

CASE STUDY

WANGEN PUMPEN BIO-MIX Substrate Feeding System



Northern Ireland Anaerobic Digesters have been driving the economy towards sustainability and net zero emissions for over a decade.

Typically constructed between 2010 and 2016, and producing electricity using a 500kW CHP engine, there are almost 90 farms enjoying the benefits of clean, green energy along with production of mineral free fertiliser through the digestate produced, which is spread on land.

However, as these plants age and wear, how can you be sure they are working as efficiently as possible to maintain performance, maximise output, reduce maintenance and downtime?

Turn to the experts in the field...

KEY DELIVERABLES

Supply - Integration - Support



INCREASE IN YIELD
**10% in
electricity**



INCREASE IN YIELD
**5% extra
methane**



ENJOYING BENEFITS
90 Farms

CASE STUDY

WANGEN PUMPEN BIO-MIX Substrate Feeding System



- Reliable digester feed with pre-mix of substrate
- More up time
- Better gas yield
- Greater digester and CHP output
- Lower parasitic load
- Seamless integration & quick installation
- Fewer spares and less frequent exchange of parts

About LSR Support

Established in 2018, LSR Support directors Stevie Loughlin and Alan Sloan saw an opportunity to support AD sites with their knowledge and practical experience, built from years designing, commissioning and working on AD schemes in Ireland, Northern Ireland and the UK.

LSR have perfected AD applications. They understand successful applications require reliable pumps with controls, PLC integration, supported by on-site Planned Preventative Maintenance contracts.

Modular integration means you don't need to buy a whole new plant, instead it allows for maximum lifespan of legacy assets by identifying areas of your plant that require rebuild, repair, replacement or that can be upgraded and optimised so that you can enjoy less outlay, longer asset life and maximum site uptime and maximum yield.

LSR not only supply plant, pumps and controls; they integrate these elements into optimised efficient systems; and support operators in husbandry and service of their sites.

DPS & LSR A Powerful Combination

DPS is the distributor of WANGEN pumping technology and WANGEN X-UNIT products for Ireland and Northern Ireland. The company DPS has been a supply partners to many other companies for thirty years. The supply agreements with WANGEN Pumps allows DPS to offer premium level pumping technology with full factory backup. The pricing structure allows DPS to offer a full supply, installation and serviec solution for complete project delivery at no commercial disadvantage to you, the customer, for total confidence and seamless support.

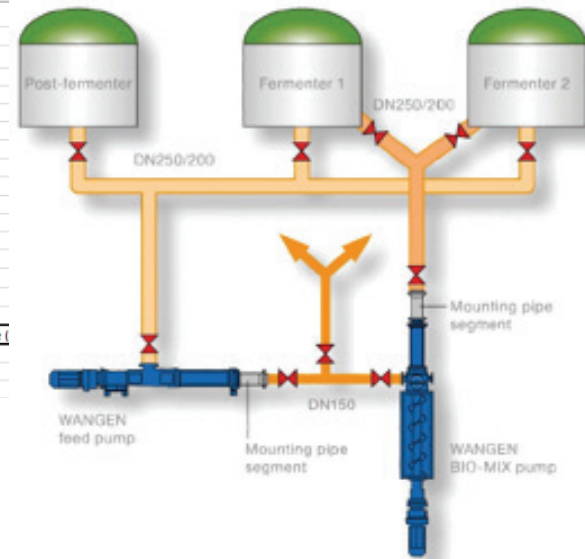


CASE STUDY

WANGEN PUMPEN BIO-MIX Substrate Feeding System



BIO-MIX SIZING TOOL		Select dropdown in green box	Enter data in gold boxes		
Solid Material		NI grass silage density			
Density kg/m ³		500	CALCULATION		
Loading per day (tonnes)		40	ENTER SITE DATA		
Solid per day m ³ /d		80.00	CALCULATION		
Operation (hours)		24	ENTER SITE DATA		
Feeding rate m ³ /h		3.33	CALCULATION		
Fluid material					
% solids		9			
Viscosity cP		1000			
Ratio fluid:solids		10	REFER TO LIST IN REFS		
Fluid addition for mixing m ³ /h		33.33	CALCULATION		
Total FEED RATE m³/h		36.67	CALCULATION		
Operational duty	m ³ /hr		Operation minutes per hour	Description	Motor size
Biomix 110		30	73.33	CALCULATION WANGEN Bio-Mix KL65R 110.0 HD	
Biomix 125		40	55.00	CALCULATION WANGEN Bio-Mix KL65R 125.0 HD	
Biomix 140		60	36.67	CALCULATION WANGEN Bio-Mix KL80R 140 HD	



What is WANGEN BIO-MIX?

The WANGEN BIO-MIX is a feed pump which takes dry feedstocks, eg. silage/maize/chicken manure, from walking floors or diet feed.

The dry substrate is mixed in the BIO-MIX hopper by an auger with digestate or slurry before being pumped into the digester.

