

# ALLWEILER – weltweit präsent ALLWEILER – global presence

Werke in Deutschland  
Plants in Germany

ALLWEILER AG  
Schraubenspindelpumpen, Kreiselpumpen,  
Zahnradpumpen, Propellerpumpen und Anlagen  
Screw Pumps, Centrifugal Pumps, Gear Pumps,  
Propeller Pumps and Systems

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ALLWEILER AG  
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Kreiskolbenpumpen und Mazeratoren  
Progressing Cavity Pumps, Peristaltic Pumps,  
Rotary Lobe Pumps and Macerators

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Die Anschriften der ALLWEILER Vertretungen weltweit finden Sie unter <http://www.allweiler.com>.  
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**ALLWEILER**   
A Colfax Business Unit

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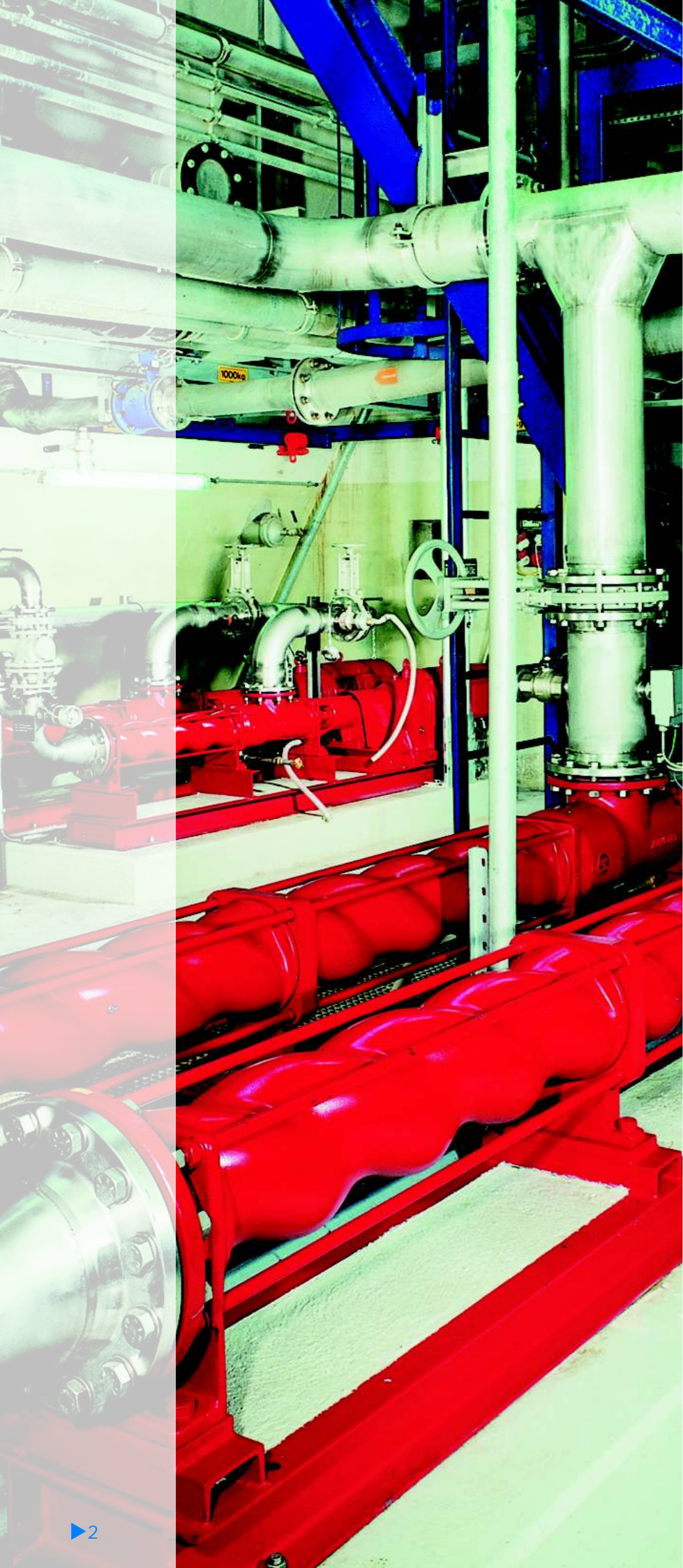
## ALLWASTE®: Pumping Wastewater Effectively

A properly balanced system of Progressing Cavity Pumps, Peristaltic Pumps, Propeller Pumps and Macerators.

- Pumping all types of clarification sludge: untreated, pretreated, activated, return sludge and processed sludge
- The ideal pump for every treatment step
- All pumps for an entire wastewater treatment plant from a single manufacturer
- Coupling, block and inline designs

**ALLWEILER**   
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**ALLWASTE® PC:**  
 These self-priming progressing cavity pumps are especially well suited for moving sludges and liquids with a high percentage of fibrous materials or solids. You can adapt every pump to your exact needs by choosing one or two feeding screws and from the many stator materials that are available.

**ALLWASTE® modularity:**  
 All ALLWASTE pumps consist largely of standardised parts. This saves you storage space for spare parts while permitting rapid and economical delivery.

Figure:  
 Four-stage ALLWASTE Progressing Cavity Pump charging a filter press in a Swiss sewage treatment plant.

## ALLWASTE®:

### Special Pumps for Every Process Step

The ALLWASTE® product family is a refined modular system where you can find the right pump for your needs.

You can choose from an entire line of pumps that employ a variety of pumping principles in order to find the pump type that most ideally suits the needs of your plant and provides the most economic and environmentally friendly option:

- ▶ Progressing Cavity Pumps
- ▶ Macerators (wet choppers)
- ▶ Peristaltic Pumps
- ▶ Centrifugal Pumps
- ▶ Propeller Pumps
- ▶ Screw Pumps

The pumped liquids include raw wastewater, the various types of sludges (raw and pre-clarification sludge, return sludge, excess sludge, slurry and activated sludge), suspensions, flocculent aids, milk of lime, filtrates and service water.

#### Globally successful

All ALLWEILER pumps reflect decades of experience with continuous improvements and optimisations for each process step. These pumps have been employed successfully for many years in plants of various sizes around the world.

