



GEA Hygienic Pumps

Competence in food & dairy production

Hygienic Pump Technology

The Heart of GEA Flow Components

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.

GEA Flow Components

The GEA 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 the advanced technology of GEA Flow Components 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.

State-of-the-art pump technology, made to our customers' preferences

At the GEA Hilge Hygienic Pumps Competence Center we develop innovative pump products 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 systems 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.



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

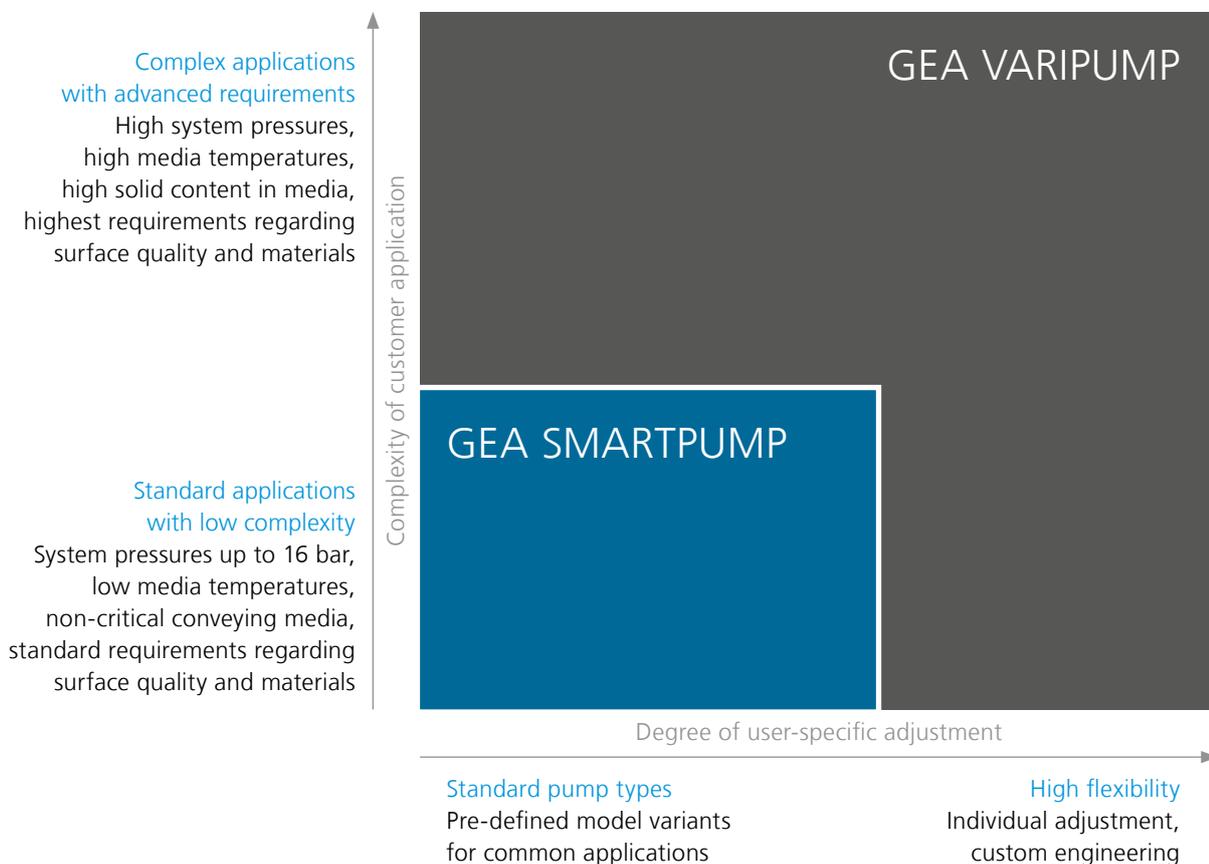
Two modern pump lines

The right solutions – technologically and economically –
for each application

How to select your pump line

The first parameter to check for selecting the right pump is the complexity of the customer application with regard to the respective system pressures, temperatures and product media.

