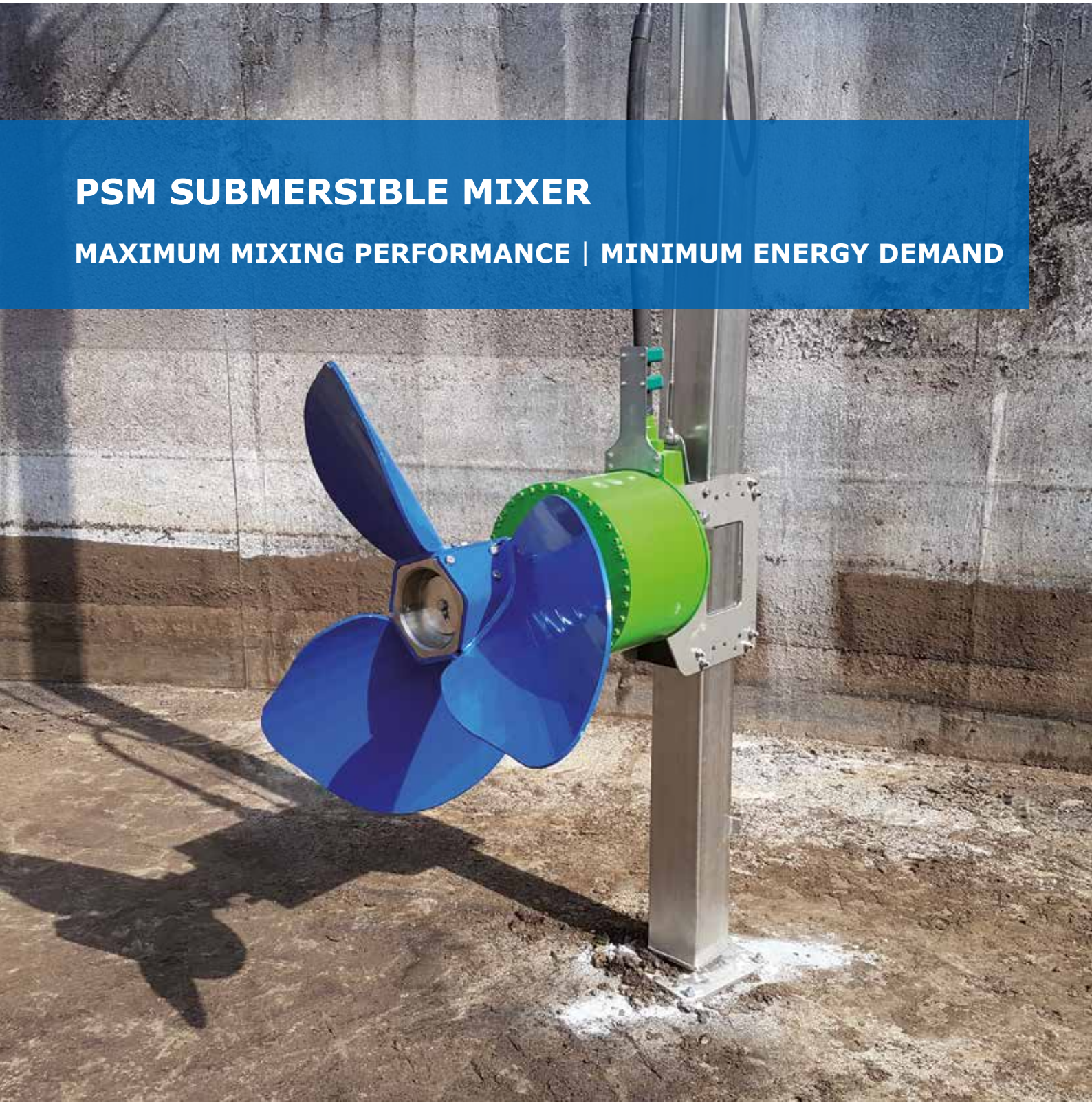
Anaergia
Technologies

PSM SUBMERSIBLE MIXER

MAXIMUM MIXING PERFORMANCE | MINIMUM ENERGY DEMAND



BENEFITS AT A GLANCE

HIGH EFFICIENCY MOTOR THAT ACHIEVES EXCEPTIONAL MIXING PERFORMANCE AND LONG EQUIPMENT SERVICE LIFE

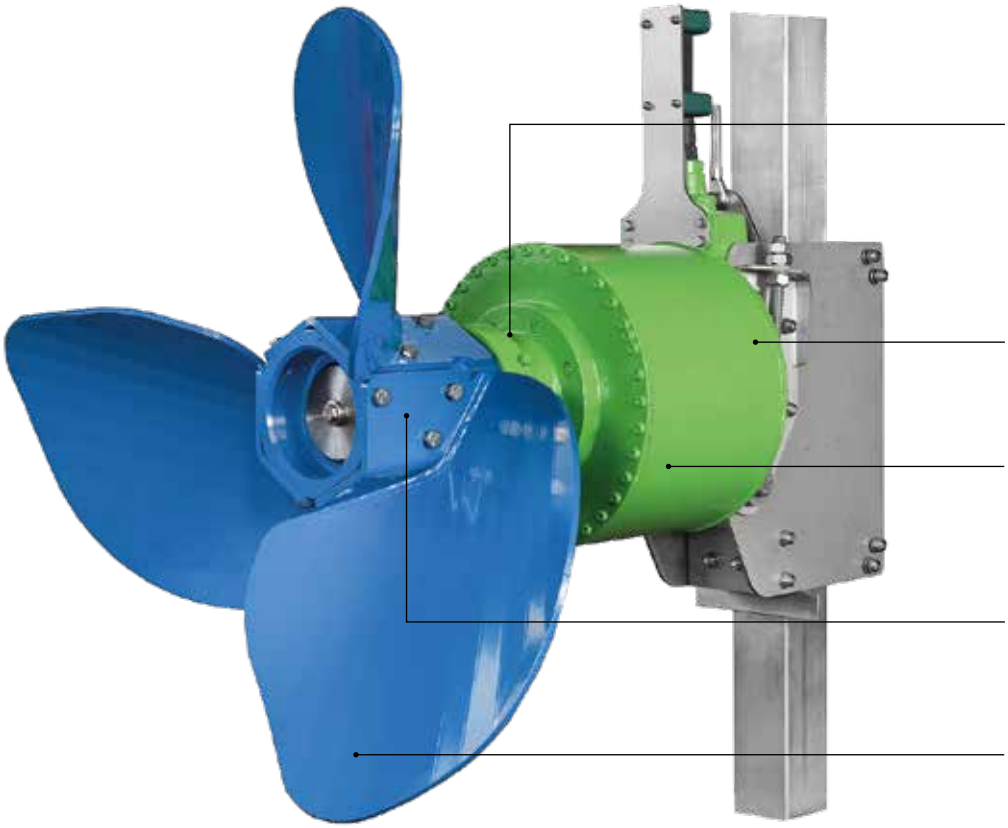
The PSM submersible mixer is the most innovative mixing technology currently available on the market. The powerful, gearless direct drive combined with the dynamic mixer controller delivers a mixing system that gets the most out of the energy it consumes. With electrical savings of 50 % or more, your facilities CO_2 footprint can be substantially reduced.

With permanent synchronous magnet (PSM) motor a gearbox is completely avoided and high torque is available as soon as the mixer starts. Fewer rotating components, fewer failures, less costs. Not surprisingly, the PSM motor is also found in modern electric cars and delivers full torque right off the line. Therefore, floating layers and high solid digesters do not pose a problem for the PSM.

