



Product Catalogue

SAWA Pumpentechnik AG

Consultation, development and production
of high-quality stainless-steel pumps



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Quality and reliability

for over a century



Being an innovative Swiss family company we can look back on over a century of experience. We unite consultancy, development and production of high-quality pumps under one roof. This means that we are able to elaborate optimum solutions for your company at any time.

At the idyllic location of Degersheim in Switzerland we produce high-quality pumps in the fourth generation of our family. Our customers come from an extremely wide variety of sectors, such as the food industry, the beverage industry, the chemicals industry or the pharmaceuticals industry. But they all have one thing in common: they prefer to use the very highest-quality pump solutions to pump the various media. Stringent demands made of the material used, in-house quality assurance and precision machining ensure the endeavoured quality. Every pump-engineering challenge spurs us on to find the best possible solution for you.



Albert Schmidhauser Senior founded the SAWA company in 1911.



Albert Schmidhauser Junior took over as the second-generation CEO in 1954.



Since 1987 Fredy Schmidhauser has been running the company as third-generation CEO.

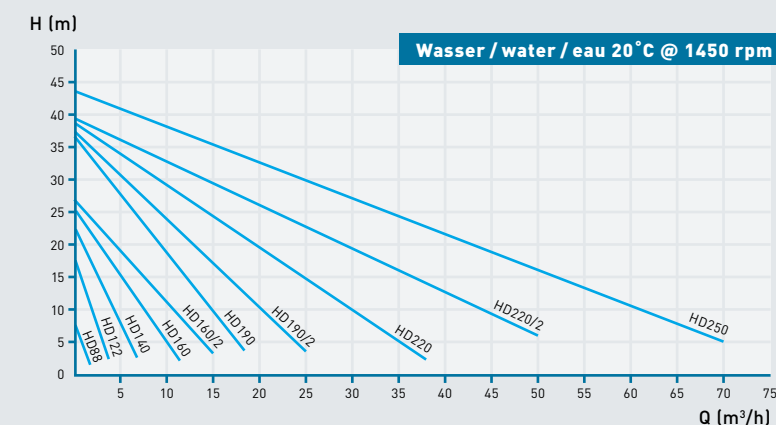
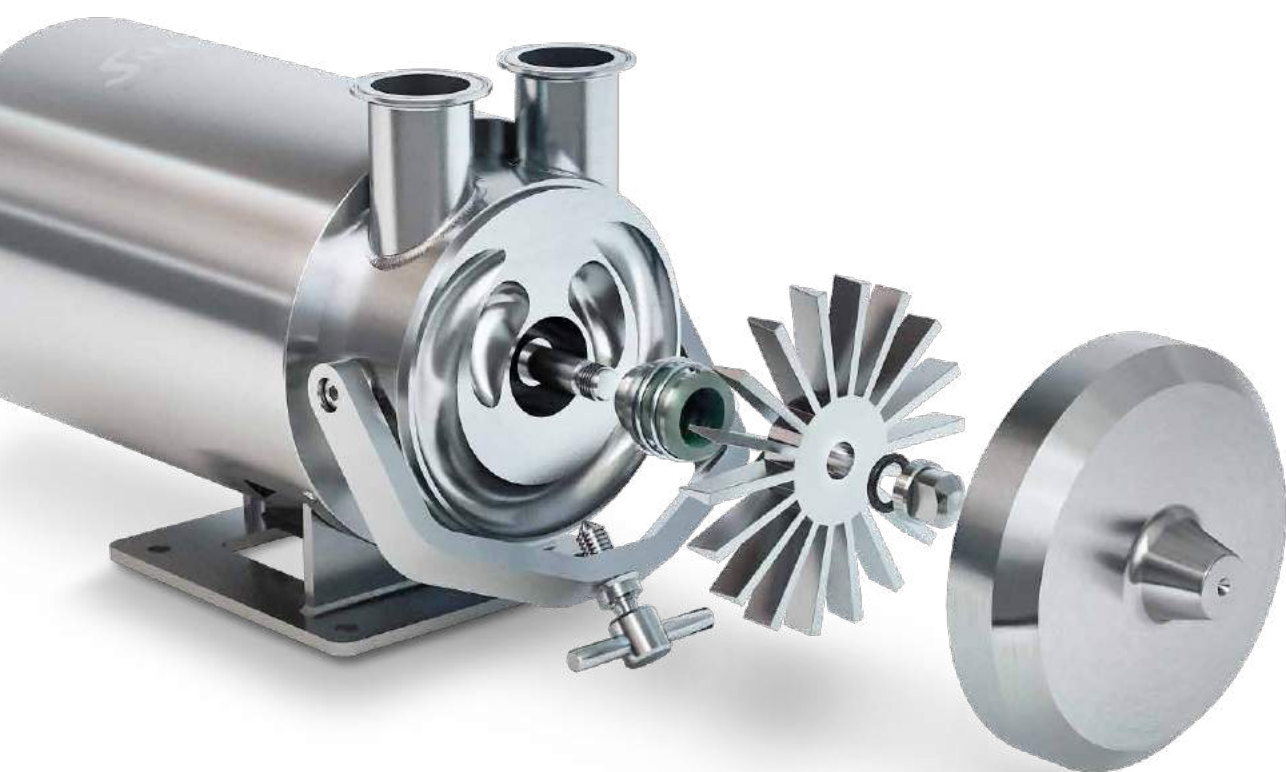


Ives Schmidhauser took over the post of fourth-generation CEO in 2015 and is guiding the company into the future.



Centrifugal pump HD – self-priming

Gentle and quiet product pumping are its strengths. The centrifugal pump features an impressive suction capacity (up to 7 m) and an excellent pumping behaviour with liquids containing gas. It can also be operated in both directions.



FEATURES

- self-priming (suction head up to 7 m)
- excellent pumping behaviour with liquids containing gas
- suitable for left and right rotation
- quiet operation
- dead space-free design (hygienic design)
- CIP and SIP compliant
- simple design and easy seal change
- low maintenance costs and long service life
- sturdy design comprising high-quality chromium-nickel-molybdenum stainless steel 1.4435/316 L with electropolished surfaces
- gentle milk pumping without damaging fat
- various mechanical seal systems available

OPTIONAL FORMS

- **ATEX**
for zones 1, 2, 21 and 22
- **PHARMA DESIGN**
for maximum safety, reliability and hygiene (surface roughnesses down to Ra < 0.4 µm)
- **MAGNETIC COUPLING**
hermetically sealed version HDM for crystallising, toxic, flammable and environmentally hazardous liquids
- **BEARING HOUSING**
for special requirements
- **MOBILE**
with sturdy trolley and accessories to customer requirements
- **HEATABLE**
with liquid or heating cartridge
- **COMPLETE DRAINING**
complete draining at the lowest point of the pump

Officially confirmed by the Swiss Dairy Farming Research Institute: gentle milk pumping without fat damaging.



Foodstuffs



Beverages



Pharmaceuticals / cosmetics



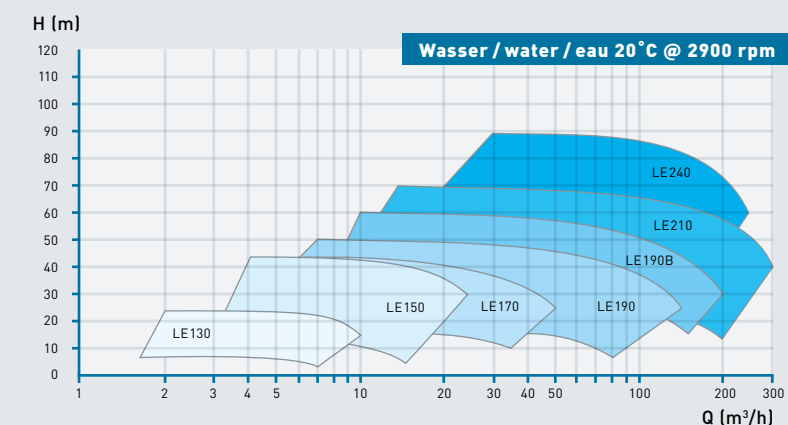
Chemicals / industry

Flow rate Q	max. 70 m³/h
Delivery head H	up to 43 m
Temperature range	minus 30 °C to 130 °C, max. 150 °C (SIP)
Viscosity	up to approx. 500 mPas
Nominal pressure	max. PN10



Centrifugal pump LE

Quiet, gentle and efficient product pumping thanks to optimised fluid-dynamics design of volute-casing and impeller geometry. The dead space-free design allows hygienic operation and fast pump cleaning.