#### Service and support guaranteed

If you decide to use an ALLWASTE® pump, you can count on rapid service at your location no matter where you are in the world. QuickServe® delivers original replacement parts within a defined reaction time. In addition, PumpService® will be on the job as soon as you need qualified experts at your plant.

#### Stators from our own production

ALLWEILER offers a level of security that almost no other manufacturer can provide: stators from our own production. We can quickly and economically deliver stators for progressing cavity pumps made from about 20 different materials. All stators come directly from our plant, even unusual sizes and those using uncommon materials.

#### Maximum performance with ALLWASTE®\*

|                | Progressing Cavity Pumps | Macerators | Peristaltic Pumps | Screw Pumps | Centrifugal Pumps | Propeller Pumps |
|----------------|--------------------------|------------|-------------------|-------------|-------------------|-----------------|
| Q              | 7,500 l/min              | 160 m³/h   | 1,000 l/min       | 7,500 l/min | 2,300 m³/h        | 35,000 m³/h     |
| p <sub>N</sub> | 36 bar                   | H 5 m      | 16 bar            | 280 bar     | 25 bar            | H 20 m          |
| t              | 150                      | 80         | 80                | 400         | 350               | 200 °C          |
| η/v            | 1,000,000                | -          | 100,000           | 100,000     | -                 | - mm²/s         |

\* All performance data listed here and in the following tables apply to 50-Hz operation.



Pumps of the ALLWASTE® PC series are designed to have low operational costs and to stay in service for decades. Besides the long maintenance intervals and ease of service, their consistent efficiency during continuous operation is another major factor in their success.

ALLWASTE® pumps exhibit not only high quality and a high service life. ALLWEILER also guarantees rapid, nonbureaucratic and competent on-site help if you experience disturbances. Our customers also benefit from simple ordering of replacement parts from employees who are familiar with every system.



## ALLWASTE®:

### Ideal for All Liquids in a Clarification Plant

The various pumping principles of the ALLWASTE® pumps ensure that you will always have the best pump type for each liquid you need to pump.

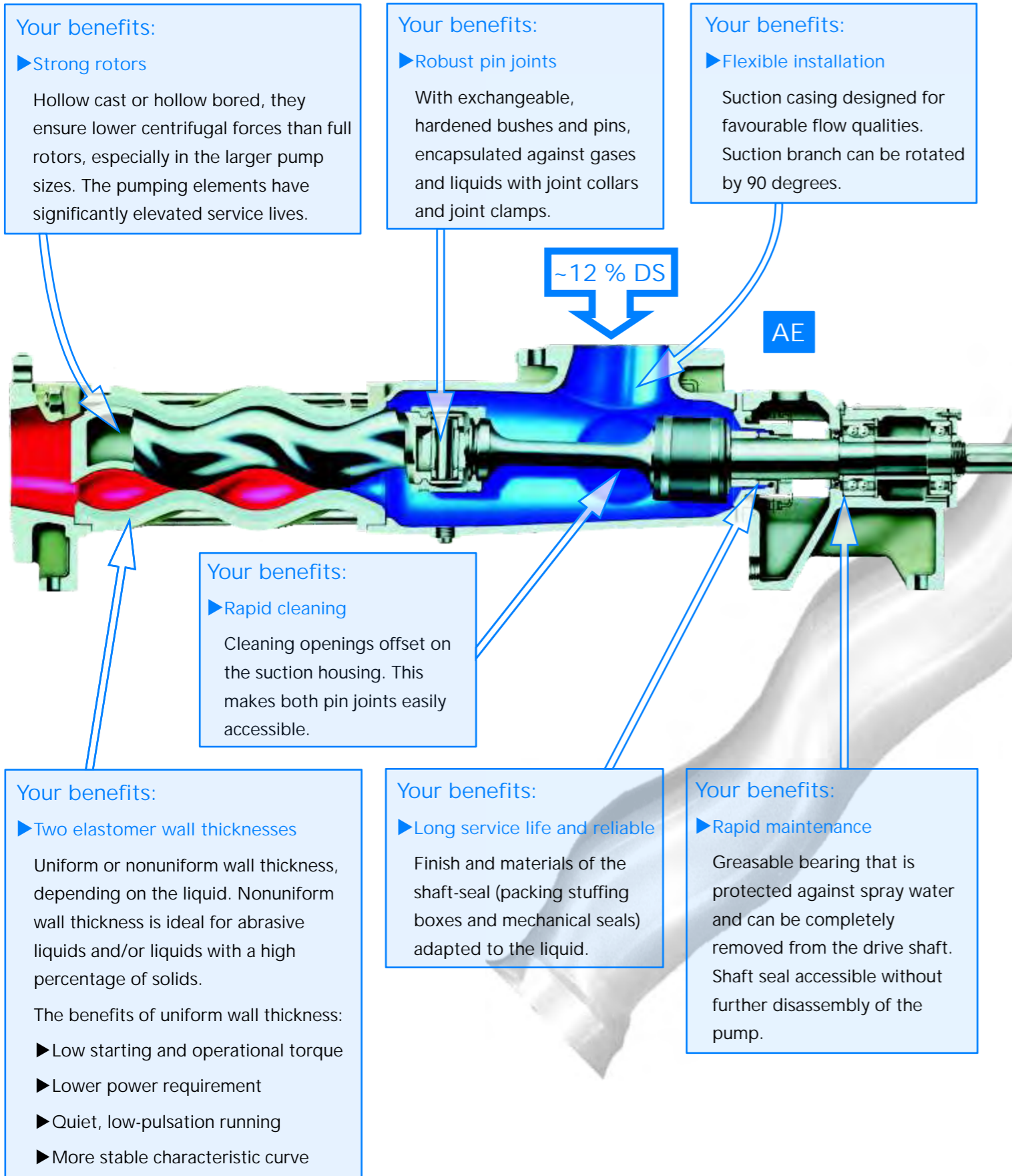
| Pumped liquid  | Pump type                |            |                   |                   |                 |             |
|--|--------------------------|------------|-------------------|-------------------|-----------------|-------------|
|  | Progressing Cavity Pumps | Macerators | Peristaltic Pumps | Centrifugal Pumps | Propeller Pumps | Screw Pumps |
| Untreated sewage                                     |                          |            |                   |                   |                 |             |
| Faecal/untreated/fresh sludge                        |                          |            |                   |                   |                 |             |
| Excess sludge  |                          |            |                   |                   |                 |             |
| Return sludge  |                          |            |                   |                   |                 |             |
| Circulated sludge (Denitrification/Nitrification)    |                          |            |                   |                   |                 |             |
| Pre-setting sludge                                   |                          |            |                   |                   |                 |             |
| Digested sludge                                      |                          |            |                   |                   |                 |             |
| Lime milk suspension, neutralising agents            |                          |            |                   |                   |                 |             |
| Ferric chloride solution, precipitating agents       |                          |            |                   |                   |                 |             |
| Concentrated sludge                                  |                          |            |                   |                   |                 |             |
| Polyelectrolyte, flocculant parent solution          |                          |            |                   |                   |                 |             |
| Flocculating additaments                             |                          |            |                   |                   |                 |             |
| Slurry, dewatered sludges with up to 45 % DS content |                          |            |                   |                   |                 |             |
| Scum   |                          |            |                   |                   |                 |             |
| Press water, filtrate, centrate                      |                          |            |                   |                   |                 |             |
| Sampling (sewage, sewage water, sludges)             |                          |            |                   |                   |                 |             |
| Fresh/industrial/process water                       |                          |            |                   |                   |                 |             |
| Cleaning/sealing water                               |                          |            |                   |                   |                 |             |
| Adsorbents/oxydants/disinfectants                    |                          |            |                   |                   |                 |             |
| Thermal oil, hot water                               |                          |            |                   |                   |                 |             |
| Light/heavy oils                                     |                          |            |                   |                   |                 |             |



