

Application Wastewater treatment

High concentrations of solids and fibres increase the demands on pump technology. Efficiency and trouble-free operation are our attributes, even in sewage treatment plant applications.

An aerial photograph of a wastewater treatment plant. The image shows several large, circular aeration tanks arranged in a grid. Each tank has a central metal structure with a rotating arm and a smaller circular component. The water in the tanks is a dark, murky brown. The surrounding area is green grass, and there are some industrial buildings and pipes visible in the background. The lighting suggests it's either early morning or late afternoon, with long shadows cast across the tanks.

Specific wastewater treatment plant applications for treated wastewater

The challenges in wastewater treatment are increasing and the demands on the machine technology used are rising in terms of process reliability and sustainability. This applies to the entire wastewater treatment process, which includes all treatment stages and applications in wastewater treatment plant operation.

When it comes to wastewater treatment, the operators of wastewater treatment plants face the same challenges across the globe

The pollutant load from discharged wastewater and surface water, which is accompanied by increasing amounts of solids, wet wipes and other clogging contents, must be transported safely through the entire treatment process. The wastewater treatment plant should be operated efficiently, require little maintenance and have no operational faults.

To this end, a wide variety of requirements are placed on the pumps used. For example, wear resistance and non clogging attributes are at the top of the list of requirements at the inlet to the sewage treatment plant.

The grit chamber places the highest demands on the wear resistance of the pumps.

Emulsification should be kept low during fat removal in order to work effectively in subsequent processes with a low water content.

In the further purification process, the pumps are tasked with capabilities ranging from the gentle pumping of biologically active sludge to the trouble-free pumping of viscous media.

Our pump systems offer the best possible efficiency in all processes at the wastewater treatment plant!



Our pumps are used in every purification stage

Mechanical wastewater treatment

- 1 Inlet pumping station
- 2 Grit trap pump
- 3 Fat pumping station
- 4 Primary sludge pumps

Biological cleaning

- 5 Return sludge pumps
 - 6 Excess sludge pumps
 - 7 Secondary treatment
- Further pumps in the fourth purification stage, e.g. in polymere filtration, ozonisation and activated carbon circulation.

Sewage sludge processing

- 8 Digested sludge pumps
- 9 Digested sludge tank circulation
- 10 Turbid water pumps
- 11 Procedure

Mechanical wastewater treatment

Pumps in the inlet pumping station of a sewage treatment plant must fulfil special requirements in order to work effectively and reliably. The Hidrostral screw centrifugal pumps fulfil the requirements for non clogging behavior, wear resistance, efficiency and ease of maintenance.

Pumps for heavy-duty work with maximum operational reliability

Our pump solutions are specially designed to pump contaminated wastewater and prevent blockages caused by solids such as sand, sludge, wet wipes and other pollutants in the wastewater. The Hidrostral **FreeFlow technology** prevents solids from accumulating at the impeller tip, the blade, behind the impeller or in the mechanical seal. In combination with the Hidrostral impeller, this technology defines the innovation of the Hidrostral screw centrifugal impeller.

The robust and wear-resistant pumps reliably handle abrasive particles and solids during mechanical clarification. The geometric design of the pump components, in particular the impeller and inlet liner, together with the materials

used, contribute significantly to the wear resistance. Our decades of experience and our own cast materials also make our systems particularly suitable for use in grit chambers.

Externally adjustable hydraulics and base plates with mounting slides extend the service life of our pumps and contribute to easier maintenance. The adjustable hydraulics ensure consistently high efficiency over the entire service life of the pump and allow wear parts to be used for a long time. The use of Hidrostral pump systems makes an important contribution to sustainable wastewater treatment.