The 3D blade geometry has been designed using CFD modelling and has been improved and optimized to perfection with an ideal ratio of shear force and fluid flow. The result is consistently mixed digesters and bioreactors with maximum gas yield.

EFFICIENT:
Average power input of 3 kW - 11 kW*

POWERFUL:
High torque motor with full power even at low speeds
Torque: up to 800 Nm
Speed: between 80 rpm and 150 rpm



2 independent liquid seals prevent nuisance alarms and eliminate frequent maintenance. The first barrier is a pair of lip seals with flushless mechanical seal as a secondary protection

State-of-the-art drive technology:
Powerful direct drive without gear unit

Robust explosion proof housing

Dedicated high thrust bearings independent of motor roller bearings

Optimized 3D propeller

PROTECTED:
ATEX and Cl. I, Div. 1 Approved

INTELLIGENT:
DMC control unit regulates everything automatically

ROBUST:
Gearless drive, high-quality components

* specified values depend on the medium

THE MULTITASKER

PSM SUBMERSIBLE MIXER

PSM-940

HOMOGENIZED SLURRIES

» Effective mixing of slurries even with high total solids content of up to 12 % and more*
» Less dilution of substrate required = improvement in retention time = less storage volume

MIXING OF FLOATING SCUM LAYERS AND SETTLED GRIT

» High mixing power and thrust prevent grit from settling and floating scum layers from forming even in high solids digesters
» More operating reserves for biogas plants / high motor torque of up to 800 Nm

PSM-1200

DISSOLVING OF LARGER SOLIDS

» Supporting the biological process in the conversion of fiber-rich input materials
» With the help of the flow generated by the steel propeller, even large amounts of solids can be agitated

MAXIMIZE DIGESTER ACTIVE VOLUME

» Maintain high active volume by eliminating dead zones
» Innovative blade geometry creates effective flow for constant gas exchange, which is critical for bacteria