The second parameter is the required degree of customer-specific adjustment. The overall system concept determines whether standardized pump types or customized engineering will be required.



GEA GROUP COMPANY

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.

Overview of pump types

GEA is a full-line supplier of premium pump solutions. Our range has a variety of models suited to different stages of the industrial process. We can outfit your entire application with

general-process pumps capable of handling your product with care and precision, dosing solutions, and sanitary pumps that fulfil the strictest hygienic criteria.

GEA Hilge HYGIA/HYGIA H

The “Swiss Knife” among the hygienic pumps: premium quality, reliability and highest flexibility of customization. Wet end parts meet the requirements of 3-A, QHD and EHEDG standards. Fully encapsulated mechanical seal with the GEA-unique face design. Also available as high-pressure execution.

GEA Hilge MAXA

A single-stage centrifugal pump designed for high-flow operation in industrial processes. Especially used in fermentation broth, filtration facilities and transportation of condensate, hot and cold water.

<p>GEA VARIPUMP</p>	<p>Wide model range with numerous variants. Customization to specific customer requirements</p>	<p>GEA Hilge HYGIA</p> 	<p>GEA Hilge MAXA</p> 
<p>Single-stage end-suction centrifugal pumps</p>			
<p>GEA SMARTPUMP</p>	<p>Clearly defined list of models, limited to standard requirements, no other variants</p>	<p>GEA Hilge TP</p> 	

GEA Hilge TP

The GEA Hilge TP is the smart solution for standard applications, saving time in maintenance and cleaning. The single-stage centrifugal pump suits a wide range of applications and offers uncompromising hygiene and quality (e.g. 3-A and EHEDG certificates).

GEA Hilge SIPLA

This single-stage self-priming side channel pump is 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. This pump is robust and top casing connections ensure that it is not drained when not running.

GEA Hilge CONTRA

Available as single- and multi-stage centrifugal pumps. The pumps offer extremely reliable operation under tough operating conditions. The hygienic, aseptic design in every detail and the use of pore-free materials provide perfect solutions to numerous tasks in sterile and hygienic processes, especially WFI loops.

GEA Hilge NOVALOBE

This rotary lobe pump has been specifically designed for highly viscous media – and for applications where gentle pumping is required (e.g. personal care). The pump is fully drainable and EHEDG certified. Heatable front cover and rotor case are available as options.

GEA Hilge SIPLA



Single-stage self-priming centrifugal pumps

GEA Hilge CONTRA



Multi-stage centrifugal pumps

GEA Hilge NOVALOBE



Rotary lobe pumps

GEA Hilge TPS

**GEA Hilge TPS**

This self-priming centrifugal pump is the solution of choice, especially for emptying vessels conveying products with air or gas inclusions, e.g. CIP return systems. Media contacting parts meet the requirements of the 3-A, QHD and EHEDG standards.

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.

GEA and the food industry

For every conceivable pump application in food processing and manufacturing, the full GEA pump range gives you peace of mind and optimal compatibility.

Dairy

Full of life and goodness, milk is synonymous with good health and nutrition. GEA Hygienic Pump design and gentle handling keep your fresh milk and dairy products just the way you want them.



Processed foods

When you make something for every taste and need, we have a pump to keep the process moving. Extremely viscous mixtures, crystallines and corrosive or abrasive media, there's nothing we can't handle gently.

Confectionery and chocolate

A taste of the good life starts with stable temperature control, precise solids handling and process control. GEA pumps are robust for reliability and easily cleaned for consistent quality.



Quality products need quality pumps

Our pumps are installed in food processing plants, confectionery and chocolate factories and dairies around the world. GEA pumps are ideal for this kind of work because they are designed specifically to maintain product integrity and consistency, as well as to be CIP and SIP compatible. And then there's peace of mind: GEA pumps are synonymous with reliability and are backed by a global network complete with service partners in more than 50 countries. With GEA Hygienic Pumps you ensure that your product lives up to your standards – batch after batch.