Dry feedstocks are mixed in the BIO-MIX hopper by an auger	BIO-MIX uses an auger in it's hopper to incorporate dry substrate with wet digestate
<p>Features</p> <ul style="list-style-type: none"> - Fewer augers/PC elements/seals/drives/wear parts than the incumbent feed pumps - More robust - Low speed operation <p>Benefits</p> <ul style="list-style-type: none"> - Less downtime - Excellent pre-mixing of substrate/liquid - Maximised yields - Process stability - Lower maintenance costs - Integrated stone-removal door 	<p>Features</p> <ul style="list-style-type: none"> - Digester bugs start breaking down feedstock immediately - Wetted feedstock is less buoyant than dry feed and better incorporated into the digester <p>Benefits</p> <ul style="list-style-type: none"> - Faster breakdown - Lower digester retention time - Greater gas yield - Less mixing in fermenter necessary

BIO-MIX is easy to integrate into legacy systems

- Features**
- Easy to replace old feed systems with WANGEN BIO-MIX
 - Easy to control with stable operation
 - One BIO-MIX can feed several digesters



CASE STUDY

WANGEN PUMPEN BIO-MIX Substrate Feeding System



Increase in Biogas yield!

James Blair recently re-appraised the feed application for his anaerobic digester at Kilmoyle, successfully replacing his old pumps with the innovative WANGEN BIO-MIX. He now has **10% MORE electrical output from his CHP engine than previously**, which James attributes to the WANGEN BIO-MIX substrate feed system.

Seamlessly connecting with a diet feeder, the BIO-MIX's hopper contains an auger, which overfeeds a progressive cavity pump. Overfeeding allows stones to be transported to the back of the hopper for removal, thus reducing maintenance in the digester which allow the biology of the digester run at optimum rate and allows him to attend to other jobs on the farm!

The auger pre-wets the dry matter with return digestate; in turn allowing bacterial breakdown to begin immediately as well as creating conditions perfect for neutral buoyancy within the digester, rather than dry silage floating to the top of the tank to create a crust.



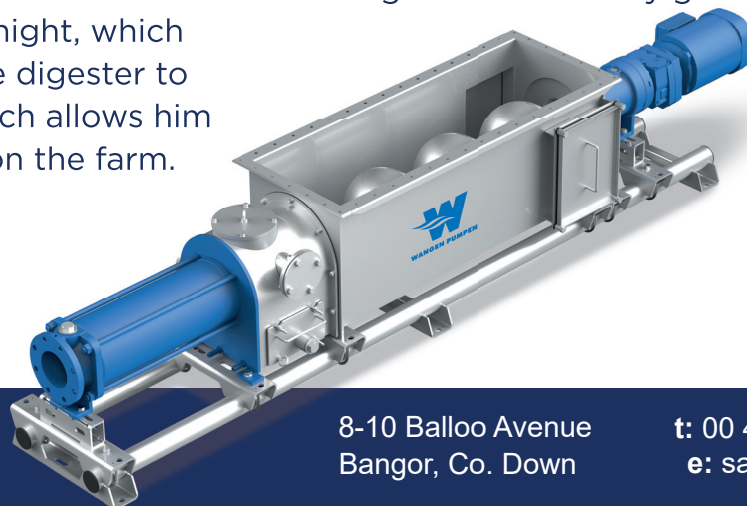
Has WANGEN BIO-MIX accounted for 10% more electricity on its own?

Whilst it is true that the WANGEN BIO-MIX has fewer parts to be serviced and is a robust pumping tool which has allowed for far less downtime, James Blair is also more confident that the Biomix will run without fault, blockages or bridging 24/7.

And that means he can run the WANGEN BIO-MIX overnight, which allows the biology of the digester to run at optimum rate which allows him to attend to other jobs on the farm.

But that's not all, John McLenaghan at Just Farm Energy reports similar success with the BIO-MIX system he installed last year.

Maximising production has allowed him to realise an increase of 5% methane, allowing his CHP to run more efficiently for greater electricity generation.



8-10 Balloo Avenue
Bangor, Co. Down

t: 00 44 28 9181 8347
e: sales@dps-ni.com

WANGEN PUMPEN

EUROPE'S NO 1 for Biogas & Anaerobic Digestion



Reliable & Robust

WANGEN pumps run worldwide

The German company WANGEN PUMPEN is a global leader in the development and construction of progressive cavity pumps.

Since 1969, over 50,000 robust WANGEN pumps have been supplied to the anaerobic digestion and agricultural industry worldwide.

Many leading AD plants in Ireland and Northern Ireland are successfully using WANGEN's innovative pumping technology.



Our experienced team can offer you all information and details about the product range of WANGEN biogas and AD pumps.



We are very pleased with the numerous anaerobic digestion pumps that DPS and LSR have installed over the last 2 years. It is good to see that our pumps run reliably in Ireland. Excellent product knowledge and high-quality expertise in installment, are the basis of our successful co-operation.

John Booth,
Regional Sales Manager
WANGEN PUMPEN

WANGEN PUMPEN is a founder member of the World Biogas Association (WBA).



**WORLD BIOGAS
ASSOCIATION**



Pumpenfabrik Wangen GmbH
Simoniusstrasse 17
D-88239 Wangen im Allg. Germany

t: 0049 7522 997-0
e: mail@wangen.com
w: wangen.com