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Application brochure

Wilo systems for wastewater collection and transport.  
Solutions for municipal applications.

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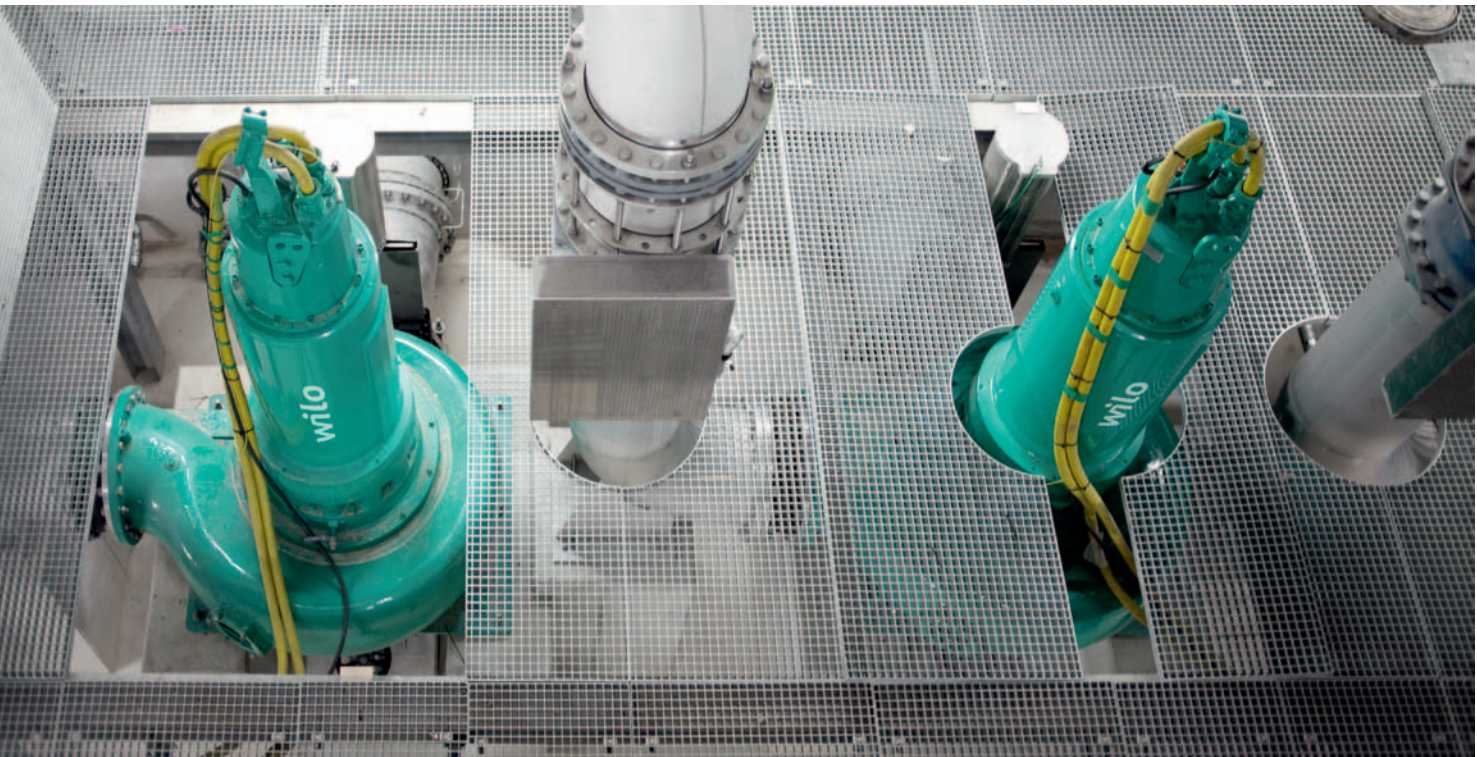
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## Wilo – Pioneering for You.



