



# Mixers and Flowmakers

For municipal- and  
industrial wastewater

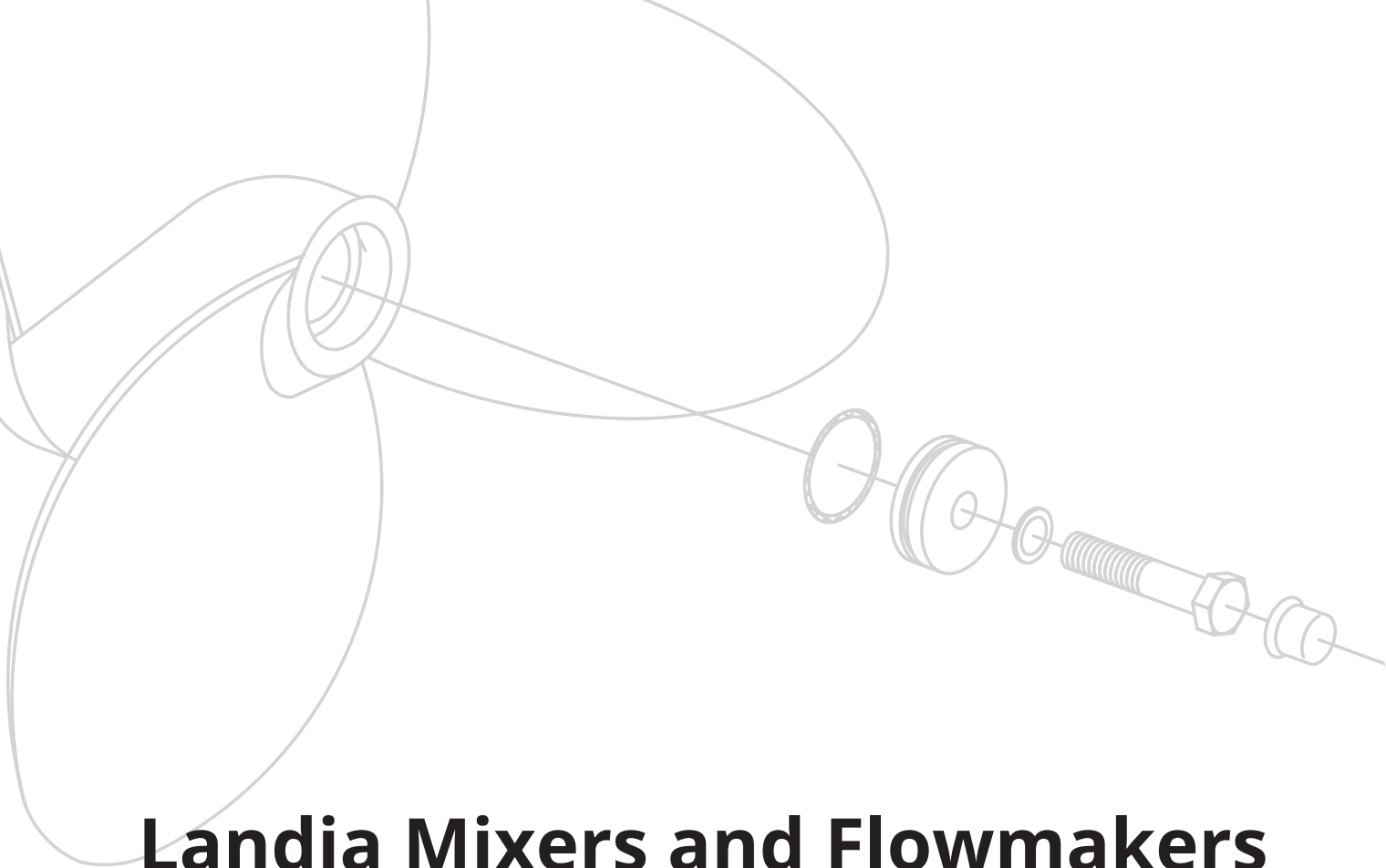
**Landia**<sup>®</sup>

ENGINEERED TO LAST









# Landia Mixers and Flowmakers

Every day Landia mixers contribute to a cleaner world due to their work in wastewater treatment processes in municipal and industrial wastewater treatment plants.

Landia supplied the first mixer for wastewater in the mid 1980's for mixing the contents of a digester in a Danish wastewater treatment plant. Since then, tens of thousands of Landia mixers has been sold for wastewater applications all over the world.

All Landia mixers are carefully designed so that the lowest possible operational costs are achieved for power consumption, service and maintenance. Low power consumption of a mixer can be directly related to low propeller revolutions, which significantly increases the lifetime of a mixer.