FEATURES

- flow optimised volute casing and impeller designs with high efficiencies up to 75%
- dead space-free design (hygienic design)
- very quiet operation
- CIP and SIP compliant
- simple design/low maintenance costs
- sturdy design comprising high-quality chromium-nickel-molybdenum stainless steel 1.4435/316L with electropolished surfaces
- pumping of solids-laden media with no risk of clogging
- ideal for fast temperature changes thanks to sturdy design
- the robust design allows handling of abrasive and corrosive media
- various mechanical seal systems available
- plug-in shaft for the use of norm motors

OPTIONAL FORMS

- **ATEX**
for zones 1, 2, 21 and 22
- **PHARMA DESIGN**
for maximum safety, reliability and hygiene (surface roughnesses down to Ra < 0.4 µm)
- **MAGNETIC COUPLING**
hermetically sealed version LEM for crystallising, toxic, flammable and environmentally hazardous liquids
- **VERTICAL INSTALLATION**
for simple residual drainage
- **BEARING HOUSING**
for special requirements
- **INDUCER**
for low NPSH_a values < 1 m
- **MOBILE**
with sturdy trolley and accessories to customer requirements
- **HEATABLE**
with liquid or heating cartridge
- **COMPLETE DRAINING**
complete draining at the lowest point of the pump



The product is bottled or filled into containers with whisper-quiet operation and gentle pumping action.

Foodstuffs

Beverages

Pharmaceuticals / cosmetics

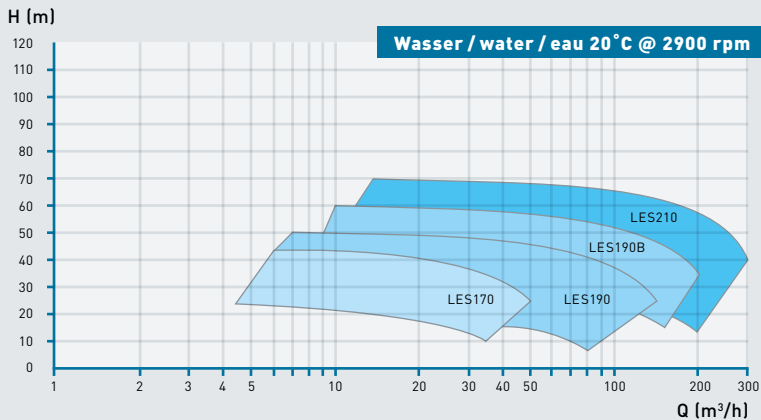
Chemicals / industry

Flow rate Q	max. 240 m³/h
Delivery head H	up to 90 m
Temperature range	minus 30 °C to 130 °C, max. 150 °C (SIP)
Viscosity	up to approx. 500 mPas
Nominal pressure	PN10 to PN160



Hybrid centrifugal pump LES

The stainless-steel hybrid centrifugal pump LES is an excellent alternative to the side channel pumps. It has a specially developed pump cover with an inducer and an integrated recirculation system, thus allowing it to be used successfully as a self-priming pump.



FEATURES

- flow optimised volute casing and impeller designs with high efficiencies up to 72%
- dead space-free design (hygienic design)
- excellent behaviour with liquids containing high gas shares
- very quiet operation
- CIP and SIP compliant
- simple design/low maintenance costs
- sturdy design comprising high-quality chromium-nickel-molybdenum stainless steel 1.4435/316L with electropolished surfaces
- ideal for fast temperature changes thanks to sturdy design
- option for various mechanical seal systems
- completely drainable
- with inducer
- plug-in shaft for the use of norm motors

OPTIONAL FORMS

- **ATEX**
for zones 1, 2, 21 and 22
- **PHARMA DESIGN**
for maximum safety, reliability and hygiene (surface roughnesses down to Ra <0.4 µm)
- **MAGNETIC COUPLING**
hermetically sealed version LESM for crystallising, toxic, flammable and environmentally hazardous liquids
- **BEARING HOUSING**
for special requirements
- **MOBILE**
with sturdy trolley and accessories to customer requirements
- **COMPLETE DRAINING**
at the lowest point of the pump



Innovative recirculation system for pumping media containing gas.

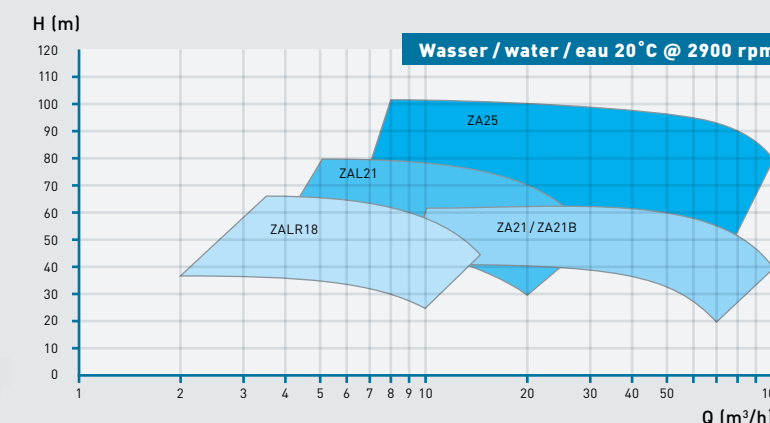
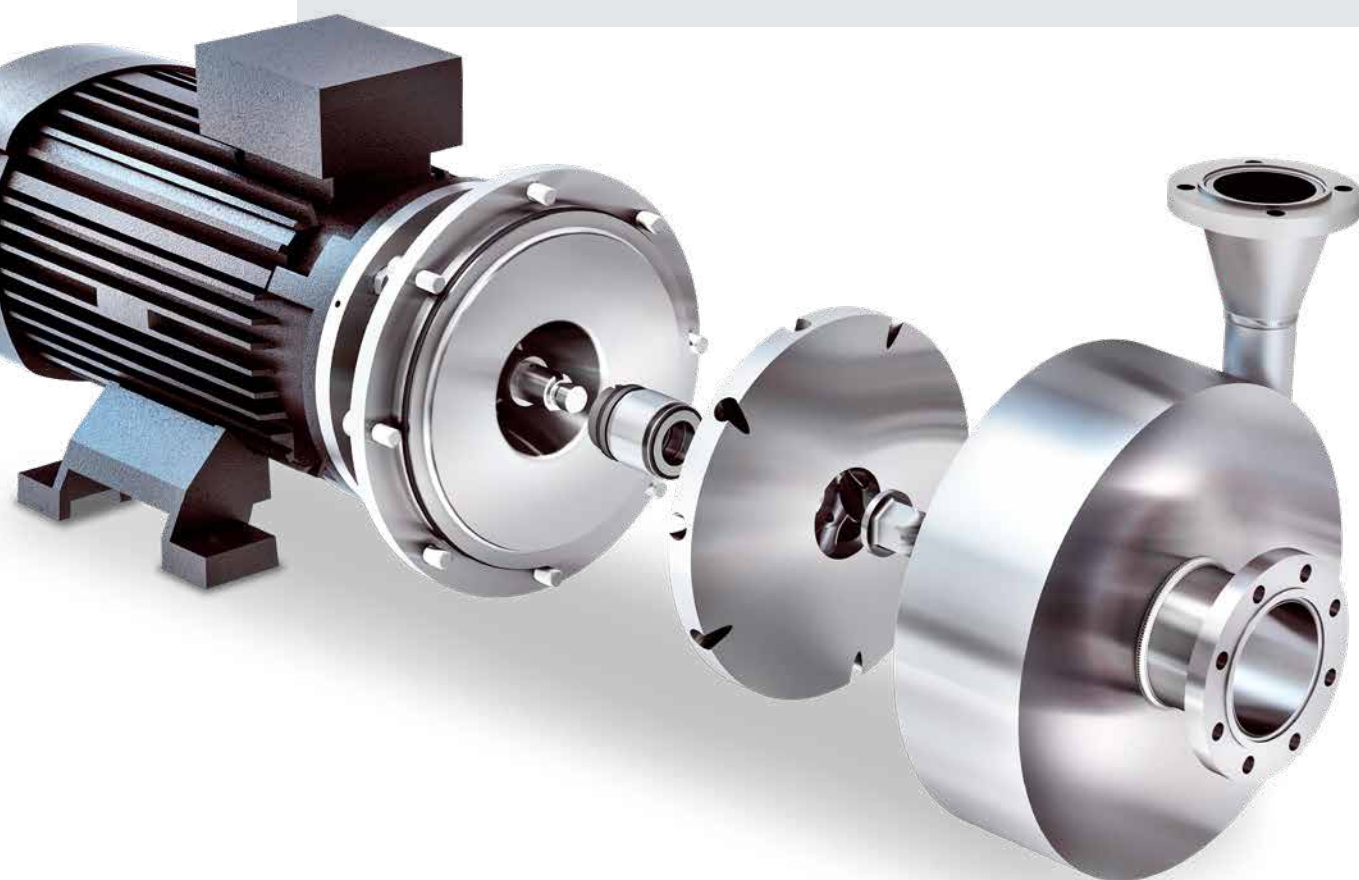
-  **Foodstuffs**
-  **Beverages**
-  **Pharmaceuticals / cosmetics**
-  **Chemicals / industry**

Flow rate Q	max. 100 m³/h
Delivery head H	up to 70 m
Temperature range	minus 30 °C to 130 °C, max. 150 °C (SIP)
Viscosity	up to approx. 100 mPas
Nominal pressure	PN10 to PN63



Centrifugal pump ZA/ZAL

The pump type ZAL with its specially designed impeller achieves a maximum pressure of up to 10 bar with a single stage. It also ensures gentle and quiet product pumping. Due to the steep characteristic curve of the pump it can be controlled well with a frequency converter. The ZA pump is suitable for applications with high flow rates at high delivery pressures.