### We are there for you worldwide.

Since 1872, we at Wilo have been turning visionary ideas into intelligent solutions that regularly set new standards in the industry. The goal of our company founder, Louis Opländer, was to use his *Kupfer- und Messingwarenfabrik* to improve and facilitate the supply of water to people. He did this with great success: in 1928, he designed the world's first circulation accelerator.

We have continued this tradition ever since with pioneering innovations, such as the world's first high-efficiency pump in the heating, air-conditioning and cooling sector, and at the same time we have proven our commitment to using valuable resources such as energy and water responsibly. Today, with its headquarters in Dortmund, the Wilo Group is a complete system supplier of pumps and pumping systems for water management with worldwide presence.

### Cooperative support on which you can rely on.

With over 7,500 employees and 60 production and sales companies all over the world, we personally see to it that the desires and requirements of our customers and users – whether specialist consultants, operators, or general contractors – are optimally met every day. This means making your life and work as easy as possible with the help of our products, solutions and services.

“Pioneering for You” is our commitment to a clear customer focus, strict quality orientation and strong passion for technology. In times of dwindling natural resources, the responsible management of water is an extremely important task, which is why we are committed to providing pioneering developments, sustainable product solutions, and cooperative support to ensure you can rely on our solutions for the daily management of water. That's what we call Pioneering for You.

**“To be able to fulfil  
all your needs  
as a system supplier,  
that's what I call Pioneering for You.”**



Eike Dölschner, Senior Vice President  
Division Submersible & High Flow Pumps, WILO SE Hof/Germany



## Reliable solutions for channelling wastewater.



- 1 Pressure drainage for individual properties
- 2 Pressure drainage for building complexes
- 3 Pumping stations
- 4 Solids separation system

### You can rely on that.

Our experts provide you with personal support in every phase of the project, from design and configuration, through to commissioning and maintenance. And our systems and product solutions set new standards in terms of technical performance, cost efficiency, security standards, and durability – in all applications relating to wastewater collection & transport.

### Wilo – the right partner to address your challenges.

With regard to world climate change, low energy consumption is a key market topic. The cost pressure on municipal or private suppliers is rising. Challenges are growing. These include an increasing amount of solids in sewage, a growing number of regulations, and stricter legal requirements. Against this backdrop, Wilo is a partner on whom you can fully depend in all areas.

This brochure introduces a selection of applications relevant to the topic of wastewater collection and transport. This is only a section of our entire portfolio. Just ask us what we can do for you.

## Pressure drainage for individual properties: Wastewater disposal according to the type of building.



### Application:

Wherever no sewer system is available and the construction of one is not possible or uneconomical, pressure drainage using pipelines with small diameters is recommended.

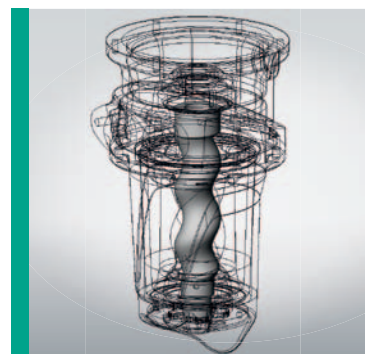
### Challenge:

Typical challenges are over-developed areas and regions with difficult ground conditions, deficient gradients, too high groundwater levels or topographic obstacles such as mountains or surface waters. Design is often very complex. Standards and requirements also set strict limits when dimensioning.

### Wilo solution:

Thanks to years of experience and comprehensive knowledge, Wilo has designed an

extremely economical sump system especially for pressure drainage – Wilo-AxumLift. It reduces the work involved in design and product selection, as well as operating costs. In the predefined Wilo-AxumLift FIT complete system, the sump, the Wilo-AxumCut PRO pump, and control technology are perfectly matched. The Wilo-AxumLift PRO system offers a variety of component combinations that can be individually adapted to specific requirements.