Reliable industrial application

GEA pumps are the right choice for hygienic applications in the food industry. Why?

Because our pumps combine the features that ensure you deliver the product quality that your customers expect.

GEA Hygienic Pumps are manufactured and certified to meet the highest industry standards. With our solutions you know your product's integrity is guaranteed and its level of quality reproduced every time.

Our pumps are constructed from deep-drawn and/or forged stainless steel for hygienic, pore- and blowhole-free surfaces. Maximum hygiene is further assured by design features such as metal-to-metal contact seal areas and the absence of pump casing dead legs.

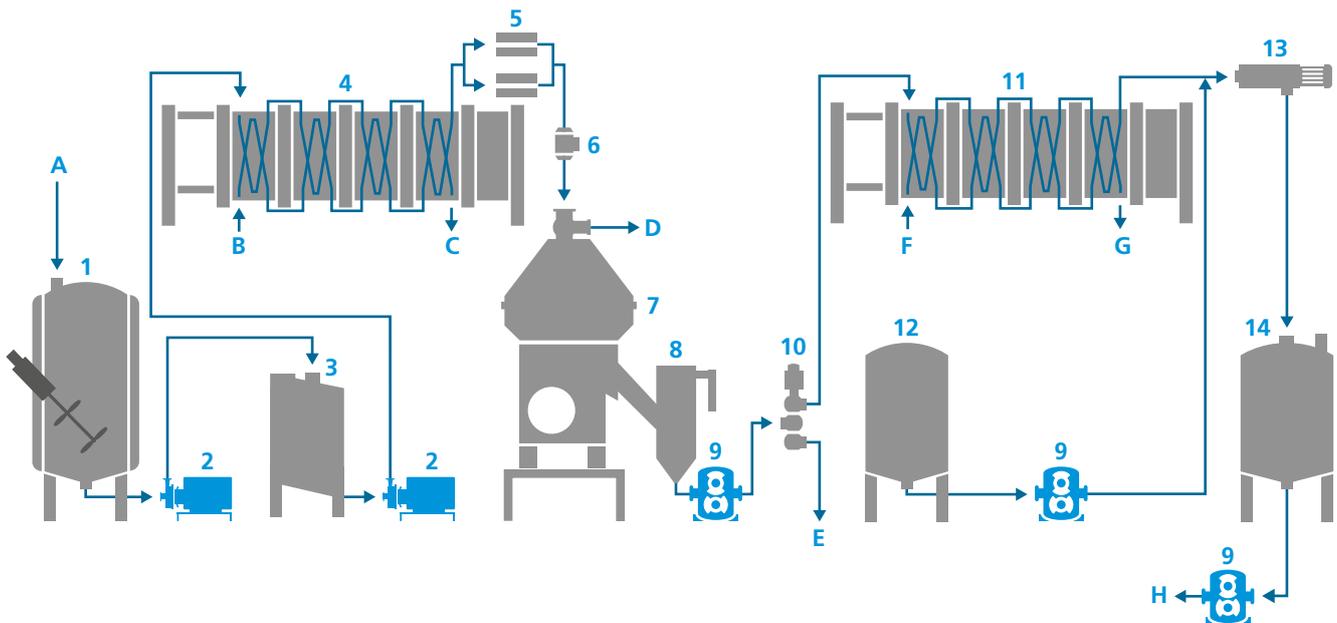
Viscous liquids are pumped with care and precision at a constant pressure so they retain the desired consistency.

Additionally, all our pumps are backed up by GEA CIP (Cleaning In Place) and SIP (Sterilization In Place) solutions.