FEATURES

- dead space-free design (hygienic design)
- very quiet operation
- CIP and SIP compliant
- simple design/low maintenance costs
- sturdy design comprising high-quality chromium-nickel-molybdenum stainless steel 1.4435/316 L with electropolished surfaces
- pumping of solids-laden media with no risk of clogging
- ideal for fast temperature changes thanks to sturdy design
- the sturdy design allows handling of abrasive and corrosive media
- option for various mechanical seal systems
- high delivery head with a single stage pump
- plug-in shaft for the use of norm motors

OPTIONAL FORMS

- **ATEX**
for zones 1, 2, 21 and 22
- **PHARMA DESIGN**
for maximum safety, reliability and hygiene (surface roughnesses down to Ra < 0.4 µm)
- **MAGNETIC COUPLING**
hermetically sealed version ZALM and ZAM for crystallising, toxic, flammable and environmentally hazardous liquids
- **VERTICAL INSTALLATION**
for simple residual drainage
- **BEARING HOUSING**
for special requirements
- **MOBILE**
with sturdy trolley and accessories to customer requirements
- **HEATABLE**
with liquid or heating cartridge
- **COMPLETE DRAINING**
at the lowest point of the pump



High-quality materials ensure that the media remains pure.



Foodstuffs



Beverages



Pharmaceuticals / cosmetics



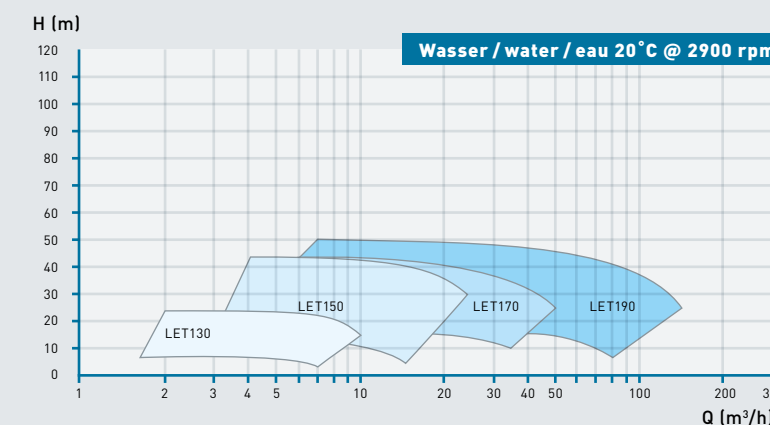
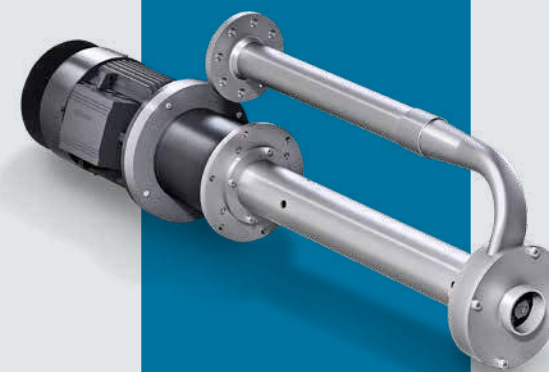
Chemicals / industry

Flow rate Q	max. 100 m³/h
Delivery head H	up to 100 m
Temperature range	minus 30 °C to 130 °C, max. 150 °C (SIP)
Viscosity	up to approx. 500 mPas
Nominal pressure	PN10 to PN160



Submersible centrifugal pump LET

The submersible centrifugal pump can be used for various liquids in all areas of industry. It is made of corrosion-resistant stainless steel 1.4435 and is manufactured for submersion depths of 0.3 m to max. 3 m in a modular system. Its special strength is its application diversity since it can also be used for explosion-hazard liquids in EX zones 1 and 2. The pump is specifically suitable for chemicals, solvents, industrial effluents and alcohols. It is manufactured precisely to customer requirements.



FEATURES

- pumping of solids-laden media with no risk of clogging
- simple modular design
- sturdy design comprising high-quality stainless steel 1.4435/316L
- low lifecycle costs and long service life
- for viscous liquids up to approx. 200 mPas
- sturdy, generously dimensioned slide bearings made of hard carbon or SSiC
- for maximum reliability even for liquids with highly abrasive action, e.g. bearing-free design (up to approx. 0.6 m)
- bearing assembly, sealing and connection facilities etc. are always matched to the specific customer requirements