### Integrated protection against overpressure: Positive-displacement pump technology

The self-regulating hydraulic system is a special feature of the Wilo-AxumCut PRO as it protects the entire system against overpressure when a pipeline blockage occurs.

- guarantees maximum system security
- reliably eliminates cavitation damage



### Wilo-Axum Lift, the ready-for-connection one

#### Design:

- PE sump WS 800

#### Application:

- Specifically for the pressure drainage of domestic sewage

#### Special features/product advantages:

- Anti-buoyant and dimensionally stable against ground water up to ground level
- Secure installation due to the monolithic (one-piece) design to 2.25 m, optional stepless sump length extension to a total height of 2.75 m
- Can be driven up to class B without load distribution plate, optional class D
- Water column on the removable non-return ball valve ensures the discharge pipeline closes reliably.
- Easy to maintain as all functions can be operated from the outside



### Wilo-AxumCut PRO, the carefree one

#### Design:

- Positive-displacement pump with macerator

#### Application:

- Specifically for the pressure drainage of domestic sewage

#### Volume flow $Q_{\max}$ :

- 7 m<sup>3</sup>/h

#### Delivery head $H_{\max}$ :

- 60 m

#### Special features/product advantages:

- Suitable for pressure pipe situations up to DN 50
- Self-regulating hydraulics for maximum system security
- Pump-side protection against solids and high pressures due to high quality motor sealing using an oil barrier chamber with two independently acting mechanical shaft seals
- Easy dimensioning of pumps and systems
- Patented mechanical shaft seal for reliable operation
- Premium motor monitoring with additional optional sealing chamber electrode
- Optionally with ATEX protection

#### Pro-active replacement:

- Also when retrofitting or changing the system
- The flexibility in terms of pipeline lengths and selection of gradient makes it possible to react perfectly to demographic or usage-based changes, especially during retrofitting



## Building complexes without gravitational drainage:

Pressure drainage in the big class.



### Wilo-RexaCut, the active one

#### Design:

→ Centrifugal macerator pump

#### Application:

→ For pressure drainage system and the disposal of domestic sewage

#### Volume flow $Q_{\max}$ :

→ 23 m<sup>3</sup>/h

#### Delivery head $H_{\max}$ :

→ 35 m

#### Special features/product advantages:

- Two mechanical shaft seals for reliable operation
- Patented macerator for maximum operational reliability at very high efficiency
- Premium motor monitoring with additional optional sealing chamber electrode
- Great connection versatility for maximum flexibility (DN 32 / DN 40 / Rp 1½")
- Optionally with ATEX protection

#### Application:

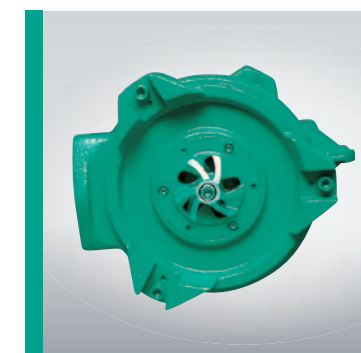
Sewage disposal from apartment buildings or public buildings places higher requirements on the pressure drainage system. For example, highly variable inflows and a different solid content need to be taken into consideration.

#### Challenge:

When selecting the proper drainage system, demographic change, changes in user behaviour and climate change also play important roles alongside cost effectiveness. While the flexibility of the systems need to be increased for sustainable development, standards and guidelines (e.g. EN 752, DWA-A 116 or other regional guidelines) place tight constraints on the dimensioning of technical solutions.

#### Wilo solution:

Wilo-RexaCut is the new generation of macerator pumps. Thanks to its above-average wide variety of connection options, the Wilo-RexaCut adapts to almost every pipeline. It is therefore particularly suitable for replacement in the event of retrofitting.