Landia has the widest range of mixers and flowmakers in the industry with motor sizes from 1.1 kW to 30 kW. A Landia mixer is always adapted to the specific application and manufactured in the most suitable material for the longest possible lifetime – whether it is cast iron or acid-proof stainless steel.

Conditions for a mixer are often extreme, including 24/7 operation in dirty and aggressive wastewater. Such conditions require the very best sealing system. To address this, Landia has developed a unique sealing system consisting of three or four seals in combination with a grease chamber. These optimum conditions provide a greatly enhanced lifetime for the seals.

A mixer, whether submersible or dry-installed is a unique piece of equipment and requires experienced guidance from a Landia-trained sales engineer, which is a key part of our back-up service.



# Landia Mixers

## – mix almost anything!

A typical wastewater treatment plant consists of numerous tanks containing wastewater in different stages and Landia has a proven range of mixers and flowmakers for almost any municipal or industrial application.



## Submersible Flowmaker POPL-I

The POPL-I is a low speed flowmaker for mixing and flow creation of large volumes of water at the lowest possible power consumption.

A unique feature of the POPL-I is the adjustable propeller blades that make it possible to change their angle or setting. This special feature - exclusive to Landia - optimizes power consumption.

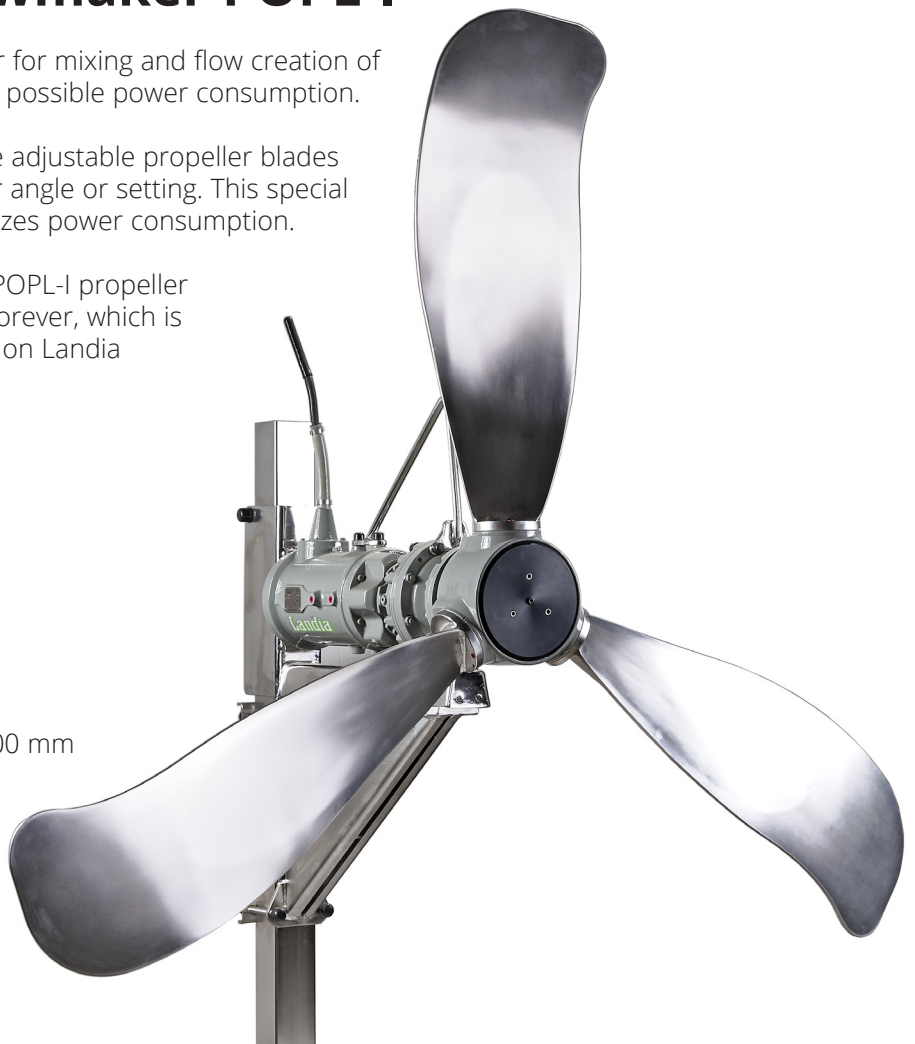
We know from experience that our POPL-I propeller (made from stainless steel) will last forever, which is why we offer a LIFETIME WARRANTY on Landia propeller blades!