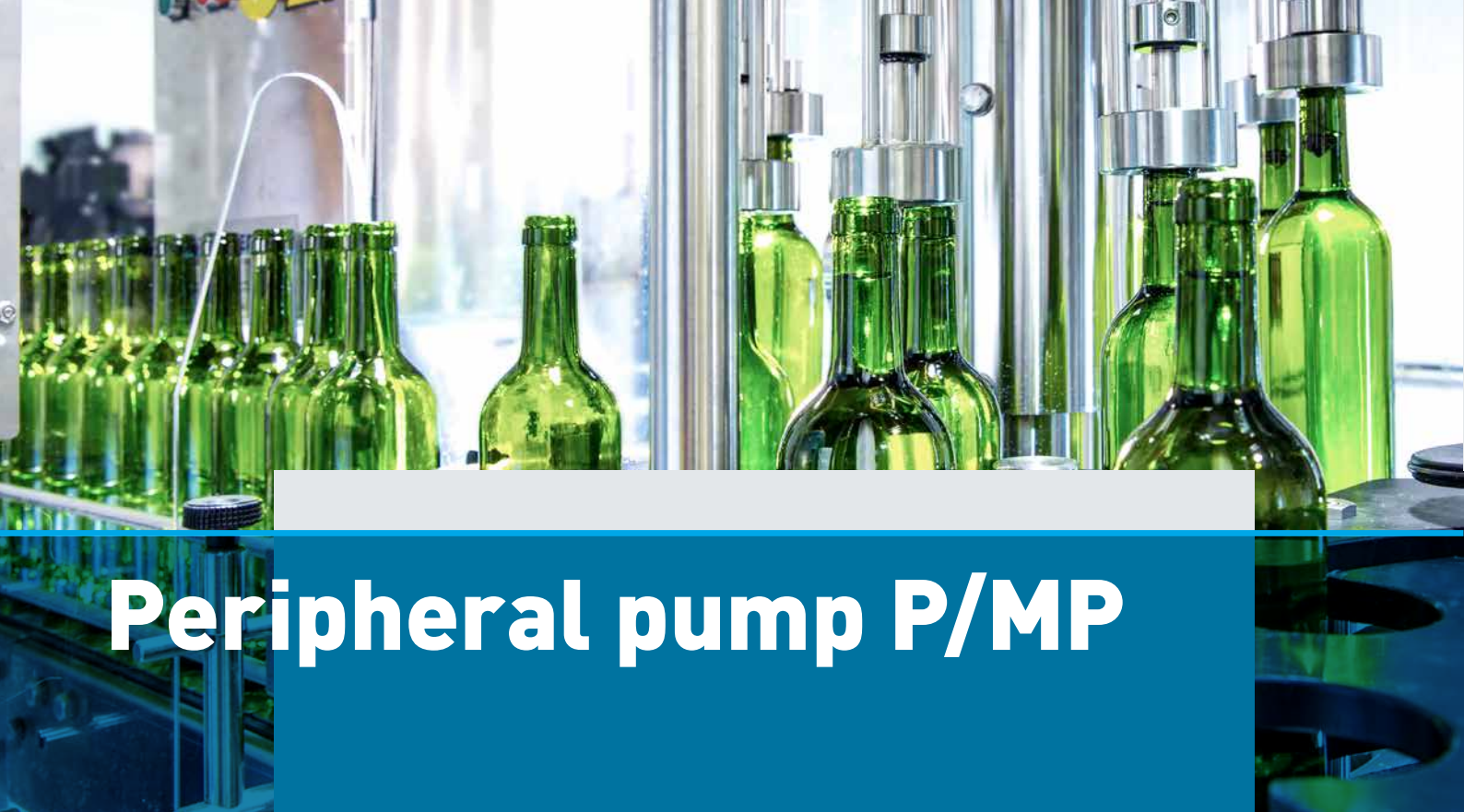
OPTIONAL FORMS

- **SUBMERSION DEPTH**
Every pump is adapted to customer requirements, possible submersion depth down to 3 m.
- **ATEX**
for zones 1, 2, 21 and 22
- **INTERMEDIATE BEARING ASSEMBLY**
 - slide bearings made of hard carbon or SSiC
 - up to 0.6 m submersion depth bearing-free with continuous shaft
- **DOVE COVER**
with or without dome cover and shape to customer requirements
- **FLUSHING OF INTERMEDIATE BEARINGS**
flushing by means of pumped medium or by externally supplied flushing medium
- **SHAFT SEALING**
radial shaft seal rings or optionally with back-to-back mechanical seal with external flushing
- **MOTOR PROTECTION (MECHANICAL PROTECTION)**
Frequent swivelling of the pump back and forth may cause mechanical damage to the motor. A protective cage may alleviate the situation.



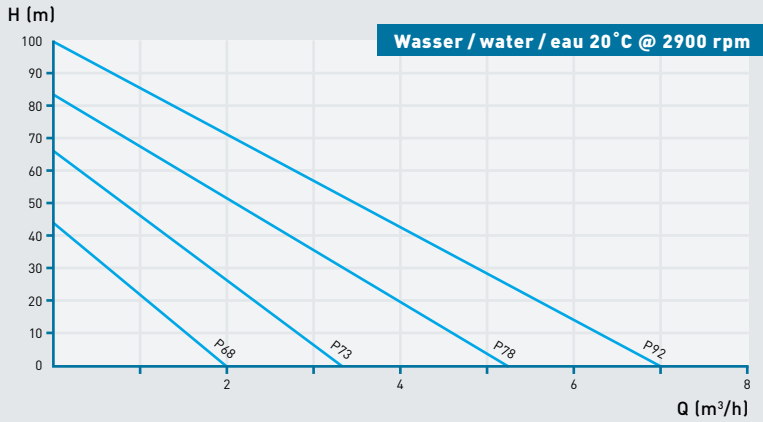
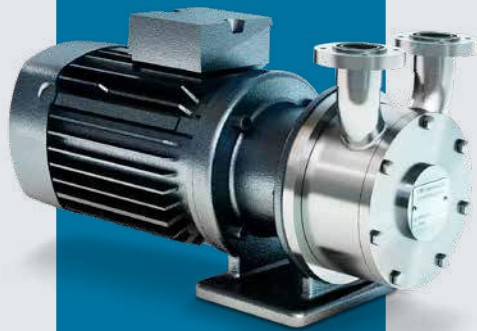
Chemicals / industry

Flow rate Q	max. 100 m³/h
Delivery head H	up to 50 m
Temperature range	minus 30 °C to 100 °C
Viscosity	up to max. 200 mPas



Peripheral pump P/MP

The peripheral pump is the right choice for all applications in which low flow rates and pulsation-free pumping against high pressure are required. The symmetrical design is suitable for both left and right rotation.



FEATURES

- pumping small quantities against high pressures and free of pulsation
- good adjustability with frequency converter due to the steep, linear pump characteristic curve
- the symmetrical design is suitable for both left and right rotation
- sturdy design comprising high-quality chromium-nickel-molybdenum steel 1.4435/316L with electropolished surfaces
- optional: SSiC bearings and ceramic shaft for low wear and avoiding abrasion
- option for various mechanical seal systems

OPTIONAL FORMS

- **ATEX**
for zones 1, 2, 21 and 22
- **PHARMA DESIGN**
for maximum safety, reliability and hygiene (surface roughnesses down to Ra < 0.4 µm)
- **MAGNETIC COUPLING**
hermetically sealed version MP for crystallising, toxic, flammable and environmentally hazardous liquids
- **BEARING HOUSING**
for special requirements
- **MOBILE**
with sturdy trolley and accessories to customer requirements
- **COMPLETE DRAINING**
complete draining at the lowest point of the pump



Pumps with magnetic coupling for safety in explosion-hazard environments.

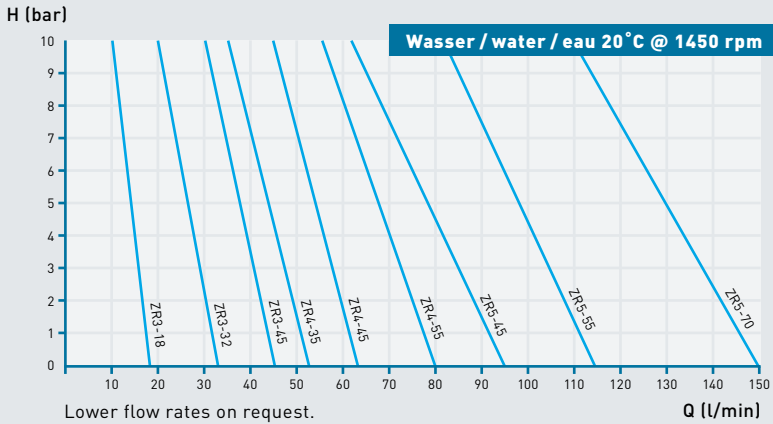
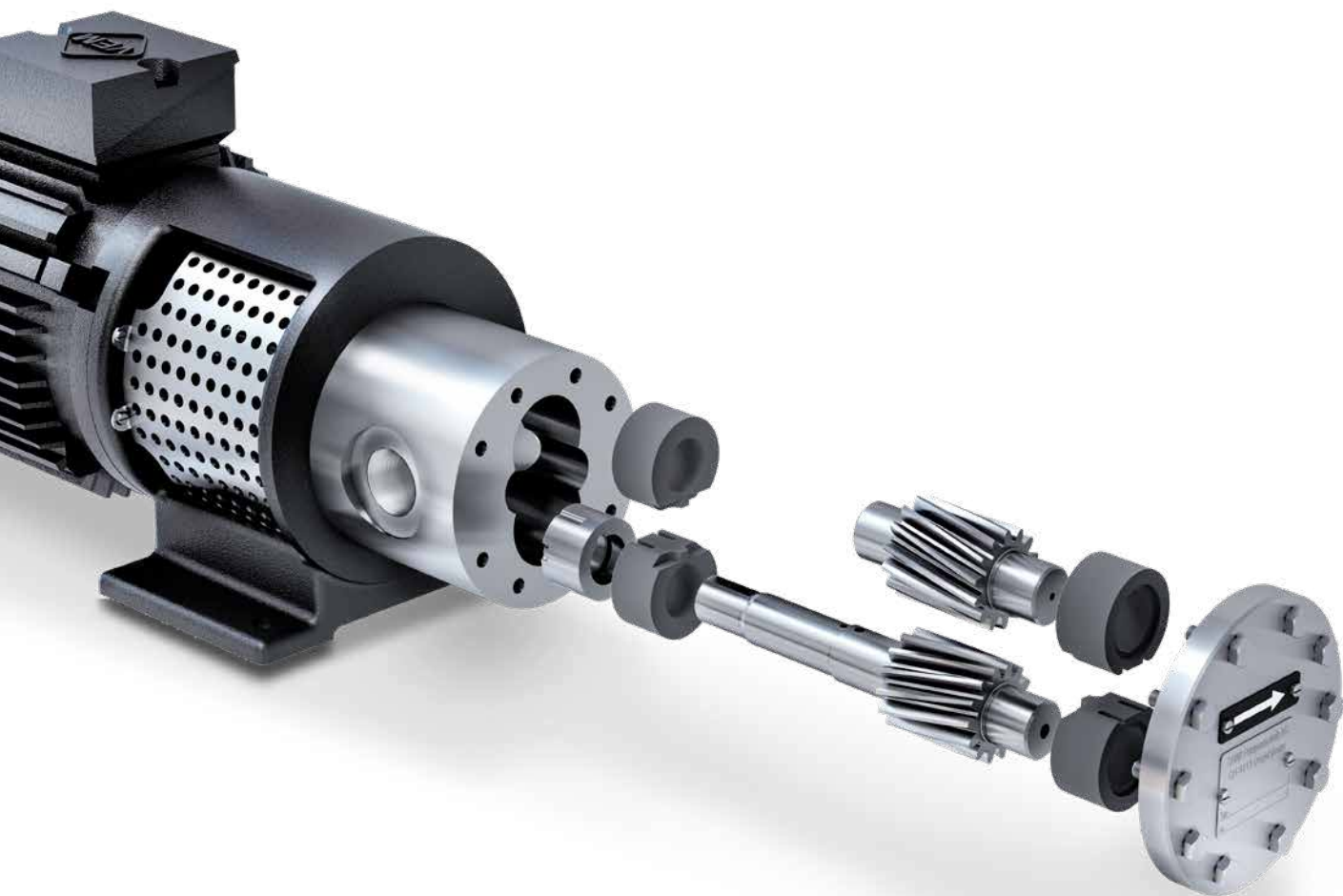
- Foodstuffs**
- Beverages**
- Pharmaceuticals / cosmetics**
- Chemicals / industry**