Fields of application

CURD PRODUCTION

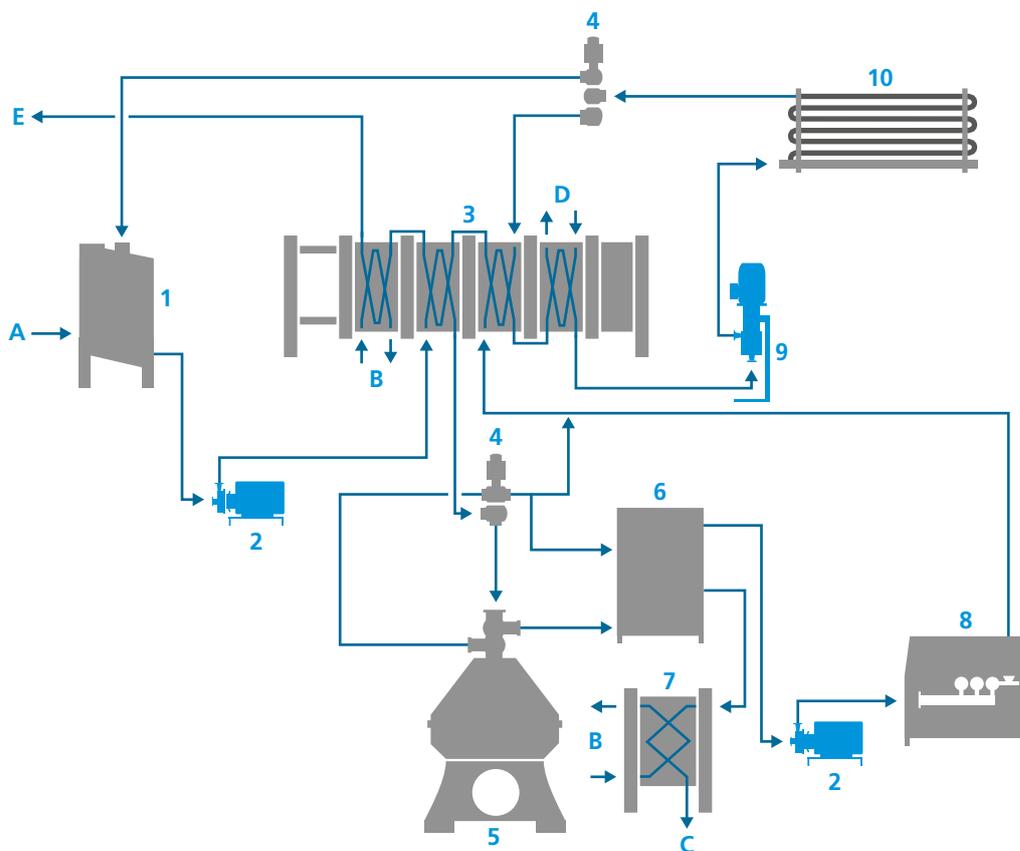


- 1 Coagulation tank with agitator
- 2 Product pump (centrifugal pump)
- 3 Lead vessel
- 4 Heat exchanger for thermization
- 5 Double screen (switchable)
- 6 Supply control
- 7 Curd separator

- 8 Feed funnel
- 9 Product pump (rotary lobe pump)
- 10 Switching valve
- 11 Curd cooler
- 12 Stacking container for cream, fruit concentrates, herbs, etc.
- 13 Dynamic mixer
- 14 Curd silo

