

Positive displacement pumps FK, FL, FKL



Our philosophy is simply to supply the best.



Perfection down to the last detail. The Fristam rotary piston pump FKL.

This brief overview provides you with an insight into the current Fristam range of positive displacement pumps.

Wolfgang Stamp,
Managing
Shareholder



On the following pages you will find the most important performance features and specific applications for the positive displacement pumps. See for yourself the versatile application options of these Fristam pumps.

Three principles

Fristam was founded in 1868 and taken over in 1909 by the great grandfather of today's managing director Wolfgang Stamp. At that time, the North German company produced all types of machines for the dairy industry. The first Fristam stainless steel pump was manufactured in 1931 - from the very start in compliance with the individual requirements of our customers. Since then the success of Fristam has been based on three principles: quality, flexibility and innovation.

A leading manufacturer of stainless steel pumps

Over the generations, Fristam has established itself as a major manufacturer of high quality stainless steel pumps. 79 of the world's 100 leading companies in the food and drink industry already place their trust in Fristam pumps, which are produced in Germany, England, USA, Japan and India. Subsidiaries, together with specialised representatives, ensure that today hygienic pumps from Fristam are used all over the world - the standard for highest quality.

Optimum solutions

For you and ourselves the focus is on one thing: your product. Fristam offers solutions which are perfectly adapted to your specific applications. In this way you are assured of having an optimised pumping system on which you can fully depend.

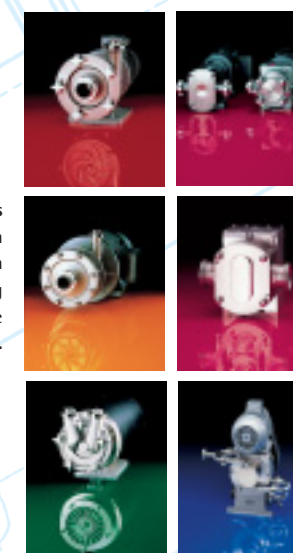
See for yourself!



A company with a long tradition: this was where the first Fristam stainless steel pumps were made back in 1931.

Wolfgang Stamp,
Fristam Pumpen
F. Stamp KG (GmbH & Co),
Hamburg

Hygienic pumps from Fristam ensure optimum pumping throughout the world.



Fristam Circumferential Piston Pumps FK

Optimum suction capacity, high discharge pressure and most gentle handling when pumping high-viscosity products.

Pump performance

High efficiency:

The area seal principle between the pistons, the casing with fixed hubs and the cover allow the product to be pumped at up to 20 bar with excellent suction performance.

Viscosities up to 1,000,000 mPa s:

Pumping products at high viscosities up to 1,000,000 mPa s is no problem, even for inhomogeneous or highly sensitive products which contain soft suspended solids.

Gentle product handling:

The special design of the contra-rotating non-contacting circumferential pistons ensures that the product is not squeezed but displaced non-destructively and pumped gently.

Even at high discharge pressures the backflow of product from the discharge end to the suction end is minimised.

Quality

Robust design:

Highly resistant stainless steel alloys and solid components provide ideal conditions for reliable operation with minimum down time and a long service life.

Optimum hygiene:

Owing to the use of appropriate materials and a design which is devoid of dead zones Fristam circumferential piston pumps are entirely suitable for CIP and SIP.

Economy

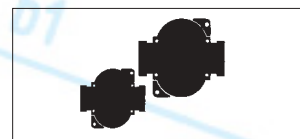
Tailor made solutions:

The diversity of models allows optimum selection for the particular application, specific product characteristics, processes and systems. Heating and cooling jackets are among the numerous options.

Easy maintenance:

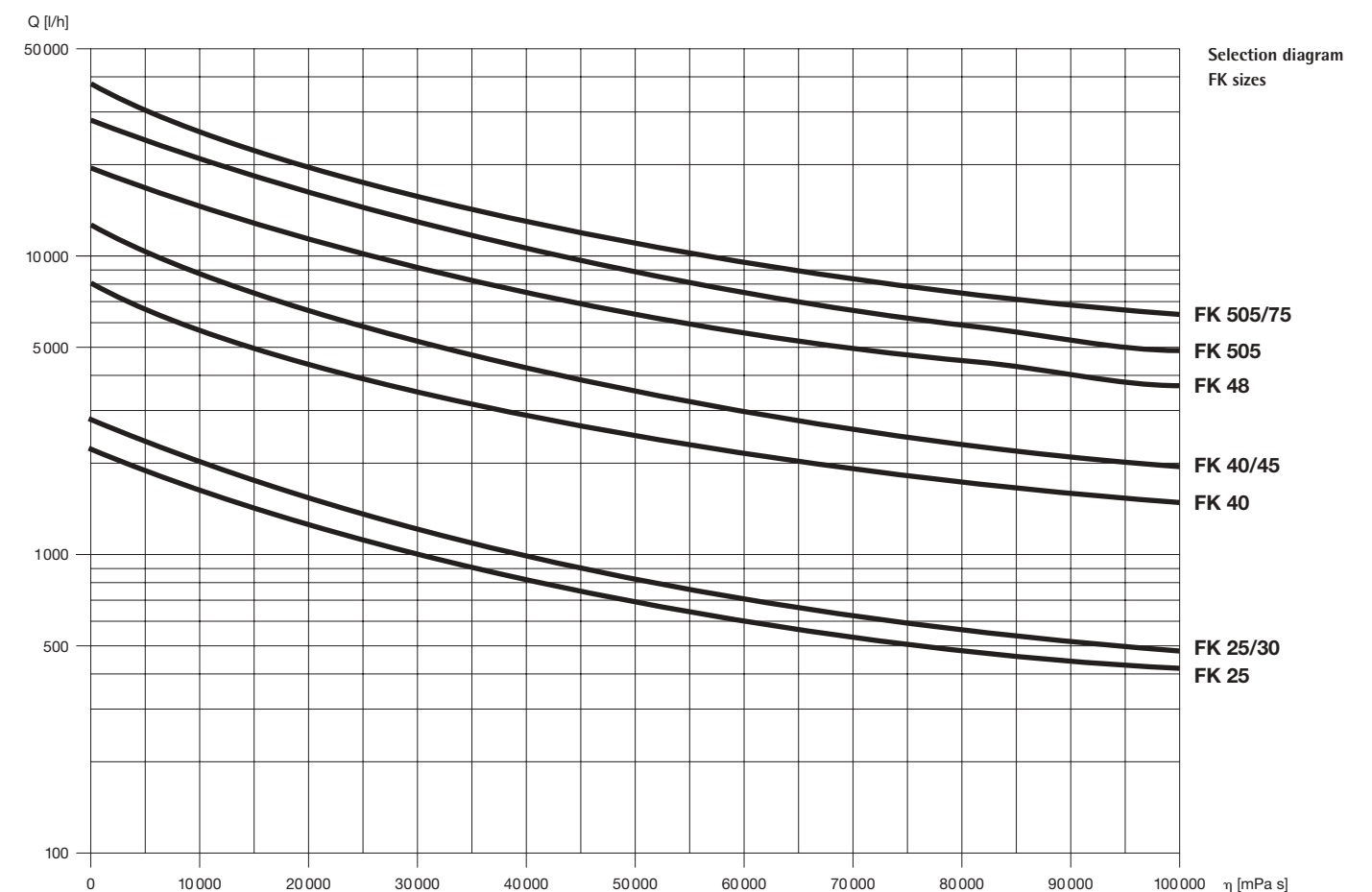
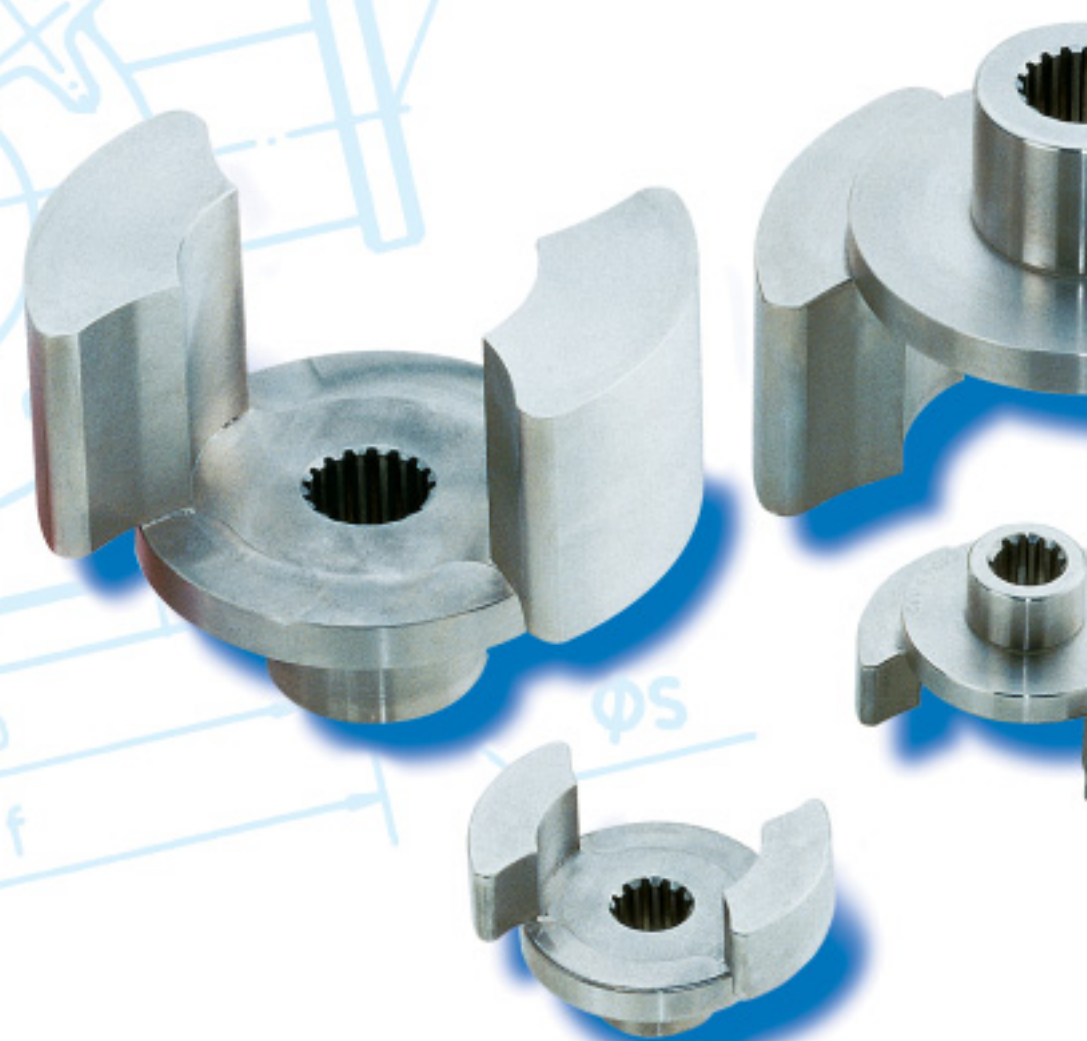
The interior of the pump is quick to access so wearing parts can be changed easily with minimum time and labour.

Sizes of FK



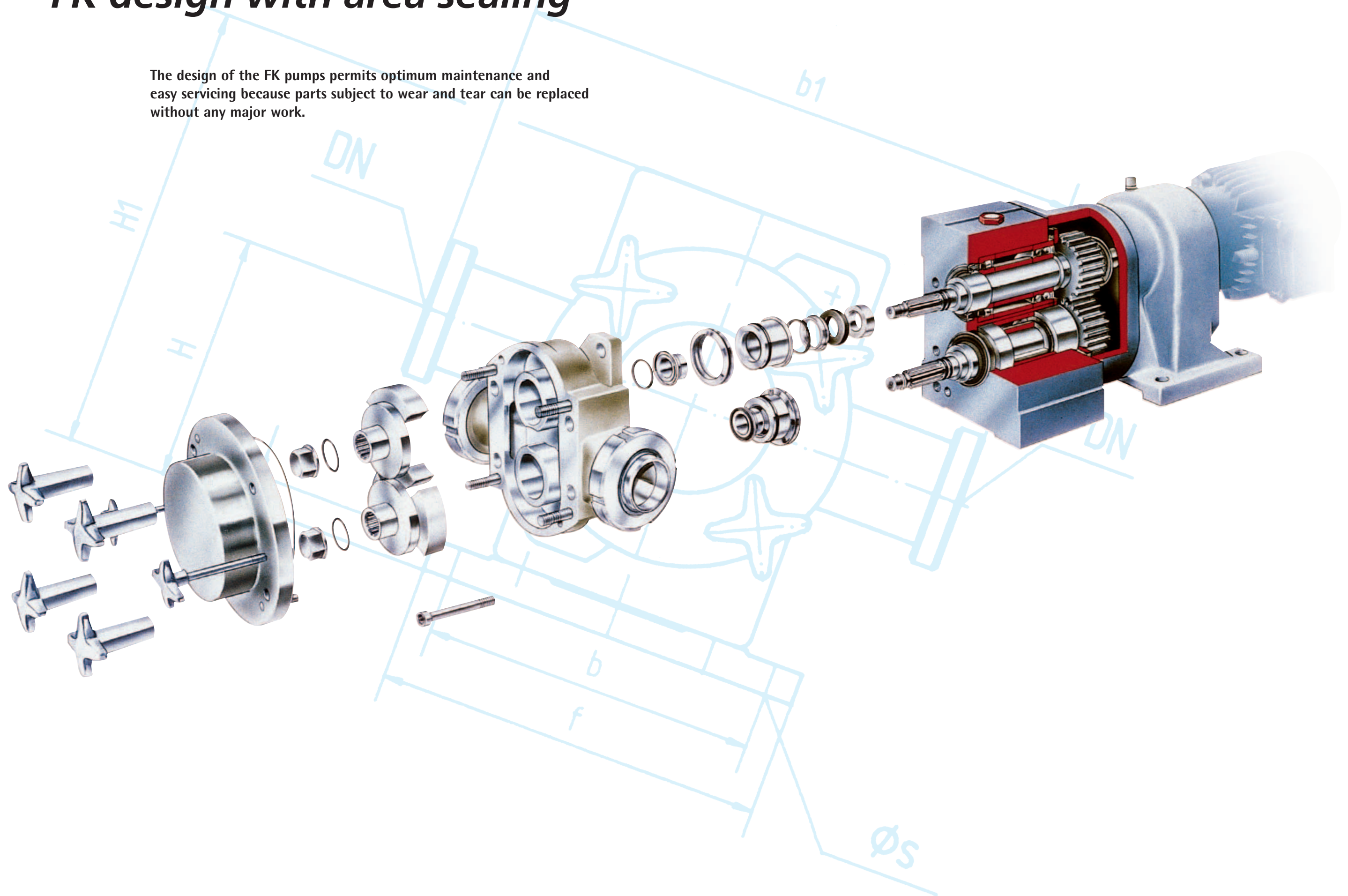
- 7 sizes
- Discharge pressures up to 20 bar
- Flow rates up to 40 m³/h

Adjustable FK-pump with termosiphon system or back-to-back seal



FK design with area sealing

The design of the FK pumps permits optimum maintenance and easy servicing because parts subject to wear and tear can be replaced without any major work.



Fristam Rotary Lobe Pumps FL

The Fristam FL design allows efficient pumping of high flows with gentle product handling.

Pump performance

High efficiency:

The contra-rotating non-contacting rotary lobes combine, on account of their geometry, the excellent characteristics of the area seal between the housing and that of the cover with the line seal between the pistons. The pumps are suitable for discharge pressures of up to 12 bar.

Viscosities up to

100,000 mPa s:

Pumping homogeneous products with viscosities up to 100,000 mPa s is no problem.

Gentle product handling:

In Fristam Series FL pumps a modern lobe design is used which minimises squeezing of the product and therefore the risk of damage.

Backflow:

Modern methods of manufacture permit very small internal gaps which only allow extremely low backflows.

Quality

Robust design:

Highly resistant stainless steel alloys and solid components provide ideal conditions for reliable operation with minimum down time and a long service life.

Optimum hygiene:

Owing to the use of appropriate materials and a design which is devoid of dead zones Fristam rotary lobe pumps are entirely suitable for CIP and SIP.

Economy

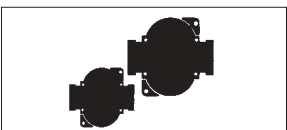
Tailor made solutions:

The diversity of models allows optimum selection for the particular application, different products, processes and systems. The rotary lobe pumps have numerous versions, e.g. heating and cooling jackets or a relief device in the cover.

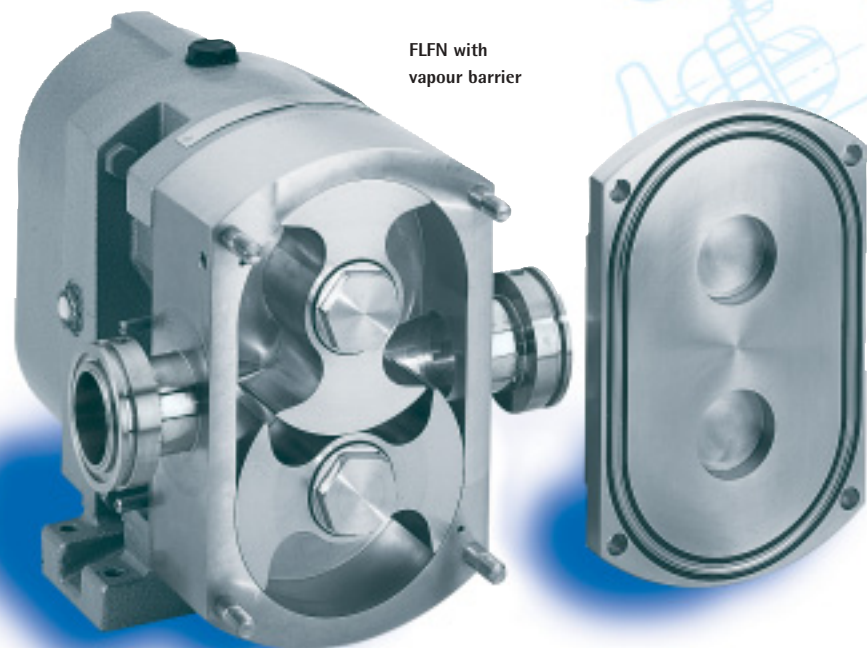
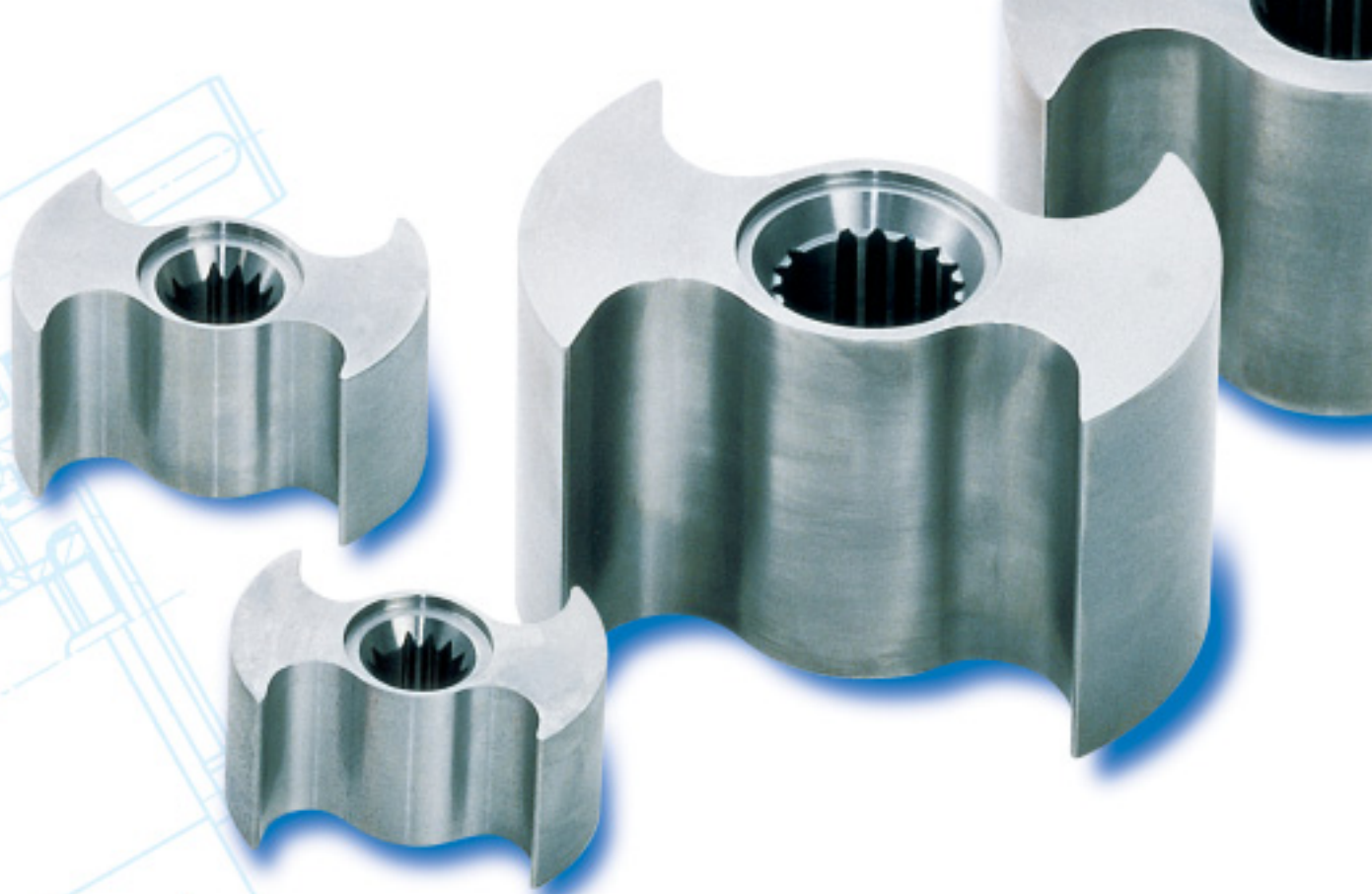
Easy maintenance:

The interior of the pump is quick to access so the pump can be serviced optimally and wearing parts can be changed with minimum time and labour.

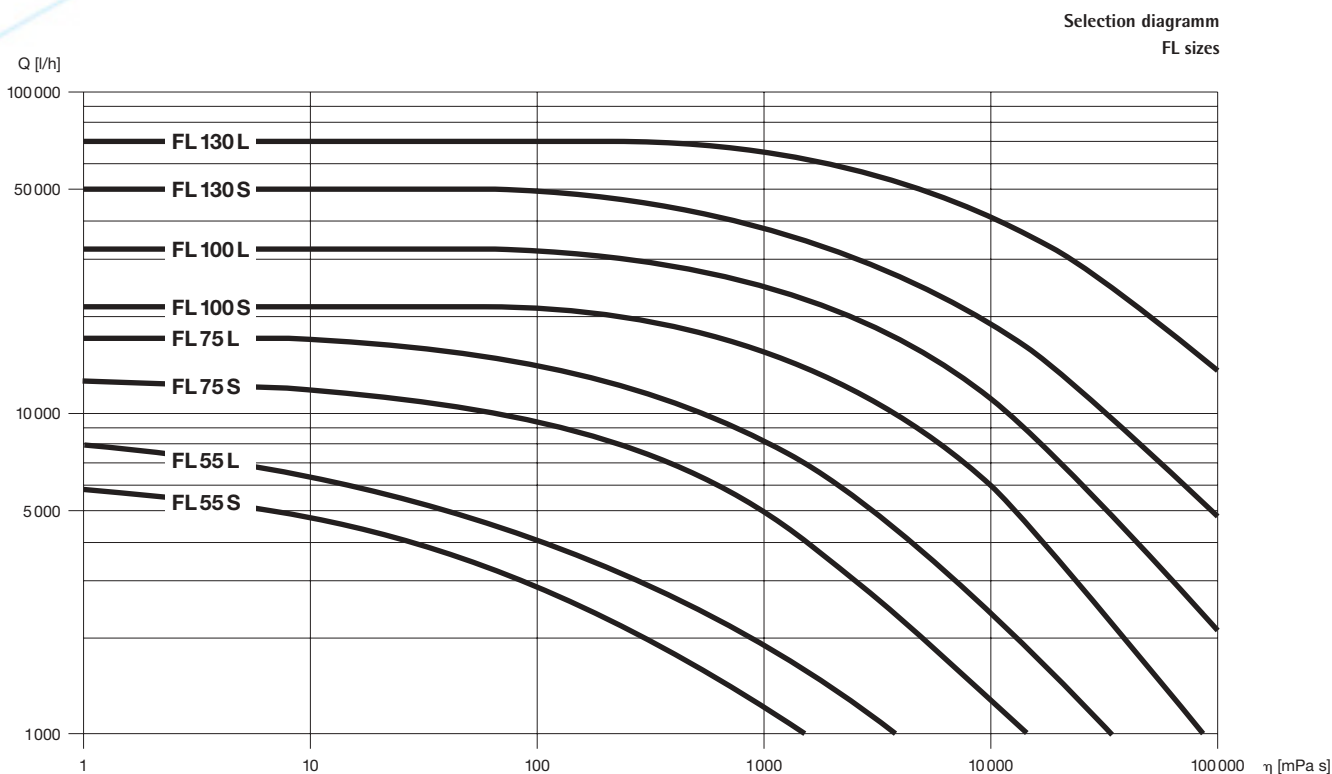
Sizes of FL



- 8 sizes
- Discharge pressures up to 12 bar
- Flow rates up to 70 m³/h

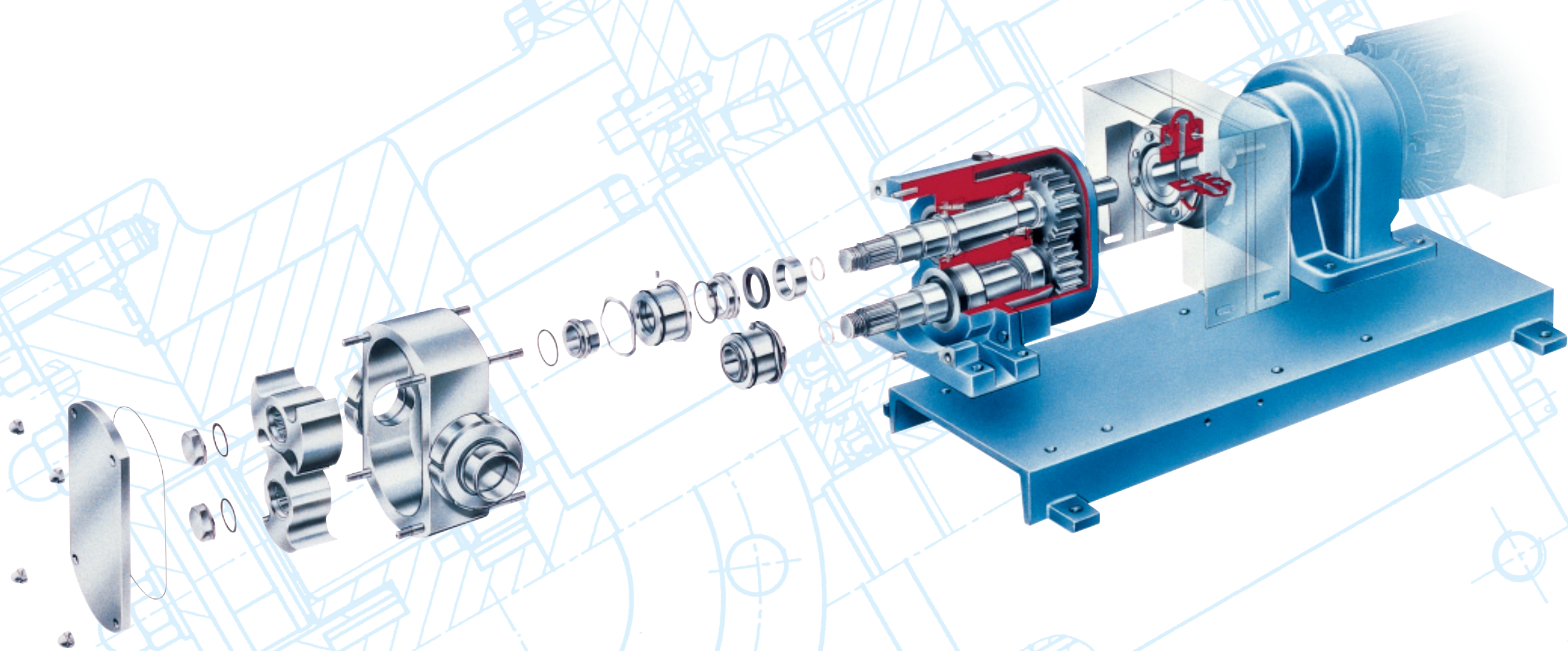


FLFN with vapour barrier



FL compact design for universal application

The design of Series FL pumps ensures that automatic cleaning processes (CIP) and service-friendly maintenance can be carried out optimally.



Fristam Circumferential Piston Pumps FKL

High suction capability, high speed and high pressure – Fristam circumferential piston pumps provide optimum performance in every respect.

Pump performance

High efficiency:

Even at high pressure the FKL pistons remain completely distortion-free owing to their symmetrical design. In addition, reinforcement prevents the shafts from bending. The Fristam FKL circumferential piston pumps are ideally suited to applications where discharge pressures of up to 30 bar are required with minimised piston wear. FKL pumps are self-priming.

Gentle product handling:

In Series FKL Fristam pumps the new circumferential piston design is used which minimises squeezing and damage to the product.

Optimum hygiene:

Owing to the use of appropriate materials and a design which is devoid of dead zones Fristam circumferential piston pumps are entirely suitable for CIP and SIP.

Backflow:

The casing and cover design reach into the pistons from both sides, which allows only very little back-flow due to the area seal on all sides.

Economy

Tailor made solutions:

The new piston design and robustness allow use in systems and processes which in the past relied on other – more expensive – elaborate pumping and discharge systems.

Quality

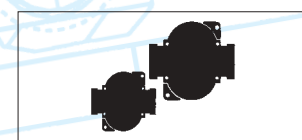
Robust design:

The use of top-class materials, the extremely solid design and small sealing gaps guarantee a remarkable long service life, and worldwide these pumps are defining an unprecedented level of quality. A Fristam FKL pump represents the most perfect solution for reliable, maintenance-free pumping processes.

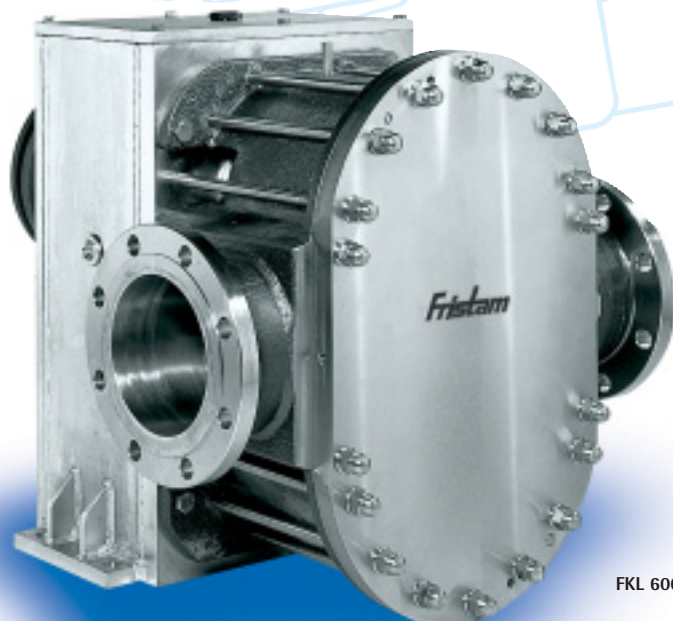
Easy maintenance:

FKL pumps with their proven Fristam design fulfil the requirements of service-friendly, problem-free maintenance.

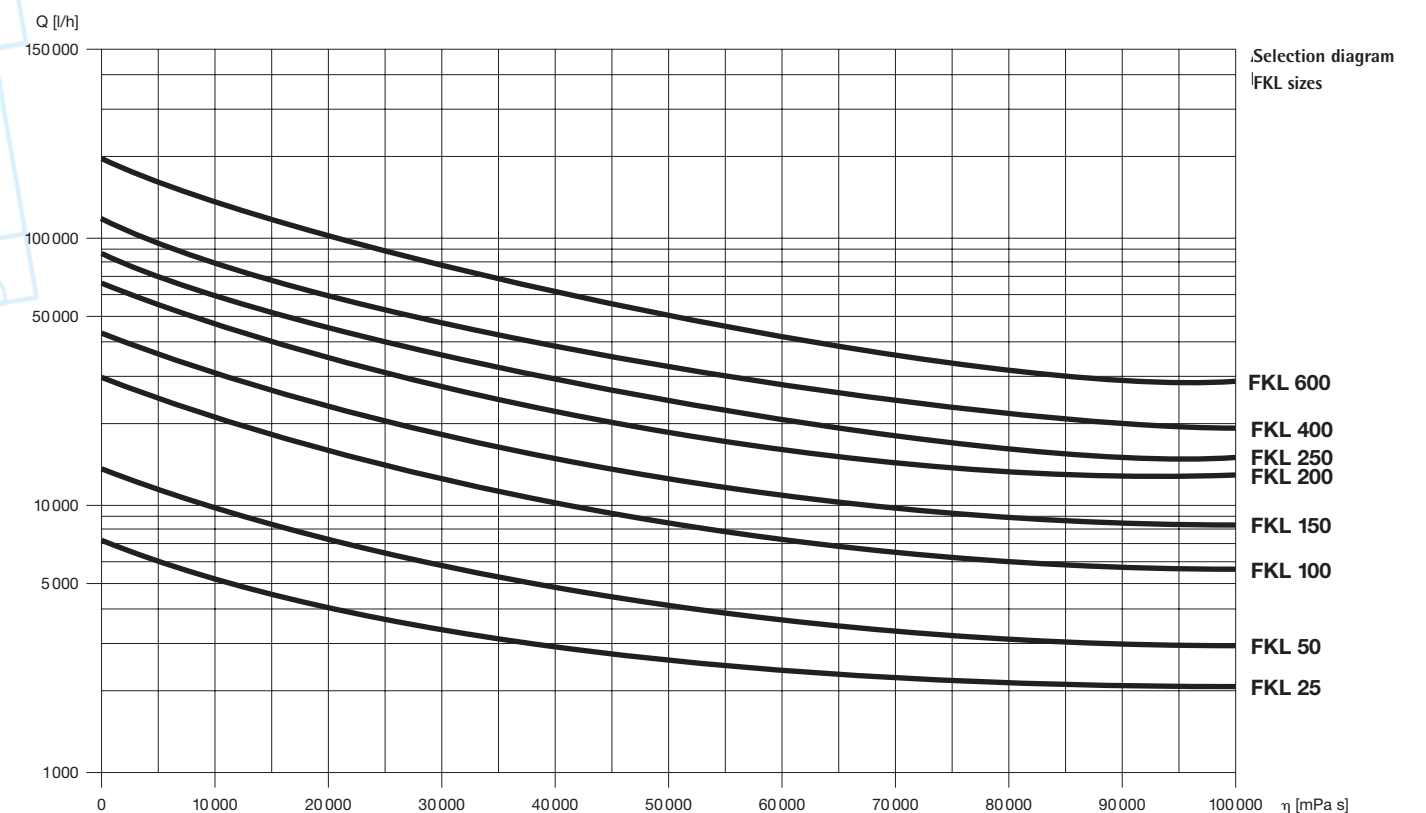
Sizes of FKL



- 8 sizes
- Discharge pressures up to 30 bar
- Flow rates up to 120 m³/h

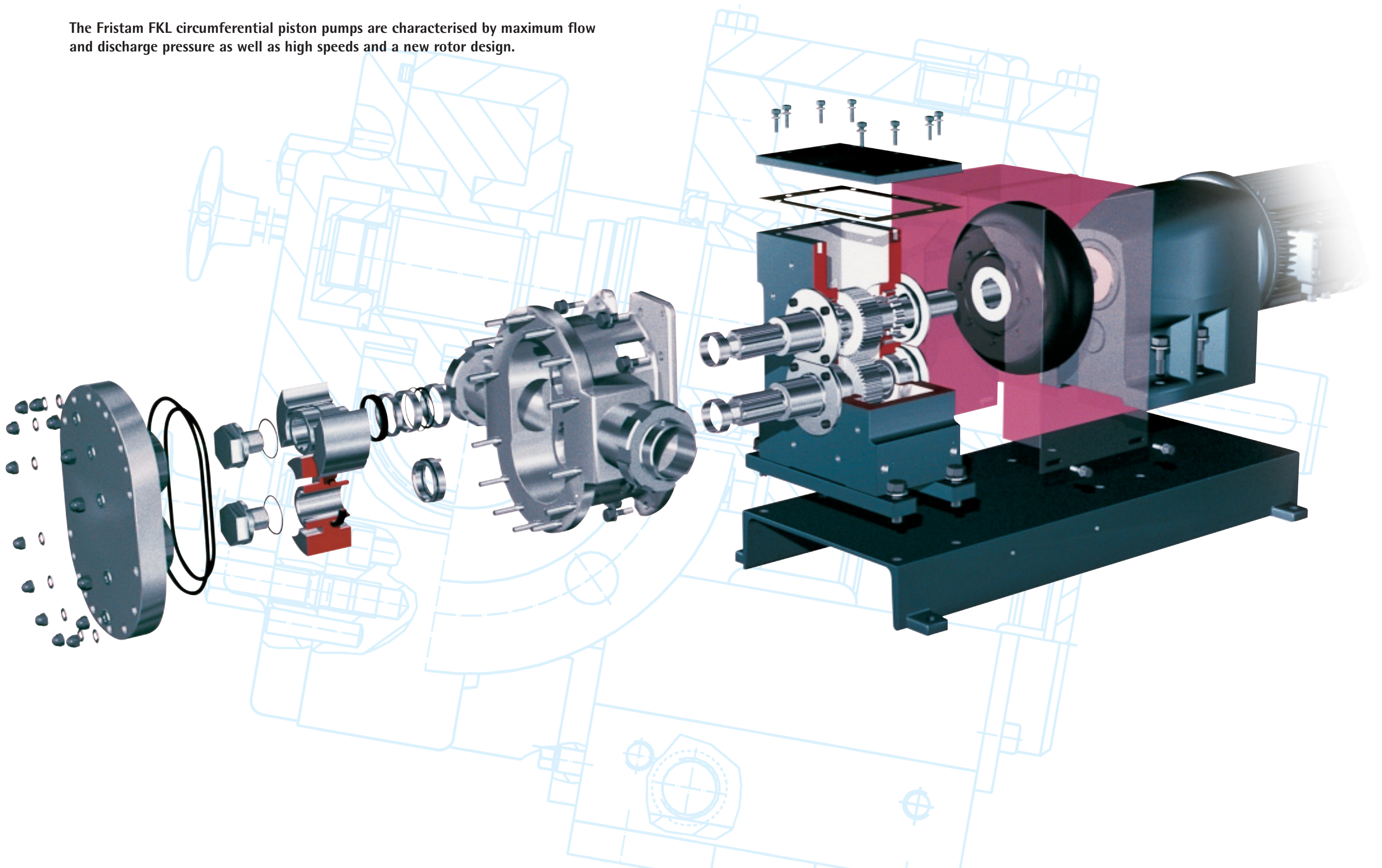


FKL 600 with bare shaft



New development FKL with ideal circumferential piston symmetry

The Fristam FKL circumferential piston pumps are characterised by maximum flow and discharge pressure as well as high speeds and a new rotor design.



Fristam FK, FL, FKL design options

With a Fristam circumferential piston pump or rotary lobe pump you are always sure of a customised solution because the individual components are tailored to the specific application in your company.

Materials

- Casing, cover and rotors are cast or forged
- Materials
Standard:
 - Other precision-cast materials
 - Materials with less than 0.5 % delta ferrite
- Surfaces in contact with the product:
 - Shotblasted
 - Superfinish turning
 - Ground
 - Polished
 - Electropolished
 - Hardened or coated
 - Special surface finish requirements can be met

Drives

- Geared motor with fixed speed
- Variators with manual, pneumatical or electrical adjustment
Options:
 - Explosionproof
 - Flameproof
 - Suitable for frequency control
 - Special voltages and special frequencies
 - Hydraulic motors
 - other variable speed gear

Rotor types:

- FK
Standard
 - twinlobe
Options:
 - singlelobe
 - high temperature design
 - spiral grooves
 - straight grooves
- FL
Standard:
 - twinlobe
Options:
 - singlelobe
 - high temperature design

• FKL

- Standard:
 - twinlobe
Option:
 - high temperature design

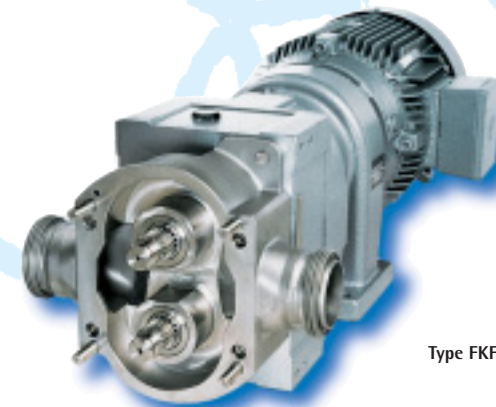
Types of connection:

- Threads:
 - DIN 11851, RJT, SMS, ISS,
 - DS, ACME, and others
- Flanges:
 - DIN, ANSI, and others
- Clamps:
 - Tri-clamp, ISO-clamp
- Special connections possible

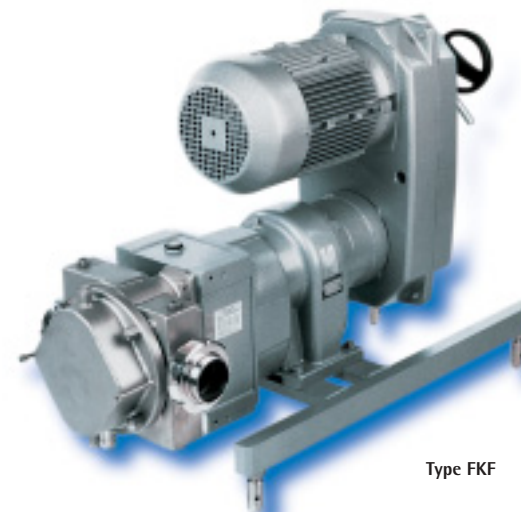
Special options:

- Heating/cooling jacket
- Pressure relief valve integrated in cover, spring-loaded or pneumatic
- Housing with drain
- Vertical port configuration
- Rectangular inlet port
- Trolleys
- Electronical speed counter
- Digital speed indicator

Further types



Type FKF



Type FKF



Type FLFN

- FKFN, FKN, FLFN, FKL
 - pump with bare shaft or coupling, coupling guard and drive unit mounted on common base frame.

- FKF
 - Monobloc design with directly flanged drive unit

- Option:
 - adjustable legs
 - stainless steel shroud

FK, FL, FKL-Mechanical shaft seal options

Mechanical shaft seals

• Standard:

- single and double-acting
- bi-directional

• Options:

- DIN 24960
- with external sealing/flushing liquid
- pressureless (quench)
- pressurised (back to back)
- auxiliary systems, e.g. pipes, fittings and pressure gauge, funnels, thermosiphon tank for sterile operation etc. are possible

• Internal seal faces:

- Carbon
 - dry-running performance
 - high temperature resistance
- Tungsten carbide
 - extreme hardness and wear resistance
- Special stainless steel
 - good chemical resistance

- Silicon carbide

- exceptionally high chemical resistance
- good thermal conductivity
- PTFE (fibre-glass reinforced)

• Secondary seal materials:

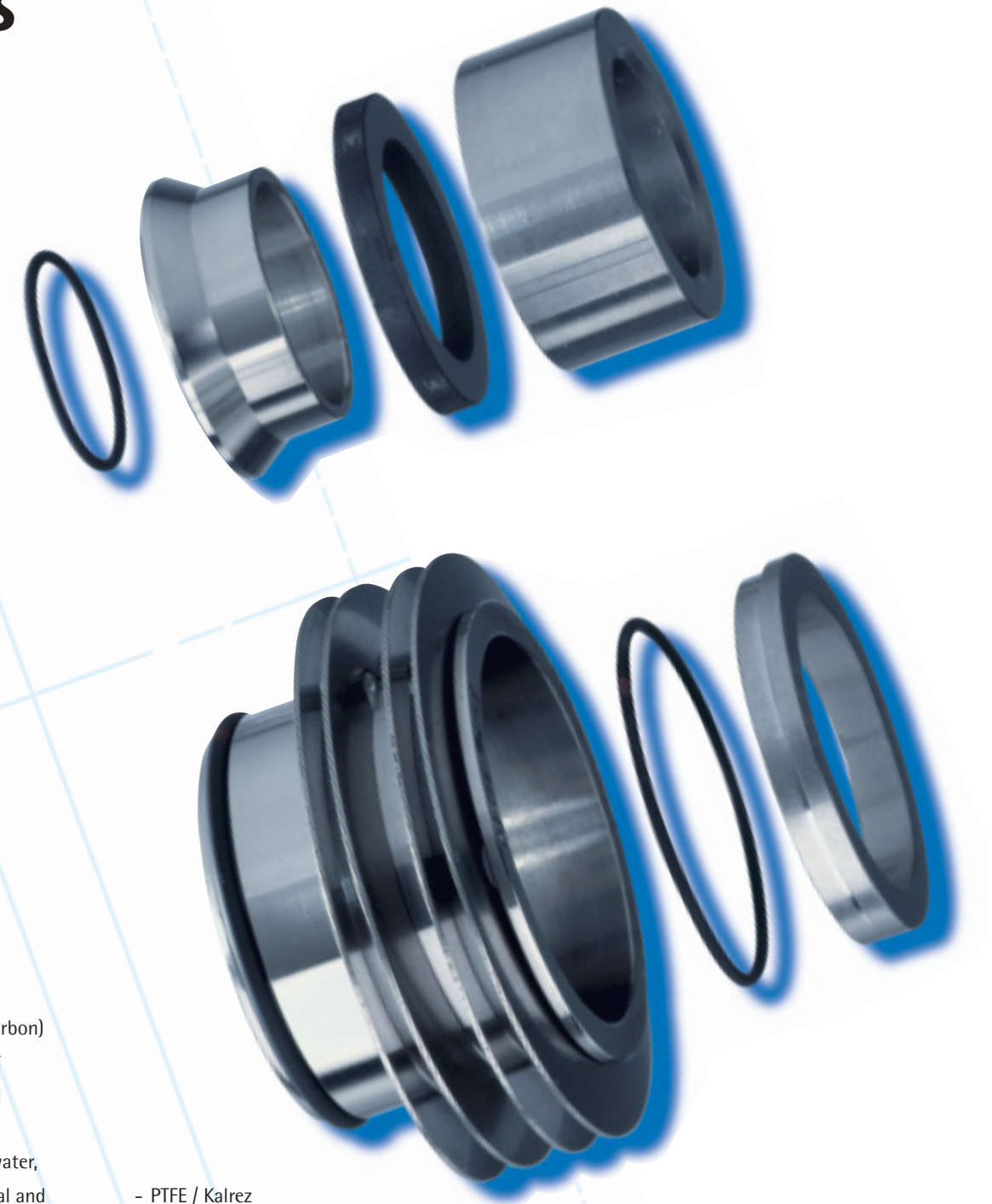
- Perbunan (NBR)
 - up to +100°C
 - resistant to water, steam, mineral and vegetable fats and oils, alcohol, saline solutions
- EPDM
 - up to +150°C
 - good thermal properties
 - suitable for use with alcoholic solutions, dilute acids and concentrated acids

- Viton (fluorocarbon)

- up to +180°C
- good thermal resistance
- resistant to water, steam, mineral and vegetable fats and oils, alcohol, acids and alkaline solutions

- PTFE / Kalrez

- up to +200°C
- optimum chemical and thermal resistance against all aggressive liquids
- elasticity provided by the use of Viton rubber or EPDM material
- and other materials



The best pump for the best product

Fristam FK, FL and FKL stainless steel pumps are used in leading food and drinks industry companies throughout the world as well as in many companies in the pharmaceutical and chemical industries, Fristam pumps are also the best solution for pumping your products:

Applications

Dairy products

Cream, yoghurt, curds, blanch-mange, butter, milk, skimmed milk and whey concentrates, desserts, cheese curd, melted cheese

Foods

Animal and vegetable oils and fats, sauces, soups, egg products, ready-to-serve meals, salads, cake dough, jam, tomato ketchup, infant food, honey, apple sauce, animal blood, aspic, meat emulsion, caviar, meat and fish salads

Sugar/ Confectionery

Liquid sugar, molasses, starch solution, chocolate, sweet compounds, toffee, liquorice, chocolate fillings, fondant

Brewing

Malt extract, yeast

Alcoholic beverages

Egg liqueur, sparkling wine

Non-alcohol beverages

Syrup, fruit concentrates

Chemicals

Photographic emulsion, adhesives, synthetic resin solutions, gelatine, polymer dispersions

Pharmaceuticals/ cosmetics

Lotions, plant extracts, ointments, bath foam, shampoo, cosmetic creams, toothpaste

Biotechnology

Cell suspensions, nutrient solutions, enzymes



Systems and Processes

Owing to their diversity the innovative, powerful Fristam piston pumps can be used in numerous industrial processes. The Fristam FK, FL and FKL ranges of pumps include the following applications:

Applications

- discharge pumps from apparatus such as boilers, separators, mixers, tanks etc.
- suction pumps for concentrates from low-pressure areas
- booster pumps up-line of heaters, coolers, sterilisers, atomising towers etc.
- feed pumps for mixing systems, processing and filling machines
- metering pumps and filling pumps for large units

Crystallisation

Concentrating

Metering

Drying

Thickening

Filtering

Extraction

Separation

Boosting

Fermentation

Emulsifying

Homogenising

Filling/emptying

Bottling

Degasification

Transfer



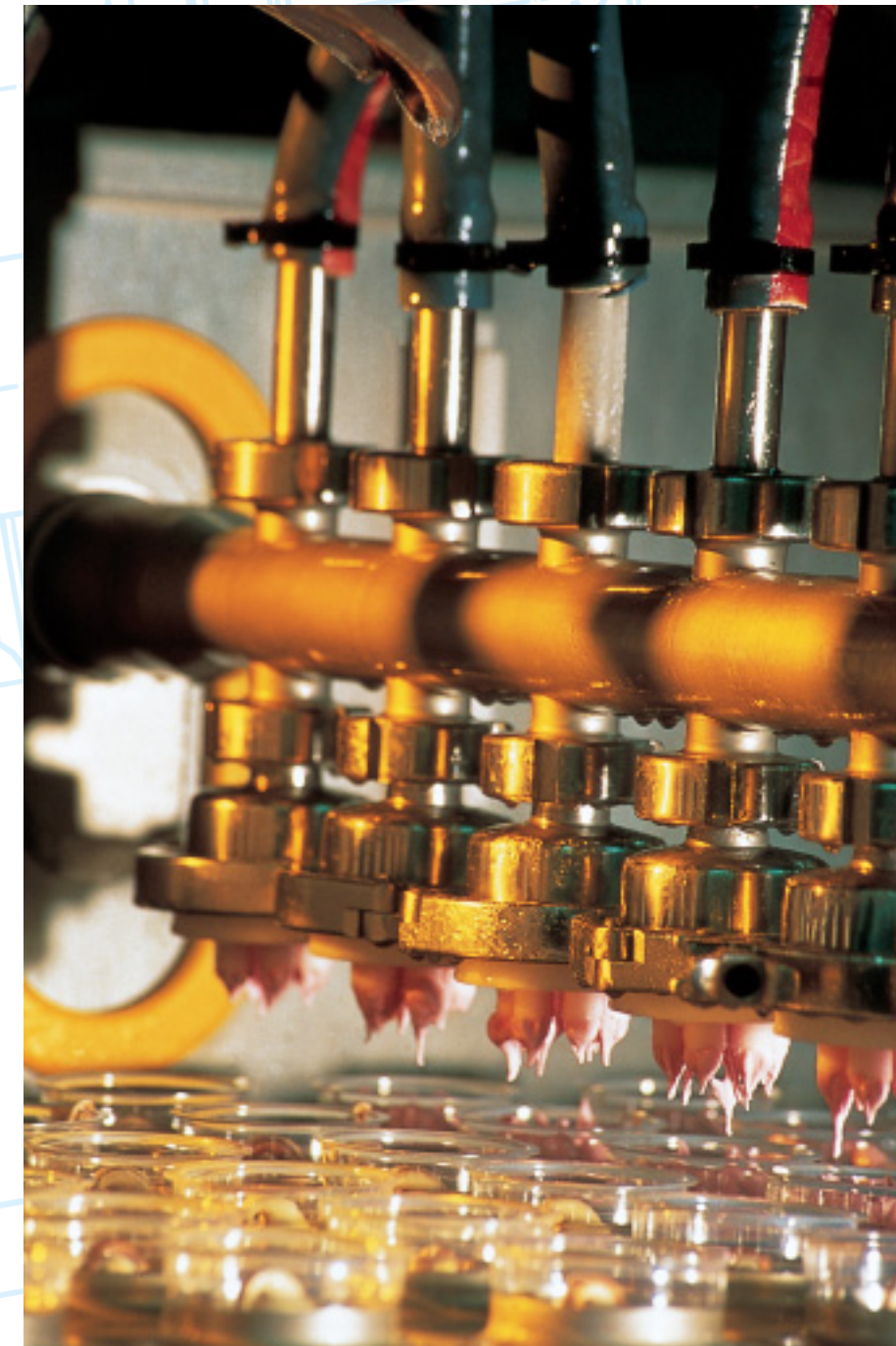
FK for transfer of sauces meat.



FKL for transfer of paint and glue dispersion at Hoechst, Frankfurt.



FL pump at Coca Cola, Stockholm.



Worldwide Contacts

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