

Life cycle costs.
Economic efficiency in the long term.

Information brochure.





Get to the bottom of costs.



How economical a pump system actually is can only be seen when all additional costs are considered. The pure investment costs for the pump and accessories are just the tip of the iceberg. Much more decisive are the life cycle costs that arise during a long pump life.

The analysis of the life cycle costs, a method for integrated cost control that was developed in the USA and is especially efficient, should therefore be performed every time an installation is planned or to optimise existing installations. Wilo stands competently at your side and helps keep an eye on all

relevant costs in order to find the solution that will be most efficient for you in the long term.

Long-sighted? We call this Pumpen Intelligenz.



Maximum efficiency.

Save up to €88,000 in energy costs.

The right selection.

For the operator of water treatment systems, it isn't easy to make a decision for the most economical mixing system. The least expensive investment price should not be the determining factor under any circumstances, but economical mixers should be compared taking into account all relevant influencing factors and costs in the context of an LCC (life cycle cost) analysis.

- Investment costs
- Installation and commissioning costs
- Energy and operating costs
- Maintenance and repair costs
- Operating failure costs
- Disposal costs

Studies have shown that at approx. 7% the acquisition costs of a mixer make up a relatively small portion of the life cycle costs.

Contrasted with that, the energy costs over the entire service life make up approx. 75% of the total costs. Slow-running mixers run primarily in permanent operation in water treatment systems, so the current consumption – i.e. the energy costs – are of greatest significance.

Thanks to innovative blade geometry and large propeller diameters of 2.60 m, our slow-running mixers have the best thrust values and the most favourable performance factor (ISO 21630). The result: up to 10% lower energy costs*. An energetically optimised mixer design makes further enormous savings possible, as the following example shows.

Comparison		
Make/type	Wilo EMU Megaprop TR 321.41-4/8	Wilo EMU Megaprop TR 326.30-6/8
Propeller diameter	2,100 mm	2,600 mm
Thrust	2,250 N/TR	2,250 N/TR
Rated output P ₂	3.50 kW	1.75 kW
Power consumption in the duty point P _{1,1}	2.50 kW	2.08 kW

Calculation		
Difference in power consumptions	2.5 kW - 2.08 kW	0.42 kW
Energy savings at four mixers per basin	0.42 kW • 4	1.68 kW
Annual operating time in hours	365 days • 24 h	8,760 h
Energy costs	€0.15/kWh	
Energy savings per basin/year	8,760 h • €0.15/kWh • 1.68 kW	€2,207
Number of basins	4	
Total energy savings per year*	€2,207 • 4 basins	€8,828
Running time	10 years	
Total energy savings**	€8,828 • 10 years	€88,280

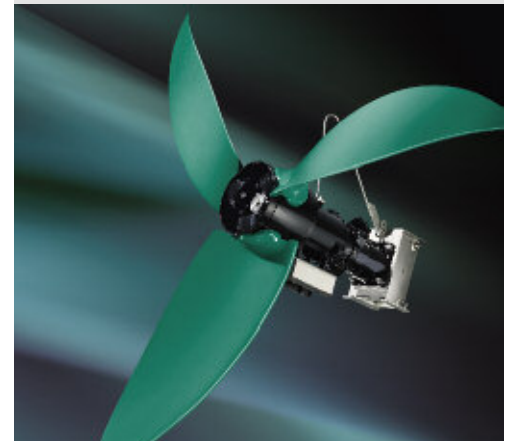
* To comparable slow-running mixers

** When energy costs remain the same



Sewage treatment with Wilo

- Grit chamber
- Primary clarification and biological treatment
- Final clarification and filtration
- Sludge treatment