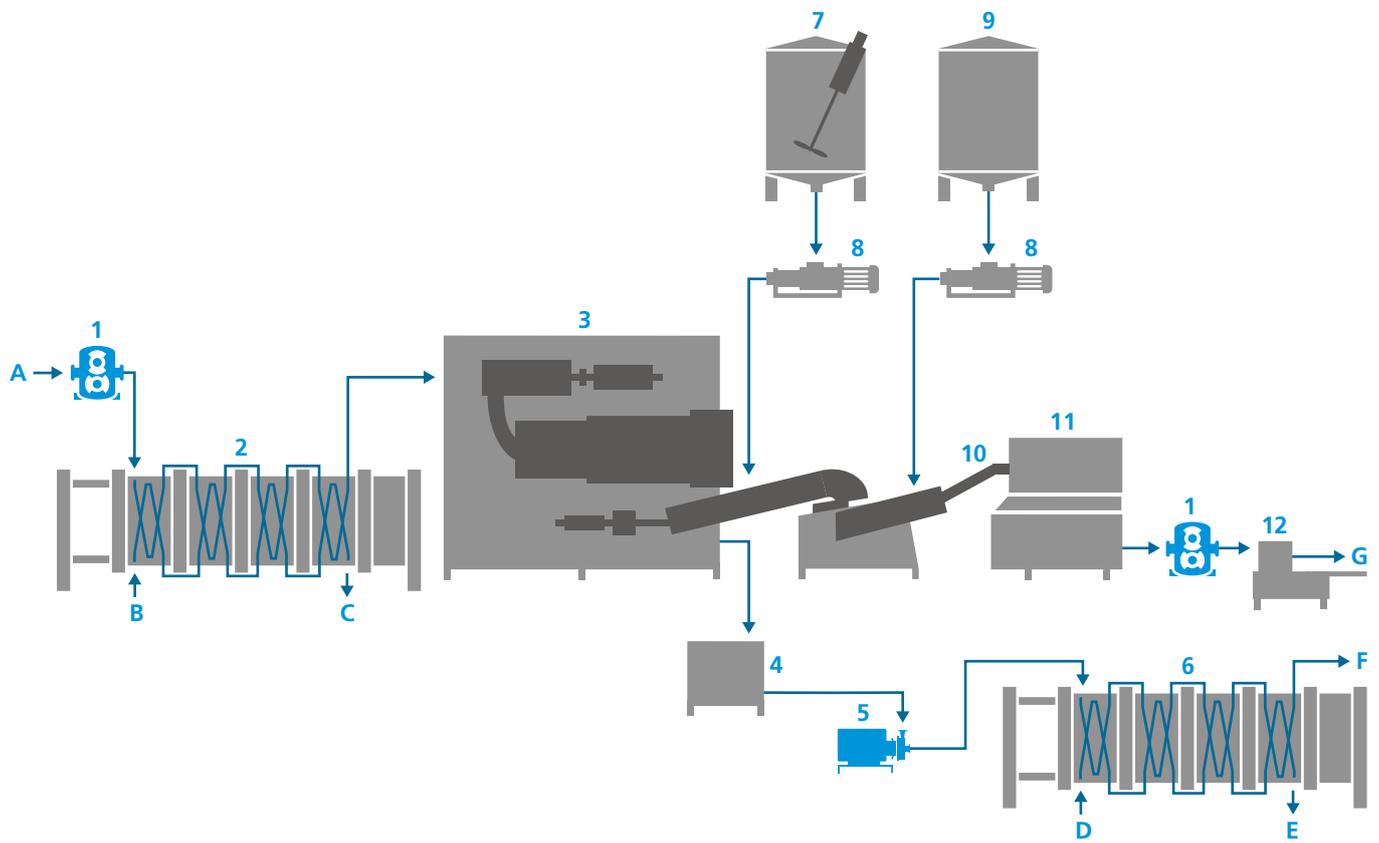
- A Skimmed milk inlet
- B Hot water inlet
- C Hot water outlet
- D Whey discharge
- E Discharge
- F Iced water supply
- G Iced water discharge
- H Curd/cream cheese to packaging machine

MILK PASTEURIZATION



- | | |
|---|----------------------------------|
| 1 Feed vessel | A Raw milk |
| 2 Product pump (centrifugal pump) | B Iced water supply/discharge |
| 3 Heat exchanger | C Excess cream, cooled |
| 4 Switching valve | D Hot water supply/discharge |
| 5 Separator | E Pasteurized, standardized milk |
| 6 Fat content standardization | |
| 7 Cream cooler | |
| 8 Homogenizer | |
| 9 Pressure increase pump (centrifugal pump) | |
| 10 Heat holder | |

