



*Solutions for*  
**BIOGAS**

 **Bonfiglioli**





# *Solutions for* **CONTENTS**

## **BIOGAS**

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# Engineering Solutions



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# BIOGAS

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## SPECIFIC PRODUCTS AND SOLUTIONS FOR BIOGAS

Biogas is an environmentally-friendly, renewable energy source. It is produced when organic matter, such as food or animal waste, is broken down by microorganisms in the absence of oxygen, in a process called anaerobic digestion.

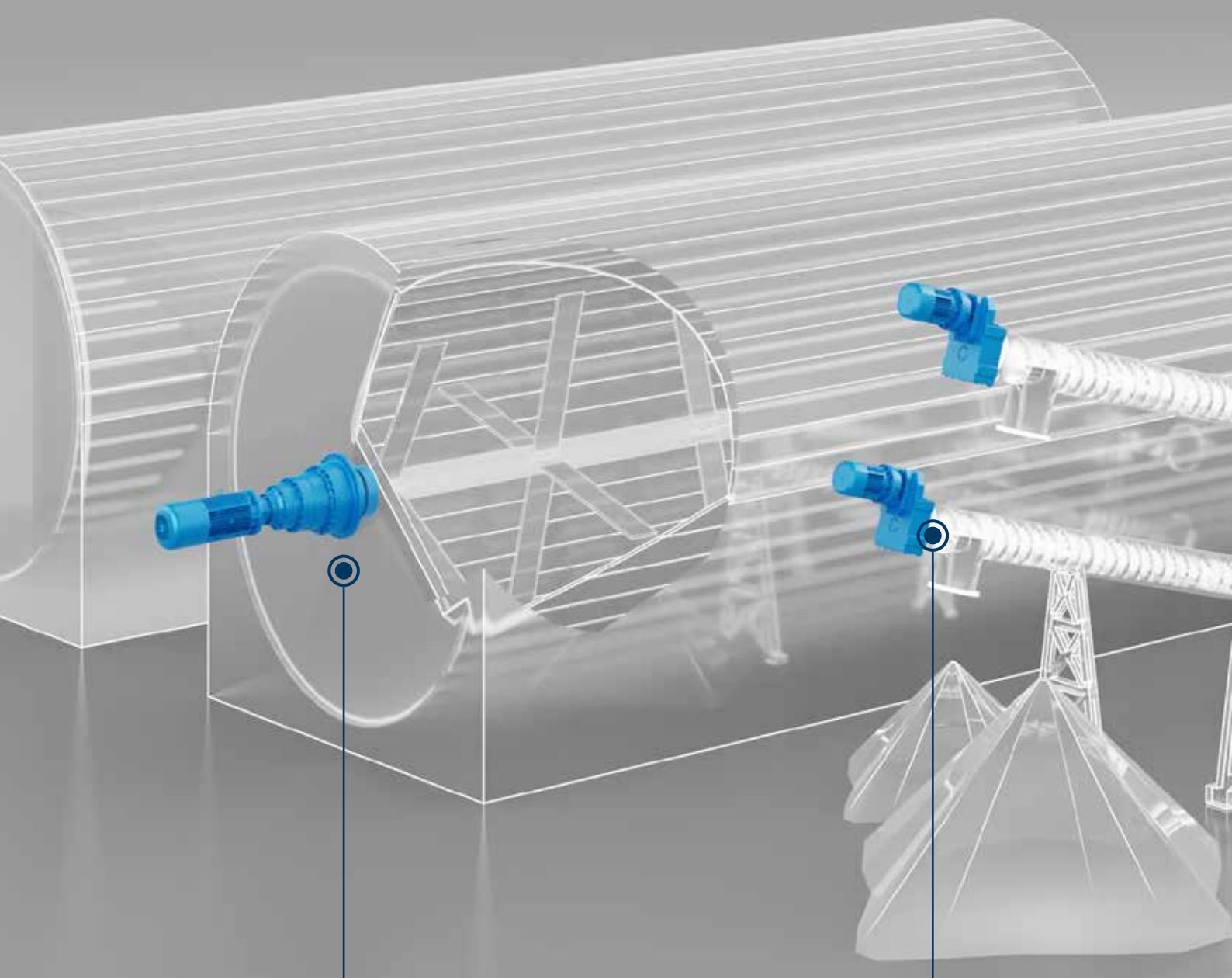
Biogas can occur naturally or as part of an industrial process to intentionally create it as fuel.