Wilo EMU Megaprop TR 326

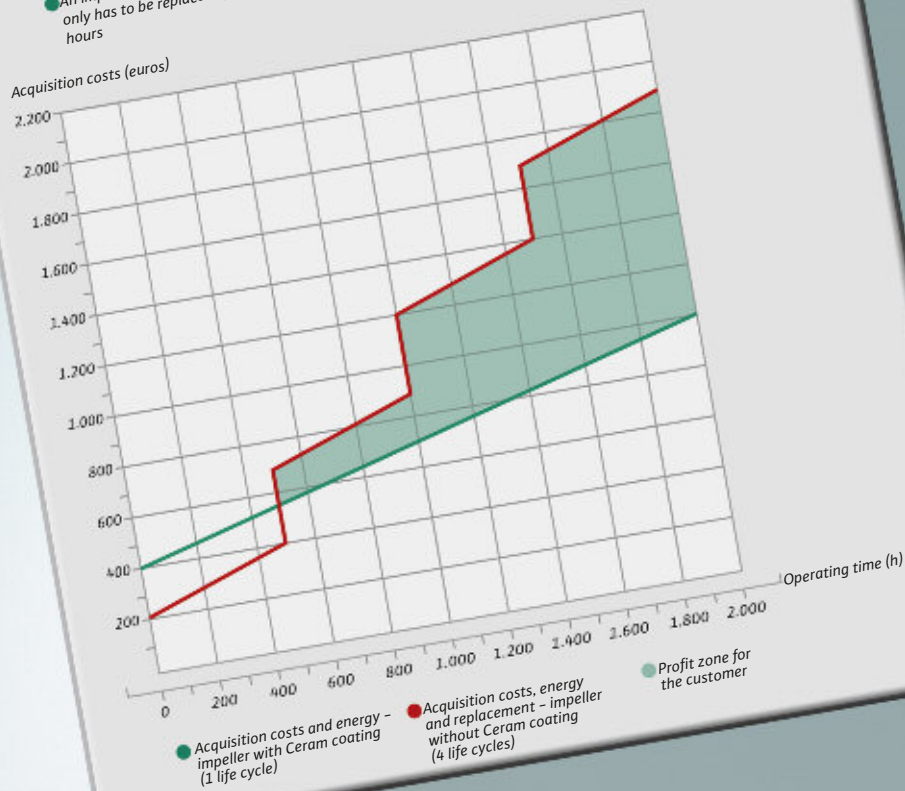
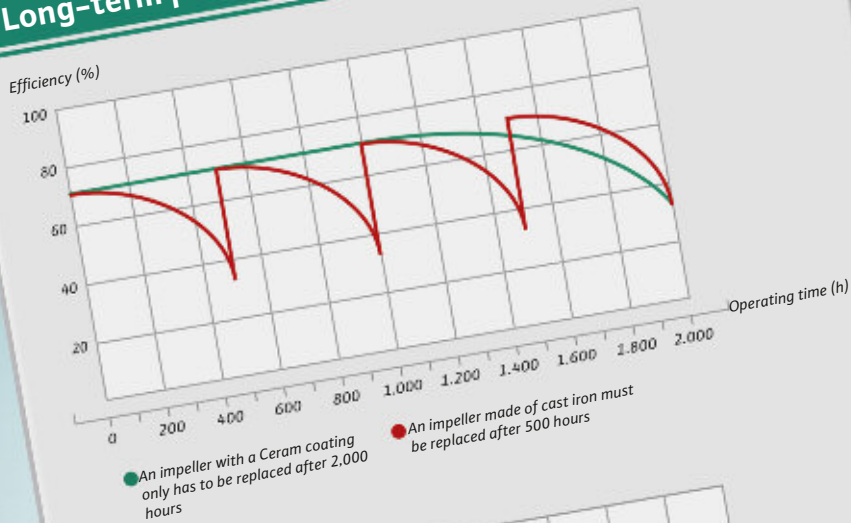
- Innovative blade geometry for very smooth operation and high efficiency
- Extremely resilient laminate blades for longer service life with minimum maintenance costs
- Two-stage planetary gear



Wilo EMU Maxi- and Megaprop

- Submersible mixer
- Low power consumption
- Optimal energy configuration
- High thrust
- Reliable operation

Long-term process reliability.



A specific case of application uses just the example of an impeller coated with Ceram to illustrate the performance and the associated potential for savings.

In a kaolin plant, the fluid is so abrasive because of the large amount of very small-grain sand that a cast-iron impeller, which normally has an operating time of 100,000 h, should already be replaced after 500 hours of operation. In a test period of 15 months, a total of four cast iron impellers were worn out. At the same time, a Ceram-coated impeller was used. It only had to be replaced after 2000 operating hours.

Considering the total costs throughout the service life of the pump, the additional financial investment in a Ceram-coated unit is negligible. In addition, the potential for saving is much higher because of significantly reduced repair expenses and less downtime. So in this application case, the Ceram coating paid for itself already within the first 500 operating hours.

Maximum efficiency. Through an optimised service life.

Long-term process reliability.

In addition to the energy costs, the maintenance costs provide a further adjustment with which the life cycle costs of a unit can be reduced. This cost area includes regular maintenance, preventive maintenance and repair work in case of defects. The extension of the service life and the maintenance interval of a pump are given priority here. Although the Wilo pumps are characterised by their durability and ease of maintenance, measures to prevent premature wear of pump parts can increase their cost-efficiency still further.

