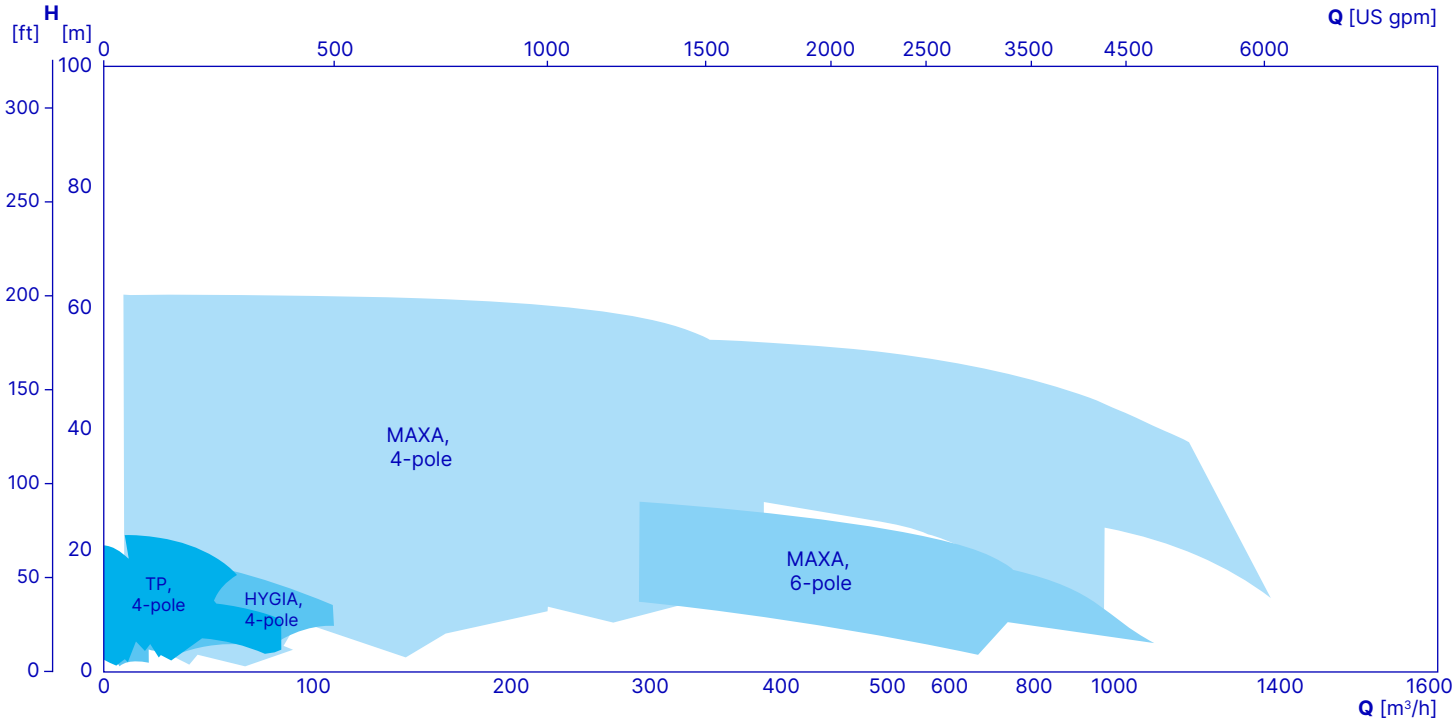


Centrifugal Pumps, 2-pole, 60 Hz

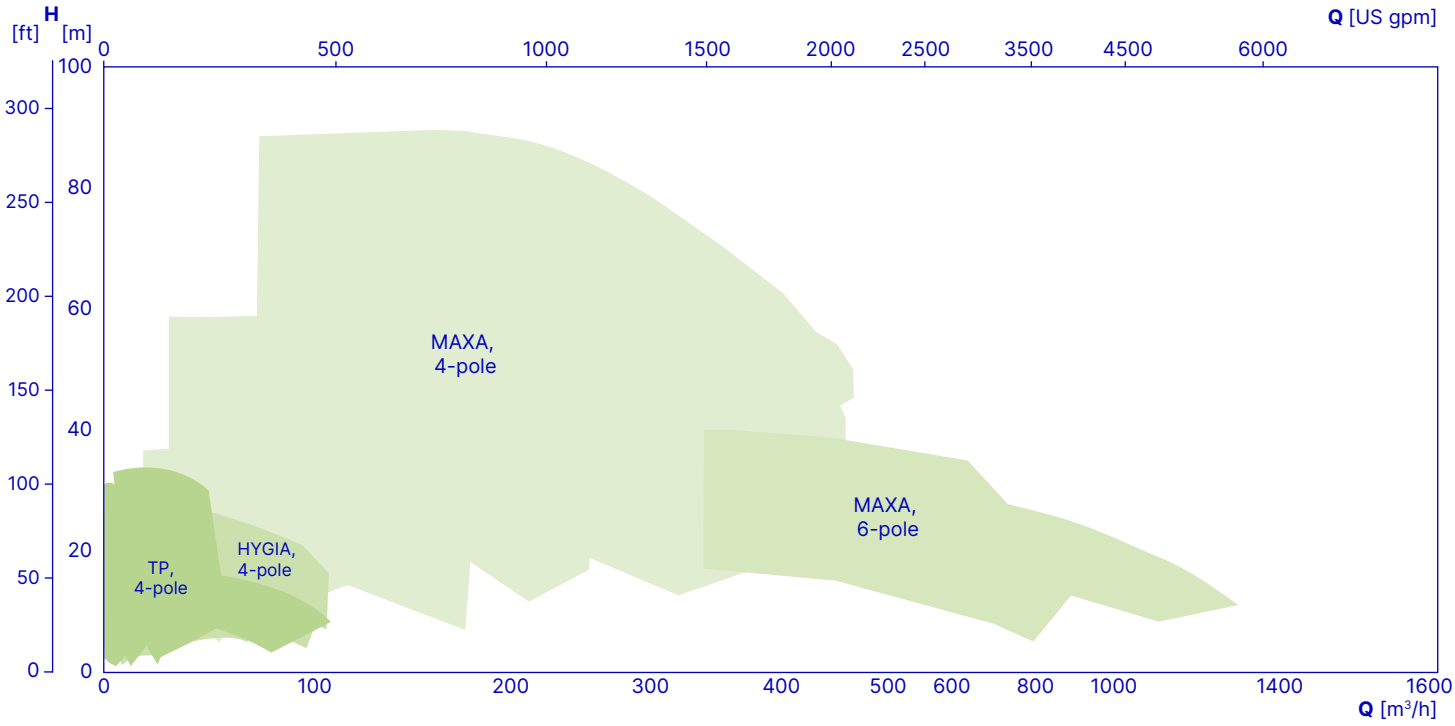


Hygienic Pumps
Introduction
Performance Curves

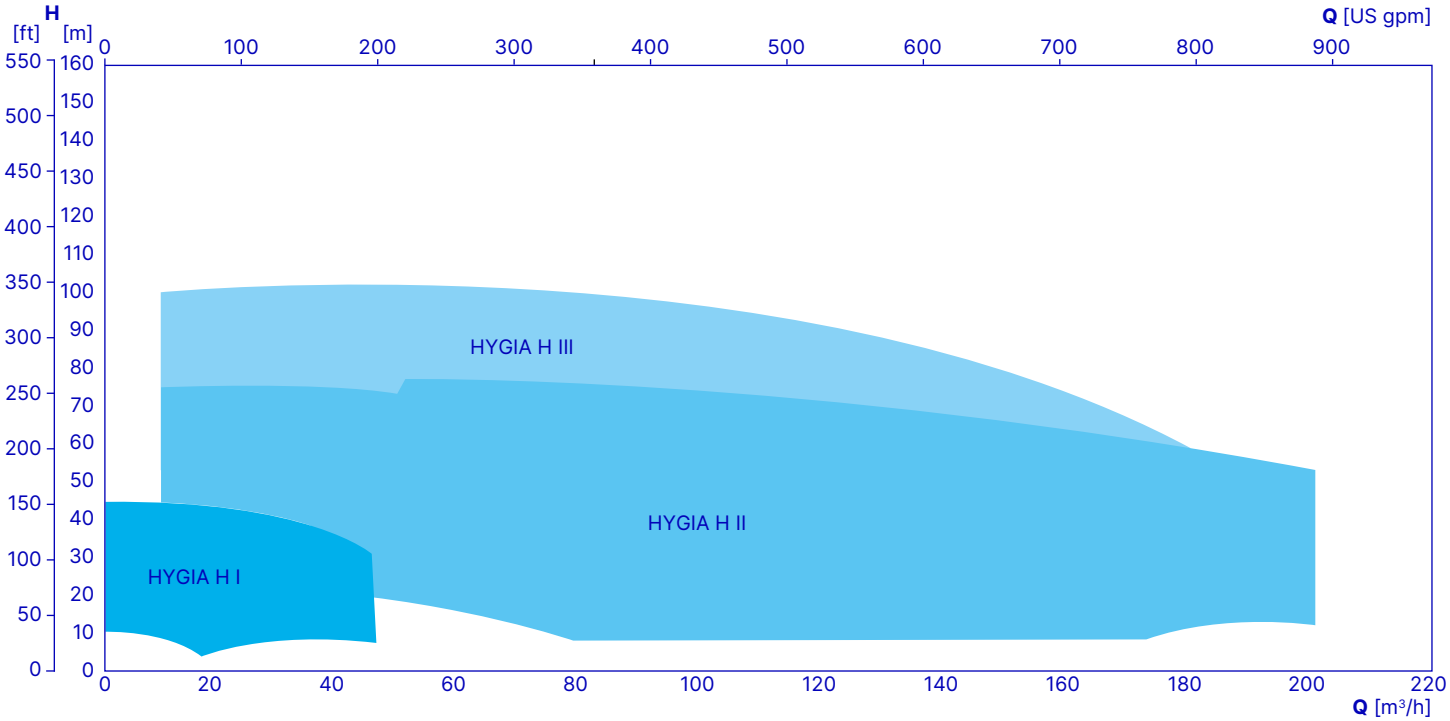
Centrifugal Pumps, 4-/6-pole, 50 Hz



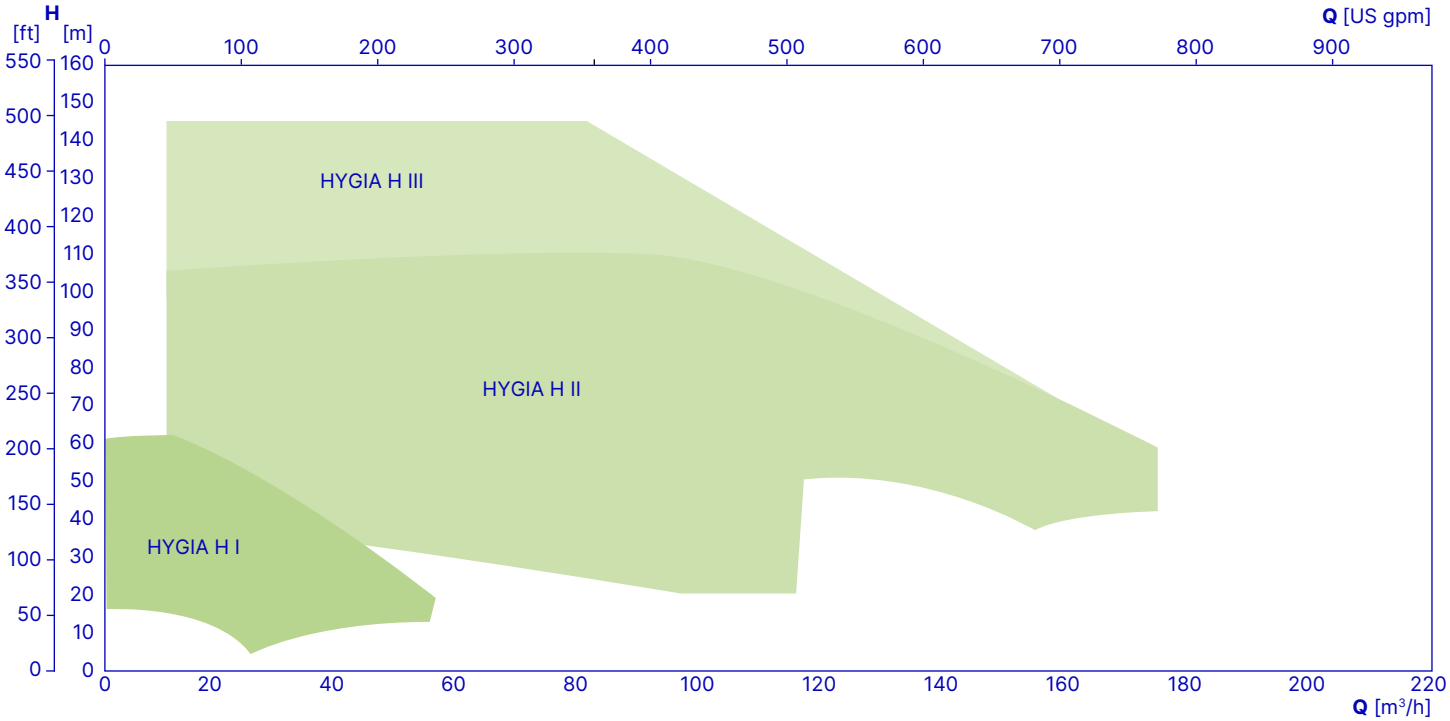
Centrifugal Pumps, 4-/6-pole, 60 Hz



High-pressure Pumps, 50 Hz



High-pressure Pumps, 60 Hz



Hygienic Pumps
Introduction
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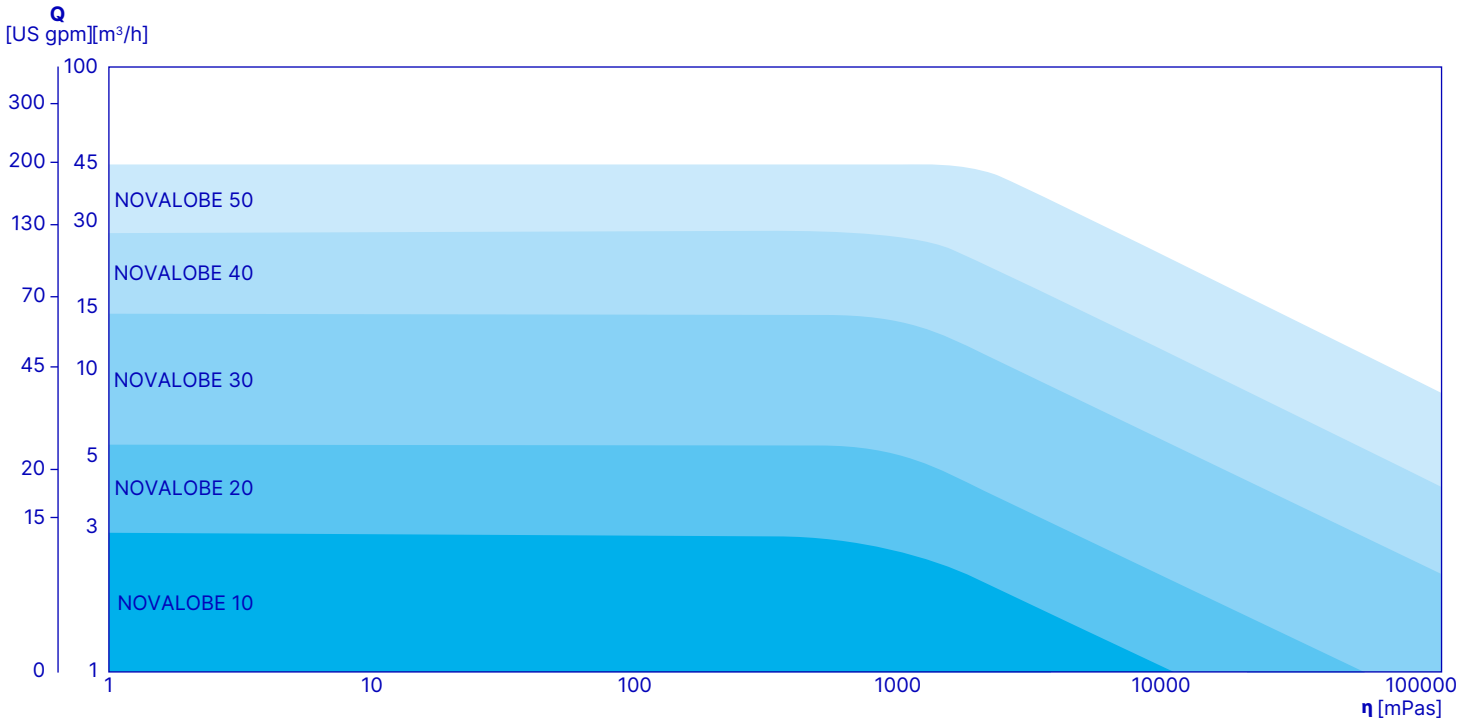
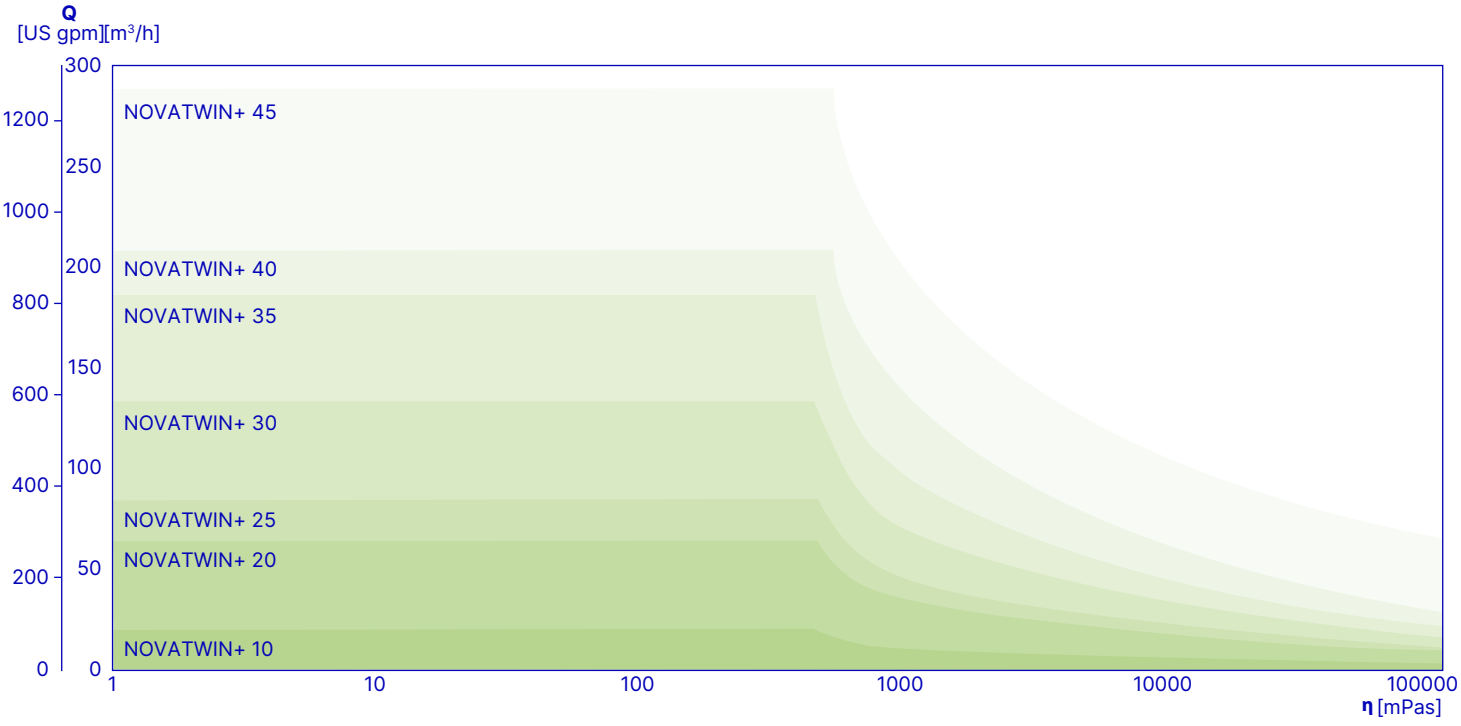
Rotary Lobe Pumps



Twin Screw Pumps



Hygienic Pumps Overview

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

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

GEA Hilge HYGIA / HYGIA H
The “Swiss Knife” among the hygienic pumps. Premium quality, reliability 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
Max. flow rate	200 m^3/h	175 m^3/h
Max. head	100 m	145 m
System pressure	16 / 25 / 64 bar	

GEA Hilge HYGIA

GEA Hilge MAXA
A single-stage centrifugal pump designed for heavy-duty operation in industrial processes. Especially used in fermentation broth, filtration facilities and transportation of condensate, hot and cold water.

Technical data	50 Hz	60 Hz
Max. flow rate	1,450 m^3/h	1,320 m^3/h
Max. head	100 m	100 m
System pressure	10 bar	10 bar

GEA Hilge MAXA

Single-stage end-suction centrifugal pumps

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
Max. flow rate	215 m^3/h	245 m^3/h
Max. head	90 m	130 m
System pressure*	16 bar	16 bar

* GEA Hilge TP 1020 10 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
Max. flow rate	78 m³/h	64 m³/h
Max. head	47 m	60 m
System pressure	10 bar	10 bar

GEA Hilge SIPLA

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
Max. flow rate	100 m³/h	100 m³/h
Max. head	200 m	230 m
System pressure	25 bar	25 bar

GEA Hilge CONTRA

GEA Hilge NOVALOBE
This rotary lobe pump has been specifically designed for highly viscous media – and for applications where gentle pumping is required. The pump is fully drainable with vertical ports.

Technical data	50/60 Hz
Max. displacement	1,29 l/rev
Max. pressure	16 bar
Max. differential pressure	15/10 bar*
System pressure	16 bar

* NL 10–50/NL 60

GEA Hilge NOVALOBE

GEA Hilge NOVATWIN+
The flexible 3-A certified twin screw pump range allows production and CIP operation with one pump. It fulfills the highest hygienic requirements and ensures reliable production.

Technical data	50/60 Hz
Max. flow rate	310 m³/h
Max. differential pressure	25 bar
System pressure	up to 30 bar

GEA Hilge NOVATWIN+

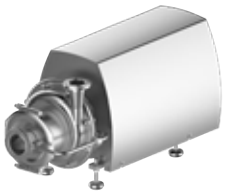
Single-stage self-priming centrifugal pumps

Multi-stage centrifugal pumps

Rotary lobe pumps **Twin-screw pumps**

Positive displacement pumps

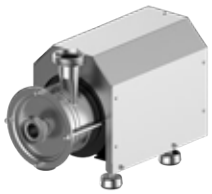
GEA Hilge TPS



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
Max. flow rate	115 m³/h	125 m³/h
Max. head	95 m	138 m
System pressure	16 bar	16 bar

GEA Hilge DURIETTA



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
Max. flow rate	8 m³/h	8 m³/h
Max. head	72 m	41 m
System pressure	8 bar	8 bar

Hygienic Pumps Certificates

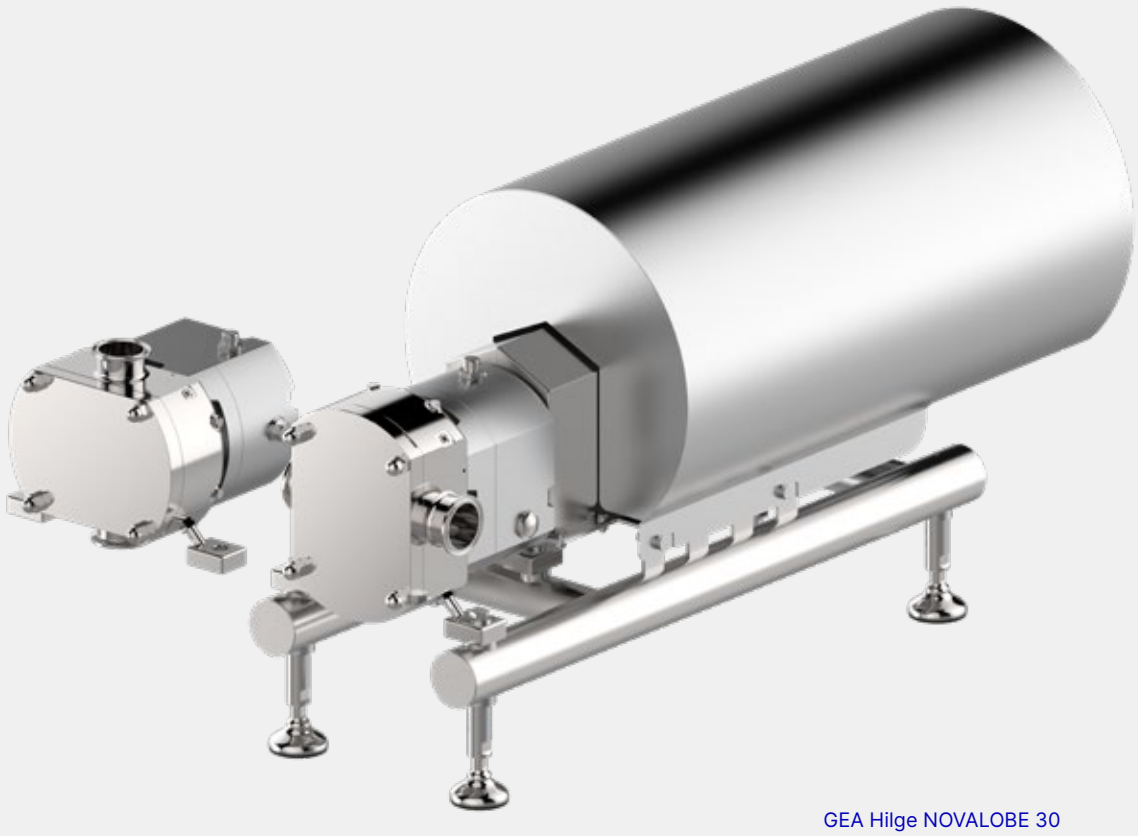
The certificates listed here are valid for corresponding GEA pump models. Pumps conforming to the requirements of the European Hygienic Engineering and Design Group (EHEDG) as well as 3-A Sanitary Standards, Inc. (3-A SSI) are available for numerous fields of application.

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.

Pump	GEA Hilge HYGIA / HYGIA H	GEA Hilge TP / TPS	GEA Hilge CONTRA	GEA Hilge MAXA	GEA Hilge DURIETTA	GEA Hilge SIPLA	GEA Hilge NOVALOBE	GEA Hilge NOVATWIN+
Document								
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
Bareshaft in vertical position

Overview

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

GEA Hilge NOVALOBE

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.

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.)

Design

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:
- EAC
- EHEDG
- GMP regulations
- 3-A Sanitary Standard

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.

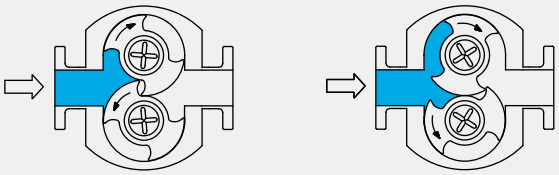
ATEX-Symbol

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

Overview

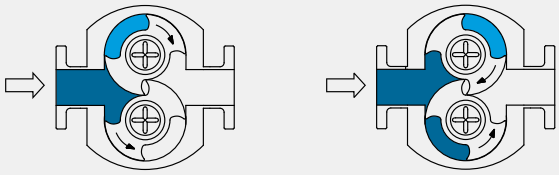
Principle of operation

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



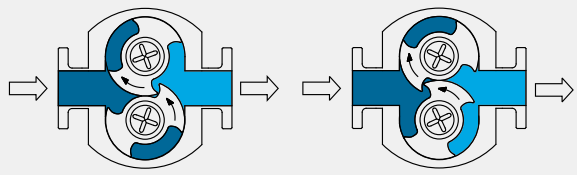
Operating principle, step 1

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.



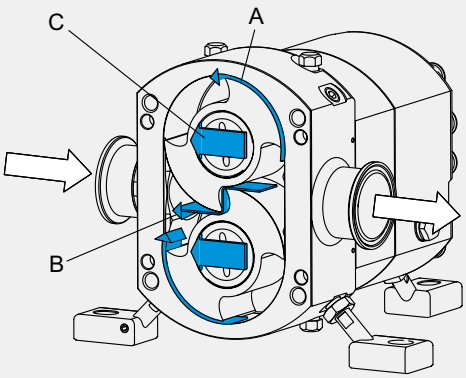
Operating principle, step 3

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

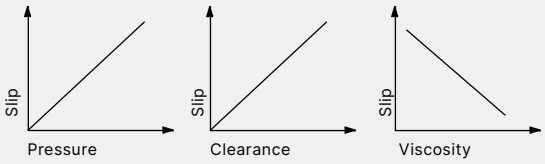
The rotors are neither in contact with the pump casing nor with each other. Gaps between the housing and the rotors cause a transport loss in which pumped medium is moved from the discharge side back to the suction side. The reverse flow is the difference between the theoretical displacement and the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



Slippage

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
	Reverse flow between the pump casing's rear wall and the rotor

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



Reverse flow factors

Reverse Flow Factors	
Pressure	Higher pressure = more reverse flow
Clearance	Larger gap = more reverse flow
Viscosity	Higher viscosity = less reverse flow

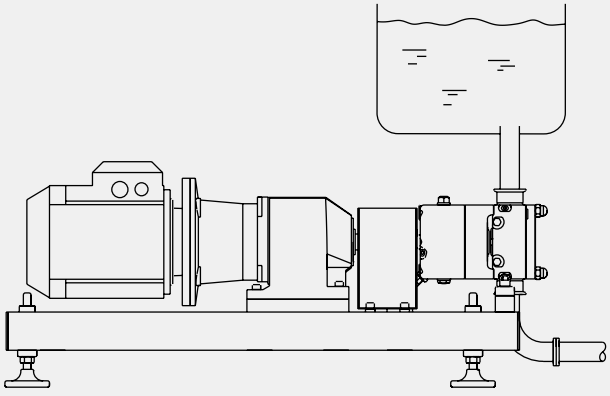
Operating conditions

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.



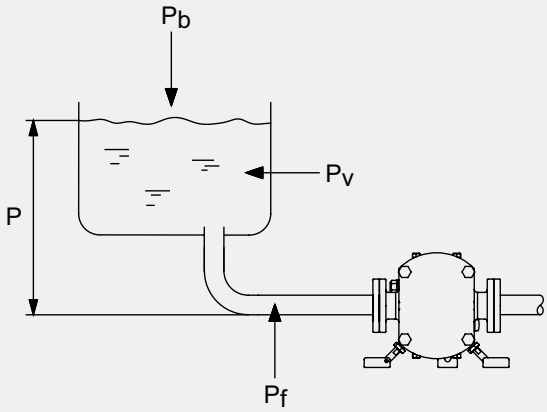
Optimal installation

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

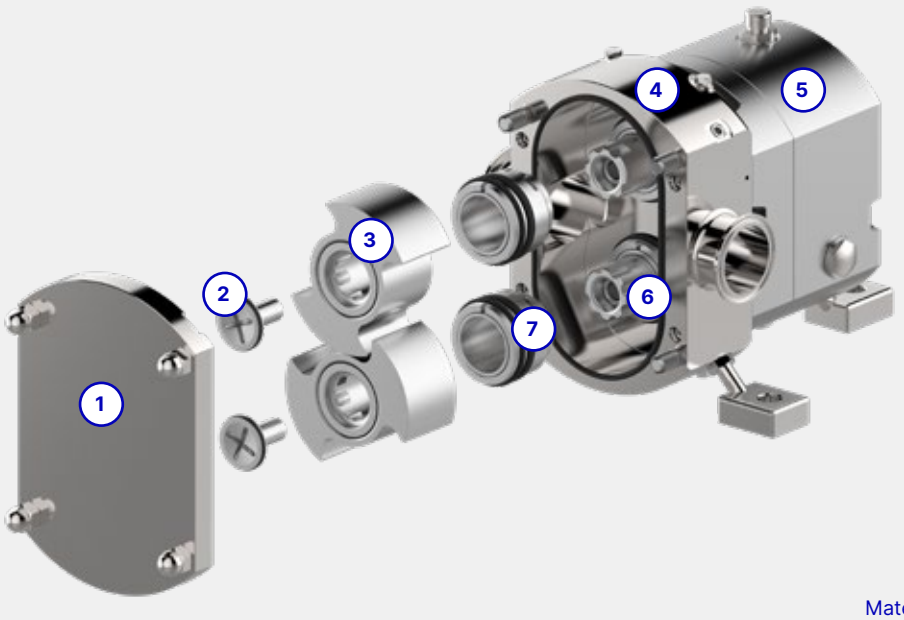
The calculation of the NPIPr is shown in the following table.

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

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 = Hf × SG ÷ 10 Hf: 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

Overview

Materials



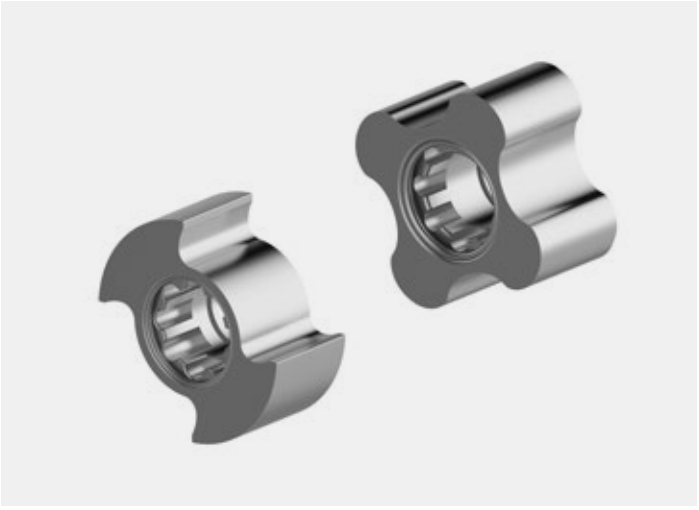
Materials overview
GEA Hilge NOVALOBE 30

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, other sizes optional

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.



Bi-wing rotors

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 32.

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 30 and in the program overview starting on page 40.

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.

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 mm
20 / 0.12	16 mm
30 / 0.33	23 mm
40 / 0.65	29 mm
50 / 1.29	35 mm

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.

GEA Hilge NOVALOBE
Horizontal installation

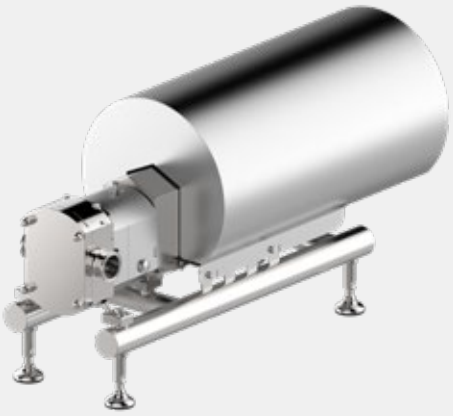
GEA Hilge NOVALOBE
Vertical installation

Overview

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

Identification

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

Product Range

Motors

Motor Power [kW]	Model size (4-pole)				
	10/ 0.06	20/ 0.12	30/ 0.33	40/ 0.65	50/ 1.29
4-pole					
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					•

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.

Connection Guide

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																					
		Beverages					Food						Pharma and personal care			Industrial applications							Cleaning	
Type	Standard	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 slange	DIN 11864-2	•	•	•	•	•	•	•	•	•	•	•	•	•	•							•	•
Flange APV-FN1/APV-FG1	ISO							•	•	•	•	•										•	
Flange	DIN EN 1092-1	•	•	•	•	•	•	•	•	•	•	•										•	
ANSI 150 LB RF flange		•	•	•	•	•	•	•	•	•	•					•	•	•	•	•	•	•	
Clamps																•	•	•	•	•	•	•	
Tri-clamp	DIN 32676	•	•	•	•	•	•	•	•	•	•	•	•	•	•							•	•

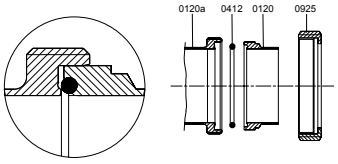
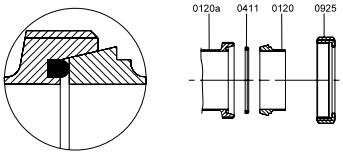
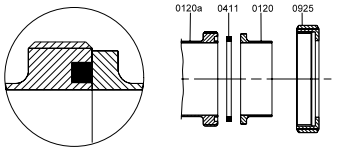
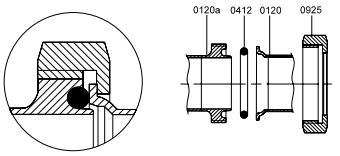
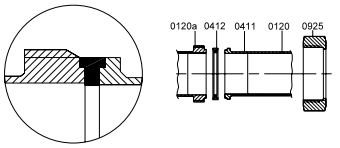
• Commonly used connections

Connection Guide

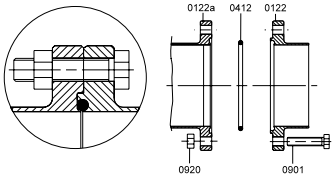
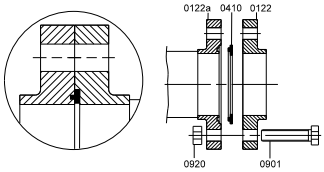
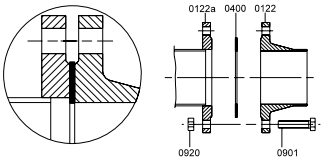
Design

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

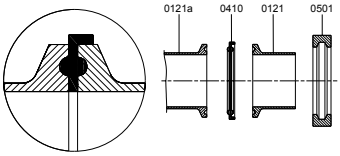
Threads

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

Shaft Seals

Two shaft seal variants are available for the GEA Hilge NOVALOBE range:

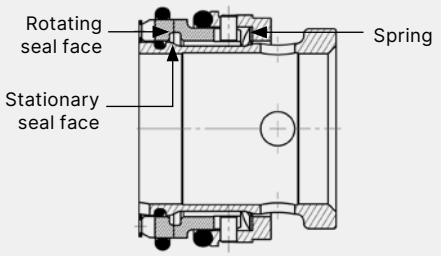
- Mechanical seals
- O-ring shaft seals

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

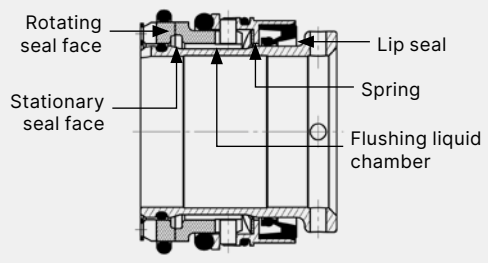
Designed for hygienic applications, the single mechanical seal covers the most common operating conditions in terms of operating pressure, temperature and speed.



Single mechanical seal

Single flushed mechanical seal

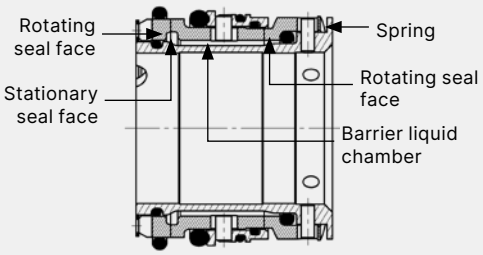
The single flushed mechanical seal is suitable for applications where media tend to crystallize or harden due to contact with the atmosphere.



Single mechanical seal, flushed

Double mechanical seal

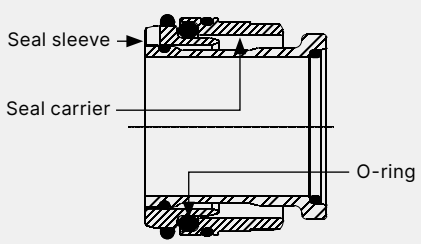
The robust and simple double mechanical seal is suitable for typical sterile applications where high temperatures are required.



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

Guidelines for the operation of O-ring shaft seals

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.

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

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

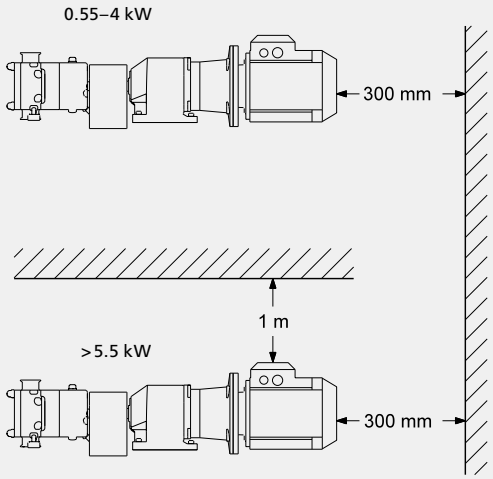
The flow of the flushing liquid cleans and cools the mechanical seals. The flushing liquid requires a high flow speed to ensure the removal of viscous sediments. The mechanical seals can be flushed in both directions. A flow meter should be installed on the outlet sides of both mechanical seals.

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

Installation

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 an 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.

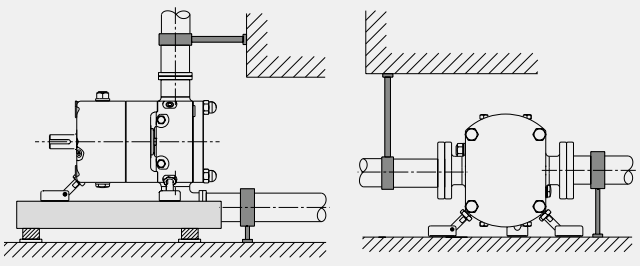


Space requirements

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.

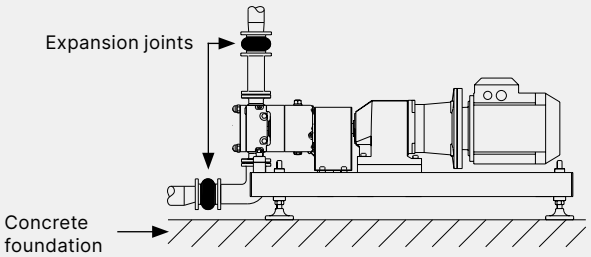
Mechanical effects
- Ensure that the weight of the piping does not affect the pump or that the piping puts stress on the pump.
- Make sure that the supports and brackets absorb the weight of the piping and the pumped medium.
- Pay attention to and minimize temperatures that can expand or contract the 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.

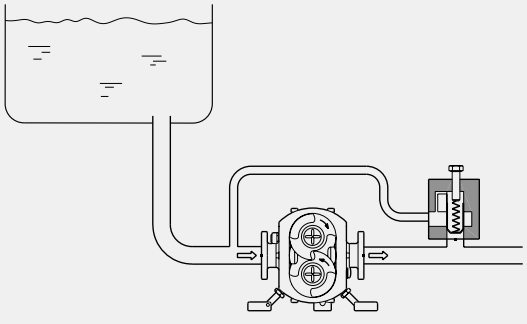
In case of high flow speeds and viscosities it is advisable to install correspondingly larger expansion joints for the pipelines.

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.



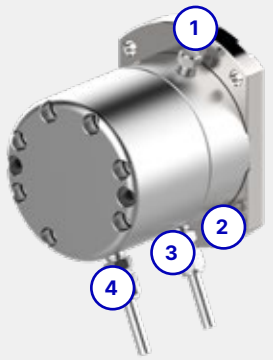
External pressure relief valve

Options

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

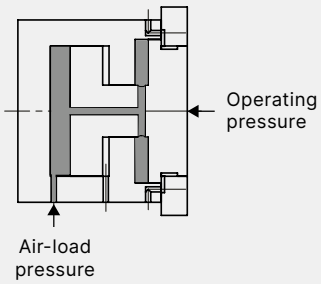


Connections at the pressure relief valve

Pos.	Component
1	Inlet cleaning liquid
2	Air lift connection
3	Outlet cleaning liquid
4	Air load connection
5	Gear housing
6	Motor shaft
7	Mechanical seal

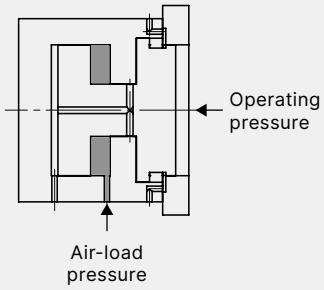
Air load
The pressure-relief valve is kept closed by pressurized air. The air-load pressure (closing pressure) can be adjusted to keep the pressure-relief valve closed up to allowable operation pressure.

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).



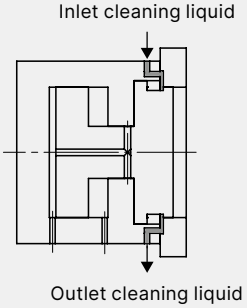
Valve closed

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

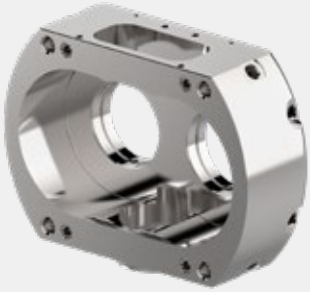
Aseptic front cover
The GEA Hilge NOVALOBE is available with a double-sealed, aseptic front cover. The circulating barrier liquid, the aseptic front cover and the double mechanical seal safely encapsulate the pumped medium. This achieves the following benefits:

- Increased resistance against the intrusion of bacteria
- Improved treatment of bacteria / viruses
- Improved cleaning capability
- Improved sterile / hygienic design

Aspetic 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.

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. 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

Thermal jacket, rotor housing

Jacketed front cover

Pump Selection Matrix

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

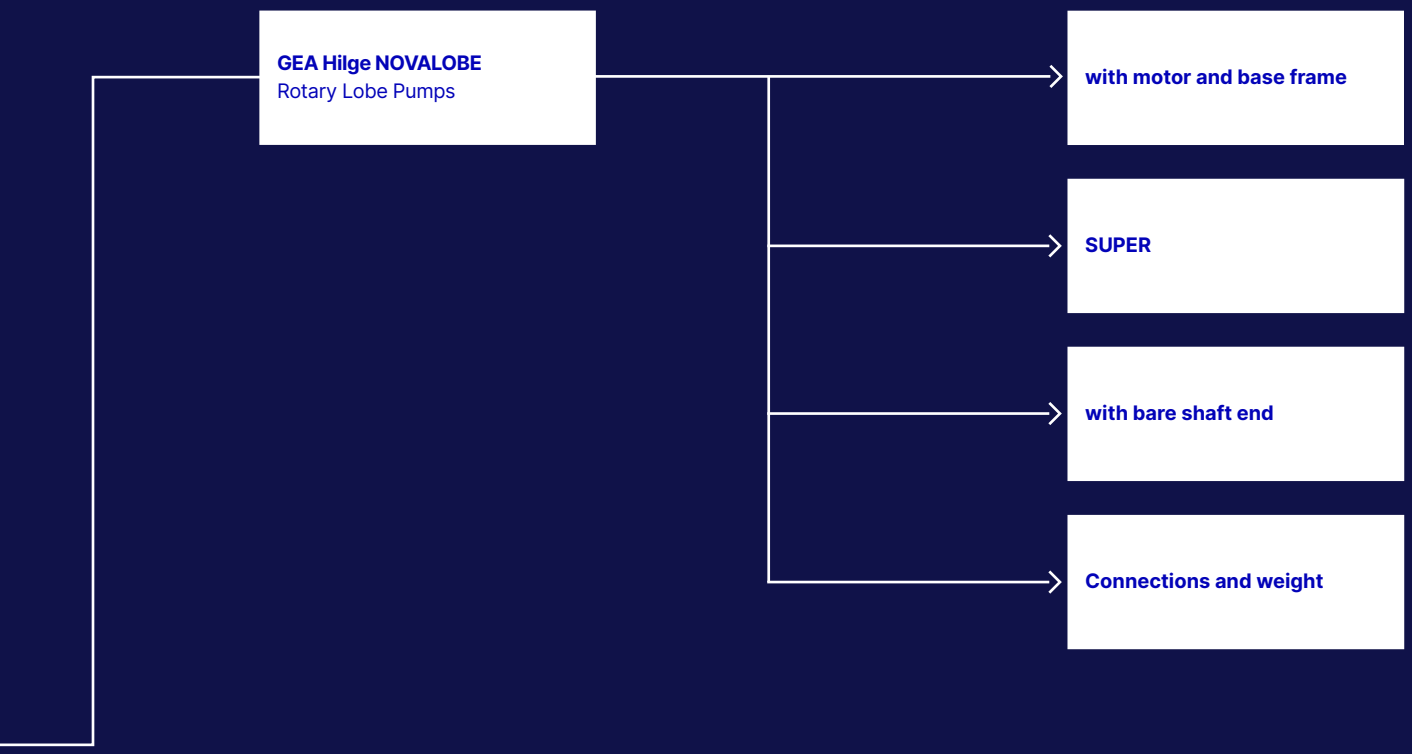
GEA Hilge NOVATWIN+

GEA SMARTPUMPS

GEA Hilge TP

GEA Hilge TPS

GEA Hilge DURIETTA

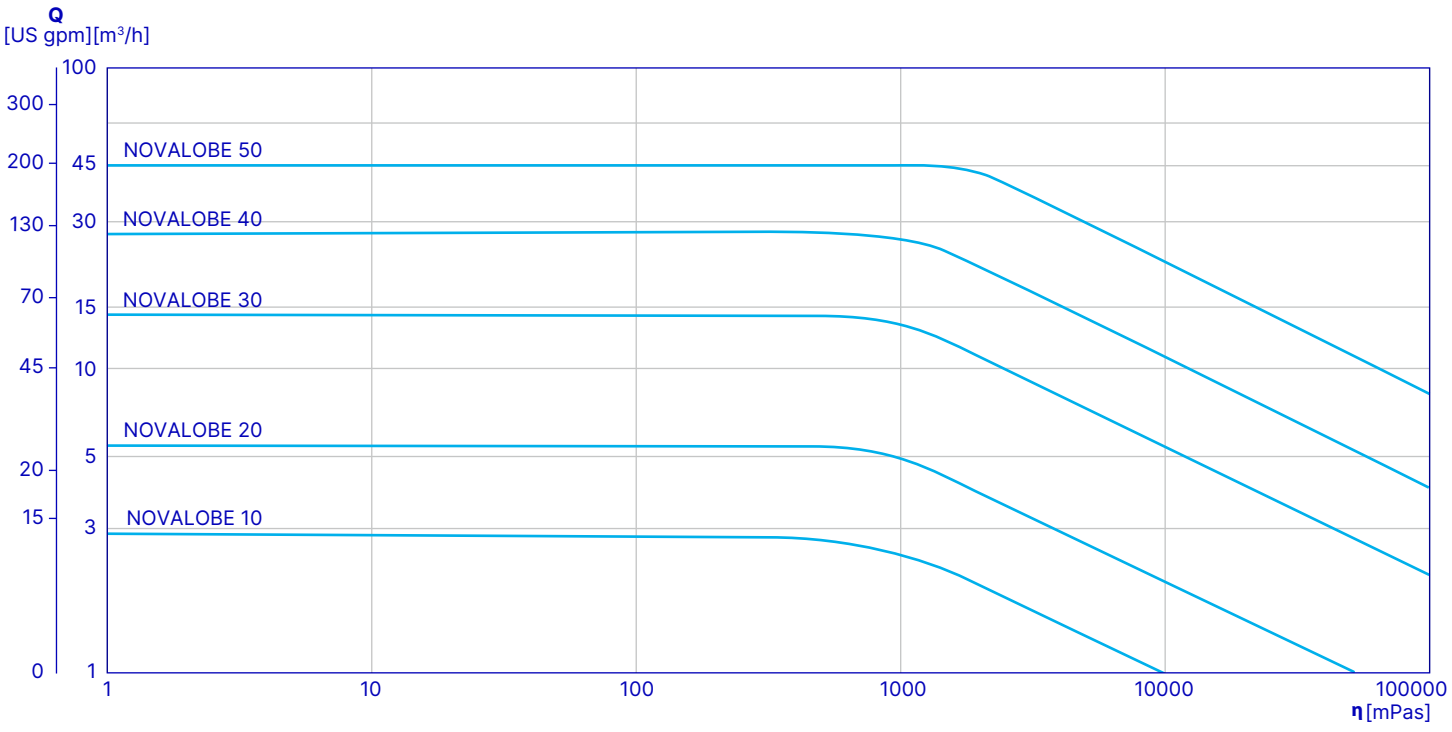

GEA Hilge NOVALOBE
Rotary Lobe Pumps
with motor and base frame
SUPER
with bare shaft end
Connections and weight

Program Overview

Pump range GEA Hilge NOVALOBE	10 / 0.06	20 / 0.12	30 / 0.33	40 / 0.65	50 / 1.29
Pump data					
Max. displacement [l/revolution]	0.06	0.12	0.33	0.65	1.29
Max. operating temperature [°C]	95				
Max. differential pressure [bar]	16	16	16	16	16
Max. system pressure [bar]	16	16	16	16	16
Max. viscosity [cP]			1,000,000		
Rotor shapes					
Bi-wing	×	×	×	×	×
Multilobe	∘	∘	∘	∘	∘
Material, parts in contact with medium					
1.4404, R_a ≤ 0.8 µm	×	×	×	×	×
1.4435, Ferrite < 1 %, R_a ≤ 0.8 µm	∘	∘	∘	∘	∘
1.4404, R_a ≤ 0.4 µm	∘	∘	∘	∘	∘
1.4435, Ferrite < 1 %, R_a ≤ 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	∘	∘	∘	∘	∘
SMS, PN 10	∘	∘	∘	∘	∘
RJT, PN 10	∘	∘	∘	∘	∘
IDF, PN 10	∘	∘	∘	∘	∘
BSP, PN 10	∘	∘	∘	∘	∘
Rectangular connection on the suction side (screwed)	∘	∘	∘	∘	∘
Options					
Jacketed front cover	∘	∘	∘	∘	∘
Thermal jacket	∘	∘	∘	∘	∘
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