The biogas is then used as a fuel to partially or definitively replace fossil-derived fuel.

Bonfiglioli has designed optimized solutions specific to this kind of installation, which has very stringent requirements in terms of reliability and quality of the components at the heart of transport for biogas production.

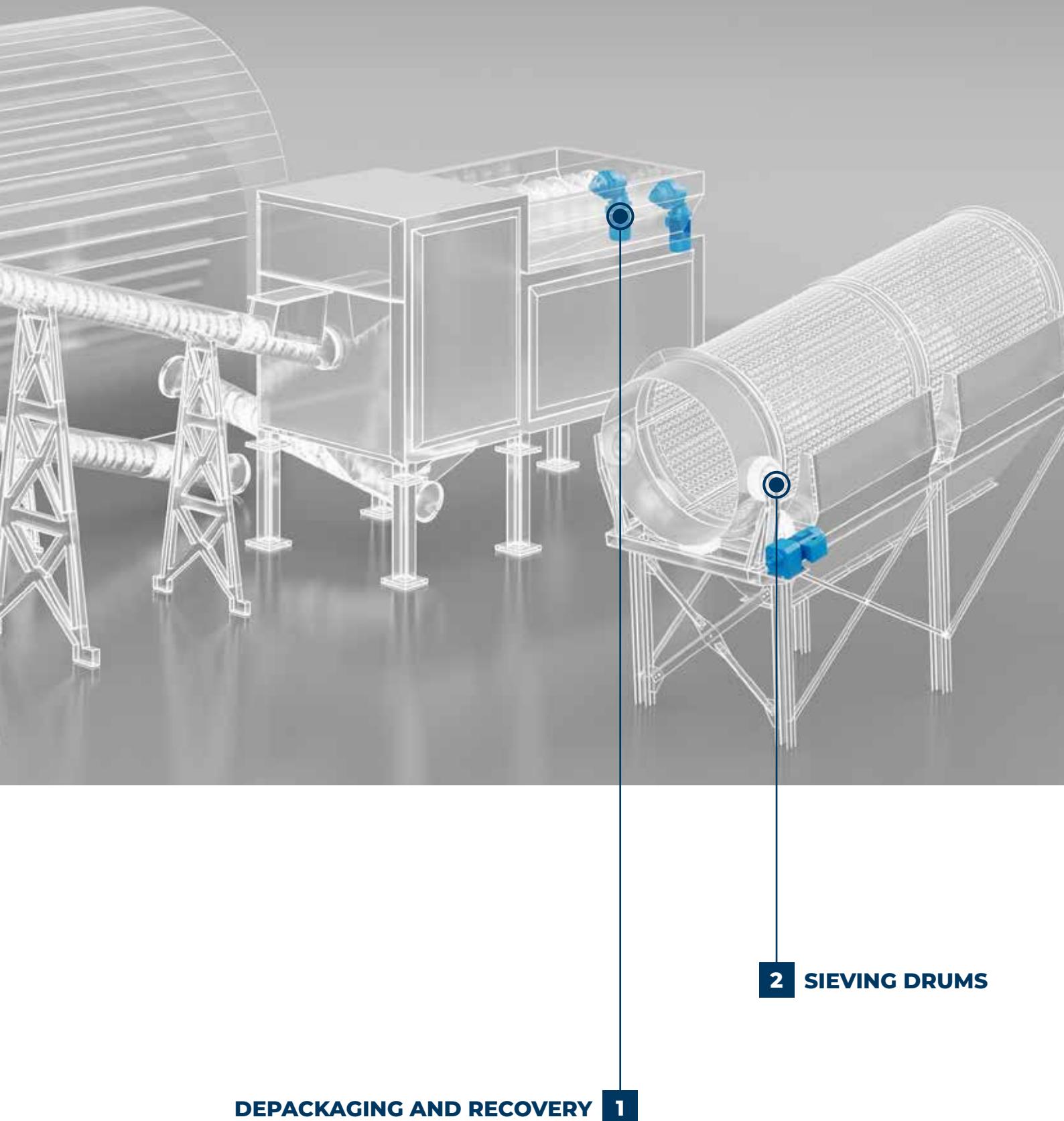
Specifically, Bonfiglioli supplies complete solutions for transporting the biomass agitation/heating blades and equipment for biogas production plants, with its complete range of drives and accessories for the transmission of the power required for the operation of the installations.





**4** ANAEROBIC DIGESTER FOR  
MUNICIPAL SOLID WASTE

BIOMASS FEEDER **3**





1

## DEPACKAGING AND RECOVERY

Shredders reduce the volume of municipal solid waste (MSW), depack the plastic from the waste and select the material with the automatic sorting line. The 300M Series Planetary rating torque guarantees a complete range of shredding machine applications. We supply solutions that ensure speed and precision when handling bulk material.



### 300M Series

#### Planetary gearbox and geared motor

#### BENEFITS

- High shock load resistance
- Modular design
- Reliable and customized solution for harsh working conditions
- High torque capabilities for low-speed output rotation



### EVOX BXN Series

#### Asynchronous Induction Phase Motor

- One motor for different markets
- Simplify installation complexities and inventory management
- Uncompromised Efficiency
- Modular electric motor



### Agile Series

#### Smart inverter

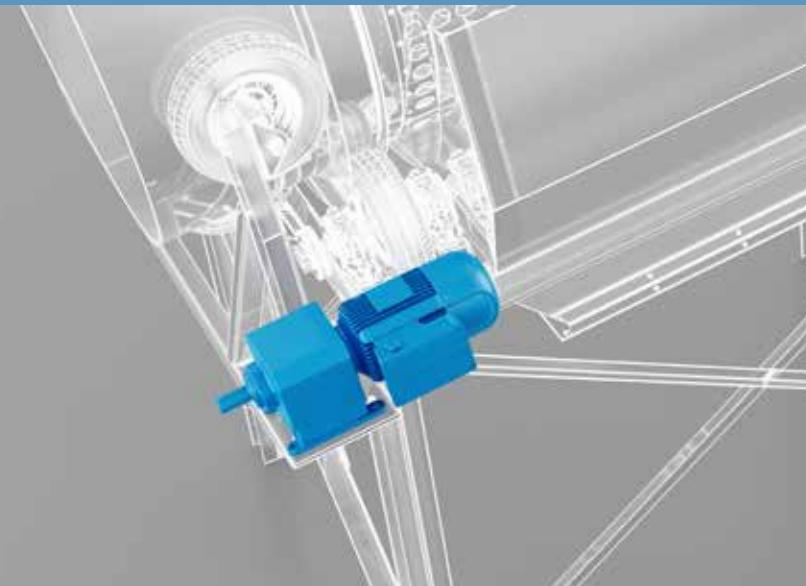
- Smooth start
- Variable "cut position" for smaller particles
- Energy saving function: current consumption redirection during start phase

#### FEATURES

- Output shaft spline design (according to standard DIN 5480)
- Class C3, C4 and C5 surface protection (according to standard UNI EN ISO 12944-2)
- Customized in combination with other gearbox solutions for higher reduction and output torque

- IE3 Efficiency level
- Power range up to 7,5kW
- Built in DC brake
- Thermal protection
- Anti-condensate heaters
- Second shaft extension
- Anti corrosive painting up to C5M
- Tropicalization
- Degree of protection up to IP56

- Series optionally extendable for field bus communication
- Sensorless control of synchronous and asynchronous motors
- Modbus and Systembus onboard
- DC link connection
- Integrated brake chopper
- Power failure control
- Programmable PI Controller
- Integrated VPLC
- Master/slave function with electronic gear
- Integrated safe torque off STO (SIL 2 / PL d) function
- Energy Saving function
- Intelligent current limits
- Output frequency 0...599 Hz, higher frequencies on request
- Diagnosis and setup via integrated keypad and integrated Service interface for PC connection



2

## SIEVING DRUMS

Sieving drums separate and recover waste by size. EVOX CP solution ensures the continuous operation of the rotating drum in any working condition with high efficiency.



### EVOX CP Series

Helical In-Line Gearbox

#### BENEFITS

- Compact design for high torque density and maximum power
- Low warehousing cost, thanks to the distinctive universal mounting
- Safe operation in potentially explosive atmospheres
- Overall dimension in line with market standards
- Easy-Clean shape

#### FEATURES

- Lifetime lubricated
- Unique oil level for all mounting position
- Stainless steel shaft and plug option
- Reinforced bearings option



### EVOX MXN Series

Asynchronous Motors

- One motor for different markets
- Simplify installation complexities and inventory management
- Uncompromised Efficiency
- Modular electric motor



### Agile Series

Smart inverter

- Smooth start
- Variable "cut position" for smaller particles
- Energy saving function: current consumption redirection during start phase

- IE3 Efficiency level
- Power range up to 7,5kW
- Built in DC brake
- Thermal protection
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3

## BIOMASS FEEDER

The Biomass Feeder is the starting point of the biogas production chain, designed to introduce solid or semi-liquid biomass into the anaerobic digester in a controlled, continuous, and reliable manner.

Key features include high resistance to harsh environmental conditions such as humidity, corrosion, and abrasive materials, as well as continuous operation to prevent blockages or overloads that could affect digester performance.



### F Series

#### Shaft Mounted Gearbox

#### BENEFITS

- High efficiency
- Reliability and robustness
- Compactness
- Low maintenance



### EVOX BXN Series

#### Asynchronous Induction Phase Motor

- One motor for different markets
- Simplify installation complexities and inventory management
- Uncompromised Efficiency
- Modular electric motor



### Agile Series

#### Smart inverter

- Smooth start
- Variable "cut position" for smaller particles
- Energy saving function: current consumption redirection during start phase

#### FEATURES

- Shaft mounted solution with different output configurations
- Housing integrated torque arm design and anti-vibration kits
- Wide range of ratios
- Availability of different grade of protection
- Compact or IEC/NEMA flanged motor adaptors
- Fluoroelastomer and double lip seals

- IE3 Efficiency level
- Power range up to 7,5kW
- Built in DC brake
- Thermal protection
- Anti-condensate heaters
- Second shaft extension
- Anti corrosive painting up to C5M
- Tropicalization
- Degree of protection up to IP56

- Series optionally extendable for field bus communication
- Sensorless control of synchronous and asynchronous motors
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4

## ANAEROBIC DIGESTER FOR MUNICIPAL SOLID WASTE

The Anaerobic Digester consists of slowly rotating paddle agitator that ensures optimum mixing of the digestate.

The 300M Series Planetary guarantees high peak load capacity, the best in class in terms of mechanical performances.



### 300M Series Planetary Gearbox

#### BENEFITS

- Robustness
- Reliability in harsh working conditions & wide range of temperature
- High torque density
- Modularity
- High overhung load capacity

#### FEATURES

- Widest range of ratios
- Easy to fit output pinion
- IEC or NEMA motor flange
- Wide range of motion control solutions
- Availability of different grades of protection
- Fluoroelastomer and double lip seals



### BX Series Asynchronous induction phase motor

- Reliable, balanced and robust
- Compliant with the most of the efficiency standards

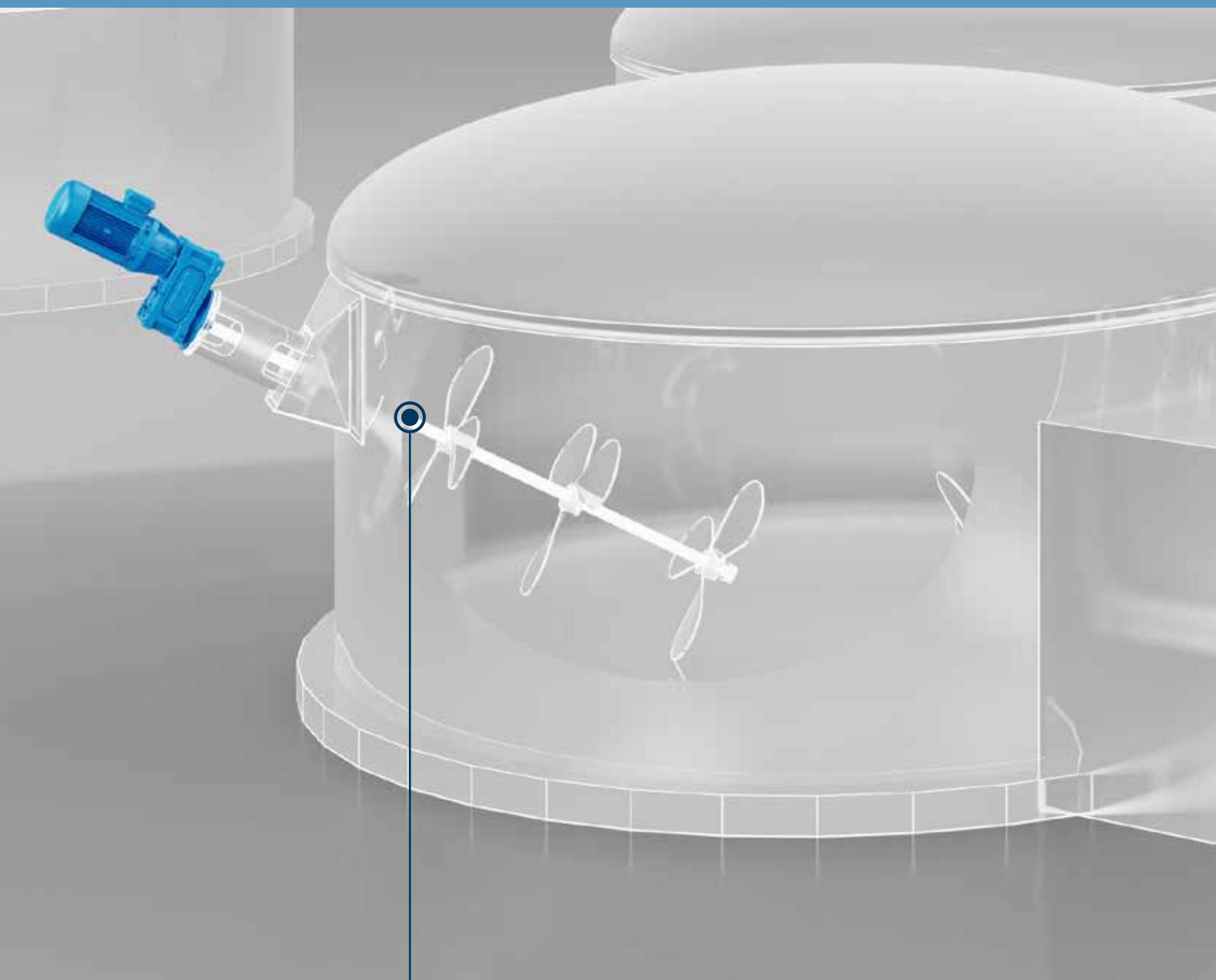


### Agile Series Smart inverter

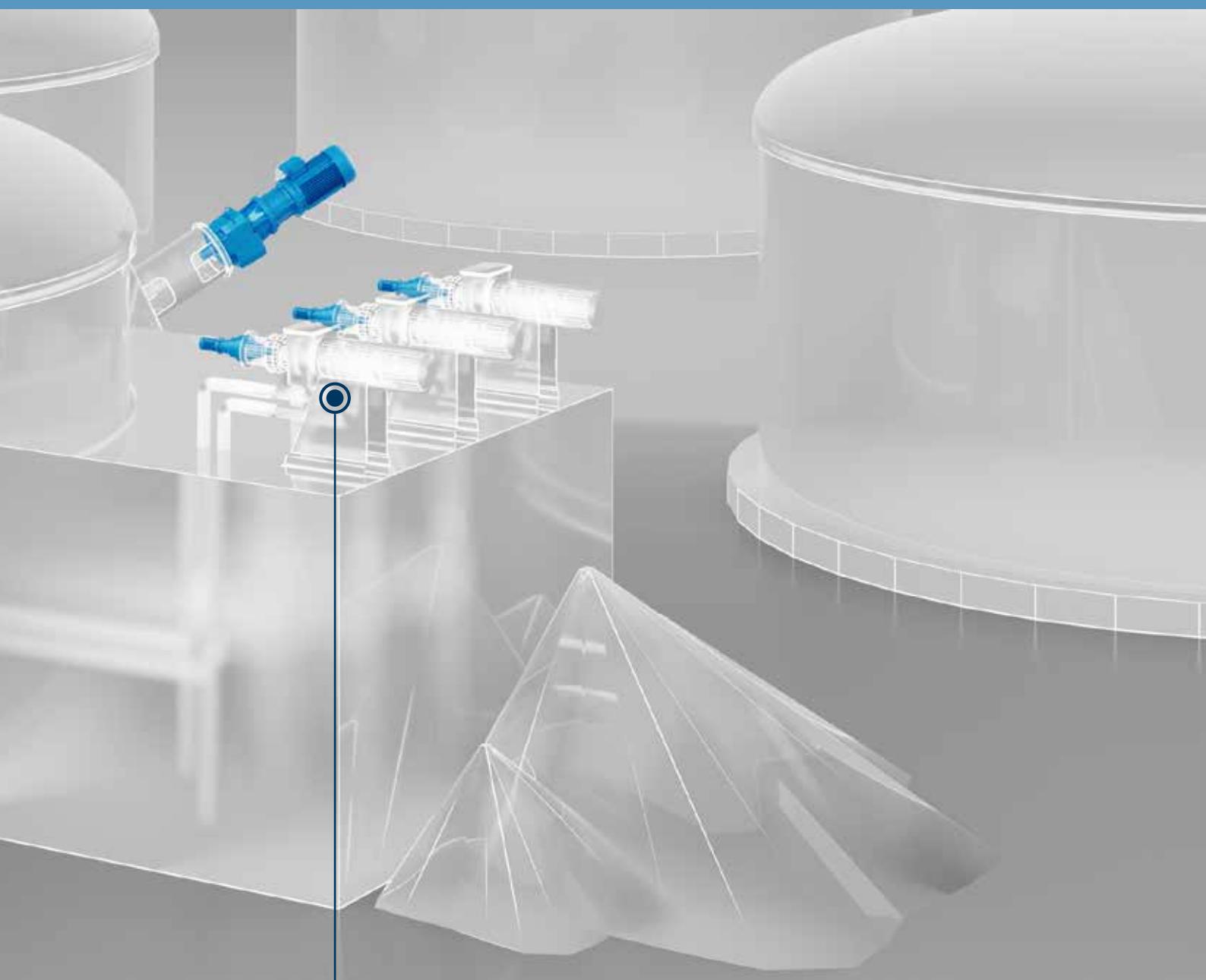
- Smooth start
- Variable "cut position" for smaller particles
- Energy saving function: current consumption redirection during start phase

- Power range up to 22kW
- Built in DC brakes
- Thermal protection
- Anti-condensate heaters
- Second shaft extension
- Anti corrosive painting up to C5M
- Tropicalization
- Degree of protection up to IP56

- Series optionally extendable for field bus communication
- Sensorless control of synchronous and asynchronous motors
- Modbus and Systembus onboard
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- Integrated brake chopper
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**1 BIOMIXERS AND AGITATORS**



**2** SEPARATOR



1

## BIOMIXERS AND AGITATORS

Biomixers and agitators play a critical role in maintaining optimal fermentation conditions inside anaerobic digesters. They ensure the homogeneous distribution of biomass, improve gas release efficiency, and prevent the formation of floating layers or sedimentation.

The HDP heavy-duty gearbox offers high torque and durability for demanding mixing conditions.

The 300M Series is a compact, modular option ensuring efficient power transmission for both horizontal and inclined setups.



### 300M Series

#### Planetary Gearbox

#### BENEFITS

- Robustness
- Reliability in harsh working conditions & wide range of temperature
- High torque density
- Modularity
- High overhung load capacity

#### FEATURES

- Widest range of ratios
- Easy to fit output pinion
- IEC or NEMA motor flange
- Wide range of motion control solutions
- Availability of different grades of protection
- Fluoroelastomer and double lip seals

### HDP Series

#### Heavy Duty Geared Motor (Helical-Parallel)

- Robustness
- Reliability in harsh working conditions and wide range of temperature
- Space effective U-shape arrangement
- High overhung load capacity
- Tailored service and warranty plans
- Pre-sales and product definition support according to the material handling and lifting standards

- Double input and output shaft
- Wide range of ratios
- Transmissible torque up to 210.000 Nm
- IEC or NEMA motor flange
- Safety solutions according to the customer requirements
- Wide range of motion control solutions
- Availability of different grade of protection

### BX Series

#### Asynchronous induction phase motor

- Reliable, balanced and robust
- Compliant with the most of the efficiency standards

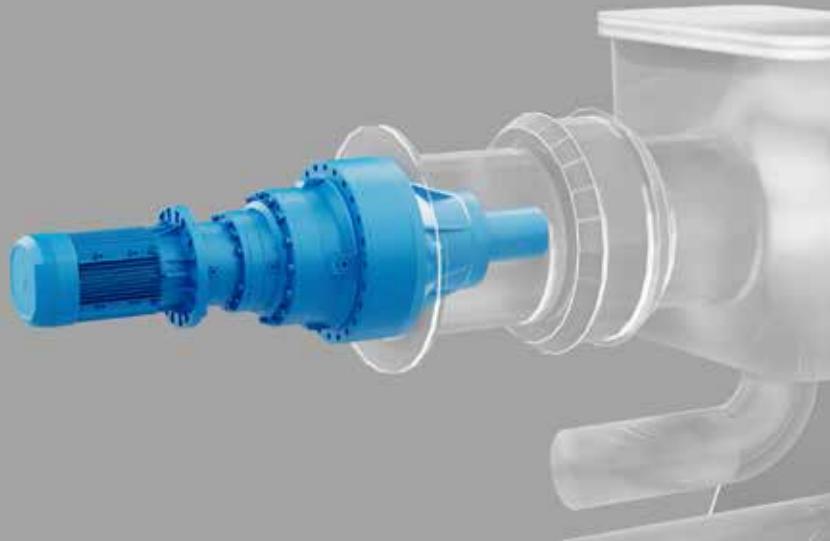
- Power range up to 22kW
- Built in DC brakes
- Thermal protection
- Anti-condensate heaters
- Second shaft extension
- Anti corrosive painting up to C5M
- Tropicalization
- Degree of protection up to IP56

### Agile Series

#### Smart inverter

- Smooth start
- Variable "cut position" for smaller particles
- Energy saving function: current consumption redirection during start phase

- Series optionally extendable for field bus communication
- Sensorless control of synchronous and asynchronous motors
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- Integrated VPLC
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2

## SEPARATOR

The press screw is used to separate liquid from organic solid waste.

The 300M Series Gearbox guarantees a compact, easy to install design. The reliable operation of the system is also assured by the control and regulation of the Agile series Inverter unit, for a wide range of throughput capacities.



### 300M Series Planetary Gearbox

#### BENEFITS

- Robustness
- Reliability in harsh working conditions & wide range of temperature
- High torque density
- Modularity
- High overhung load capacity

#### FEATURES

- Widest range of ratios
- Easy to fit output pinion
- IEC or NEMA motor flange
- Wide range of motion control solutions
- Availability of different grades of protection
- Fluoroelastomer and double lip seals

### EVOX BXN Series Asynchronous Induction Phase Motor

- One motor for different markets
- Simplify installation complexities and inventory management
- Uncompromised Efficiency
- Modular electric motor

### Agile Series Smart inverter

- Smooth start
- Variable "cut position" for smaller particles
- Energy saving function: current consumption redirection during start phase

- IE3 Efficiency level
- Power range up to 7,5kW
- Built in DC brake
- Thermal protection
- Anti-condensate heaters
- Second shaft extension
- Anti corrosive painting up to C5M
- Tropicalization
- Degree of protection up to IP56

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## GEAR UNITS

### HEAVY DUTY

#### Helical parallel shaft gear units | **HDP Series**

- **Torque range:** 5,190 to 147,070 Nm
- **Gear ratios:** 7.1 to 500

#### Planetary gear units | **300M Series**

- **Torque range:** 1,250 to 1,286,000 Nm
- **Gear ratios:** 3.4 ... 2,916

### LIGHT DUTY

#### Helical in-line gearbox | **EVOX CP Series**

- **Torque range:** 55 to 335 Nm
- **Gear ratios:** 2.3 to 172

#### Helical parallel gear units | **F Series**

- **Torque range:** 140 to 14,000 Nm
- **Gear ratios:** 6.4 to 2,188

## ELECTRIC MOTORS



#### Asynchronous IEC motors | **BX Series**

A complete range of AC motors, meeting basic worldwide MEPS (e.g. IE3)

- **Power range:** 0.75 to 22 kW
- **Poles:** 4



#### Asynchronous IEC motors | **eVOX BXN Series**

#### Asynchronous compact motors | **eVOX MXN Series**

A complete range of AC motors, meeting application worldwide MEPS (e.g. IE3)

- **Power range:** 0.12 to 7.5 kW
- **Poles:** 4



## INVERTERS

### HEAVY DUTY

#### Smart inverter | Agile Series

- **AGL202:** 0.12 - 3 kW / 1-phase | 0.25 - 7.5 kW / 3-phase 230 V
- **AGL402:** 0.25 - 11 kW / 3-phase 380...480 V

### LIGHT DUTY

#### Smart inverter | Agile Series

- **AGL202:** 0.12 - 3 kW / 1-phase | 0.25 - 7.5 kW / 3-phase 230 V
- **AGL402:** 0.25 - 11 kW / 3-phase 380...480 V

# OUR GLOBAL PRESENCE

Thanks to an international network of closely interconnected commercial and production sites, we can guarantee the same high standards of Bonfiglioli quality anywhere at any given time. We know that our direct presence in local markets is the key to long-lasting success, so our family includes 17 production sites, 23 commercial sites and more than 550 distributors around the world.

Our organization is always close by, offering complete and efficient solutions and supporting our customers with dedicated services, co-engineering and after-sales assistance.



**17**

PRODUCTION SITES



**23**

COMMERCIAL SITES



**80**

COUNTRIES



**550**

DISTRIBUTORS



**~5,000**

PEOPLE

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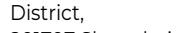


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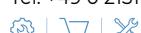
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We have a relentless commitment to excellence, innovation & sustainability. Our team creates, distributes and services world-class power transmission & drive solutions to keep the world in motion.

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