- Flow Rates: 10 - 10 000 l/s (158.5 - 158 500 gpm)
- Head: 1 - 100 m (3.28 - 328 ft)
- Customised material selection with up to 62 HRC
- FreeFlow technology
- Adjustable impeller clearance for long service life

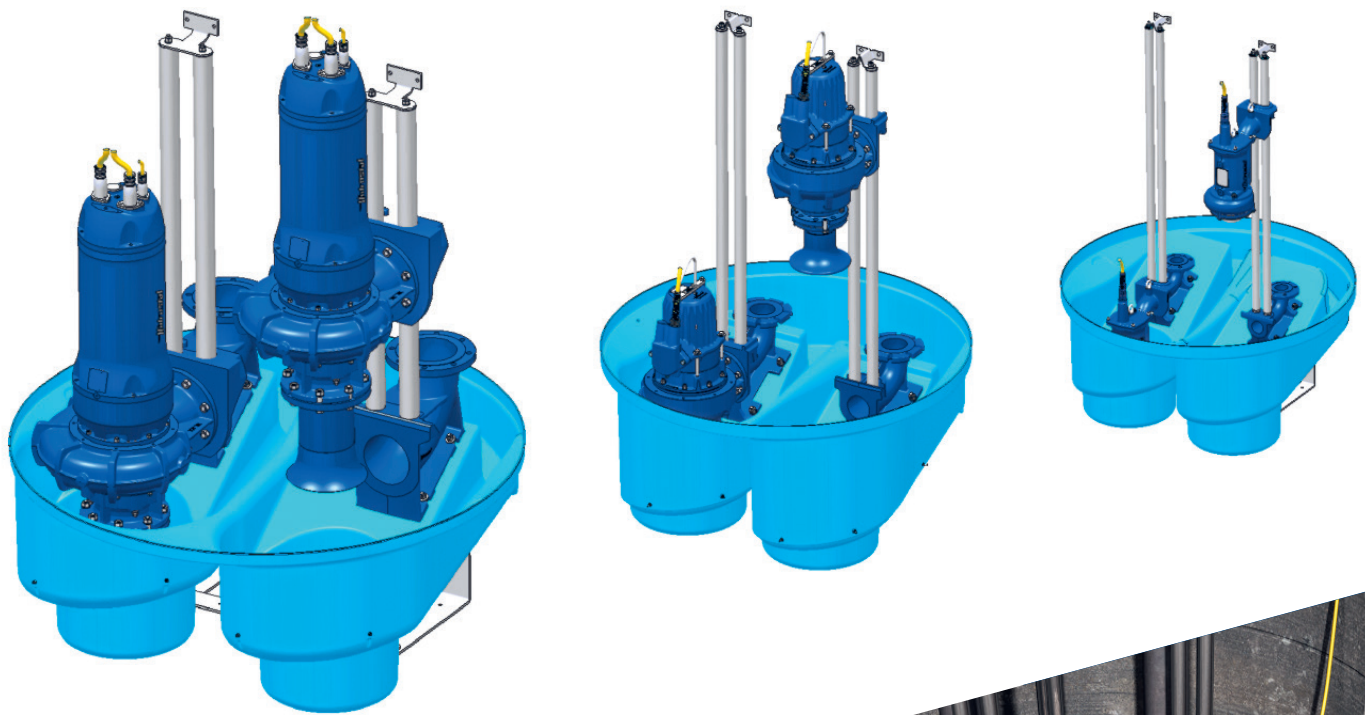
Grease trap pump optimises waste water separation with PreroClean

When the wastewater passes through the clarification process, the grease trap pump shows its strength. The gentle deflection of the flow in the pump, with minimal shear forces in the pumped medium, causes minimal emulsification of the grease content in the wastewater.

This optimises the subsequent separation process and

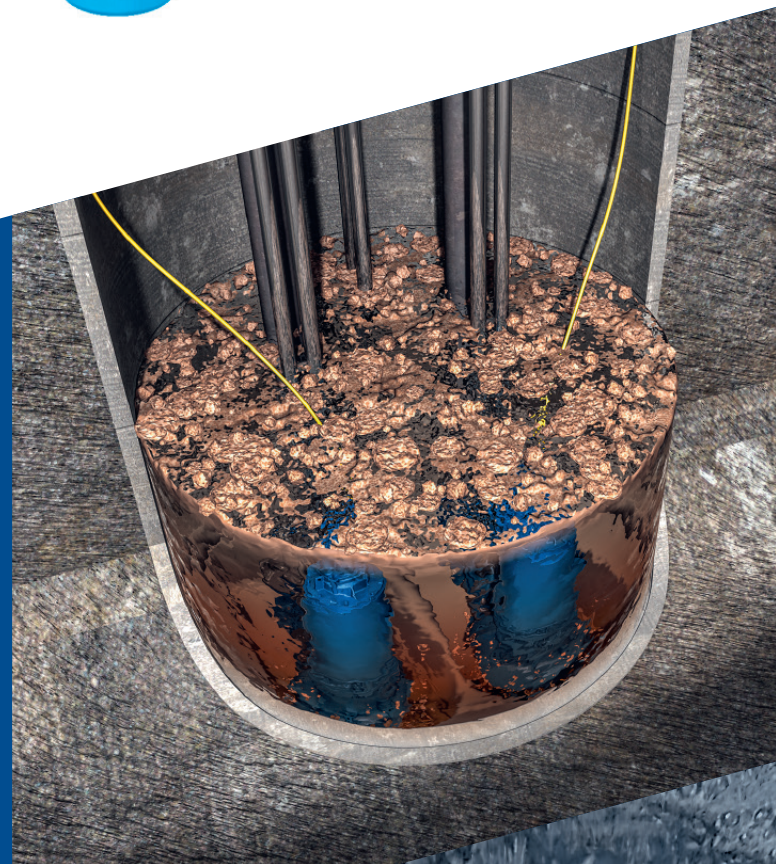
makes it more effective compared to other channel impeller pumps.

The PreroClean system by Hidrostal offers the best conditions for a sediment-free collection chamber, eliminating floating pollutants in wet wells and thus ensuring the lowest possible maintenance costs.



PreroClean double tank system

- Standard shaft diameter 1.2 / 1.5 / 2 m (3.94 / 4.92 / 6.56 ft)
- Large number of individual tanks for large systems
- Large free ball passages from 50 mm to 285 mm (2 - 11")
- Impellers for viscous media, particularly those containing fibres



Biological purification and sludge treatment

The Hidrostal screw centrifugal impeller at its best

The stable characteristic curve is the preliminary advantage of the Hidrostal screw centrifugal impeller pump, especially when pumping sludge with varying media properties. Our impeller is characterised by its excellent pumping performance of high solids content and is therefore very suitable for pumping sewage sludge with a high sediment and fibre content.