Sewage today has a high concentration of corrosive and abrasive components. Sewage pumps are sometimes permanently subjected to these aggressive fluids. Corrosion and abrasion influence the surfaces and material structures of the units and cause considerable degradation of performance. This significantly reduces hydraulic efficiency. This not only increases the pump's energy consumption, but also puts increased strain on the motor and hydraulics and greatly reduces service life or causes repair-related downtime.

In order to extend the service life of pumps in the presence of abrasive or corrosive fluids, Wilo offers the unique Ceram coating as an interesting solution and cost-effective alternative to other special materials. Ceram is a high-quality, solvent-free two-component coating with aluminium oxide components, with which pump and system parts made of cast iron or other materials can be effectively protected against corrosion and abrasion.

Parts coated with Wilo Ceram have high abrasion resistance and lower surface roughness, which in most cases increases the hydromechanical efficiency of the pump. In addition, the coating significantly increases the service life. This reduces maintenance expenses, because less wear means lower costs for maintenance and repair.



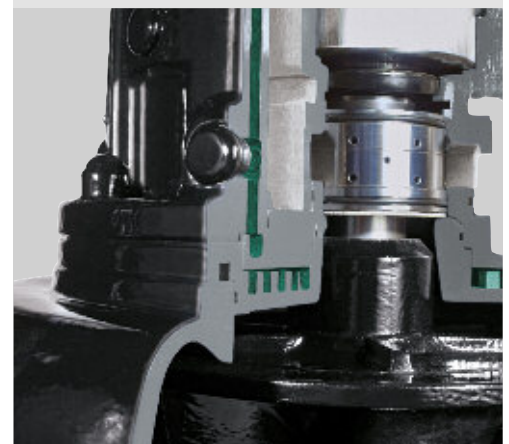
Sewage disposal with Wilo

- Reliable sewage transport
- Pumps for sewage treatment plants, storm water catch basins or pumping stations
- Pumping out uncleaned water



Wilo EMU FA 15.77 + FKT 27.1

- Submersible sewage pump, Ceram coated
- Protection against corrosion and abrasion
- Increased efficiency
- Decreased maintenance costs
- Longer service life



Wear-resistant materials

- Inside and outside surfaces in contact with fluid are coated with Ceram – in different designs: C0, C1, C2, C3 – which can be combined with each other
- Individual solutions for almost every application



WILO

Maximum efficiency.

With single pumps and with pressure boosting systems.

Innovative and powerful.

Energy is a valuable parameter, not only in view of climate change, but also with respect to the exhaustion of resources which must be used economically. The best way of accomplishing this is to use high-efficiency systems. As an initiator of high-efficiency technology for pumps, Wilo has already had long success with such installations. The growing demand for high-performance pumps has in the meantime led to an increase in market requirements – new pumps need to be just as efficient as they are durable and easy to maintain. Because of these requirements, we have invested a great deal in research and development to redesign our high-pressure centrifugal pumps from the ground up – with the Helix series as the result. Helix high-pressure centrifugal pumps are utilised in the water supply and ensure constant pressure all the way up to the largest heads. This makes them a particularly apt example of applied Pumpen Intelligenz.

Low energy consumption.

Thanks to the interaction of new pump design, high-efficiency hydraulics and energy-saving EFF1 motors, the pumps of the Helix series consume about 15% less energy than standard pumps with conventional motors and hydraulics systems.

Lower life cycle costs.

Thanks to their low energy consumption, Helix high-pressure centrifugal pumps function on the one hand very economically. On the other hand, extraneous operating costs, which comprise installation, maintenance and repair costs, are exceptionally low. The reason for this is innovative design solutions, like the entire X-Seal cartridge system, and the use of high-quality, low-wear materials that also guarantee extreme durability.

Low-disruption operation.

The high degree of precision which characterises the entire production process, ensures a high efficiency for the hydraulics – and guarantees at the same time a low-disruption operation and an extremely low amount of wear.