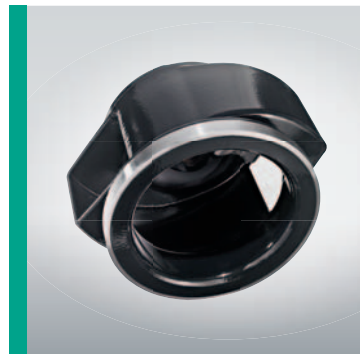
#### Twice as good: patented macerator

The proven Wilo macerator concept combines two advantages in one technology: maximum operational reliability and maximum result.

- ensures optimal feeding of solids
- even heavy pulps won't stop it



## Whether intermediate pumping station or collective pumping station: Well-equipped for any eventuality.



### First class impeller geometries

Effective and reliable – that is how SOLID works, the innovative Safe Operation Logic Impeller Design by Wilo.

- combines the advantages of a non-clog impeller and a vortex impeller
- increases the reliability of the pumping of untreated sewage with high solids content
- available in closed design for low vibration, very smooth running and efficiency of up to 82%
- or as a half-open variant for increased operational reliability in smaller nominal sizes

### Application:

A basic distinction is made between intermediate pumping stations and collective pumping stations. With intermediate pumping stations, economic efficiency is improved in terms of the sewage disposal – as opposed to the free-flow pipeline – due to using the same pipelines and avoiding large installation depths in areas with partly difficult access or hilly terrain. When disposing of the sewage from built-up areas and cities with gravitational drainage, the sewage is fed into a collective pumping station instead and from there pumped directly to the wastewater treatment plant.

### Challenge:

The construction or retrofitting of sewage disposal systems is now dependent more than ever on numerous standards, laws, and individual requirements. Urbanisation and metropolitan areas are demanding newer, larger sewage networks. At the same time, changes in consumer behaviour, which always tends towards the more economical use of water, need to be taken into account. In Germany, for example, more and more consumers are opting for flush saving systems or are using their own rainwater due to the high potable water and sewage charges. The consequence: less water is fed into the sewage network, the solids content increases, and the pumping operation becomes more difficult.

### Wilo solution:

At Wilo you will find the right solution to almost all questions. Self-cooling submersible sewage pumps from the Wilo-EMU FA series in dry or wet installation guarantee the reliable transport of large volume flows. Innovative hydraulic constructions cope with the increasing solids content. The Wilo-RexaBloc also offers a cost-effective solution for dry well installation pumps with standard motor.



### Wilo-RexaBloc, the permanent one

#### Design:

→ Dry well installation sewage pump standard motor in compact design. Also available as Wilo-RexaNorm with coupling, on a base plate

#### Application:

→ For pumping sewage with solid constituents  
→ In wastewater treatment plants and pumping stations for local drainage and process water extraction

#### Volume flow $Q_{\max}$ :

→ on request

#### Delivery head $H_{\max}$ :

→ on request

#### Special features/product advantages:

→ Space-saving design due to compact monobloc construction technique  
→ Low installation and maintenance costs due to service-friendly modular construction  
→ High operational reliability due to oil barrier chamber with optionally available sealing chamber monitoring  
→ Low maintenance due to roller bearings being lubricated with a grease filling to last the service life  
→ Optionally with energy-efficient IE3 motor technology



### Wilo-EMU FA, the solid one

#### Design:

→ Submersible sewage pump with self-cooling or non-self-cooling motor

#### Application:

→ For pumping sewage with solid constituents  
→ In wastewater treatment plants and pumping stations  
→ For local drainage, water control, and process water extraction

#### Volume flow $Q_{\max}$ :

→ 7,950 m<sup>3</sup>/h

#### Delivery head $H_{\max}$ :

→ 95 m

#### Special features/product advantages

##### Wilo-EMU FA:

→ Broad range of applications thanks to variety of different possible motor and impeller combinations  
→ Hydraulic pump output optimally adapted to the desired duty point  
→ Optionally with energy-efficient IE3 motor technology  
→ Optional special materials and Ceram coating for protection against abrasion and corrosion

#### Special features/product advantages

##### FKT motor technology:

→ Process reliability thanks to comprehensive monitoring facilities  
→ Optimal motor cooling thanks to the efficient heat exchanger with a two-chamber system  
→ Low vibration and long service life thanks to high-quality components



## Solids separation system: Separation with a system – the most economical solution

### Application:

On the one hand, the local drainage or disposal from industrial and commercial complexes needs to satisfy numerous environmental requirements and function reliably over a long period of time. On the other hand, it must not produce any "escalating" costs.