PSM-1500

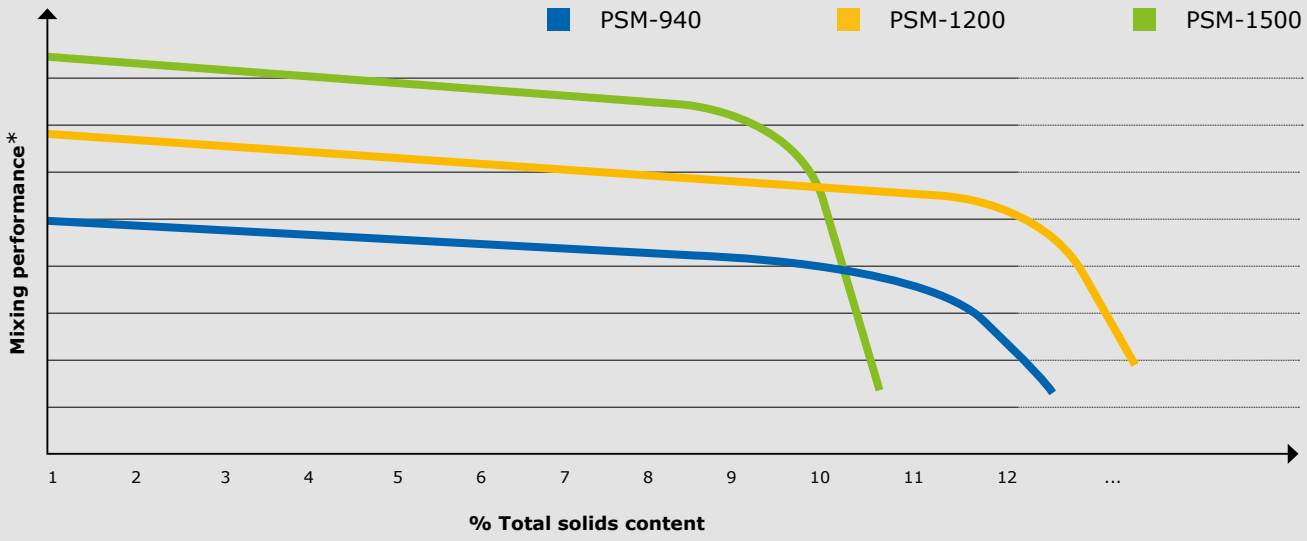
SAFE AND FLEXIBLE USE

» Efficient monitoring of the electric motor with the assistance of the DMC (temperature, power consumption, speed, torque)
» Protection for both Class I, Division 1, Group D, T3C and ATEX II 2 G Ex e IIA T1 Gb

LOW OPERATING AND MAINTENANCE COSTS

» Reduction of mixing times and power consumption by adapting speed and thrust to the viscosity of the medium
» Energy-efficient mixing due to Dynamic Mixer Controller (an intelligent VFD)
» No gear unit = less wear = longer service life of the mixer

AREA OF APPLICATION



PSM INSTALLATION EXAMPLE

FLEXIBLE MIXING FOR YOUR TOUGHEST APPLICATIONS

The PSM submersible mixer is suitable for installation in all common tanks. The bracket is designed for standard square guide posts with a 6 inch (150 mm) width but can also be installed with other square guide tube dimensions using bracket adapters. This makes it possible to integrate the mixer into a wide range of different biogas plants or wastewater treatment plant anaerobic digesters or anoxic tanks.

With the PSM, you bring mixing power, shear force and energy efficiency to your tank with a reliable, proven design.

Of course, in addition to the mixer, we also offer custom mixing equipment and installation solutions.

PSM + Service Box:

Our Service Boxes Classic and Pro are equipped with an integrated mixer post pivoting bracket and a gas lock service opening. Therefore, the mixer can be adjusted in height and swivelled to the left and right in order to mix the contents of the entire tank.

WHICH PSM MIXER BLADE SUITS YOUR PLANT?

PSM-940

- For mixing of solids / substrates with medium dry matter content
- Suitable for use in Newtonian (water-like viscosity) as well as viscous fluids
- Creates a turbulent flow due to the higher speed and geometry of the mixer blade

PSM-1200

- For mixing substrates with a medium to high dry matter content
- The geometry of the mixer blade is designed for thrust development in viscous and highly viscous fluids
- Generates a higher volume flow than the PSM-940 at a lower speed due to the mixer blade geometry

PSM-1500

- For mixing substrates with a low dry matter content
- Suitable for use in low-viscosity fluids
- Lower speed than the PSM-940, but also a higher volume flow due to the blade geometry

INTELLIGENT MIXING

FOR EVEN GREATER COMFORT

The **DMC** (Dynamic Mixer Controller) is our control unit developed exclusively for the PSM. It expands the possibility of the PSM and takes full advantage of output power and energy efficiency.

