WASTE TO ENERGY

Orbinox UK are a manufacturer and distributor of all valves found within the Anaerobic Digestion processes.

Our **comprehensive inventory** includes the following **EX-STOCK ITEMS**:-

- Orbinox Knife Gate Valves
- InterApp Butterfly Valves
- Ball Valves
- Pneumatic & Electric Automation
- PNEUTON™ PneuLINK™ and PneuNAMUR™ Solutions

ORBINOX UK ENVIRONMENTAL SOLUTIONS
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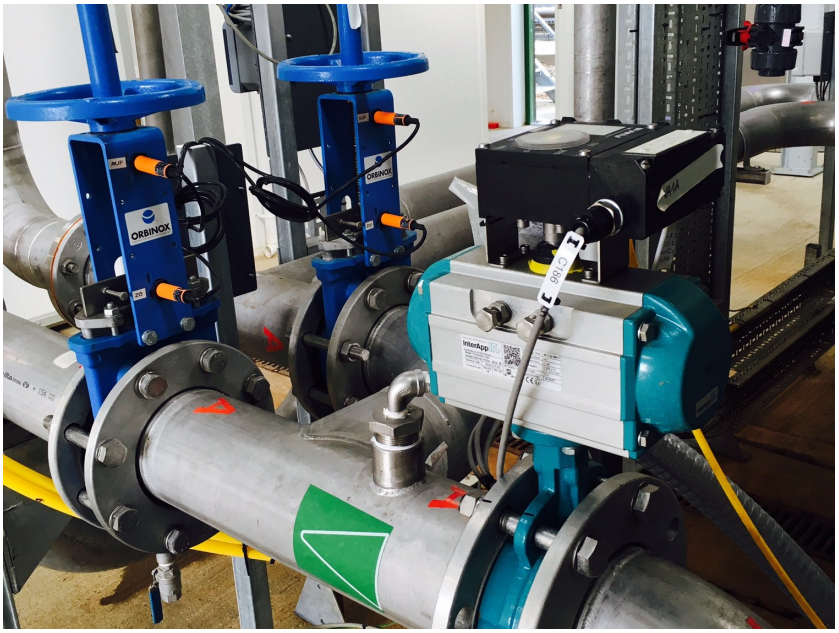
ANAEROBIC DIGESTION



Orbinox UK specialize in providing valve, automation and engineering solutions across all industries however we are extremely focused and motivated by the continuously developing waste to energy sector.

Waste to energy is an exciting area for us as the economic, agronomic and environmental advantages and benefits are great.

At **Orbinox UK** we have extensive experience in supplying valves to AD and Biogas markets and have a large installed base in plants across the UK and worldwide with solid references from most of the major technology providers.

Visit www.orbinox.co.uk for more information

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04/2016

ANAEROBIC DIGESTION

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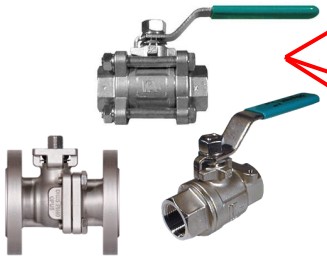
THE VALVES

Our bi-directional 'EB' series with its vulcanized Nitrile (or EPDM) seat and zero body cavity has proven to be the best knife gate valve in the market for AD. Knife gate valves are used on various feed, bypass and



2 or 3 piece ball valves complement our core product range which has been honed for the waste to energy sector. Ball valves are used on various purge, tapping and train points as well as isolation applications.

The InterApp Desponia with Hydrogenated Nitrile (HNBR) liner is the butterfly valve of choice for many plants worldwide. Butterfly valves are used for various gas offtakes/ connection isolations and flow control.

Check, Gate, Globe and Diaphragm valves are tailored depending on preference to complete our AD packages.

THE PROCESS

Anaerobic digestion (AD) is the natural fermentation by which microorganisms break down biodegradable material in the absence of oxygen. AD is widely utilized within the ever developing renewable energy sector – This waste to energy process produces biogas which can be fed through CHP (Combined Heat and Power) units to produce electricity which can be exported to the national grid and also used in the plant itself.

Typically, after shredding/pulping biodegradable feedstocks such as leftover food, crops, sewage and animal waste they are fed into a hydrolysis buffer tank - This tank holds the initial decomposition process, using water to liquefy organic material into slurry. Before the slurry goes into the main digester it must pass through the pasteurisation process for partial sterilization via controlled heating and cooling.

After the anaerobic digestion another buffer tank receives the digested slurry which is held in suspension until further treatment. The biogas is collected from the digester and held in the gas holder which is intern fed to the CHP unit – Usually the heat produced is channelled back into the pasteurisation and AD process. Another bi-product of the AD process is digestate – This digestate usually passes through a de-watering system to separate the concentrate from the liquids prior to maturation/storage in yet more buffer tanks ready to be used as bio-fertiliser.