### Applications

- Aeration Tanks
- Oxidation Ditches
- Anoxic- and Anaerobic Tanks
- MBBR Reactors

### In Short

Motor sizes from 1.1 - 7.5 kW  
Propeller diameter: 1700 mm or 2300 mm  
Propeller rpm: 19 - 47 rpm  
Propeller tip speed: 1.9 - 4.2 m/sec.  
Available with Ex motor



# Submersible Flowmaker POP-I 150

The POP-I 150 is a low speed flowmaker for mixing and flow creation at the lowest possible power consumption.

Compared with the POPL-I Flowmaker, the POP-I 150 can be used for smaller and odd shape tanks due to its smaller physical size.

The POP-I 150 is also available in solid stainless steel SS316 – typical for the use in the chemical or food industry.

## Applications

- Aeration Tanks
- Oxidation Ditches
- Anoxic- and Anaerobic Tanks
- SBR Reactors
- Sludge Tanks
- MBBR Reactors

## In Short

Motor sizes from 1.1 - 7.5 kW  
Propeller diameter: 620 - 1080 mm  
Propeller rpm: 150 rpm  
Propeller tip speed: 5.2 - 7.6 m/sec.  
Available with Ex motor





# Submersible Mixer POP-I 300

Landia POP-I 300 is a versatile and efficient heavy duty mixer. The three-blade propeller and the relatively low propeller rpm makes it ideal for the mixing of high viscosity liquids such as dewatered sludge.

The POP-I 300 is available also in solid stainless steel SS316- typical for the use in the chemical- or food industry.

## Applications

- Anoxic- and Anaerobic Tanks
- SBR Reactors
- Sludge Tanks
- Digester Mixing
- Pump Lift Stations

## In Short

Motor sizes from 1.1 - 30 kW  
Propeller diameter: 365 - 880 mm  
Propeller rpm: 300 rpm  
Available with Ex motor



# Side Entry Mixer POPTR-I

Landia's POPTR-I is a versatile and efficient side-entry mixer. The three-blade propeller and the relatively low propeller rpm makes it ideal for mixing of high viscosity liquids such as dewatered sludge or digested sludge.

Being a side-entry mixer the POPTR-I has the motor outside the tank which significantly eases service and maintenance. Optimum cooling conditions for the motor makes it the ideal choice for high temperature liquids.

The POPTR-I is suitable for most types of tanks – concrete and steel.

## Applications

- Sludge Tanks
- Digester Mixing
- Hot liquids

## In short

Motor sizes from 5.5 – 18.5 kW  
Propeller diameter: 575 - 770 mm  
Propeller rpm: 300 rpm  
Available with Ex motor



# Submersible Mixer POD-I

The POD-I is a compact and flexible submersible mixer for applications in smaller tanks and liquids with relatively low solids concentration.

Landia POD-I is available both in cast iron and solid stainless steel SS316.

## Applications

- Selector Tanks
- Anoxic- and Anaerobic Tanks
- SBR Reactors
- Pump Lift Stations
- Equalization Tanks

## In Short

Motor sizes from 1.1 – 18.5 kW  
Propeller diameter: 170 - 375 mm  
Propeller rpm: 1000 and 1500 rpm  
Available with Ex motor





# Landia Mixers and Flowmakers

- recommended by satisfied customers



## ➤ Unbeatable Total Life Cycle Costs

Guilin, the pearl of China's emerging tourist industry, has chosen Landia's flowmakers, mixers and recirculation pumps for two new wastewater treatment plants that were built in the city famed for its magical land formations.

In 2013 Landia supplied a total of 78 Flowmakers, Mixers and Recirculation Pumps to the City of Guilin. The supply was based on the ultra-reliability and performance of 20 Landia Flowmakers that have served Guilin since 1995.

POPL-I flowmakers are installed in the Aeration, Anoxic and Anaerobic Zones at Guilin, where their low rotations provide unrivalled flexibility for wastewater treatment. POP-I Mixers from Landia, which are designed for harsh conditions, also agitate, homogenize and keep solids in suspension.

Meanwhile, Landia's AXP-I Pumps, which handle large volumes of water at low head but without creating excessive energy bills, recirculate activated sludge from the Aeration Zone into the Anoxic Zone at Guilin.



## ➤ Digested Sludge Mixing with Low Speed Mixer

As part of an improved dewatering system on a Waste Water Treatment Plant in Denmark, a digested sludge storage tank was established. With the tank being part of the actual building structure, setting up an efficient mixing system was very challenging. The height of the tank was 8.6 m and the sludge level varied between 1.5 m and 8 m.

The digested sludge, with a TS concentration of 4-5%, had to be fully mixed in order to secure efficient de-watering. The mixing of the 470 m<sup>3</sup> tank has been achieved with a low speed 5.5 kW mixer model POP-I 150 rpm. The mixer was placed as near to the tank floor as possible and angled towards the surface. By doing this, it is possible to ensure full mixing of the sludge when the tank is full and at the same time run the mixer at 1.5 m sludge level.