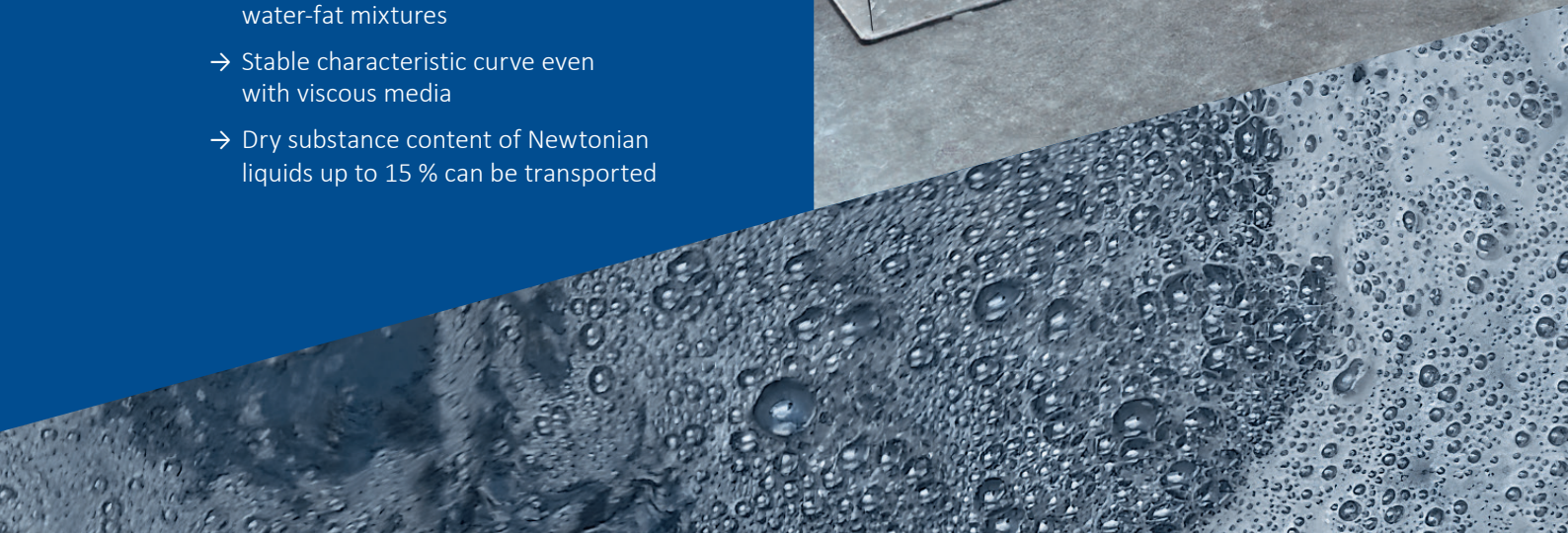
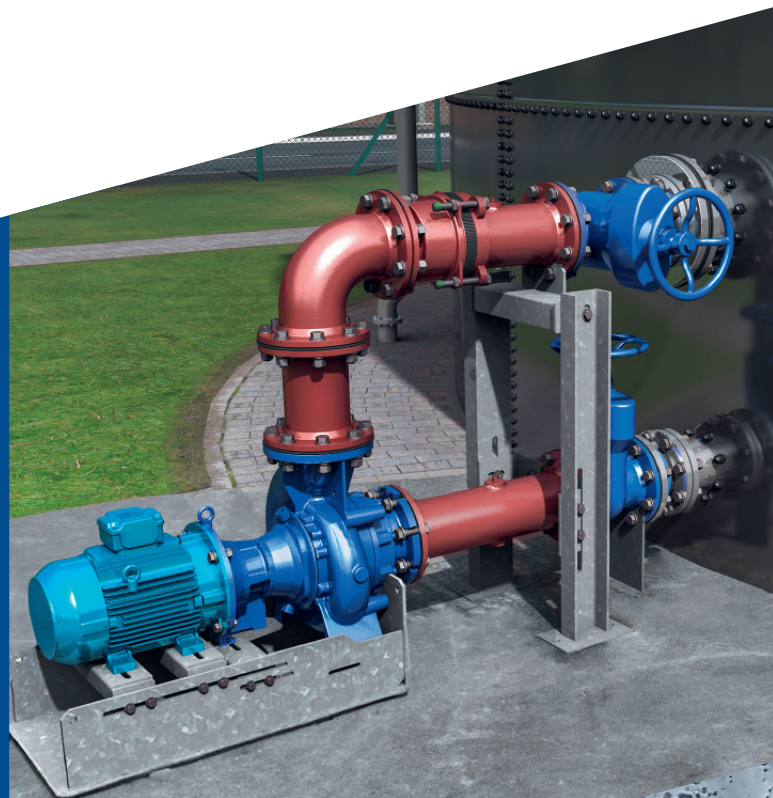
With biological sludge, the low shear forces and gentle deflection is the key to maintaining effective bacterial cultures in the further clarification process. The steep characteristic curve contributes to improved energy efficiency, especially when variable flow rates and solids concentrations are required in the process, e.g. with speed-controlled pumps.

You can find more information on our website: hidrostal.com

The possible applications of the Hidrostal pumps range from transporting the sludge to mixing it with the **HidroMix** system.

HidroMix pump mixing system for sludge tanks and digesters

- Dry-installed circulation pump
- System can be customised to individual requirements
- Proven floc protection for return sludge
- Low emulsification when pumping water-fat mixtures
- Stable characteristic curve even with viscous media
- Dry substance content of Newtonian liquids up to 15 % can be transported



We offer innovative solutions in wastewater treatment

When planning a new wastewater treatment plant or modernising an existing one, the operating costs play just as important a role as the investment costs. Hidrostral's innovative pumps, systems and solutions, including the HidroMix mixing systems, and the PreroClean collection chamber designs and other Hidrostral solutions combine reliable pumping performance with high energy efficiency and low maintenance throughout the entire process.