BUTTER PRODUCTION

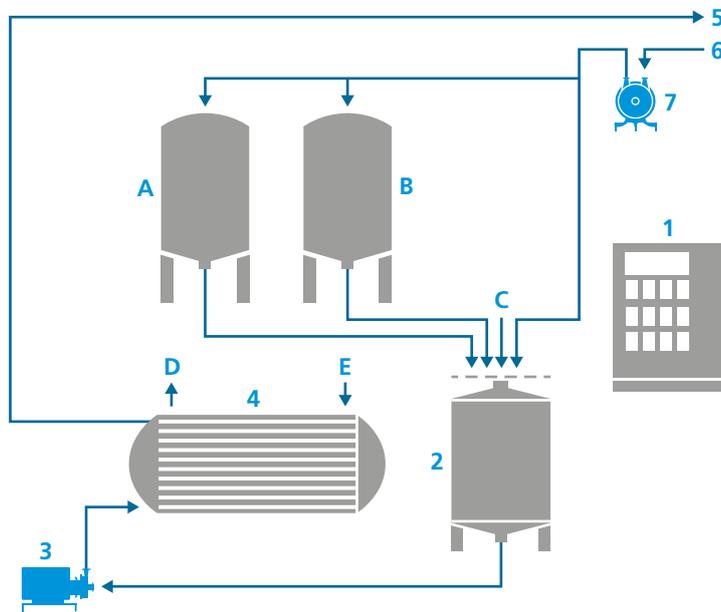


- 1 Product pump (rotary lobe pump)
- 2 Heat exchanger for cream
- 3 Buttering machine
- 4 Buttermilk collection vessel
- 5 Product pump (centrifugal pump)
- 6 Buttermilk cooler

- 7 Container with agitator for liquid dosage
- 8 Rotary piston pump
- 9 Container for water dosage
- 10 Water content measuring point
- 11 Butter tub with auger feed screw
- 12 Butter packaging machine for butter pieces

- A Supply buttering cream
- B Hot water inlet
- C Hot water outlet
- D Iced water supply
- E Iced water discharge
- F Buttermilk
- G Butter piece

CIP-SYSTEM



- | | |
|--|------------------------------|
| 1 Control | A Caustic concentrate |
| 2 Tank | B Acid concentrate |
| 3 CIP-feed pump (centrifugal pump) | C Fresh water |
| 4 Heat exchanger | D Condensate |
| 5 CIP-feed | E Vapor |
| 6 CIP-return | |
| 7 CIP-return pump (self-priming centrifugal pump) | |

The new high-pressure pump range

GEA Hilge HYGIA H

Single-stage end-suction high-pressure centrifugal pump for membrane filtration in the dairy, food and beverage industry.

The high-pressure pump is designed for system pressures up to 64 bar and is available in two sizes for use in industries with high demands to hygiene and flexibility. A typical application area for the new high-pressure pump is membrane filtration like Reverse Osmosis (RO) and Nano Filtration (NF) in the dairy, food and beverage industry.

With high pressure into the dairy industry

The new high-pressure pump from GEA is based on the GEA Hilge HYGIA, which has proven itself for decades. The premium pump has always stood for good cleanability, high stability and quality. Now the series can also cover the pressure ranges that are required for membrane filtration in the whey process.

Suitable for the highest standards

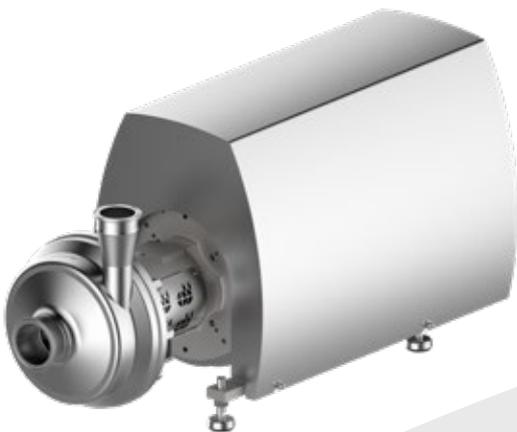
The materials used for GEA Hilge HYGIA H pumps have been selected for the use in hygienic processes. The housings are made of CrNiMo (1.4404) forged and have a smooth surface without pores and blowholes.