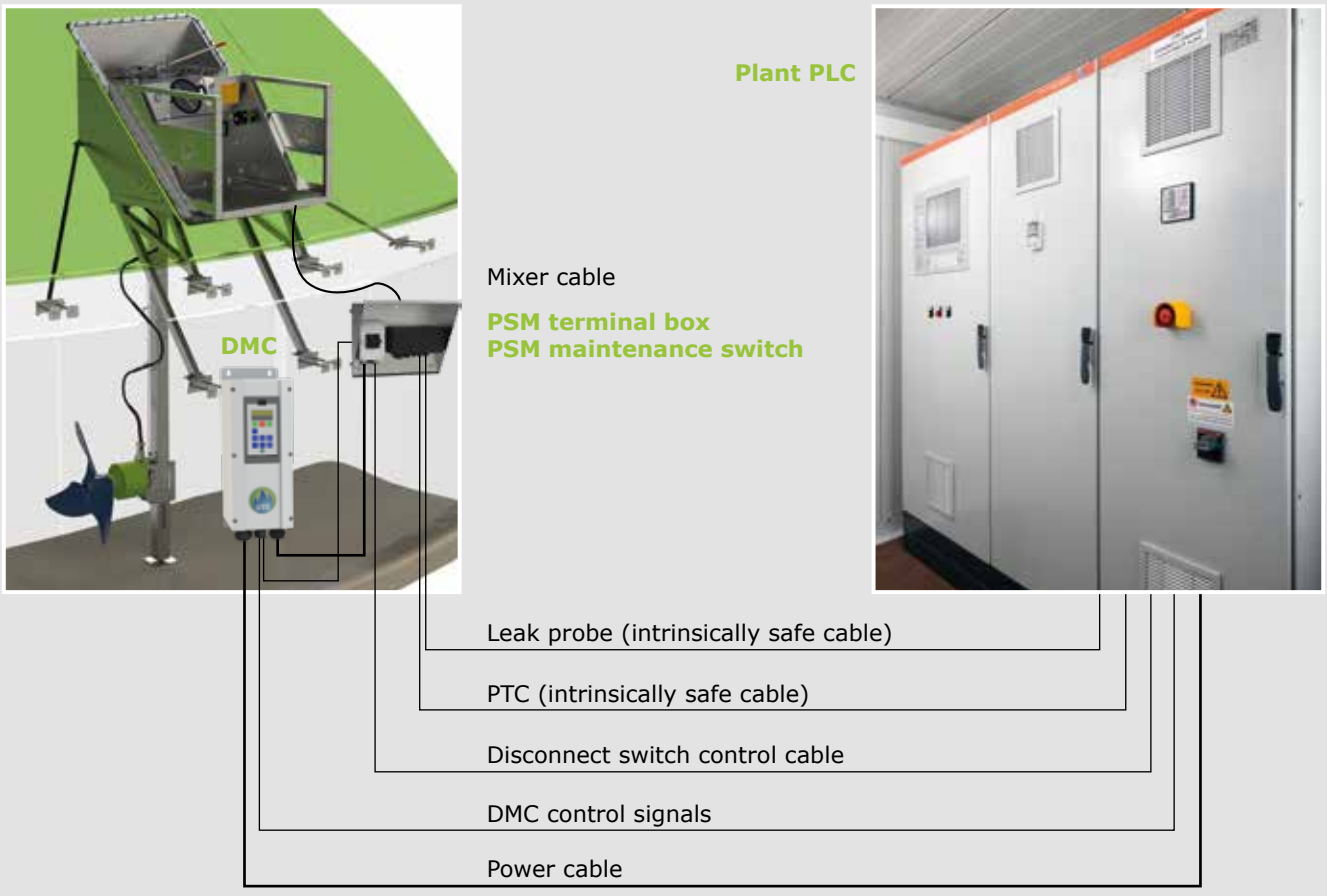
The DMC regulates the PSM according to the operator's needs or the requirements of the mixing application. For example, it is possible for the system to operate at constant speed or at constant torque. With a constant speed setting, the power input fluctuates depending on the torque.

If, by contrast, a torque value is specified, the speed of the mixer varies within a certain range and continuously delivers high thrust mixing to the tank's slurry. In the process, the power input remains at a constant level. This all takes place fully automatically without intervention by the operator.

The DMC also outputs data and allows for insightful understanding of the mixing process. This allows the operator to quickly "see" the performance of the digester and how changes in substrate affects the process.

The DMC can be connected to the plant level PLC via an analogue signal, Profibus or Profinet connection. Fully integrated local control panels are also available complete with a touchscreen operator interface.

INSTALLATION EXAMPLE FOR THE PSM MIXER:



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OUR ANAERGIA TECHNOLOGIES

We offer solutions for the following applications:

- » Pump Technology
- » Mixing Technology
- » Separation
- » Extrusion Technology
- » Screening & Sorting
- » Size Reduction
- » Organic Polishing
- » Conveyor Technology

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