Water supply with Wilo

- Supply of potable water, industrial water and water for fire-fighting
- Pressure boosting for supply systems
- Water conditioning procedure



Helix high-pressure centrifugal pump

- High-efficiency hydraulics allow higher pressure with very high efficiency
- Low energy consumption by EFF1 motors
- Optimised pump housing and minimised flow losses



Innovative technology

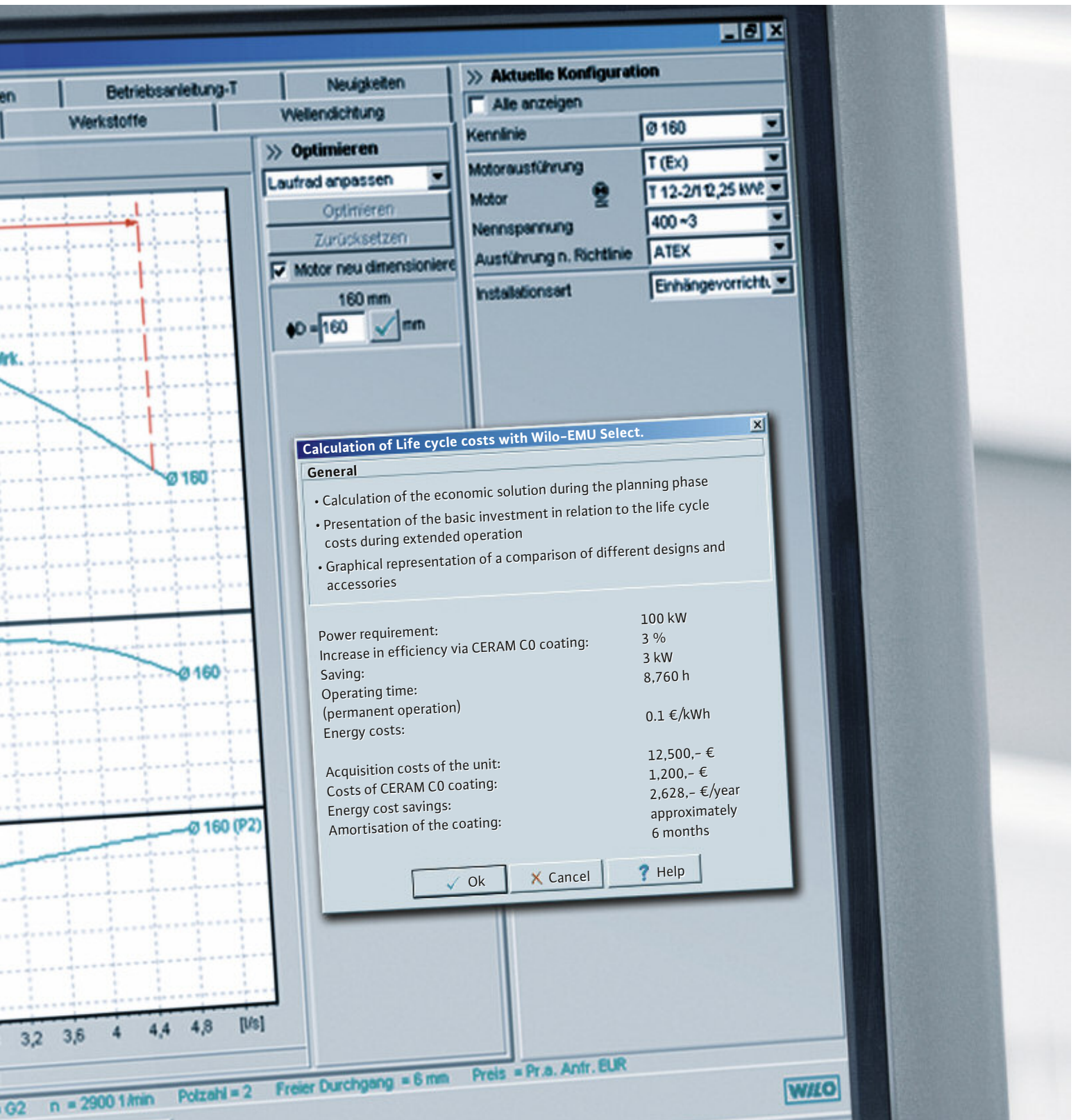
- The entire X-Seal cartridge system can be replaced within 15–20 minutes
- Simple and comfortable access to the seal without removing the motor (for pumps with motors of at least 5.5 kW, i.e. of more than 31 kg)



Comprehensive support.

Consultation, pump selection and installation planning.

The specialists in our sales team, together with our engineers, use an exact needs assessment to work out individual solutions for your application. If basic planning data are available, the planning software Wilo Select determines the optimum pump.



Pipe calculation.

Using a module connected to the planning software, once the geodetic delivery head and the system data have been entered, all relevant variables are determined: head loss, volume flow and flow velocity.

Flow calculation.

The flow in impellers, pump parts, inlet structures and pressure pipes is also calculated using special software.

Cost-efficiency calculation.

We would be happy to create for you an individual cost-efficiency calculation in accordance with the requirements of the product and system. Thanks to the comprehensive know-how of our employees and our innovative technology, Wilo customers benefit from different options with regard to savings and amortisation.



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