Your advantages at a glance:

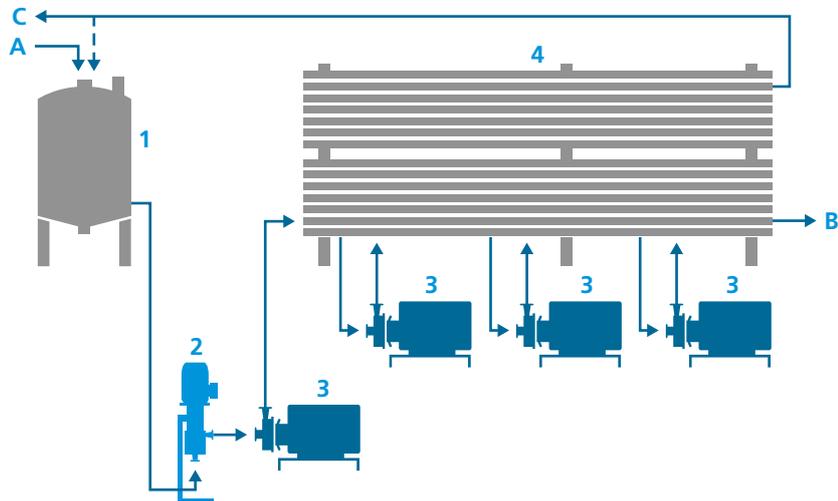
- Designed for system pressures up to 64 bar
- Available in two sizes, with a flow rate of up to 200 m³/h and a maximum pump head of 72 m
- Capable of pumping a wide range of liquids, as well as homogeneous air or gas-containing media
- High surface quality and maximum flexibility for hygienic operation
- Complies with the highest hygiene standards
- Mainly for filtration processes in the dairy industry, but also for beverage applications and pharma processes

TECHNICAL DATA

GEA Hilge HYGIA H	50 Hz	60 Hz
Head	72 m	105 m
Flow	200 m ³ /h	200 m ³ /h
Operating temperature	up to 100 °C	
Sterilization temperature	up to 140 °C (SIP)	
Operating pressure	PN 64	



MEMBRANE FILTRATION



- | | |
|---|---------------------------|
| 1 Feed / buffer tank | A Whey / Milk |
| 2 Feed pump (GEA Hilge CONTRA) | B Concentrate / Retentate |
| 3 Loop pump (High pressure pump
GEA Hilge HYGIA H) | C Filtrate / Permeate |
| 4 Membrane Filtration Loops | |

For highly viscous media

GEA Hilge NOVALOBE: Keeping the pressure and quality constant

GEA Hilge NOVALOBE is a service-friendly rotary lobe pump that can be customized for high specification applications. Its surface finish is designed for optimal hygiene. Thermal jackets to control temperature are available for the front cover and rotor case. The GEA Hilge NOVALOBE is capable of delivering pressure up to 16 bar – the pressure relief valve enables intense handling.

The GEA Hilge NOVALOBE range comprises six sizes with optimized features such as uniquely placed rotors that can operate bi-directionally.

The pump's surface finish prevents bacteria and germ cultivation. In operation it can handle liquid temperatures of up to 200 °C (the standard maximum operating temperature for the range is 150 °C). The pressure relief valve prevents overpressurization and the subsequent damage.

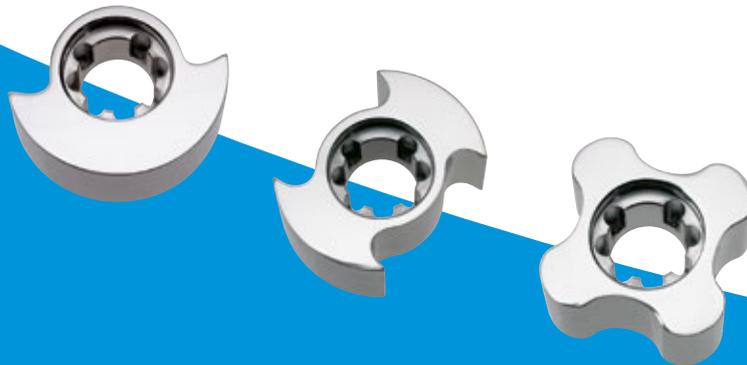
GEA Hilge NOVALOBE can be customized with specific inlet and outlet connections and thermal jackets. The front-loading mechanical seals allow for swift and easy servicing, so downtime is minimized and the integrity of the product protected.