Flow rate Q	max. 7 m³/h
Delivery head H	max. 100 m
Temperature range	minus 30 °C to 200 °C (version MP)
Viscosity	< 150 mPas
Nominal pressure	PN10 to PN63



Gear pump ZR

This pump type is the robust all-rounder for a broad range of industrial applications. It is suitable for pumping thin-bodied to viscous media (max. 3000 mPas).



FEATURES

- sturdy design comprising high-quality chromium-nickel-molybdenum stainless steel 1.4435/316L
- helical-gears for quiet operation
- normal-priming gear pump
- pumping free of pulsation
- versatile ranges of application
- good adjustability with frequency converter due to the steep, linear pump characteristic curve
- option for various mechanical seal systems
- with proven chain coupling

OPTIONAL FORMS

- **ATEX**
for zones 1, 2, 21 and 22
- **MAGNETIC COUPLING**
hermetically sealed version ZRP3 for crystallising, toxic, flammable and environmentally hazardous liquids
- **MOBILE**
with sturdy trolley and accessories to customer requirements



Diverse applications in tank filling and spraying of liquids via nozzles.



Foodstuffs



Fodder



Chemicals / industry

Flow rate Q	max. 9 m³/h
Delivery head H	max. 100 m
Temperature range	minus 30 °C to 200 °C
Viscosity	max. 3000 mPas
Nominal pressure	up to PN16

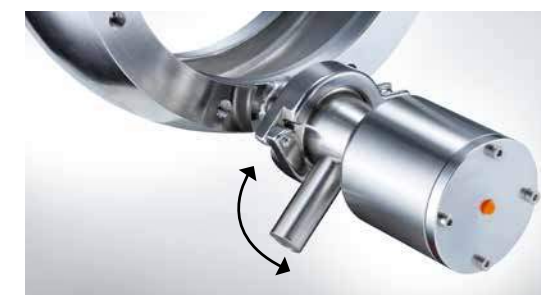
Drain valve RE15

On the SAWA drain valve RE15 the sealing to the wetted inner part of the pump is done directly at the inside surface of the pump with an O-ring. This means that the RE15 is an absolutely dead space-free alternative to all conventional diaphragm valves.

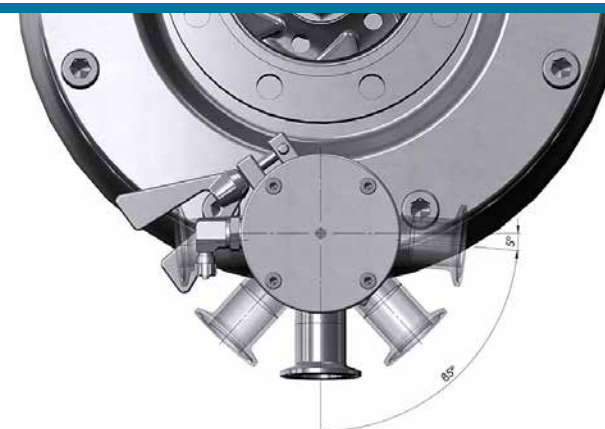


FEATURES

- absolutely dead space-free sealing
- also acts as a relief valve
- easy-to-install using tri clamp connection
- sealing with O-ring (EPDM, FKM or FFKM elastomer)
- manually operated or pneumatic
- variable position of the drainage connector (see illustration)
- visual or electronic position indicator (open/closed)
- CIP and SIP compliant
- max. operating pressure PN16
- stainless-steel version comprising 1.4435/316L
- surfaces down to $Ra < 0.2 \mu m$, electropolished
- control pressure: 4 to 7 bar



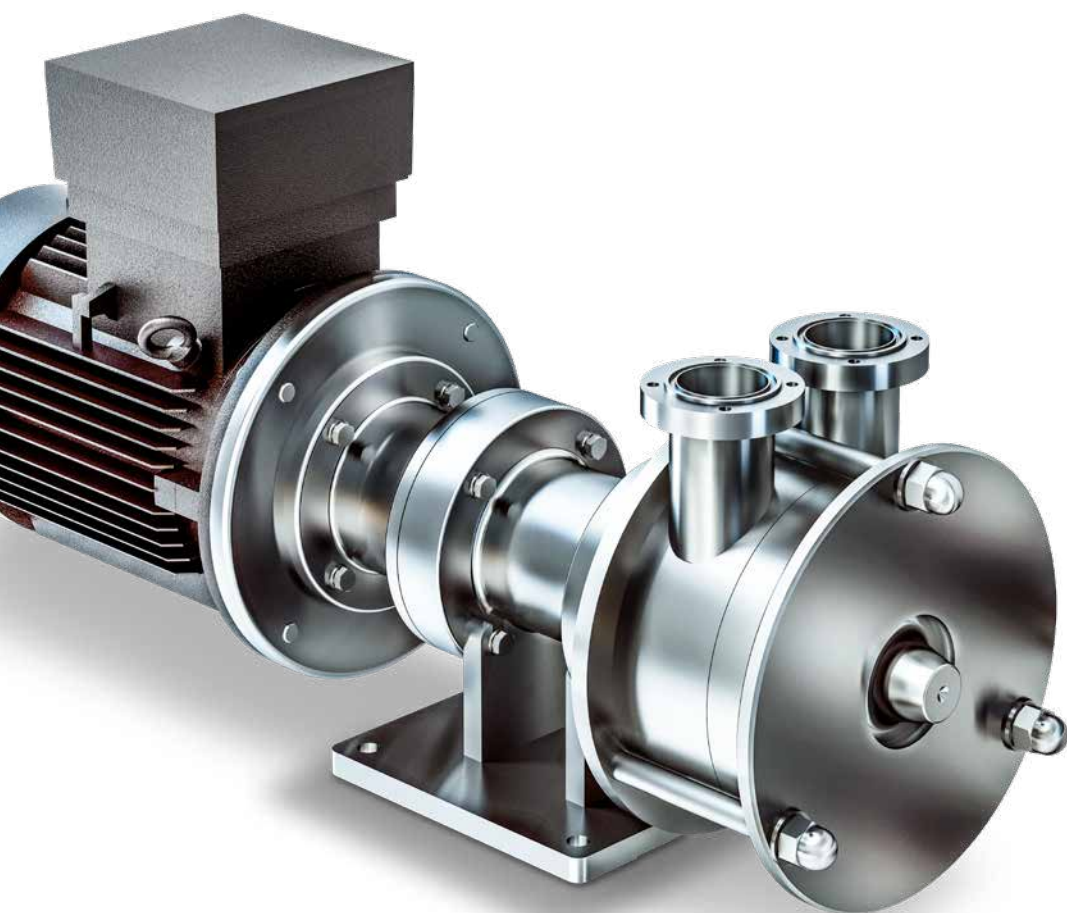
The position of the drainage connector is variable can be selected in accordance to the needs with 5° inclination to the side or up to 90° vertically downwards for instance.





Pumps for ATEX zones

Pumps pose a potential source of ignition during operation. The essential sources of ignition are hot surfaces, mechanically triggered sparks or electrostatic discharge. SAWA pumps of Categories 2 and 3 are designed to guarantee a high level of safety if operated within specifications.



FEATURES

The SAWA ATEX pumps comply with the ATEX Directives and are allowed for zones 1/21 and 2/22.

Running dry must be avoided at all costs since, otherwise, inadmissibly high temperatures may occur within a very short time.