### Challenge:

Large amounts of wastewater need to be transported economically. Above all, the maintainability and durability of the plants is of paramount importance, in addition to achieving the most efficient operation possible.

### Wilo solution:

The Wilo-EMUport solids separation system is a real innovation in sewage disposal – it works very efficiently, generates low operating costs and is easy to maintain. Special feature: Before the polluted sewage passes through the pump region, the solid material is filtered out and retained in separate vessels. The pump does therefore not come into contact with solid materials. The water only picks up the solid material again once it has passed through the pump region; thus avoiding blockages and increasing operational reliability. Since only pre-purified sewage flows through the pump hydraulics, the free ball passage of the pumps can be designed to be considerably smaller than in conventional systems and greater efficiency is achieved.



### The material in the durable sump pumps is: PE-HD

- We place emphasis on proven durability to safeguard your requirements on a sustainable basis – with thermoplastic PE HD (high density polyethylene).
- secures your investments on a reliable and lasting basis, even in an earthquake
- is environmentally friendly and recyclable up to seven times
- consists of hydrogen and carbon, totally without harmful dyestuffs
- is even resistant to a high level of chemical contamination
- is around 90% lighter than concrete



### Wilo-EMUport FTS, the long-lasting one

### Design:

- Ready for connection sump pumping stations with dry well installation sewage pumps and solids separation system
- also available as sump or building version

### Application:

- For the disposal from residential estates, built-up areas, or large industrial and commercial complexes using conventional gravity-flow drainage systems

### Volume flow $Q_{\max}$ :

- on request

### Delivery head $H_{\max}$ :

- on request

### Special features/product advantages:

- Economical due to the smaller ball passage compared to conventional wet well installation without solid separation
- Insusceptible to clogging as the pumps do not come into contact with the solid materials in the sewage
- Hygienic conditions for maintenance and assembly, pump compartment is clean, dry and odour-free
- Resistance to corrosion and durable due to construction from PE-HD material
- Easy commissioning on site due to being delivered fully assembled in the sump

### Pro-active replacement:

- Economic renewal of pumping stations thanks to retrofit system
- Reconstruction within one day



## For us, partnership means that you achieve more with us as a partner.

Customer service always starts with a personal consultation. On this basis, we develop tailor-made individual solutions precisely for your demands. Our service then goes far beyond this. With fast and reliable repair and maintenance concepts, we also assist you in the long term.

### Plan with our consulting.

We are here for you and will draw up an exact assessment of what you require. From this, our specialists will work closely with you to find an individual solution.

### You can count on our selection of pumps.

With the help of a modern selection programme, we can offer you the most economical solution.

### You can rely on our pump installation.

The installation and complete connection, as well as an extensive testing and training phase of our pumps is done for you by skilled workers with many years of experience.

Wilo means "all-round service from one source".



### Your complete service package

#### Pre-sales:

- On site support
- Design support
- Product selection
- Select programme
- CFD simulations
- Flow calculation
- Pipeline calculation
- Installation drawings
- Documentation

#### Sales:

- Certification
- Acceptance testing at the plant
- Commissioning
- Start up

#### After-sales:

- Local service in 60 countries
- More than 1,200 Wilo technicians worldwide
- Individual maintenance concepts
- Customer-oriented replacement solutions
- Efficiency check
- Training