TECHNICAL DATA

GEA Hilge NOVALOBE

Displacement	0.03 – 2.1 liters/rev
Viscosity	max. 1,000,000 mPas
Operating temperature	150 °C (up to 200 °C on request)
Sterilization temperature	150 °C (SIP)
Pressure	10/16 bar

GEA Hilge NOVALOBE's rotor case is designed to fit a variety of lobe shapes, including uni-wing, bi-wing and multilobe rotors.





GEA offers hygienic pumps for each phase in the process: from the reception of ingredients through to packaging and cleaning.

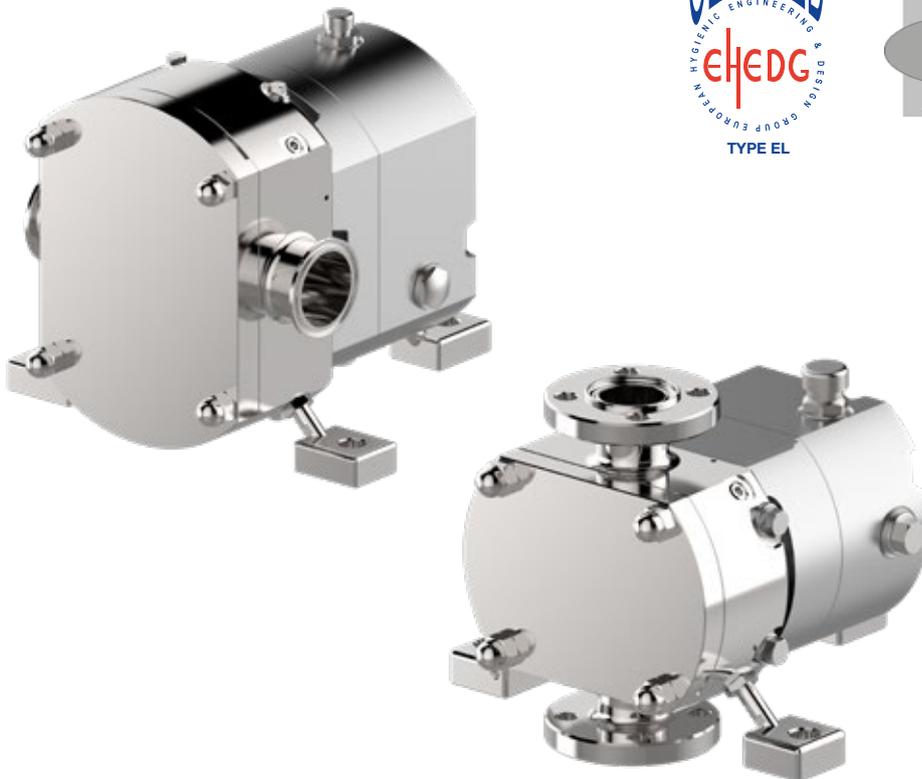
Stainless materials for stainless products

The stainless steel surface of GEA hygienic pumps ensures no liquid residue accumulates. This makes cleaning swift and easy. We use AISI 316L stainless steel, which is either coldrolled or forged.

Hygienic Design fullfills the following requirements:

GEA can provide a selection of certificates and test reports:

- Surface roughness test reports
- QHD certificate
- Delta ferrite test report
- FDA & USP Class VI declaration of conformity
- EHEDG certificate
- ATEX certificate





We live our values.

Excellence • Passion • Integrity • Responsibility • GEA-versity

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.

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