The following measures may be taken to prevent inadmissible operating states (e.g. motor overload or running dry):

- current-consumption monitoring
- protection against dry running using Liquiphant
- temperature monitoring at the containment shell or at the slide bearings (on pumps with magnetic coupling) or at the mechanical seal
- use of double-acting mechanical seals in tandem or back-to-back arrangement
- pressure monitoring at the pressure discharge nozzle
- flow monitoring

OPTIONAL FORMS

- CATEGORY 2 – HIGH SAFETY ATEX zone 1 and 21

- bearing housing option with single-acting or double-acting mechanical seal
- magnetic coupling

- CATEGORY 3 – NORMAL SAFETY ATEX zone 2 und 22

- bearing housing option with single-acting or double-acting mechanical seal
- block pump with plug-in shaft with single-acting or double-acting mechanical seal
- magnetic coupling

The ATEX identification of the SAWA pumps is as follows: II 2G cX or II 2G/3D cX

- MOTORS

- with flameproof enclosure EEx de IIC T4 (e.g. for operation with frequency converter) for zones 1 and 2 or
- EEx e II T3 for zones 1 and 2

Other motor types are also available on request.



Pumps with magnetic coupling

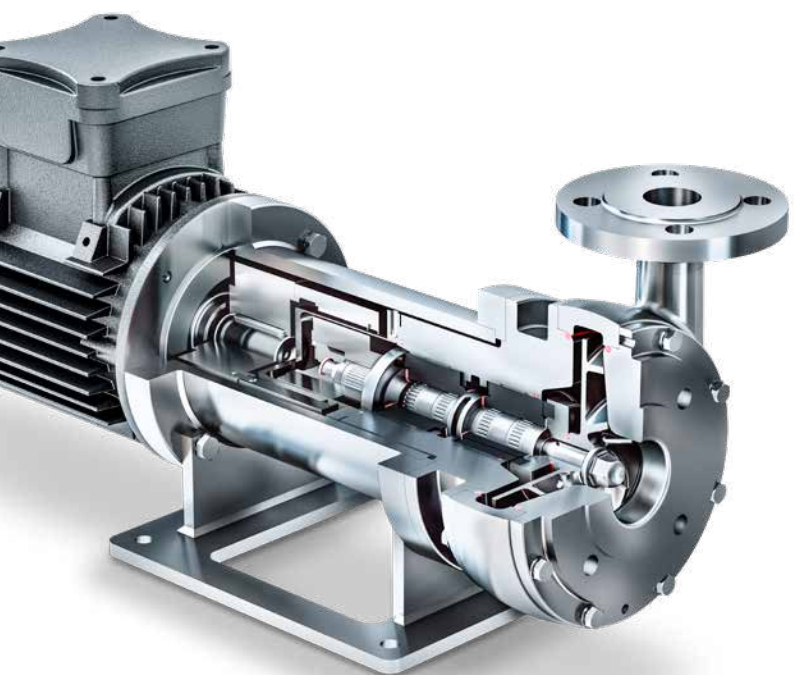
Many of the pumps in the SAWA pump range feature hermetically sealed magnetic couplings. These pumps are also designed and manufactured so that they can be used easily for hygienic and sterile applications.

ADVANTAGES

Because of their hermetically sealed design, magnetically coupled pumps are ideal when used for crystallising, toxic, flammable and environmentally hazardous liquids. The containment shell between the two parts of the magnetic coupling seals off the pumped medium to the outside. A mechanical seal is thus not required. The magnetic coupling pumps are thus far more resistant to wear and consequently are generally entirely maintenance-free. A sealing-pressure system is therefore not necessary.

RESTRICTIONS

Media containing solids and viscous media cannot be pumped owing to the narrow gaps in the area of the SSiC bearings and the containment shell. Eddy-current losses in the magnetic field of the magnetic coupling reduce the overall efficiency slightly.



POSSIBLE APPLICATIONS

- In ATEX zones: thanks to the separation of the pump and motor by means of a magnetic coupling an additional flexible coupling is not necessary.
- TA-Luft (German Technical Guidelines on Air-Quality Control): use of the hermetically sealed magnetic coupling allows unproblematic pumping of toxic media relevant to TA-Luft. The pumps are also ideal for use with media with unpleasant odours, highly volatile, flammable and highly pure media and media which crystallise in contact with air.
- Hygienic and sterile applications: magnetic coupling pumps are suitable for CIP cleaning and SIP sterilisation.

PUMP MONITORING OPTIONS

- motor monitoring by means of PTC thermistor and/or safeguarding current consumption
- temperature monitoring, e.g. on the magnetic coupling containment shell by means of PT100
- protection against dry running by means of Liquiphant in the suction line or by means of level monitoring in the tank (inlet)
- monitoring the flow rate
- pressure monitoring
- vibration monitoring

PUMP TYPES AVAILABLE WITH MAGNETIC COUPLING

- Typ HD: HDM88, HDM160, HDM190, HDM220
- Typ LE: LEM130, LEM150, LEM170, LEM190, LEM190B
- Typ LES: LESM170, LESM190, LESM190B
- Typ ZA/ZAL: ZALRM18, ZALM21, ZAM21, ZAM21B
- Typ MP: MP68, MP73, MP78, MP92
- Typ ZR: ZRP3

OPTIONAL FORMS

- including residual drainage in pump body or pump cover
- inducer on LE and ZA/ZAL
- temperature ranges from minus 30 °C to 200 °C
- system pressures up to max. PN 160
- viscosities up to max. 200 mPas



Sterile and pharmaceutical pumps

Sterile design for maximum biosafety, with Ra values down to $Ra < 0.4 \mu m$ and complete draining.
The ideal pumps for applications requiring absolute sterility.

FEATURES

- dead space-free design throughout the entire pump interior including the area of the mechanical seal
- gapless design in the area of the impeller seal and cover gasket etc.
- The easy-clean design allows complete draining of the pump. The connections for draining are chosen to customer requirements, e.g.: tri clamp or diaphragm valve (manual or automatic). One option which we recommend is the dead space-free SAWA drain valve RE15 – see Page 20
- excellent CIP and SIP characteristics
- option for surface roughness of all pump components coming into contact with the medium (pump body, pump cover, impeller, pump shaft, impeller nut and mechanical seal) down to $Ra < 0.4 \mu m$, according to customer requirements
- manufactured from solid stainless steel 1.4435/316L – others, see Page 30
- SAWA standard always electropolished, regardless of the required Ra values
- delta ferrite content $< 1\% / BN2 < 0.5\%$
- wide number of different connections available – see Page 30
- options for various mechanical seal systems or magnetic coupling available



SURFACE ROUGHNESS

The surfaces of the SAWA stainless-steel pumps are machined to customer requirements for pharmaceuticals or sterile applications, so that the pump components coming into contact with the product may have surface roughnesses of $Ra < 0.4 \mu m$.

As an option, the surface roughness can be certified by a measurement record.

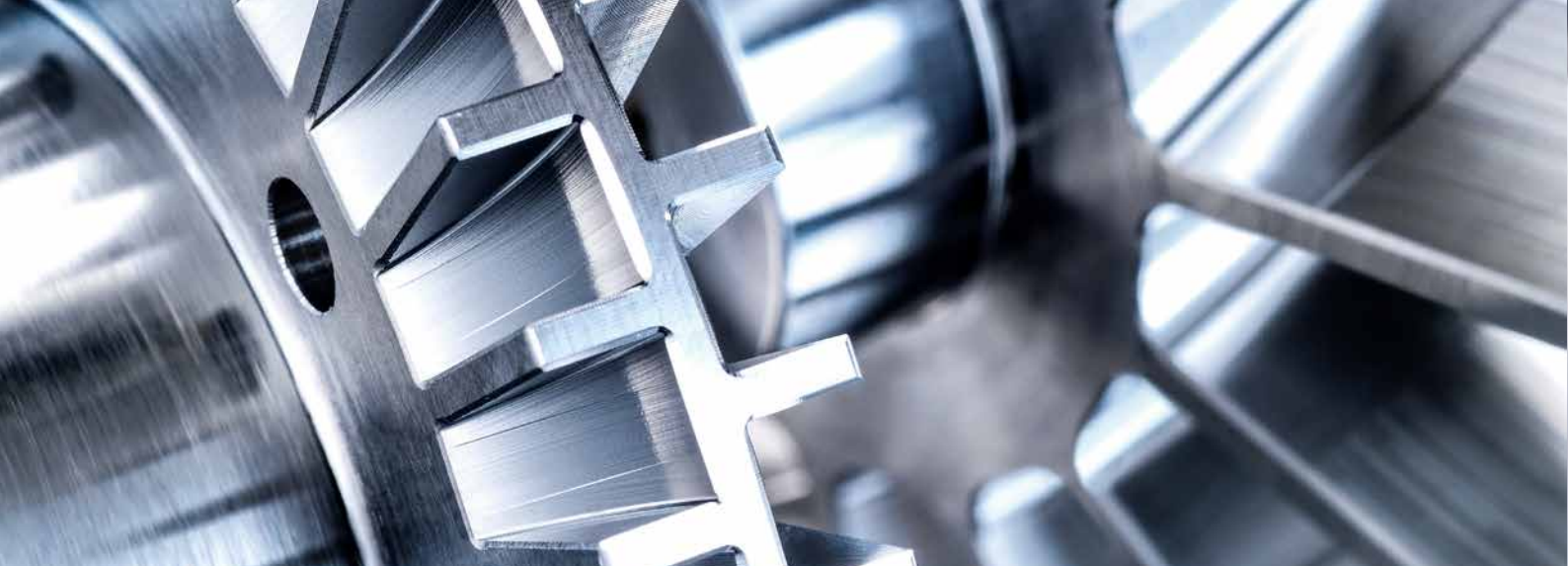
The pump components are machined accordingly in order to achieve the required surface roughness:

- machining such as turning and milling
- mechanical processing such as grinding and polishing
- finishing of the pump components includes electropolishing as standard, regardless of the required Ra values

OPTIMISED FLUID DYNAMICS

The optimised fluid-dynamics design means efficient and quiet operation throughout the required range of application and allows very gentle pumping. It also ensures hygienic operation and fast pump cleaning. The generously dimensioned conical mechanical seal housing means optimum flushing of the CIP-compliant and sterilisable mechanical seal. In addition, the ideal flow conditions guarantee wetting of the O-rings.





Sterile and pharmaceutical pumps

OPTIONAL FORMS

- **ATEX**
for zones 1, 2, 21 and 22
- **MAGNETIC COUPLING**
hermetically sealed design for crystallising, toxic, flammable and environmentally hazardous liquids
- **VERTICAL INSTALLATION**
for simple residual drainage
- **BEARING HOUSING**
for special requirements
- **INDUCER**
for low NPSH_a values < 1 m
- **MOBILE**
mobile version with sturdy trolley
- Protocol of radiographic examination of the welding seams (x-ray)
- Pump test protocol according to ISO9906
- Vibration test protocol
- Hydrostatic test protocol
- **AVAILABLE TYPES**
 - HDP and HDMP
 - LEP/LESP/LEMP
 - ZAP/ZALP/ZAMP/ZALMP
 - MPP

AVAILABLE DOCUMENTATION

- Operating and maintenance manual
- SAWA test report
- Available certificates for elastomers: FDA, USP Cl. VI, EU 1935/2004, ADI-free, phthalat-free, BPA (Bisphenol A)-free
- 2.2 DIN EN 10204 certificate of conformity
- 3.1 DIN EN 10204 inspection certificate
- Measurement reports for surface roughness, delta ferrite content and noise levels
- Welding record respectively documentation
- CE certificate of conformity
- Confirmation of electropolishing
- Cleaning protocol
- Dye penetrent test protocol



Inducers

In order to ensure perfect pumping of liquid with low NPSH values of the installation (< 2 m), SAWA offers inducers of various sizes and diameters for numerous pump types. They are made of stainless steel 316L as are the other pump components coming into contact with the medium. Inducers can be fitted in all optional forms of all available pump types.

FEATURES

An inducer is an axial pump impeller. It is fitted in front of the actual pump impeller. The purpose of the inducer is to boost the pressure at the pump impeller slightly and thus minimise the risk of cavitation. Applications typically requiring an inducer are all applications in which the pressure at the pump inlet is near the vapour pressure of the liquid.

Using an inducer may bring benefits if a very good suction capacity is required or when pumping liquids with high gas content. The inducer must be very well matched to the required capacity range. Ideally, it is possible to achieve a pump NPSH value of < 1 m.

- **MATERIAL**
stainless steel (316L)
- **AVAILABLE FOR THE FOLLOWING PUMP TYPES**
 - LE130, LE150, LE190, LE190B, LE210 and LE240
 - ZALR18, ZAL21, ZA21, ZA21B and ZA25





Technical data

MATERIALS

- **PUMPS**
for the wetted pump parts: 1.4435 (316L), duplex 1.4462, super-duplex 1.4501 and 1.4507, 1.4539 and Hastelloy, others on request
- **MECHANICAL SEALS**
hard carbon, chromium steel, tungsten carbide, SSiC or ceramic material
- **AUXILIARY SEALS AND GASKETS**
FPM/FKM, FFKM, EPDM, PTFE and FEP
- **PLAIN BEARINGS**
hard carbon and SSiC

CONNECTION OPTIONS

In accordance with DIN, ISO, ASME and other commercially available types

- threads
- flanges
- tri-clamp
- sterile connections (threads, flanges and clamp)

MOTORS

- IE3, IE4 and IE5
- synchronous or asynchronous motor
- NEMA and cUL
- with built-on frequency converter
- EEx e II T3 and EEx de IIC T4 – T6
- brake motors
- hydraulic motors for pump type HD
- hybrid drive (electric motor and hydraulic motor) for pump type HD
- pneumatic motors
- stainless-steel motors
- washdown motors
- fanless motors

IMPELLERS

FOR PUMP TYPE LE/ZA/ZAL

- open
- half-open
- closed
- inducer DN50/65/100/125

ATEX VERSIONS

- for zones 1, 2, 21 and 22
- versions with magnetic couplings or with mechanical seal in bearing housing design with flexible coupling or plug-in shaft
- type-tested ATEX motors
- various monitoring options (PT100 and protection against running dry etc.)

AVAILABLE DOCUMENTATION

- Operation and maintenance manual
- SAWA test report
- Available certificates for elastomers: FDA, USP Cl. VI, EU 1935/2004, ADI-free, phthalat-free, BPA (Bisphenol A)-free
- 2.2 DIN EN 10204 certificate of conformity
- 3.1 DIN EN 10204 inspection certificate
- measurement reports for surface roughness, delta ferrite content and noise levels
- welding record respectively documentation
- CE certificate of conformity
- Confirmation of electropolishing
- Cleaning protocol
- Dye penetrent test protocol
- Protocol of radiographic examination of the welding seams (x-ray)
- Pump test protocol according to ISO9906
- Vibration test protocol
- Hydrostatic test protocol

ACCESSORIES

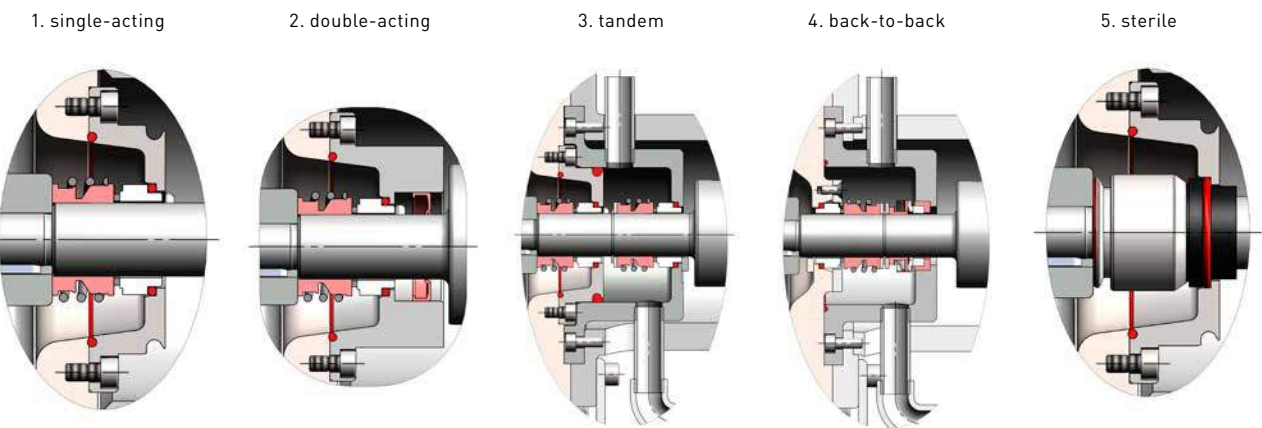
- trolley
- bypass
- residual-drainage valve
- motor protection switch and electrical accessories
- suction filter for HD pump types
- sealing-pressure systems (e.g. thermo-siphon system) for double-acting mechanical seals (tandem and back-to-back)
- heating cartridge for heatable pump bodies
- filling systems for type HD
- customised accessories



