

**CENTRIFUGE
TECHNOLOGIES**

**BIOGAS
APPLICATIONS**



Enhancing Sludge Dryness by Decanter Centrifuges

Biogas is gas produced by the decomposition of organic materials in the absence of oxygen, a process known as anaerobic digestion. It is primarily composed of methane (CH₄) and carbon dioxide (CO₂), with small amounts of other gases such as hydrogen sulfide (H₂S) and traces of water vapor.

Biogas is generated from various organic sources, including agricultural waste, livestock manure, sewage sludge, food waste, and energy crops. These materials are collected and placed in a controlled environment, called digester, where microorganisms break them down through anaerobic digestion, releasing biogas as a byproduct.

The biogas has multiple valuable applications. It can be used as a renewable energy resource for electricity and heat production, and even as a vehicle fuel. The combustion of biogas releases energy that can be harnessed to produce electricity and heat, thus providing a sustainable alternative to fossil fuels. Biogas can also be purified, resulting in biomethane, a gas that is high in methane content can be injected into natural gas pipelines or used as vehicle fuel.

Decanter centrifuges play a crucial role in biogas applications performing the separation and clarification of the biogas digestate, a byproduct of the anaerobic digestion process. During anaerobic digestion, the organic substances are broken down, and the resulting mixture has composed by solids and liquids. The decanter centrifuge is very useful to separate the solid and liquid phases, allowing for further treatment and utilization.

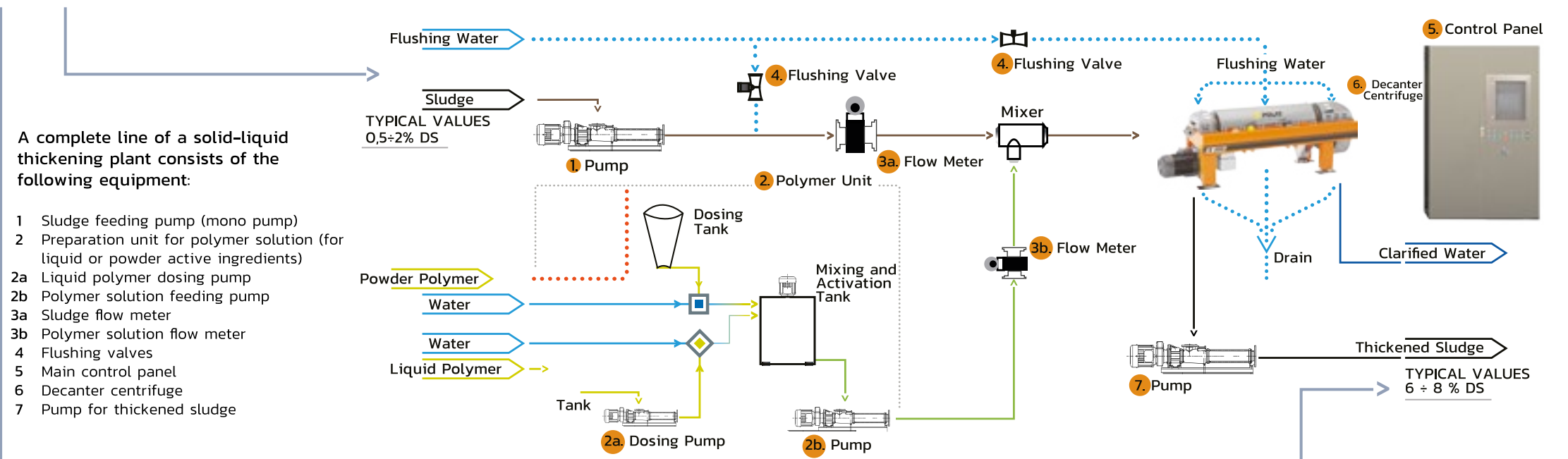
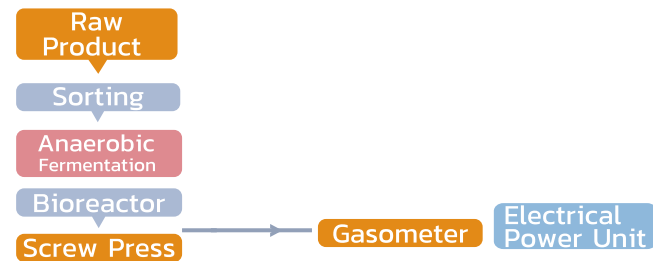
In the biogas application, the high centrifugal force generated by decanter centrifuges is the best solution to reach the highest level of performance in the solids/liquid separation. The decanter centrifuge is equipped with a rotating bowl with a spiral scroll inside. As the digestate is fed into a decanter, the high centrifugal force performs a separation between the heavier phase (solids) and the lighter phase (liquid). The scroll moves the solid phase separated to the bowl's outlet bushes, while the liquid phase is discharged separately in counter-current way from the centrate's outlet.

The separated solid fraction can be used as a nutrient-rich fertilizer or soil amendment. It contains a high level of organic matter and nutrients, making it a valuable product that can be returned to the terrain. Differently, the separated liquid fraction, can be subjected to further treatment processes or be recycled within the biogas plant.

In summary, decanter centrifuges are utilized in biogas applications to separate the solid and liquid components of the biogas digestate, enabling efficient treatment and utilization of both fractions. This helps in optimizing the biogas production process and obtaining valuable byproducts for various purposes, including renewable energy production and sustainable agriculture.



Bio Waste



Advanced Wear Protection Equipment

For the separation of abrasive digestate, Polat uses high-hardness special tiles on the flights of the decanter's scroll for advanced wear protection. These high-hardness tiles improve wear resistance, extending the scroll's lifespan and reducing maintenance costs. Polat's 'Advanced Wear Protection Equipment' is designed to handle even the most demanding industrial applications.





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Polat Makina Customer Service

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