# ALLWASTE® AE...: Innovative Technology and Extensive Options

Progressing Cavity Pumps of the AE... series: Individual pumps made from standardized components.

ALLWASTE® PC:  
Also available as a  
special portable or  
mobile version for  
special applications.



The "AE" and "AEB" series of pumps are self-priming, rotating displacement pumps. They move and meter thin to highly viscous liquids, neutral or aggressive liquids and liquids with a high percentage of solids. Your choice of horizontal, vertical, or immersed installation provides the options needed to meet your individual requirements. The modular system further ensures that the design type, shaft bearing and the materials used for the shaft seal and other parts will always be the most ideal possible.

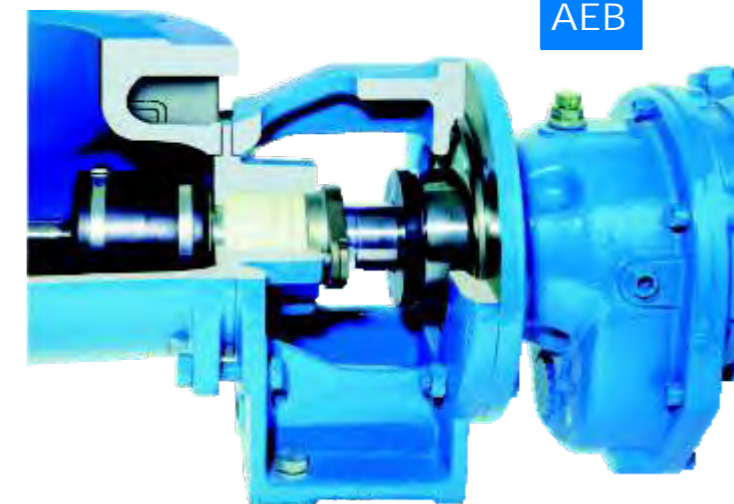
Other benefits:

- ▶ **High pumping and metering accuracy.** They meter precisely examples include flocculation, precipitation, or neutralisation agents and sample extraction.
- ▶ **Extremely gentle, continuous, low-pulsation pumping** that does not alter the liquid's structure.
- ▶ **Strong self-priming.** Your pumps will work at full performance even when pumping highly contaminated liquids.
- ▶ **All materials are available,** ensuring extended service times and long maintenance intervals.
- ▶ **Can be used to move liquids with up to 12-percent dry substances.**

We deliver these pumps with bearing brackets or lantern bases (block design type) to facilitate installation of gear motors. Infinitely adjustable gear motors also available. Other drive types, such as frequency-controlled gear motors, are possible.

The "AEB" series in a block version:

- ▶ **Shaft coated with a wear-resistant material** in the area of the packing stuffing box.
- ▶ **Split stuffing box gland** that is easy to remove
- ▶ **Small shaft seal diameter.** As a result, low sliding speed and friction.
- ▶ **Clamping set provides tolerance-free, self-sealing plug-in shaft.** German patent No. 19824847, US patent No. 6,227,829



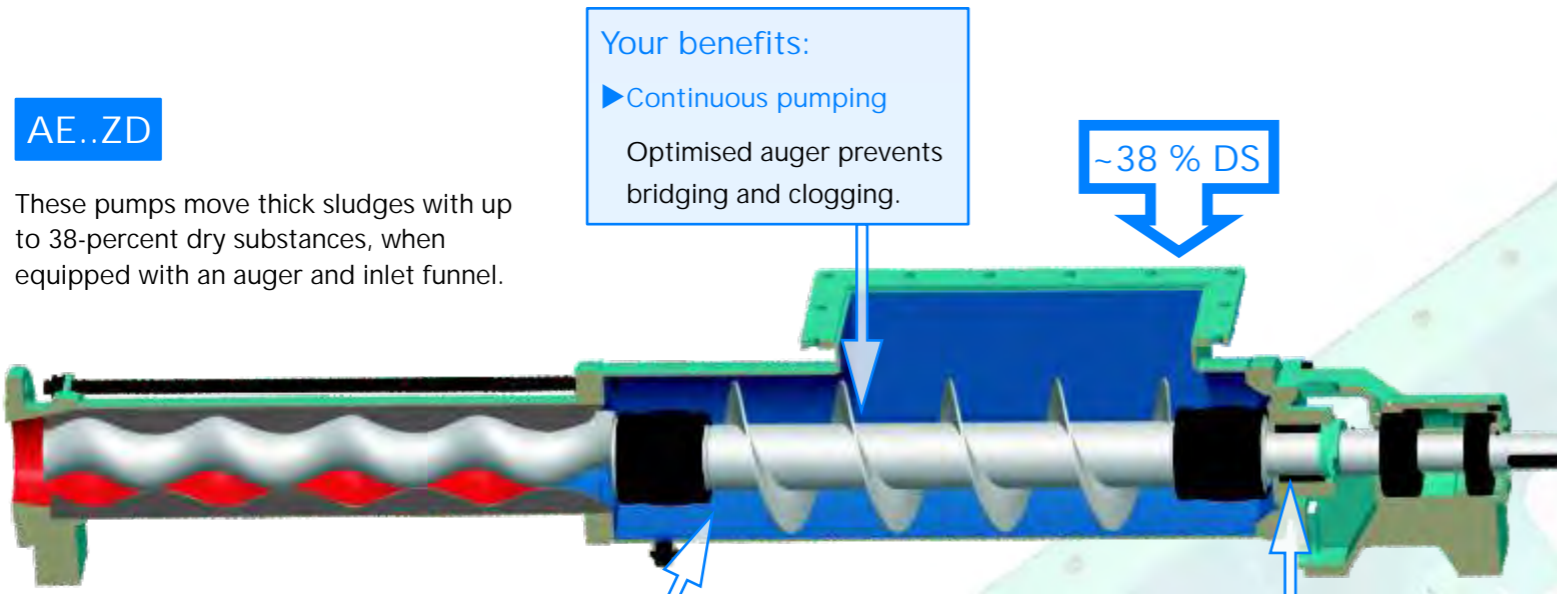
# ALLWASTE® AE...ZD/RG: For Liquids with a Large Amount of Solids or Fibers