## ➤ Gentle movement of MBBR Bio Media

Submersible BioMover mixers for MBBR applications with low propeller speed and large propeller blade surface area ensures efficient mixing and maximum protection of the bio carriers.

A US mining company purchased the first Landia BioMover in 2006 and has since then installed BioMover in a further four tanks. The mining sites are typically in remote locations and require highly reliable equipment to avoid downtime and unscheduled service calls.



## ➤ High volume Aeration Tank – mixed by low power

A Danish Wastewater Treatment Plant was expanded in 2012 as part of a centralisation to include a new aeration tank (known as the N-Tank). The aeration tank, with its diameter of 42.5m, a water depth of 5.6 m and a volume of 7,750m<sup>3</sup> is equipped with fine bubble diffusers and two Landia POPL-I flowmakers for mixing and flow creation.

As part of the project, Landia offered its advice and recommendations about the optimum design of the tank in order to obtain as low power consumption as possible for mixing. The result was a significantly lower power consumption than average – still with a 20% extra mixing capacity in case of increased load of the WWTP.



## ➤ Leachate Treatment Plant, South East Asia

Landfill Leachate is often stored in large lagoons. The lining of these lagoons makes it impossible to install mixers in a traditional way, so Landia has developed a pontoon mixer specially for this application.

Due to the aggressive characteristics of the leachate, Landia's solid stainless steel mixer model POPR-I is the ideal choice for the lowest total life cycle costs.

# Landia is much more - than just mixers!

Landia is a pump and mixer manufacturer offering a comprehensive range of pumping and mixing solutions, suitable for numerous applications within the wastewater industry. Please see examples below.

SEE THE COMPLETE  
PROGRAMME ON  
[LANDIAWORLD.COM](http://LANDIAWORLD.COM)

## **Submersible Mixer POPR - the True Stainless Steel Mixer**

Landia POPR-I mixers are made from solid SS316 stainless steel. The applications are typically acidific liquids or high chloride content applications such as desalination plants.

The POPR-I mixers are available with propeller rpm of 150 and 300 and with motor sizes ranging from 1.1 kW to 30 kW.

Also available in Super Duplex (SAF 2507) upon request  
- fully resistant to sea water!



## **Submersible BioMover Mixer for MBBR Applications**

The Landia BioMover range of mixers is developed specifically for efficient and gentle mixing of bio media; plastic carriers.

The BioMover is suitable for all types of bio carriers, with the low propeller rpm and propeller tip speed ensuring maximum hydraulic efficiency and protection of the carriers.

All Landia BioMovers are equipped with stainless steel propellers as recommended by all leading MBBR suppliers.

Landia BioMover is available with motor sizes from 0.75 kW to 7.5 kW and propeller rpm from 22 to 150. Propeller tip speed from 2 to 8 m/sec.





## ➤ Submersible Chopper Pump Model DG-I

The DG-I submersible chopper pump is designed for tough applications such as unscreened sewage, septic sludge, thickened sludge and other high solids liquids.



## ➤ Dry Installed Chopper Pump Model MPTK-I

The MPTK-I chopper pump is designed for tough applications such as unscreened sewage, septic sludge, thickened sludge and other high solids liquids.



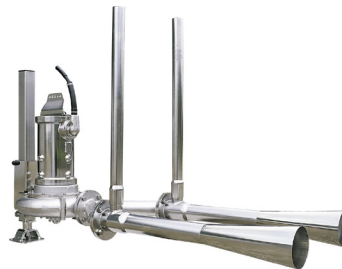
## ➤ Recirculation Pumps / Wall Pumps

Landia offers a range of low head recirculation pumps – 300, 500 or 800 mm. Capacity up to 5,000 m<sup>3</sup>/h. Also available in stainless steel SS316 upon request.



## ➤ AirJet Aerators

The Landia AirJet is available as submersible, dry installed or as a floating unit. Extremely flexible non-clogging aeration system that requires no external blower or compressor.



## ➤ Landia GasMix

Landia GasMix is an external anaerobic digester mixing system that not only simplifies service- and maintenance but also has a very positive effect on biogas production.



Landia was founded in 1933 and is today a modern, successful manufacturer of a comprehensive range of chopper pumps, propeller mixers and aerators, offering customised solutions and systems for difficult to handle liquids with high dry matter content, liquid biomass and other organic waste.

Our customers are involved in the conception and construction of biogas plants, municipal and industrial wastewater treatment, processing of by-products and waste from the food industry, agricultural slurry handling and much more.

We support our customers through our subsidiaries and offices in the UK, Germany, Norway, the US and China – plus a worldwide network of professional distributors.

Distributor:

