

Grundfos BioBooster presentation

By Jacob Grimstrup, Senior Sales Manager Grundfos BioBooster



be
think
innovate

GRUNDFOS 



The need to increase process water reuse

Some facts about global water use

- 20 % of water drawn from source globally is currently used in industry
- More than 80% of wastewater world-wide is not treated before going back to nature (UNESCO)
- A business-as-usual approach will lead to a 40 % gap between clean water supply and demand by 2030 (Water Resources Group - WRG)





SDG 6: Ensure availability and sustainable management of water and sanitation for all

- SDG 6, target 6.3: “By 2030, improve water quality by reducing pollution, eliminating dumping and minimising release of hazardous chemicals and materials, halving the proportion of untreated wastewater and **substantially increasing recycling and safe reuse global**”
- SDG 6, target 6.4: “By 2030, **substantially increase water-use efficiency across all sectors** and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity”

BioBooster Solutions - Making a difference in several businesses



F&B INDUSTRIES

wastewater treatment, reuse and full service provider projects from 100 – 3000 m3/d

METAL WORKING INDUSTRIES

DynaFilter system for onsite treatment of wash water from parts metal washing



SERVICE

Our commercial growth engine:
Monitoring & 24/7 support
Preventive maintenance
Remote real time support



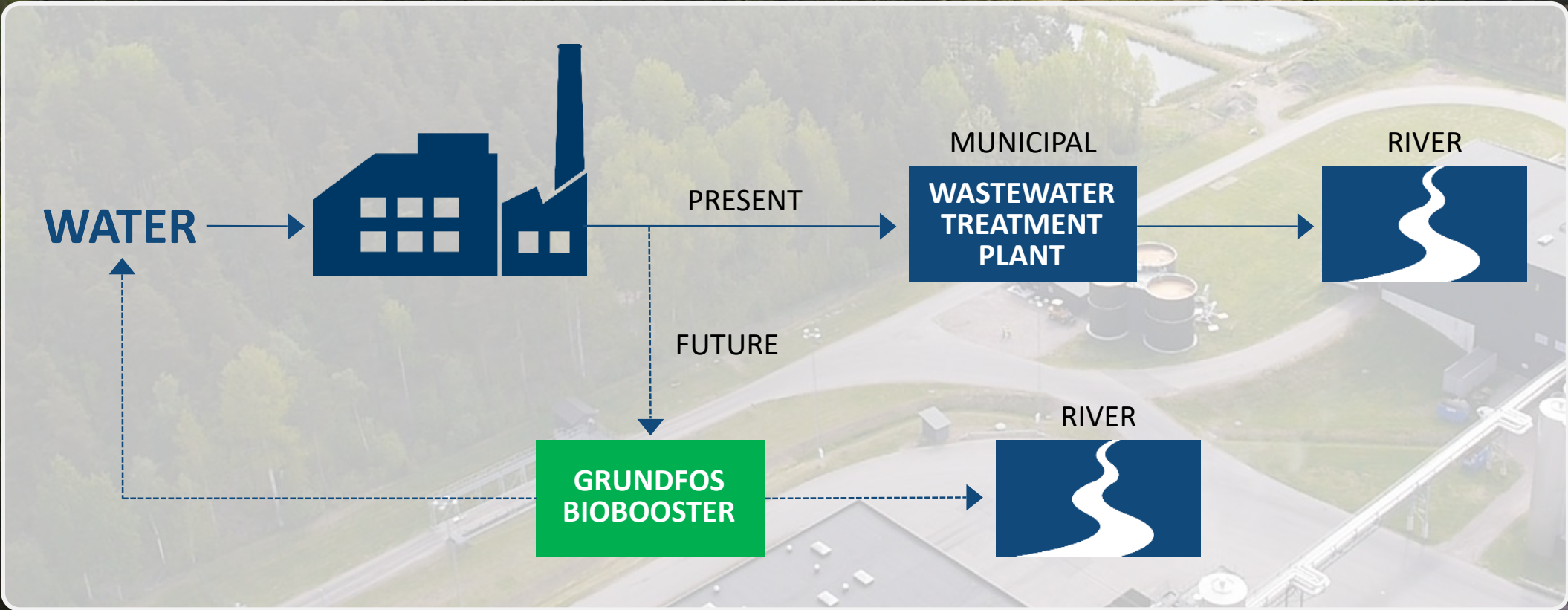
OEM BIOGAS

Membranes for separating biogas fermentation into drinking water and fertilizer liquids



**Decentralised wastewater treatment solution
with high treatment efficiency for water reuse or safe discharge**

The concept of Grundfos BioBooster onsite wastewater treatment



The BioBooster solution for onsite wastewater treatment

- A scalable decentralised wastewater treatment solution built up around stand-alone modules
- Based on a membrane biological reactor process (MBR) and rotating ceramic ultrafiltration membranes
- Ensures excellent permeate quality for water reuse or safe discharge from 100 to 3000 m³/day



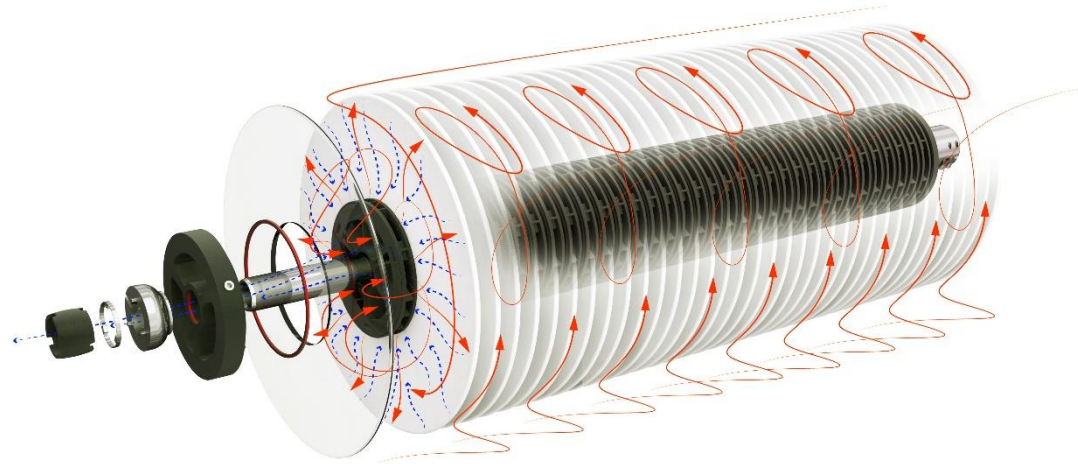
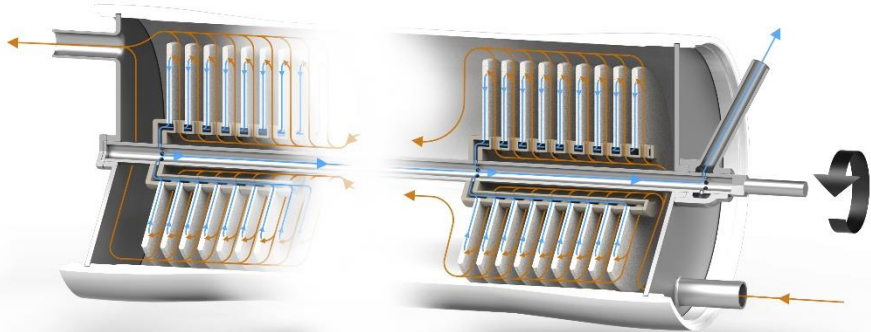
The benefit of a Grundfos BioBooster Solutions

- Decentralised solutions for process water and wastewater treatment
- Customised solutions for water re-use
- High levels of reliability provide peace of mind
- Low operator demand lowers the total life cycle cost
- High quality permeate through ceramic membrane technology



Greater resistance to fouling

- Unique MBR configuration with rotating ceramic membrane
- Rotating ceramic membranes provide superior resistance compared to polymer membranes
- Patented eccentricity design ensures dynamic - shear-enhanced - filtration
- Filtration is maintained by keeping the rotating membrane at the required shear rate



Delivery and installation

- Customised water treatment solution delivered pre-assembled onsite
- Tested and ready for plug-and-play installation
- Robust and continuous water treatment process within the shortest possible time














Robust, reliable operation for peace of mind

- Highly automated operation
- AI and AR powered remote support access live data
- 24/7 support, preventive maintenance, online support using intelligent digital tools



Deliveries 2018 - 2019

Deliveries	Company/segment		Capacity	Commissioned
Norway	Hennig Olsen Is Industry		250 m3/d	2018
Serbia	Grundfos Serbia Industry		60 m3/d	2018
Norway	Tine Tana - Industry		210 m3/d	2018
Denmark	Them Mejeri - Industry		400 m3/d	2019
Spain	Valbuena de Duero - Municipal		250 m3/d	2018
Luxembourg	Sidest - Municipal		250 m3/d	2018
Denmark	Damhusaaen - Biogas		120 m3/d	2018
Luxembourg/ France	Ama Mundu (OEM) Biogas		-	2018

Deliveries	Company/segment		Capacity	Commissioned
Norway	Hemsedal - Municipal		400 m3/d	2012
Denmark	Herlev - Hospital		650 m3/d	2014
Denmark	Arla Rødkærsbro - Industry		450 m3/d	2015
Sweden	Arla Vimmerby - Industry		400 m3/d	2014
Denmark	Thise dairy - Industry (bandfilter)		280 m3/d	2008

Grundfos DynaFilter Reuse of water in parts washing



DynaFilter is an inline process water treatment system that resolves the typical issues in part washing

1 Easy installation and online configuration

3 Lower operating and maintenance costs

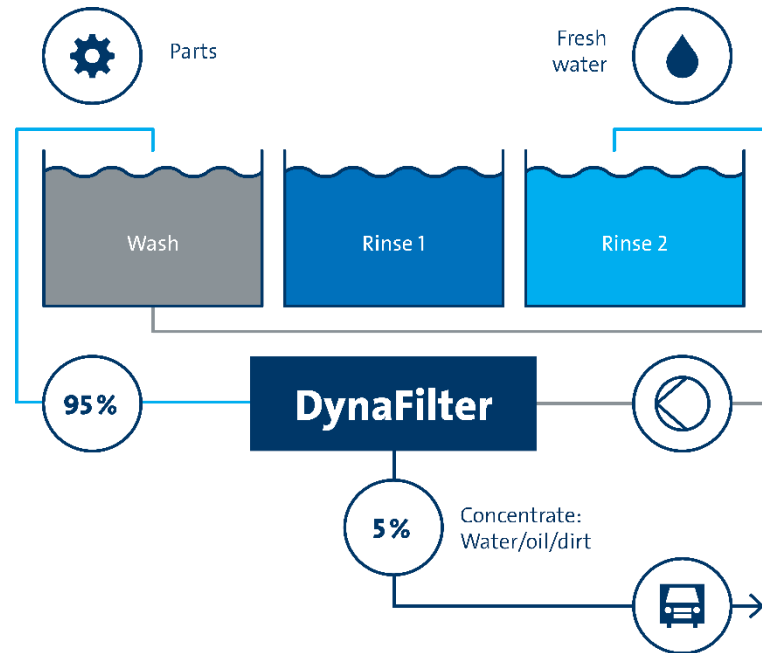
4 Improve water and chemical reuse

2 Continuous filtration process and uniform wash quality

5 Compliance security – designed to VDA19 and DIN ISO 16232 standards



Industrial process water: Improved water and chemical reuse



- Fewer chemicals and a lower volume of clean water entering the wash process
- Reduced volume of wastewater for treatment
- Safe discharge to the local wastewater facility



A proven track record with parts washing

Case 1: Grundfos manufacturing plant in Denmark

Since the installation in 2016, DynaFilter has resulted in significant improvements in cleanliness of parts and savings:

- Water consumption reduced by 36% (420 m³)
- Chemical consumption reduced by 45% (7875 kg)
- Annual energy saving of 1680 Kwh
- From 50 to 5 water dumps per year

The European Parts cleaning Market

- Europe`s market size for parts cleaning is approx. 600 Mio € including machines and consumables (filters, chemicals ...)
- Germany counts for approximately 25% of the European market volume for metal cleaning equipment and exceeded 150 Mio € revenue in 2016
- The installed base is in Europe > 5.000 units of different technologies



Today's site visit - Arla Foods in Rødskærsbro

Arla Foods turned nearly a million litres of discarded water from cheese production into drinking water daily

- Arla Foods, Denmark, wanted to increase its production of mozzarella
- That meant a substantial increase in 'cow water', which makes up 85 % of milk and contains urea
- Grundfos BioBooster cleans this 'cow water' onsite, treating it for reuse for cheese production without jeopardising food safety



“We have these wonderful cows here, which deliver a lot of milk to us, and it is in fact the water in that milk that we reuse in our own facility. It's a fantastic story ”

Jonna Mortensen, Arla Foods

Thank you

Jacob Grimstrup

Telephone +45 4057 6947

Email jgrimstrup@Grundfos.com