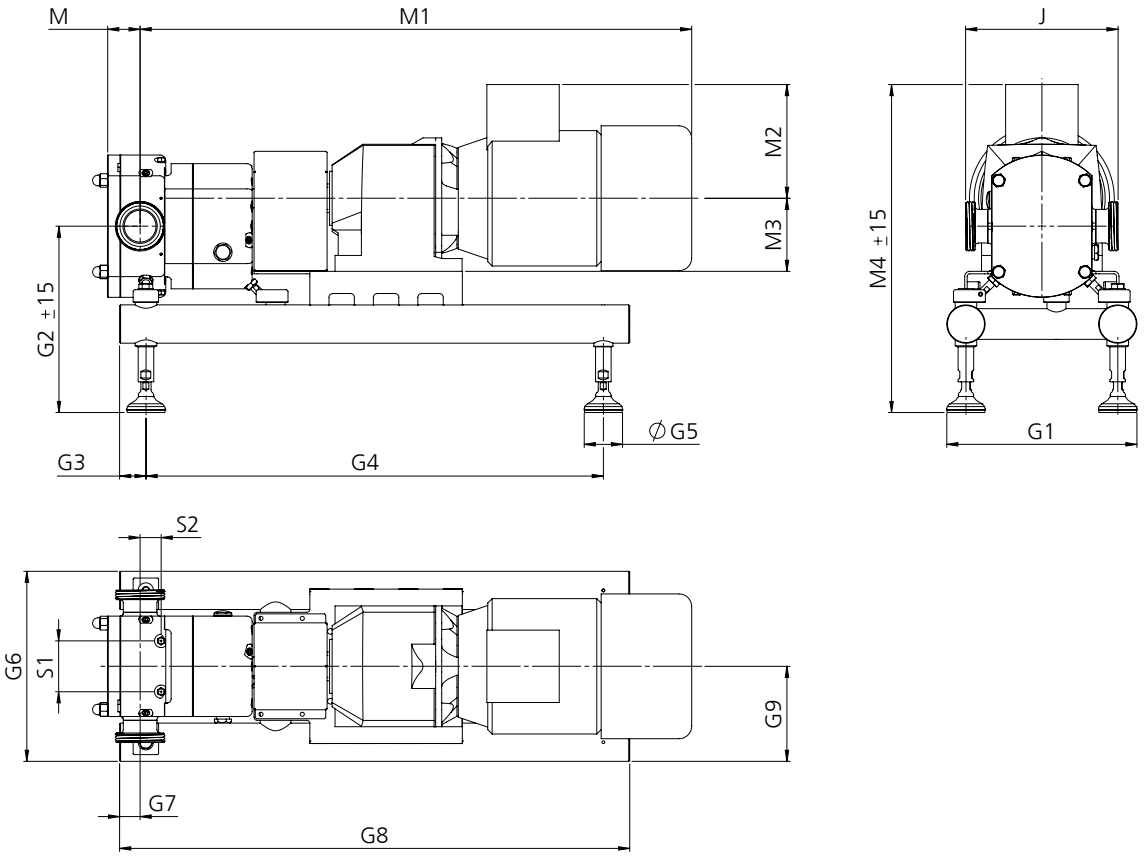
Performance Curves



1 GEA HILGE NOVALOBE

1

GEA Hilge NOVALOBE with Motor and Base Frame Horizontal Mounting



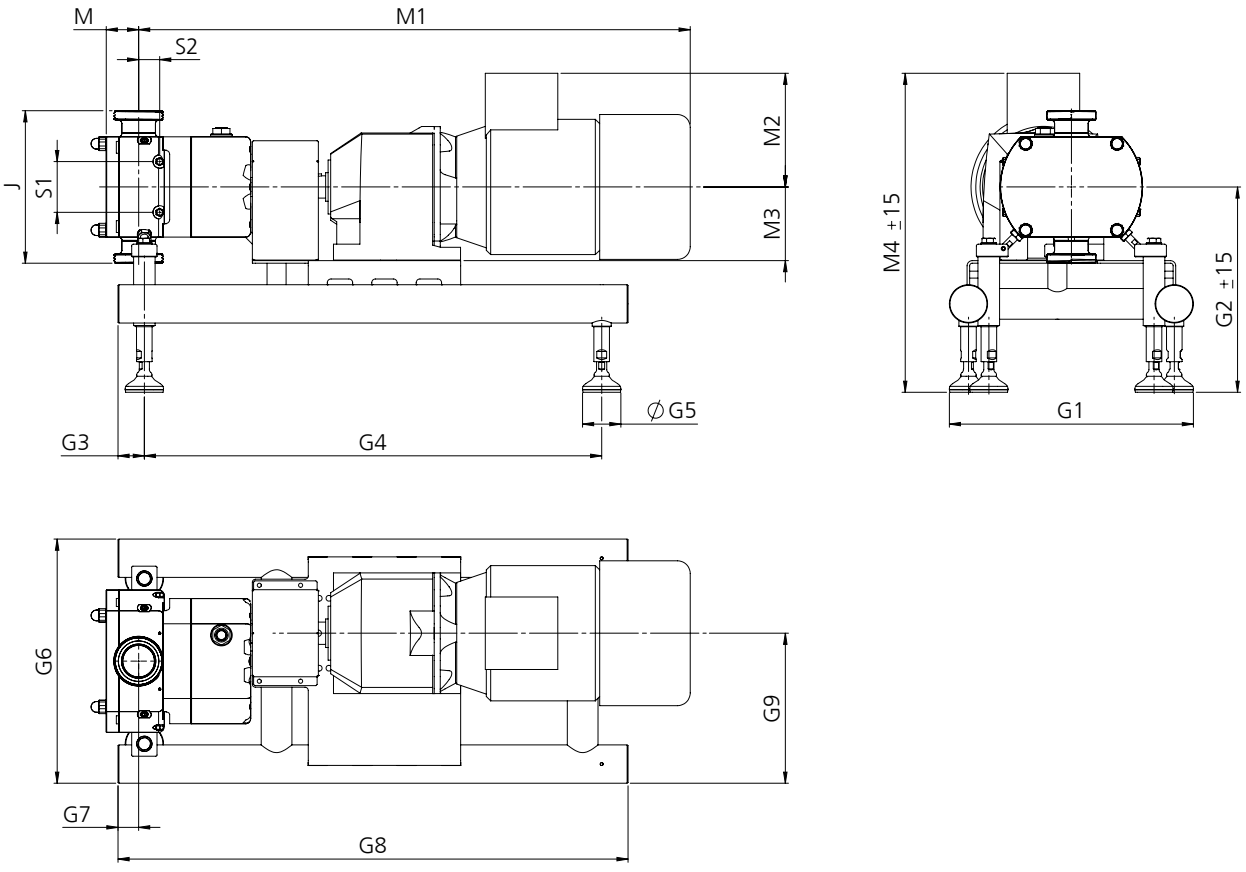
Dimensions

Type	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 ⅛	55.0	20.5
20/0.12	256	300	42	620	60	256	34	703	128	323	G ⅛	62.6	20.3
30/0.33	299	325	42	720	60	299	33	803	150	373	G ⅛	80.0	33.1
40/0.65	376	395	52	810	60	405	37	903	202	562	G ⅛	97.0	41.3
50/1.29	453	445	52	1,010	60	494	41	1,103	247	562	G ⅛	113.0	47.5

Dimension tables for geared motors from page 48

GEA Hilge NOVALOBE with Motor and Base Frame Vertical Mounting

1

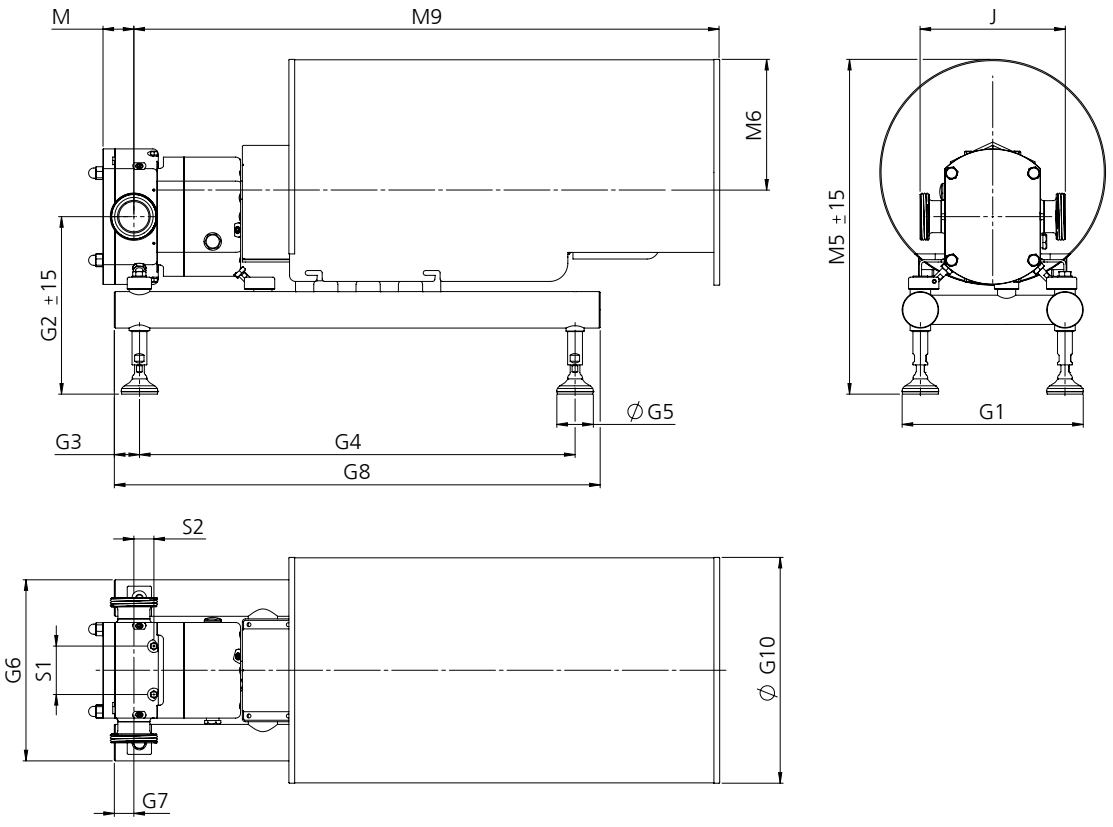


Dimensions

Type	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 ⅛	55.0	20.5
20/0.12	327	330	42	620	60	327	34	703	196	323	G ⅛	62.6	20.3
30/0.33	384	354	42	720	60	384	33	803	236	423	G ⅛	80.0	33.1
40/0.65	466	428	52	810	60	495	37	903	304	488	G ⅛	97.0	41.3
50/1.29	550	495	52	1,010	60	592	41	1,103	366	562	G ⅛	113.0	47.5

Dimension tables for geared motors from page 48

GEA Hilge NOVALOBE SUPER
Horizontal Mounting

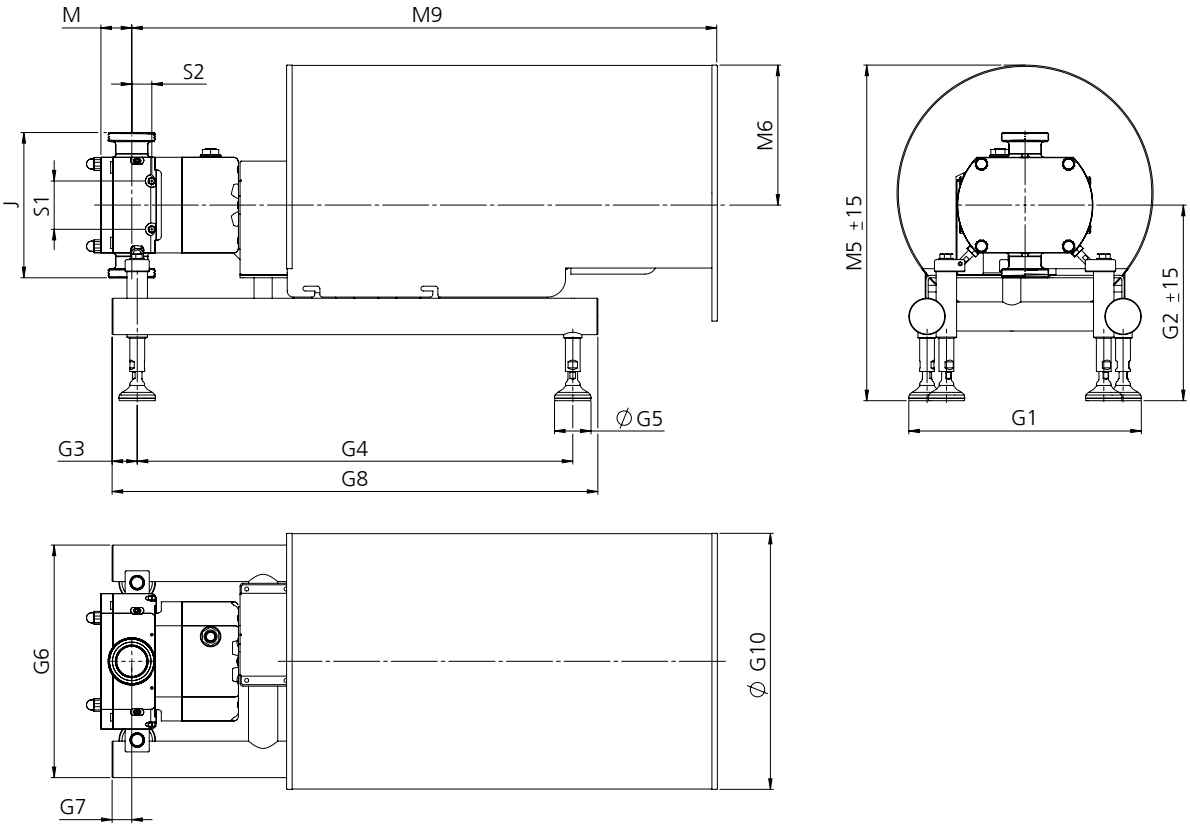


Dimensions

Type	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 ⅛	55.0	20.5
20/0.12	256	300	42	620	60	256	34	703	128	323	G ⅛	62.6	20.3
30/0.33	299	325	42	720	60	299	33	803	150	373	G ⅛	80.0	33.1
40/0.65	376	395	52	810	60	405	37	903	202	562	G ⅛	97.0	41.3
50/1.29	453	445	52	1,010	60	494	41	1,103	247	562	G ⅛	113.0	47.5

Dimension tables for geared motors from page 48

GEA Hilge NOVALOBE SUPER
Vertical Mounting



Dimensions

Type	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 ⅛	55.0	20.5
20/0.12	327	330	42	620	60	327	34	703	196	323	G ⅛	62.6	20.3
30/0.33	384	354	42	720	60	384	33	803	236	423	G ⅛	80.0	33.1
40/0.65	466	428	52	810	60	495	37	903	304	488	G ⅛	97.0	41.3
50/1.29	550	495	52	1,010	60	592	41	1,103	366	562	G ⅛	113.0	47.5

Dimension tables for geared motors from page 48

GEA Hilge NOVALOBE
Geared Motors

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 58

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 58

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 58

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 58

GEA Hilge NOVALOBE
Geared Motors

GEA Hilge NOVALOBE 50

Dimensions

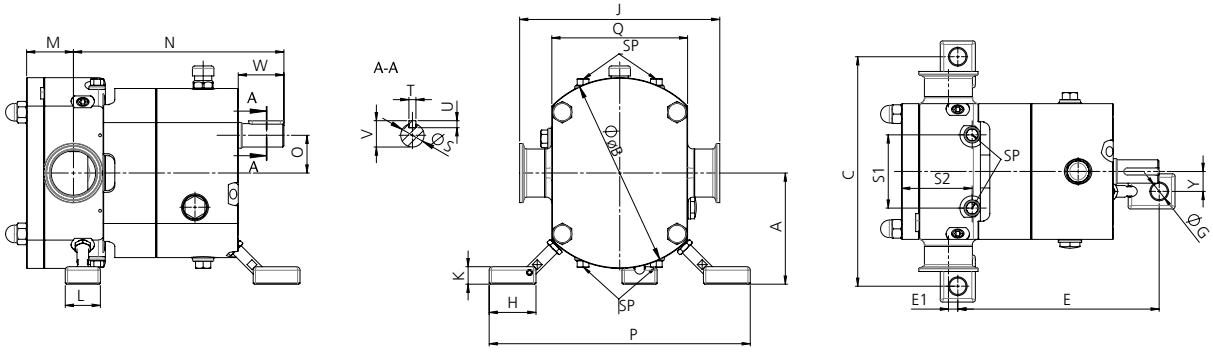
Geared Motor	Power [kW]	M1 [mm]	M2 [mm]	M3 [mm]	M4 [mm]	M5 [mm]	M6 [mm]	M9 [mm]
SK 372.1 – 80S/4 TF	0.55	666	142	90	675	800	285	1,140
SK 373.1 – 80LP/4 TF	0.75	666	142	90	675	800	285	1,140
SK 372.1 – 80LP/4 TF	0.75	666	142	90	675	800	285	1,140
SK 572.1 – 90SP/4 TF	1.10	427	147	115	662	800	285	1,140
SK 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 58

1

GEA Hilge NOVALOBE
Bare Shaft Pumps
Horizontal Suction and Discharge Port

GEA Hilge Novalobe 10–50



Dimensions

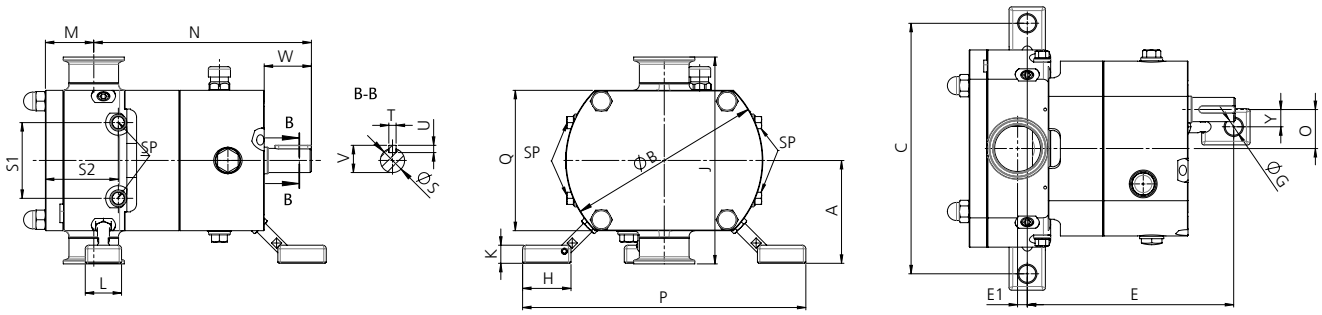
Type	DN [mm]	A [mm]	Ø B [mm]	C [mm]	E [mm]	E1 [mm]	G [mm]	H [mm]	J [mm]	K [mm]	L [mm]	M [mm]	N [mm]
10/0.06	25	75	126	146	138	9.0	12	30	See page 58	15	30	30.0	149
20/0.12	40	95	163	196	172	8.0	14	40		15	30	40.0	180
30/0.33	50	120	224	239	204	9.0	16	50		20	40	51.0	221
40/0.65	65	155	228	316	235	15.0	20	60		25	50	62.0	266
50/1.29	80	190	340	393	294	10.5	20	60		25	60	74.5	338

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 ⅛	55.0	48.0
20/0.12	40	32.3	223	116	20	6	6	22.5	39	17.0	G ⅛	62.6	60.3
30/0.33	50	44.0	278	158	28	8	7	31.0	45	23.0	G ⅛	80.0	84.1
40/0.65	65	57.0	363	205	38	10	8	41.0	61	37.5	G ⅛	97.0	103.3
50/1.29	80	70.0	432	250	48	14	9	51.5	85	37.0	G ⅛	113.0	122.0

GEA Hilge NOVALOBE
Bare Shaft Pumps
Vertical Suction and Discharge Port

1

GEA Hilge Novalobe 10–50

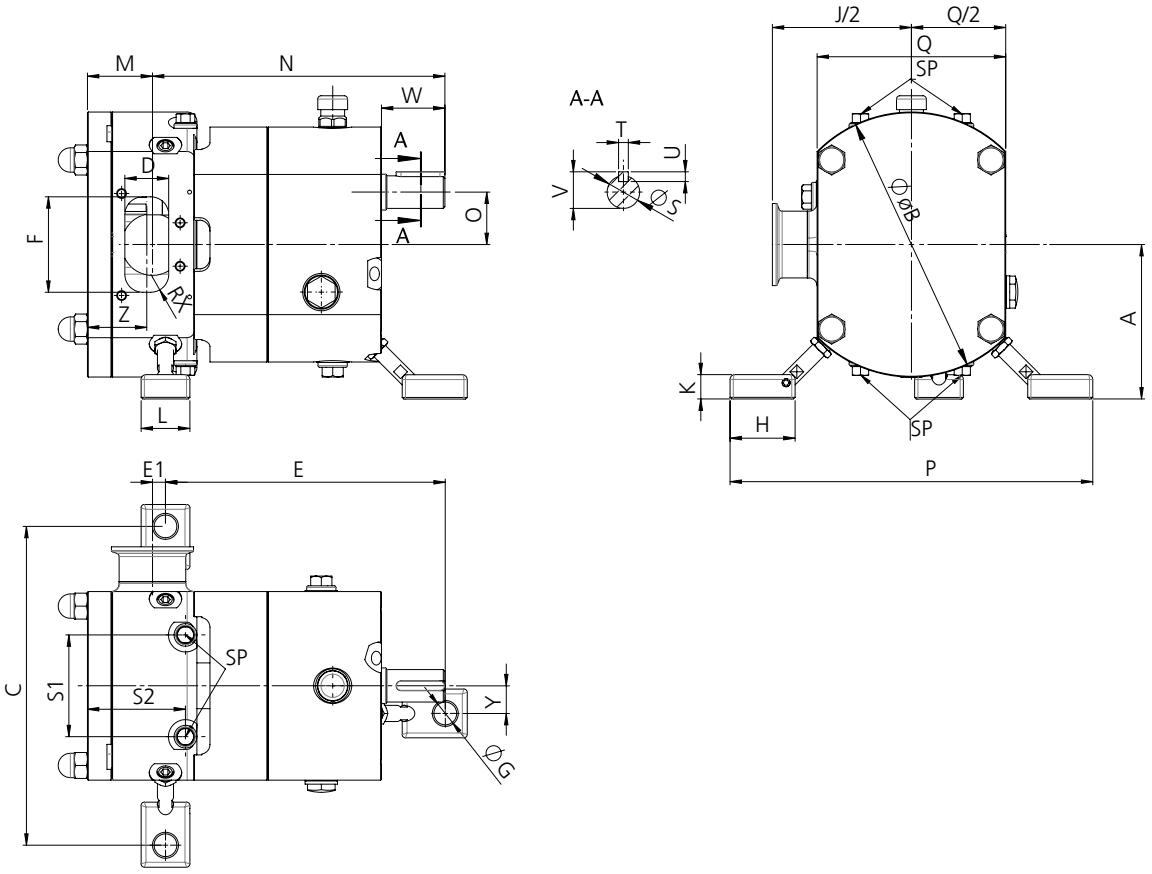


Dimensions

Type	DN [mm]	A [mm]	Ø B [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 58	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

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 ⅛	55.0	48.0
20/0.12	40	32.3	234	116	20	6	6	22.5	39	14.3	G ⅛	62.6	60.3
30/0.33	50	44.0	298	158	28	8	7	31.0	45	22.0	G ⅛	80.0	84.1
40/0.65	65	57.0	354	205	38	10	8	41.0	61	27.0	G ⅛	97.0	103.3
50/1.29	80	70.0	426	250	48	14	9	51.5	85	40.0	G ⅛	113.0	122.0

GEA Hilge NOVALOBE
Bare Shaft Pumps
Rectangular Horizontal Inlet



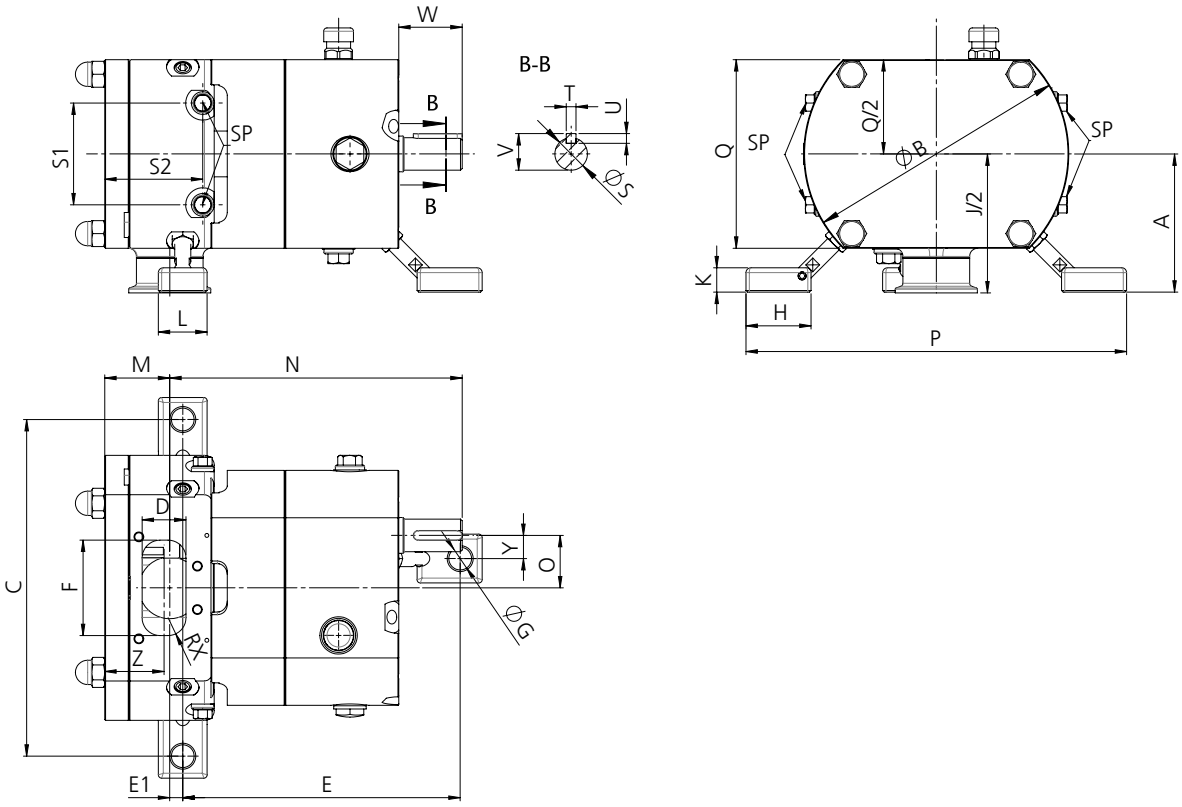
Dimensions

Type	DN [mm]	A [mm]	Ø B [mm]	C [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	See page 58	15	30	30.0	149
20/0.12	40	95	163	196	27	172	8.0	58.7	14	40		15	30	40.0	180
30/0.33	50	120	224	239	41	204	9.0	88.0	16	50		20	40	51.0	221
40/0.65	65	155	228	316	56	235	15.0	115.8	20	60		25	50	62.0	266
50/1.29	80	190	340	393	72	294	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	165	90	16	5	5	18.0	31	7	20.0	30.5	G ⅛	55.0	48.0
20/0.12	40	32.3	223	116	20	6	6	22.5	39	11	17.0	36.5	G ⅛	62.6	60.3
30/0.33	50	44.0	278	158	28	8	7	31.0	45	14	23.0	48.5	G ⅛	80.0	84.1
40/0.65	65	57.0	363	205	38	10	8	41.0	61	18	37.5	58.0	G ⅛	97.0	103.3
50/1.29	80	70.0	432	250	48	14	9	51.5	85	22	37.0	69.0	G ⅛	113.0	122.0

GEA Hilge NOVALOBE
Bare Shaft Pumps
Rectangular Vertical Inlet

1

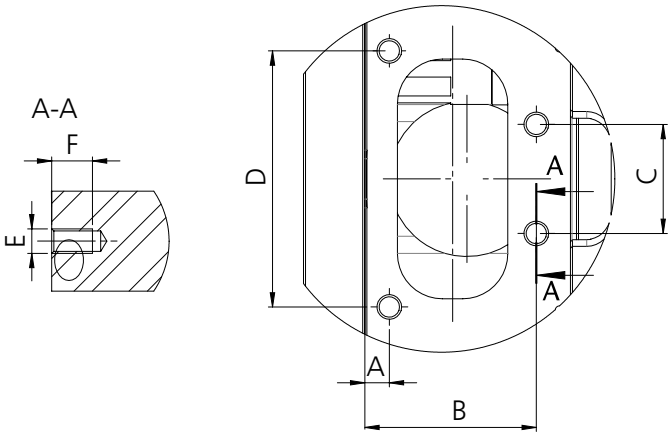


Dimensions

Type	DN [mm]	A [mm]	Ø B [mm]	C [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	70	126	163	19	138	9.0	42.9	12	30	See page 58	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 ⅛	55.0	48.0
20/0.12	40	32.3	234	116	20	6	6	22.5	39	11	17.0	14.3	G ⅛	62.6	60.3
30/0.33	50	44.0	298	158	28	8	7	31.0	45	14	23.0	22.0	G ⅛	80.0	84.1
40/0.65	65	57.0	354	205	38	10	8	41.0	61	18	37.5	27.0	G ⅛	97.0	103.3
50/1.29	80	70.0	426	250	48	14	9	51.5	85	22	37.0	40.0	G ⅛	113.0	122.0

GEA Hilge NOVALOBE
Bare Shaft Pumps
Detail of Rectangular Inlet

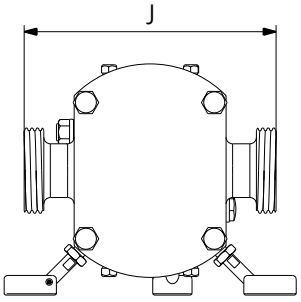


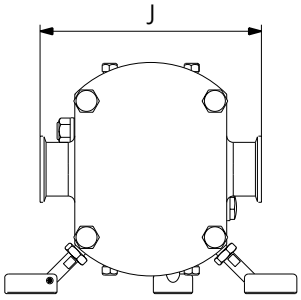
Dimensions

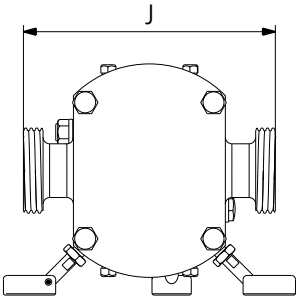
Type	DN [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
10/0.06	25	4.5	34.0	9.5	23.5	6	10
20/0.12	40	6.0	42.0	13.5	31.5	6	10
30/0.33	50	5.0	60.0	14.0	47.0	6	12
40/0.65	65	5.5	74.0	24.0	58.0	6	12
50/1.29	80	8.0	91.5	28.5	67.5	12	24

1

Connections and Weight







Dimensions

Type	DN [mm]
10/0.06	25
20/0.12	40
30/0.33	50
40/0.65	65
50/1.29	80

Thread DIN 11851

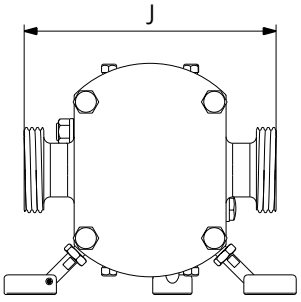
J [mm]	Weight [kg]
160	9.19
194	18.80
240	44.10
297	85.70
352	147.00

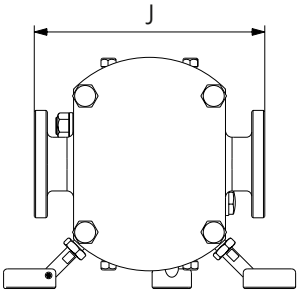
Clamp DIN 32676 pipe acc. to 11866 A (DIN)

J [mm]	Weight [kg]
145	9.08
171	18.60
213	43.70
273	85.30
318	147.00

SMS

J [mm]	Weight [kg]
160	9.22
194	18.80
240	44.20
297	85.80
352	148.00





Dimensions

Type	DN [mm]
10/0.06	25
20/0.12	40
30/0.33	50
40/0.65	65
50/1.29	80

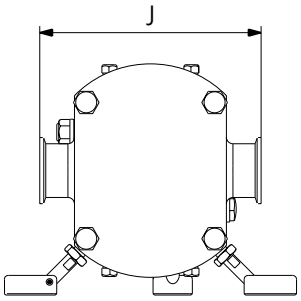
Aseptic thread DIN 11864-1

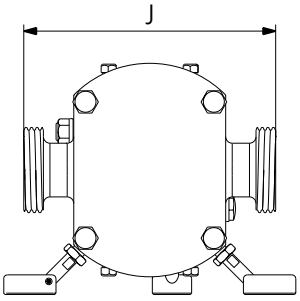
J [mm]	Weight [kg]
160	9.24
194	18.90
240	44.10
297	85.80
352	148.00

Aseptic flange DIN 11864-2

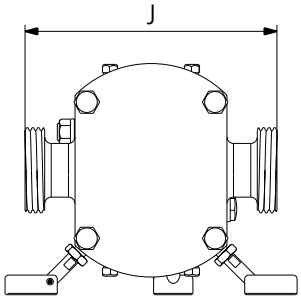
J [mm]	Weight [kg]
150.0	9.44
176.0	19.10
218.0	44.30
265.0	85.90
314.0	148.00

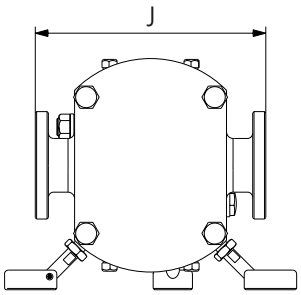
1





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





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

Inquiry Sheet · Positive Displacement Pumps

Liquid Data

*Liquid: _____
*Liquid temperature [°C / °F]: _____
*Density [kg/dm³]: _____
*Viscosity [mPas]: _____
Concentration [%]: _____

Solids: ☐ No ☐ Yes:
Kind of solids: _____
Size of solids [mm]: _____
Abrasive: ☐ No ☐ Yes
Shear sensitive: ☐ No ☐ Yes

Operating Conditions

*Duty point 1 *Flow [m³/h / gpm]: _____
Inlet pressure [bar]: _____

*Diff. Pressure [bar]: _____
Vacuum at inlet: ☐ No ☐ Yes
Vacuum, abs. [mbar]: _____

CIP / SIP Conditions

CIP with another pump: ☐ No: ☐ Yes
CIP Temperature [°C / °F]: _____
CIP Flow [m³/h / gpm]: _____
CIP differential pressure [bar]: _____

SIP (Pump stopped): ☐ No ☐ Yes:
SIP Temperature [°C / °F]: _____
SIP Duration [min]: _____

Pump execution

***Connection Type**

☐ Tri Clamp (DIN 32676) ☐ SMS ☐ DIN 11851
☐ DIN 11853-2 / 11864-2 ☐ Other: _____

Connection Size Standard: ☐ No: ☐ Yes
Special (DN_s/DN_d): _____

Drainable: ☐ No ☐ Yes

Execution

☐ Pump with bare shaft end
☐ Pump on stainless steel base with motor and coupling
☐ Pump in stainless steel trolley with motor and coupling
☐ With stainless steel motor shroud

Connection Position

GEA Hilge NOVALOBE:
☐ Horizontal port orientation
☐ Vertical port orientation

GEA Hilge NOVATWIN+:
☐ Axial in, top out
☐ Top in, axial out

Surface Roughness

☐ R_a ≤ 0.8 µm
☐ Other: _____

Ferrite Content

☐ Not specified
☐ Fe < 1%

Options

☐ Thermal jacket
☐ Other: _____

Shaft Seal

☐ Single mechanical seal
☐ Double mechanical seal

Material Shaft Seal

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

Elastomer

☐ EPDM
☐ FKM (Viton)
☐ Other: _____

Motor Data

*Power supply:

☐ 3~ 400 V / 50 Hz
☐ 3~ 200 V / 50 Hz
☐ 3~ 460 V / 60 Hz
☐ 3~ 200 V / 60 Hz

Variable speed drive ☐ No ☐ Yes:
☐ External frequency converter (not on motor)
☐ Integrated frequency converter (on motor)

Explosion protection ☐ No ☐ Yes

ATEX ☐ No ☐ Yes:

Temperature class: _____
Ambient temperature [°C / °F]: _____

Class: _____
Division: _____
Group: _____

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

Description of Certificates and Test Reports

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 2014/34/EU, 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 765/2008 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 valves from GEA Tuchenhagen GmbH 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.
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.

Abbreviations and Terms

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 [barg/psig] 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	The Canadian Registration Number is issued by a Canadian Jurisdiction and covers pressurized components. The authorization is needed to operate these components 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
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 confirmity from the customs union of Russia/Balarus/Kazakhstan
Pressure Equipment Directive 2014/68/EU	Directive of the European Parliament and the Council Directive for layout and conformity evaluation for pressure equipment and assemblies with a maximim 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

Abbreviations and Terms

Abbreviation	Explanation
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.
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	Armoured thread
PMO	Pasteurized Milk Ordinance
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
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 1.0× 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

Abbreviation	Explanation
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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