ALLWASTE® PC:  
Reliable pumping even  
with up to 45-percent  
dry substances and long  
fibers.

You can expand the AE and AEB series with one or two augers for highly viscous liquids.

## AE..ZD

These pumps move thick sludges with up to 38-percent dry substances, when equipped with an auger and inlet funnel.



Your benefits:  
▶ Continuous pumping  
Optimised auger prevents bridging and clogging.

~38 % DS



The "AE" and "AEB" series also reliably pump your drained and thick sludges. They were designed especially to handle liquids that are highly viscous, non-free-flowing, neutral or aggressive, clean or abrasive and gaseous. Fibers and solids in the pumped liquid are not a problem.

With the ability to handle up to about 45-percent dry substances, these pumps have virtually no competition. Depending on your requirements, these pumps will be equipped at the factory with one or two feed screws.

Thanks to the ALLWEILER modular system, the feed screws are easily mounted between the rotor and drive shaft. All other parts are unchanged. Both pumps will save you money, both at procurement and in operation, since they are constructed of standardised components. Another benefit is that the replacement and wearing parts you need will be delivered to your plant quickly and you will need to hold fewer parts in stock.

Your benefits:  
▶ Clean and free  
The shape of the trough and the inlet funnel/suction housing prevent deposits.

Your benefits:  
▶ Seal type can be changed quickly  
Exchangeable stuffing box/mechanical seal housing between suction housing and bearing base/lantern base.

Your benefits:  
▶ Reliability  
The especially long stuffing housing ensures that the pumping elements will be filled reliably.

Your benefits:  
▶ Disturbance-free operation  
The inlet funnel's vertical wall surfaces reliably prevent the pumped material from forming deposits. Two edge-running augers prevent bridging.

▶ 1/2 or 2/3-lobed pumping elements

1/2: for liquids with higher percentages of solids.

2/3: for liquids with up to 10-percent dry substances.

Pumps with the new 2/3-lobed pumping elements have significantly greater power density than those with 1/2-lobed pumping elements and generate about twice as much flow volume at the same speed.

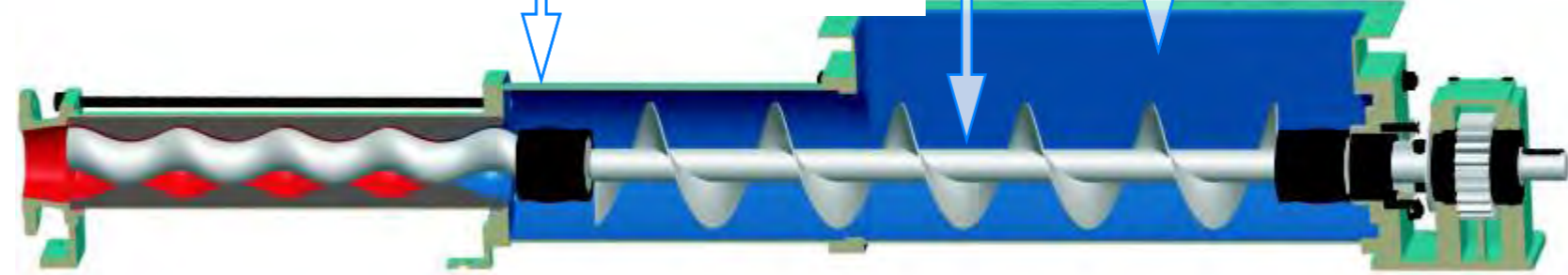
The modular design makes it possible at any time to adapt any ALLWASTE® PC pump to the current liquid and the desired pumping volume simply by exchanging the pumping elements.

## AE..RG

They pump drained sludges with up to 45-percent dry substances, when equipped with two feed or mixing augers in the inlet funnel.

Your benefits:  
▶ Maximum mixing  
Two extra-large, self-combing feeding and mixing augers.

~45 % TS



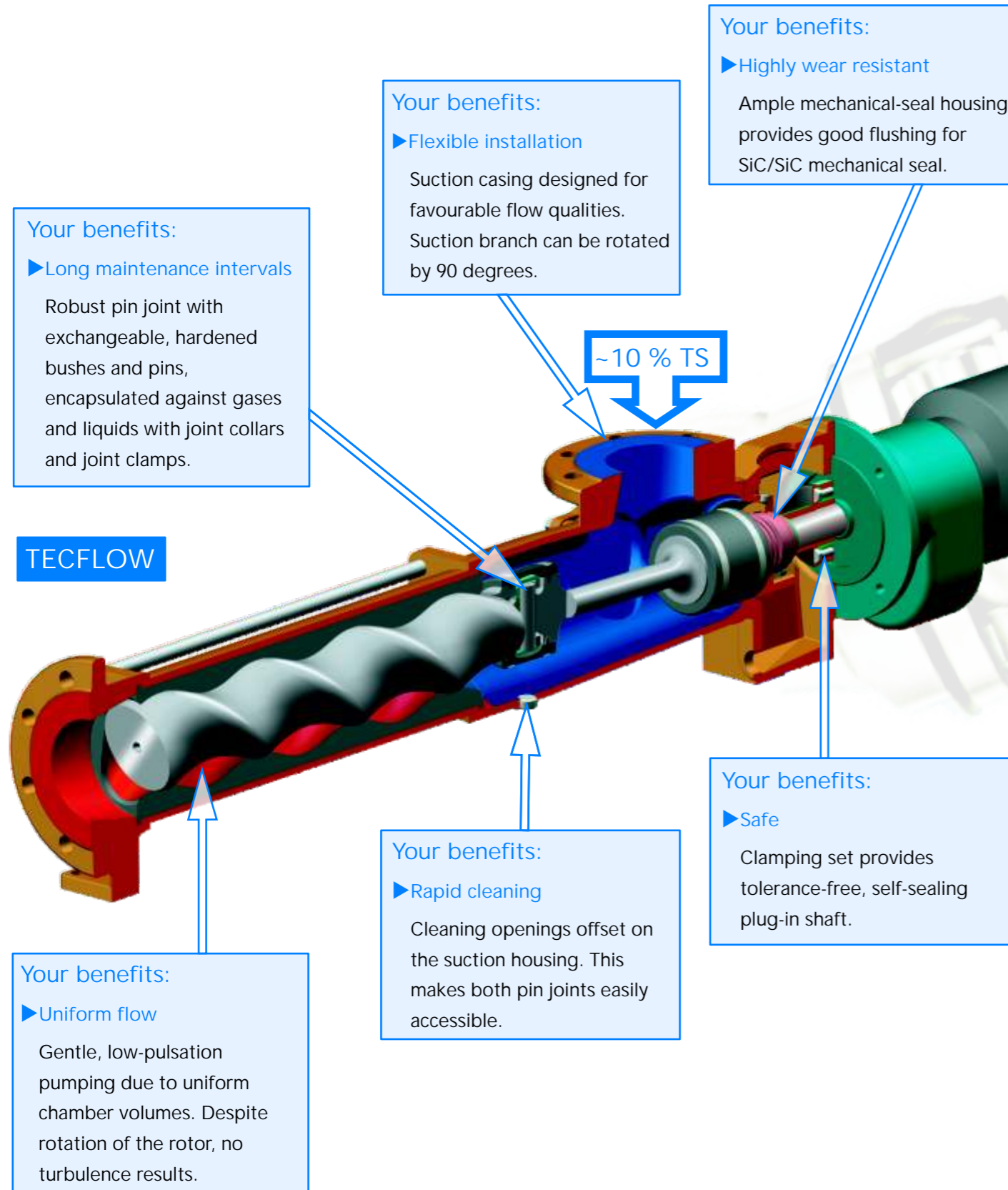
ALLWEILER  
 TECHNOLOGY  
 FOR  
 THE  
 FUTURE



# ALLWASTE® TECFLOW®: 100-percent Greater Pumping Volume

An innovative pump with 2/3-lobed pumping elements and extensive industry experience.

ALLWASTE® TECFLOW®:  
Greater performance  
with a very compact  
design and an optimal  
price/performance ratio.



With the new TECFLOW series you will have a progressing cavity pump that was designed especially for wastewater and clarification engineering. This pump will be your first choice when you have to move liquids that contain fibers and solids with up to ten percent dry substances. The TECFLOW series reflects our experience in employing progressing cavity pumps in industrial wastewater-pumping applications. The TECFLOW pumps are based upon industrial pumps proven during decades of usage and have been optimised especially for use in clarification plants. As a result, you can have a pump in your plant that fulfills industrial requirements for the price of a wastewater pump.

### High pumping capacities

The new 2/3-lobed pumping elements generate significantly greater power density than the 1/2-lobed pumping elements and generate about twice as much flow volume at the same speed.

### Optimised for wastewater applications:

- ▶ High pump availability through the use of components that have already proven themselves countless times in practical industrial applications.
- ▶ Small shaft seal diameter. As a result, low sliding speed and friction.
- ▶ Shaft-seal area easily accessible through smaller drive-flange diameter
- ▶ Low NPSH values
- ▶ Stable characteristic curve
- ▶ High metering accuracy
- ▶ Short, space-saving block-type design
- ▶ Better overall efficiency through three pumping chambers and more uniform elastomer wall thickness
- ▶ Self-priming
- ▶ Reversible

### Very flexible in installation and operation

Depending on the application, you can choose from a variety of installation and drive types:

- ▶ Block type (motor attached directly to pump via flange or lantern)
- ▶ Base attachment
- ▶ Dry installation
- ▶ Vertical installation
- ▶ Horizontal installation

TECHNOLOGY



ALLWEILER gives you more than outstanding pumps: ALLWEILER PumpService® arrives on-site within hours. If your plant experiences problems, qualified experts from our production subsidiaries and contracted companies will come quickly without major travelling expenses.

When you need replacement or wearing parts, QuickServe® ensures that they will be sent out within 24 hours. All parts come directly from the manufacturer and are precisely configured so that materials and sizes will be the most ideal possible for your liquids and requirements.

Figure: Mobile measurement recording forms the basis for condition-dependent maintenance: monitoring of the operational data pressure, volume flow, speed and temperature at the central sludge-treatment plant in Bottrop.



## ALLWASTE® Macerators: When You have to Make Solids Pumpable

A universal tool in the plant: Chopping of solids and enlargement of the surface area.



Macerators (wet choppers) break up solids or fibrous components contained in wastewater, sludges, or other liquids and make them pumpable.

Another result is that

- ▶ concentrated sludges without coarse solids can be more easily drained and

- ▶ the broken up pieces have a larger surface area. As a result, the digestion process will be faster and more thorough.

ALLWEILER wet choppers are delivered as collective macerators with a three to five-meter pumping head (installation on basins, containers) or as inline macerators with a downstream progressing cavity pump for direct installation in the piping.

### Your benefits:

- ▶ Securely sealed for a long time

Long-life mechanical seal with buffer-water connection. This flushes the mechanical seal and protects it from the entry of solids.

### Your benefits:

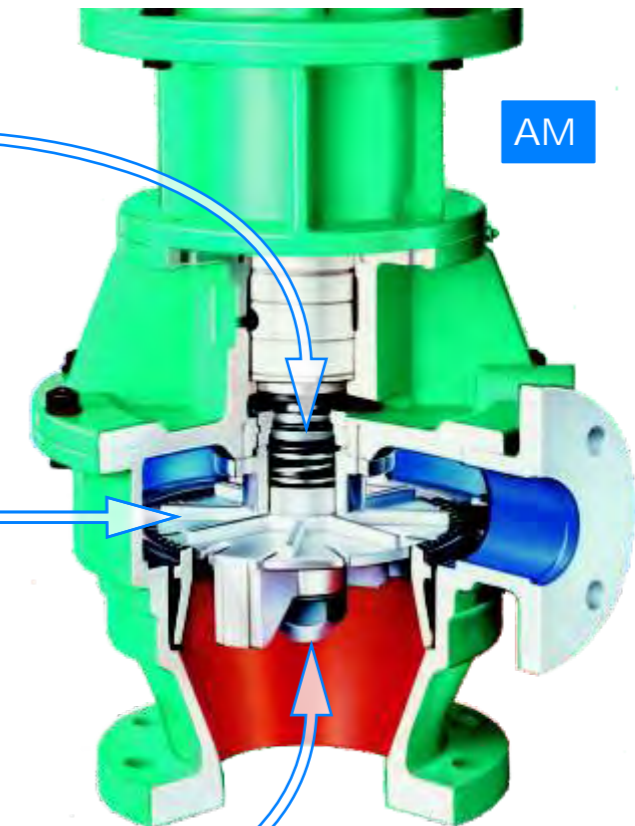
- ▶ Long maintenance intervals

Resistant due to cast impeller with soldered, very strong stellite cutting tips.

### Your benefits:

- ▶ Convenient maintenance

Easy to exchange the chopping elements without removing the piping.

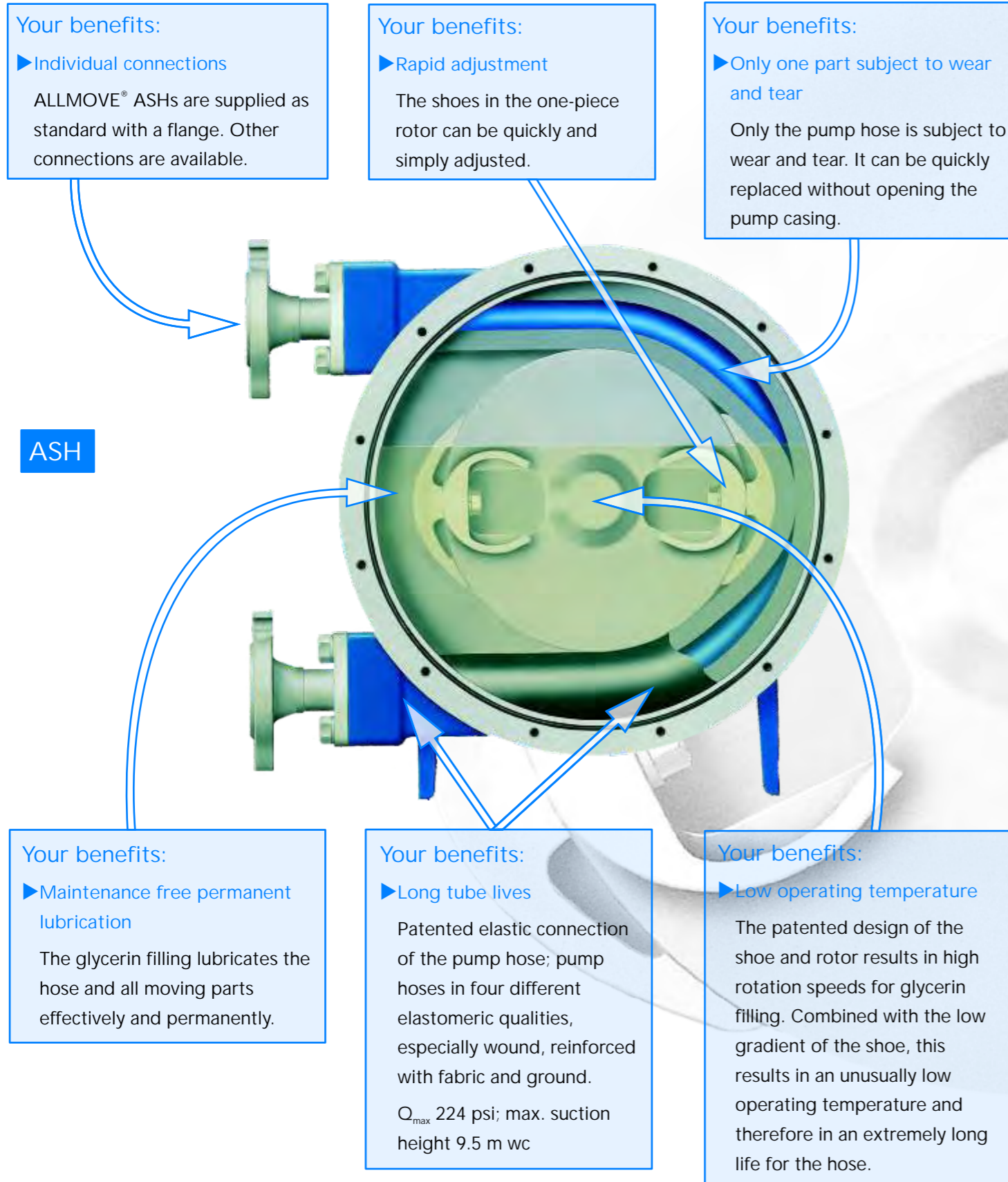




# ALLWASTE® ALLMOVE®: Patented Details Guarantee Efficient, Troublefree Operation

ALLMOVE® pumps combine a compact, simple and therefore low maintenance pumping principle with the latest technology.

**ALLMOVE®:**  
Dry self-priming, sealless,  
and valveless even for  
problematic liquids with  
large solids.



ASH



All ALLMOVE® pumps combine the safety and favourable price of a widely used, standard device with the options of an individual pump.

The tried and tested equipment is fitted in our factory with the precise materials you require. Depending on the pumped liquid, the pump is made from natural rubber, perbunan, EPDM or Hypalon.

As an optional extra for standard equipment, you have the choice of innovative technical individual solutions. These can even be tailored to meet special usage requirements:

▶ **Pulsation damper**

An elastic damper hose changes its chamber volumes depending on the fluctuating pressure stresses in its chamber volumes, thereby evening out volume flow and pressure variations. The pulsation damper protects both pumps and pipelines. Pulsing is reduced by up to 95 %.

▶ **Safety devices**

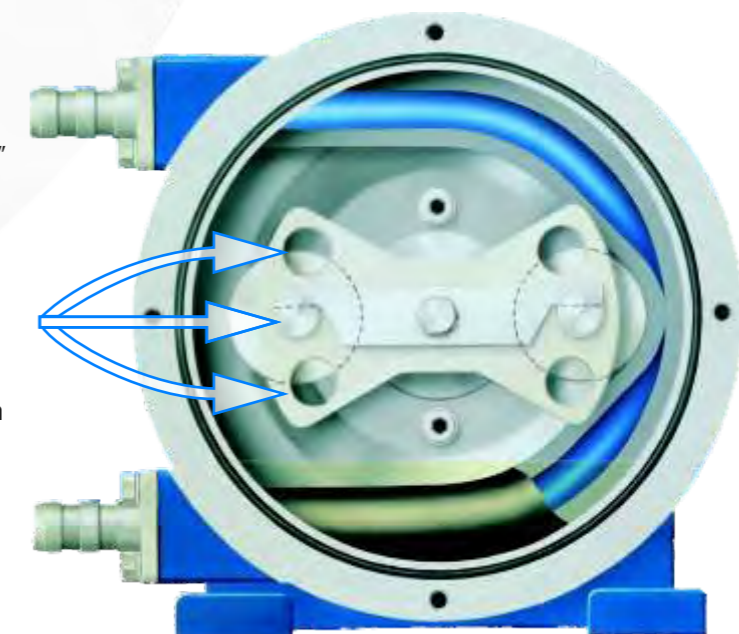
A hose fracture detector ("capacitive approximation switch") immediately stops the drive, by means of a control switch, as soon as pumped liquid enters the pump casing. Thereby, ensuring that when there is any disruption, there is no damage to the mechanism.

▶ **Vacuum support**

With the vacuum installation you can achieve high suction of up to 9.5 m wc, rapidly pump even highly viscous media or measure very precisely. The vacuum installation thereby improves the recoil strength of the pump hose after the rolling process. In addition, the pump hose retains its full suction power throughout its lifetime.

ASL

All the characteristics of the "large" range feature in the ALLMOVE® ASL. Instead of shoes, this version makes use of large adjustable pressure rollers. Changes in the hose pre-stress are made using the detachable roller axle. This solution is also patented. Instead of the standard hose connection, individual types of connections are available.



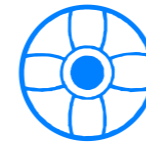
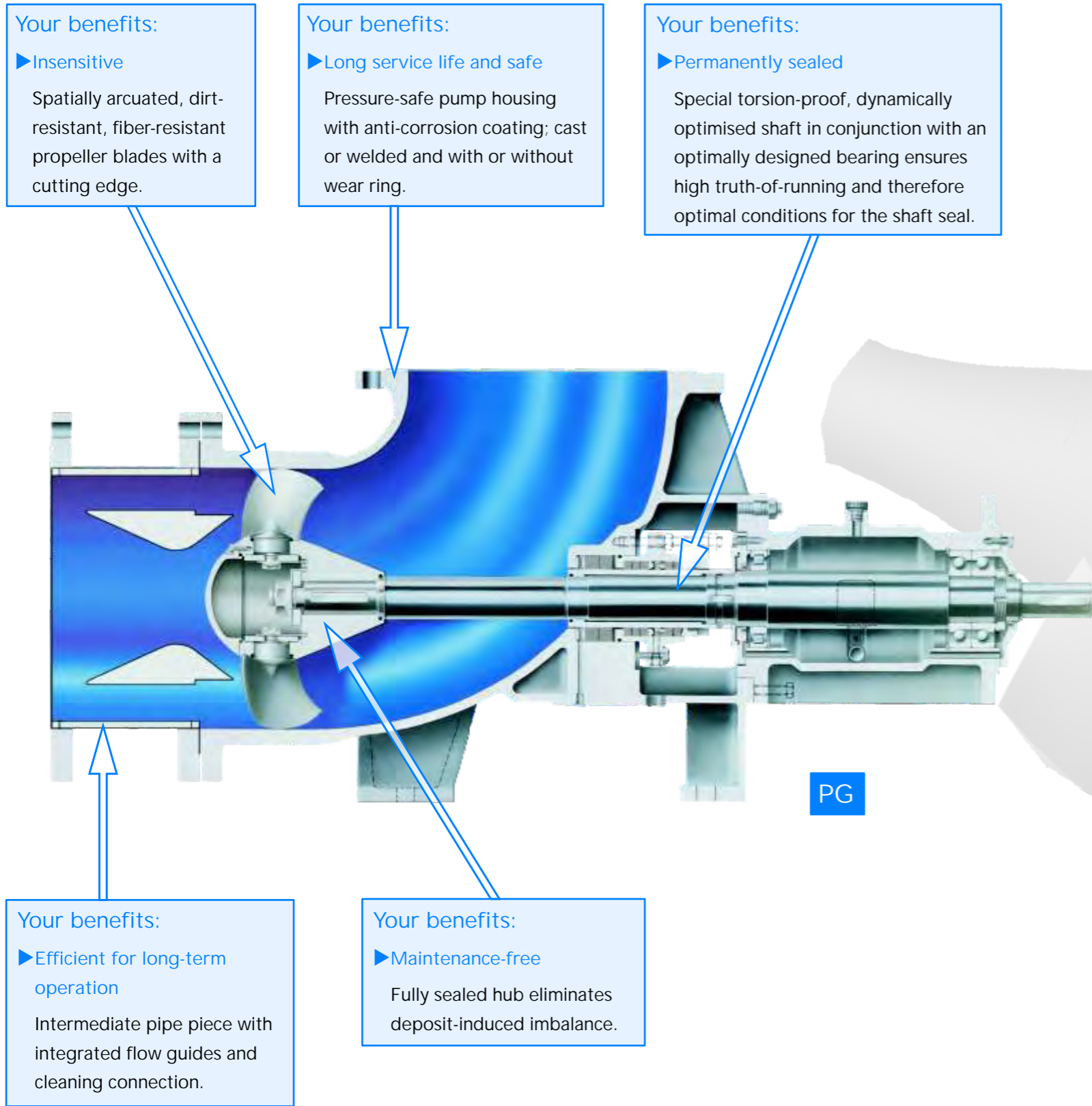
TECHNOLOGY



# ALLWASTE® Propeller Pumps: The Economical Way to Achieve High Pumping Performance

Dry installed pumps with standard motors that are specially designed for high flow rates in clarification basins.

ALLWASTE® PP:  
You will not waste much time worrying about these pumps.



Single-stage propeller pumps intended for horizontal or vertical dry installation in overflow-safe areas.

Recirculation pumps in wastewater and clarification engineering; used to return nitrate-laden wastewater and activated sludge from the nitrification basin into the denitrification basin. Also used to pump return sludge and rainwater.

The design type, material selection and installation/drive types of the pumps can be adjusted to the operational conditions.

## ALLWASTE® PT vertical propeller pump

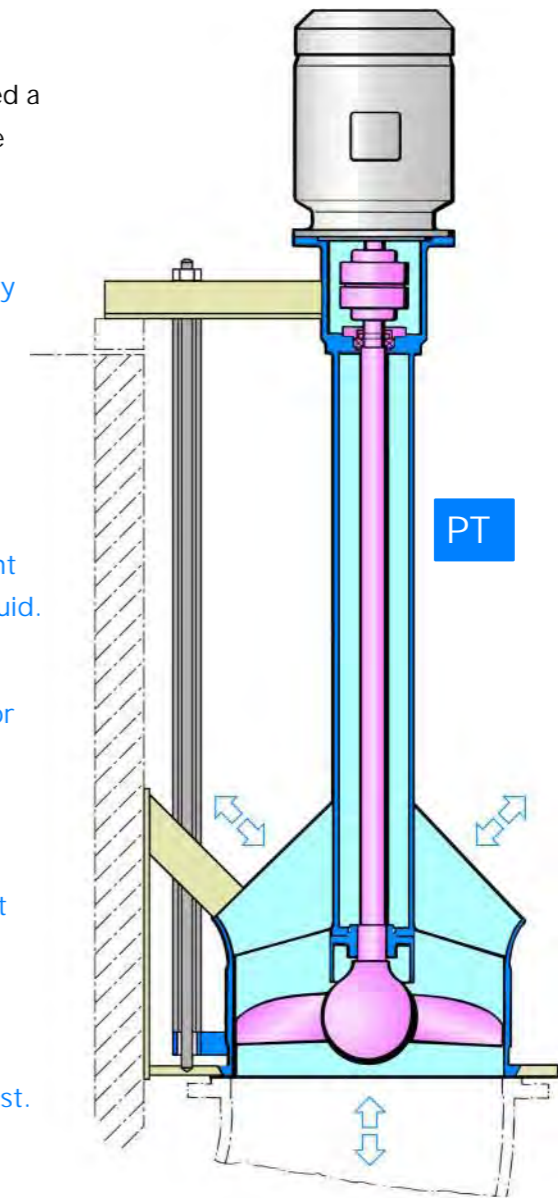
This pump will be your first choice when you need a recirculation pump. The drive is placed dry in the overflow-safe area.

This eliminates the need for

- ▶ **Special motors.** In their place you can use any economical and proven standard motor.
- ▶ **Shaft seals.** You will save time for otherwise necessary maintenance and money for new shaft seals.
- ▶ **Maintaining the sleeve bearings.** The sleeve bearings are maintenance-free, wear-resistant and receive lubrication from the pumped liquid.

Other benefits:

- ▶ The pump housing's inlet area is designed for positive flow qualities.
- ▶ Very good feed properties on the propeller blades.
- ▶ Propeller blades are insensitive to dirt, resist fibers and have a cutting edge.
- ▶ A sole plate enables a secure, screw-free connection between the pump and pipe.
- ▶ Available with adjustable blades upon request.



TECHNOLOGY



## ALLWEILER - the right pump for every application

Founded in 1860, ALLWEILER AG is the oldest German pump manufacturer and the European market and technology leader for centrifugal, propeller, screw, progressing cavity, macerator, gear and peristaltic pumps. ALLWEILER AG is represented by distributors and sales companies in European countries as well as in Egypt and South Africa. Around the world, the company has approximately 100 subsidiaries and partner companies.

ALLWEILER pumps are designed to meet the requirements in specific fields of use. These include especially marine and offshore, water and wastewater, power generation, process technology and chemistry, food and pharmaceutical, building industry, machine tool, pulp and paper, heat transfer, bioenergy and oil and gas.

Our experience since 1860 is your guarantee. As a member of the Colfax Corp., we benefit from international know-how in development, design and production. By choosing ALLWEILER, the customer chooses not only a product of high quality and value, but also a manufacturer that offers competent, rapid and cooperation consultation.

Our global sales and service network ensures competent partners around the clock.

Contact us soon.

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## ALLWASTE® Information Request

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D-46244 Bottrop

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Outside Europe +49 (0)2045 966-679

Or simply call us or send us an E-mail. We look forward to hearing from you.

Tel. 00800 77 88 10 10 (toll-free call in Germany)

Outside Europe +49 (0)2045 966-60

E-mail [allwaste@allweiler.de](mailto:allwaste@allweiler.de)

Please provide me free information at no obligation about (please check):

- ALLWASTE® AE/AEB
- ALLWASTE® AE...ZN/-AE...RG
- ALLWASTE® TECFLOW
- ALLWASTE® Maserators
- ALLWASTE® Peristaltic Pumps
- ALLWASTE® Propeller Pumps
- the whole delivery range of ALLWEILER AG

### Address

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Industry

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