The Hidrostral advantage becomes clear as soon as the wastewater reaches the treatment plant. We guarantee efficiency and reliability in both mechanical and biological processes, while reducing energy consumption at the same time.

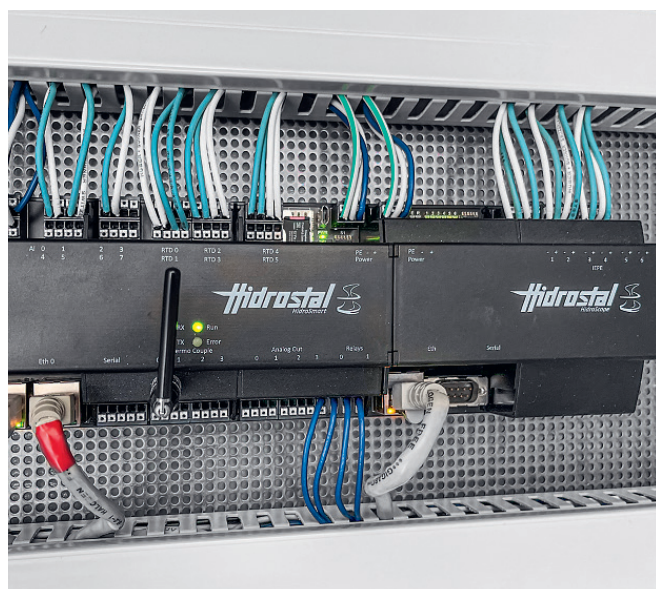
Our actions include:

- The use of highly efficient IE3 and IE4 motors
- The provision of submersible motor units and bearing frame pumps for pump installation.
- Adaptation of the pumps to existing installation requirements using base plates and bends for horizontal and vertical installations

With Hidrostral, you have a partner who recognises potential improvements to your systems and plans their implementation. Our engineers and service staff work closely with you to develop optimal solutions and create maintenance and servicing concepts.



Our global specialists can support you with all your specific wastewater treatment needs and challenges. Find your personal contact at [hidrostral.com](https://www.hidrostral.com)



Cloud-based solutions for pump monitoring and control

Sensors installed on the pump round off our portfolio. The electrical control and regulation technology is installed in the control cabinet and not in the pump. With HidroSmart, Hidrostral offers an evaluation unit for all information supplied by the pump with additional remote monitoring in the cloud or from the control centre for predictive maintenance. HidroScope, the online vibration analysis module, gives you comprehensive insights into the condition of your pumps.

Reliable and efficient services during the whole life cycle of your pumps

Our customers are individual and so are our solutions, products and services. We offer our support in the early project phase to find the optimal pump for a specific application.

Thanks to our excellent quality system and our worldwide manufacturing, sales and service network, we meet any demand for our customers and provide efficient maintenance and servicing.



Consulting & training

Our experienced team of engineers will advise you on the selection of a suitable pump and energy-saving solutions. We offer professional pump selection training and help you design the optimal solution for your needs.



Production & installation

Our skilled technicians offer tailored solutions, from minor service calls to full installation and commissioning. We specialize in comprehensive re-engineering to maintain peak equipment performance. Additionally, we handle piping and fitting installations with equal precision.



Digital solutions

Our cloud-based solutions for failure-free pump operation enable seamless remote monitoring and control of your assets. With our vibration monitoring module you get real-time insight into the condition of your pumps.



Service & repair

We prioritize reliable pump operation. With an extensive inventory of original spare parts and an experienced service team, we offer expert advice, predictive maintenance, and swift repairs for your pump installations.



Rental solutions

Our rental fleet features diverse Hidrostat quality pumps, including submersible and diesel/electric-driven options in the form of the self-priming SuperBetsy. We offer classical pumping systems and highly energy-efficient siphon systems, such as the Heber 2000.



Analysis & testing

From pump performance tests, condition monitoring, inspection & analysis to troubleshooting – we ensure a reliable and safe operation of your pumps and processes.

Available in New Zealand from:
Prime Fluid Management

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primefluid.co.nz



Find out more
about Hidrostral pumps
in New Zealand