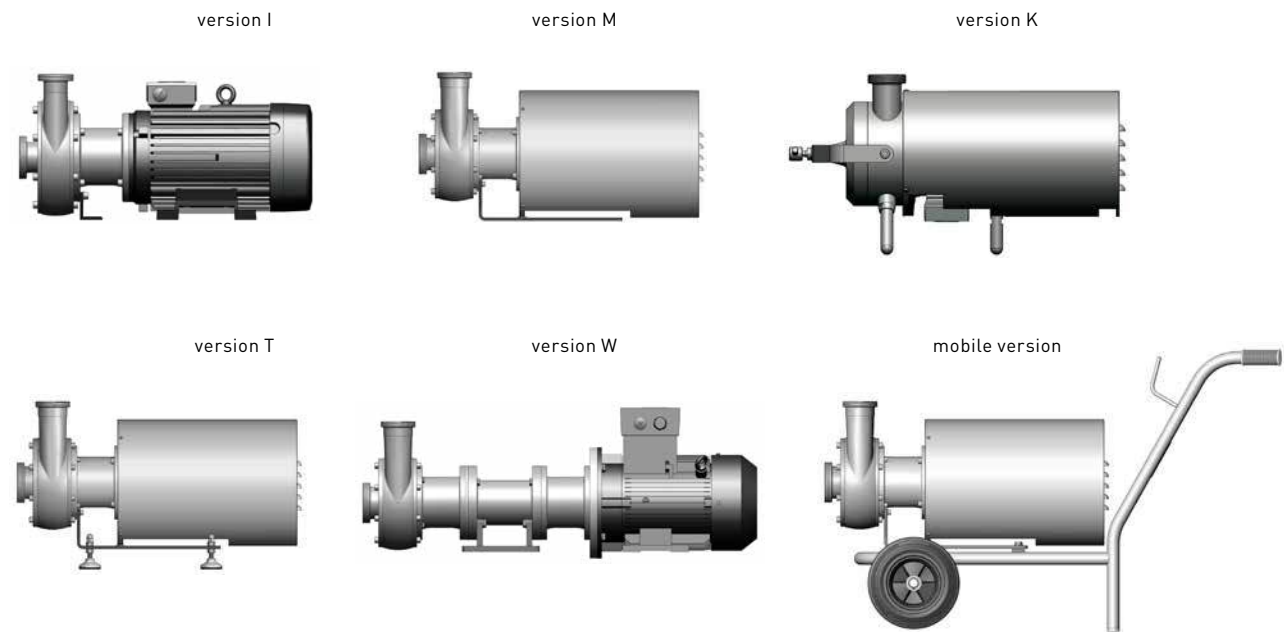


Technical data

OPTIONAL FORMS	HD	LE/LES	P/MP	ZR	ZA/ZAL
ATEX	✗	✗	✗	✗	✗
pharma design	✗	✗	✗		✗
magnetic coupling	✗	✗	✗	✗	✗
trolley	✗	✗	✗	✗	✗
bearing housing	✗	✗	✗		✗
MECHANICAL SEALS	HD	LE/LES	P/MP	ZR	ZA/ZAL
single-acting	✗	✗	✗	✗	✗
double-acting (mechanical seal and radial shaft seal)	✗	✗	✗	✗	✗
double-acting (tandem/back-to-back)	✗	✗	✗		✗
sterile mechanical seal	✗	✗	✗		✗
without seals (magnetic coupling)	✗	✗	✗	✗	✗



MODULE SUBASSEMBLIES / VARIANTS	HD	LE/LES	P/MP	ZR	ZA/ZAL
version I – foot motor without shroud	✗	✗	✗	✗	✗
version M – stainless-steel shroud and chrome-steel foot	✗	✗	✗		✗
version K – stainless-steel shroud with calotte feet	✗				
version T – stainless-steel shroud and chrome-steel foot with 4 machine feet	✗	✗	✗		✗
version W – bearing housing	✗	✗	✗		✗





Very well-prepared for all challenges

A flexible team and a well-stocked pump and spare-part warehouse await you to meet your needs – reliable and able to meet deadlines.

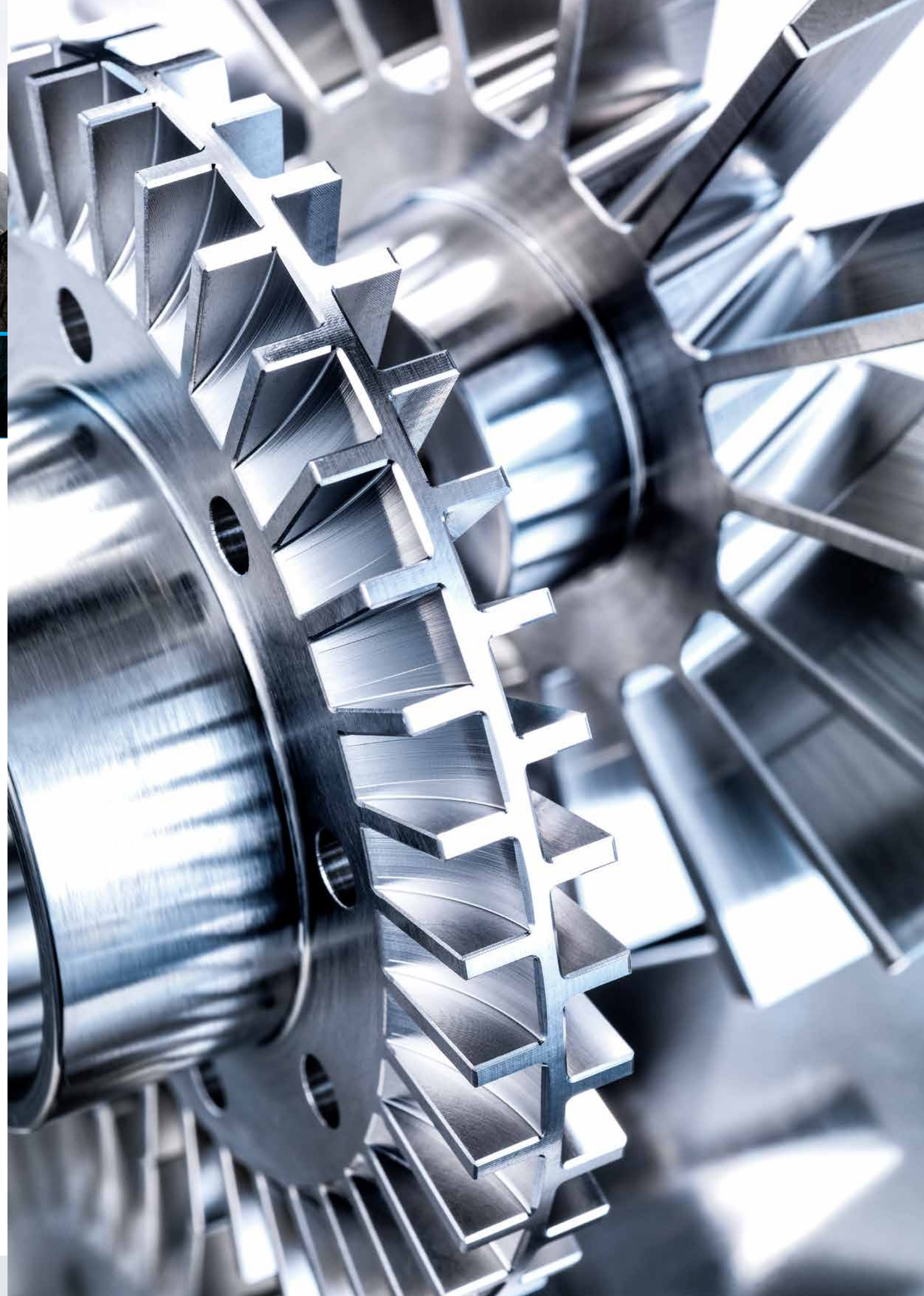
Our staff who have been with the company for many years are proven specialists in your sector. They and their know-how are at your service. From the initial consultation through to deadline-compliant delivery and from precise production through to documented quality inspection. We look forward to working together with you successfully in the long term. Rely on us.

The high quality of SAWA pumps is in demand the world over. That is why we have an extensive network of sales and servicing outlets. They assist our customers with their know-how and spread our company's good reputation throughout the world – with competent consultancy and a level of reliability in line with the philosophy of our family company.



Ives Schmidhauser, CEO of the SAWA Pumpentechnik AG, together with his father, Fredy Schmidhauser, the company's Chairman of the Board of Directors, defines the strategic targets of the new generation with foresightedness. The well-considered focus on continual expansion of the company with the emphasis on acquiring clients and client-relationship management on a partnership basis and targeted staff advancement is considered by both of them to be the greatest asset and is appreciated as such. We would like to thank you ALL who place their trust in our SAWA Pumpentechnik AG company.

Fredy Schmidhauser, Chairman of the Board, with its son, Ives Schmidhasuer, CEO of the SAWA Pumpentechnik AG, are leading the way with visions and goal-oriented leadership.





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