



Dedicated technology for domestic/industrial waste water treatment and Biogas



For over 20 years we have been designing and manufacturing products for moving and treating industrial water and waste water and for moving the substrate in the Biogas plants.

Our flagship products are our **separators**, **chopper pumps** and **mixers**.

Our products are manufactured entirely at our sites in Correggio (Reggio Emilia, Italy).



COMPANY VIDEO



Sustainability

We invest in research to protect the environment

Based on our extended experience and detailed studies of our customers in the effluent treatment sector in general, we strive to fully comprehend our customers' needs, using this as the starting point and guiding principal for the operating methods that permeate all our company activities.

Our **Vision** is for Professionalism and Reliability in all relations with our customers.

Our **Mission** is to transform this commitment into the following operative realities:

- Product innovation
- On-time delivery
- Technical assistance
- Extended product durability
- Technical know-how

The CRI-MAN organization exists in order to fulfil these aims, which are achieved by close attention to the surrounding environment.

This approach is certified by the Quality Management Systems

UNI EN ISO 9001:2015 and
UNI EN ISO 14001:2015

which emphasise the two aspects that we hold most dear:

- **Customer Satisfaction;**
- **Guaranteeing Environmental Sustainability.**

It is worth underlining our strong points in performance and environmental impact of the machines:

- our comprehensive range makes it possible to offer total solutions;
- high efficiency, which translates into low energy consumption;
- environment protection, with over 95% recyclability percentages of the components.

Industry

WASTE WATER TREATMENT PLANTS



Waste water treatment

The waste water treatment, achieved with different plant configurations depending on the type of effluent being treated, in all cases requires the use of components that are reliable in extreme operating conditions and energy efficient.

Pumping to primary treatment tank (mechanical separation and primary settlement).

Pumping to the primary treatment tank with the presence of solid bodies can be achieved with a PTS pump, equipped with:

- hydraulic design able to handle concentrations up to 10-12% of TS
- a double chopping system capable of breaking up and shifting

effluents with fibers or solid bodies guaranteeing system reliability even under demanding operating conditions.

Accumulation / Balancing

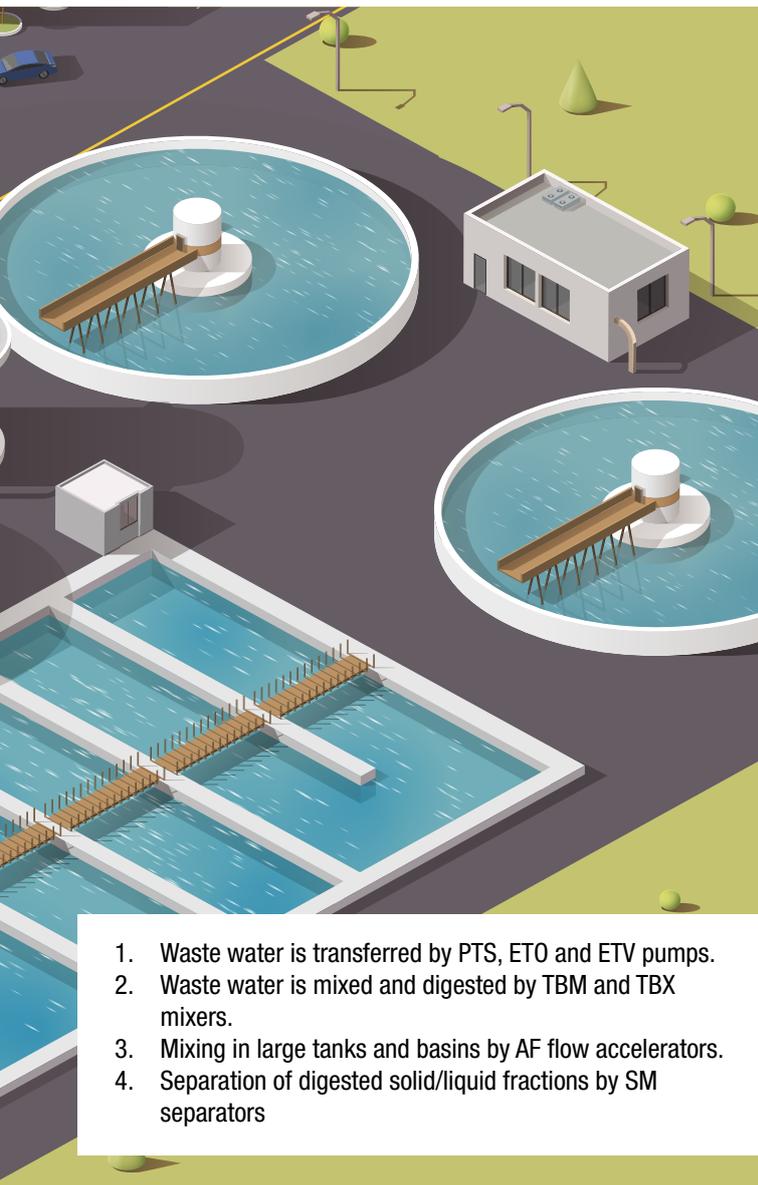
In the effluent accumulation and balancing tanks, any suspended solids are kept in suspension thanks to the TBM type mixers. To avoid anaerobiosis phenomena, the correct oxygen content is supplied by OXIGET and SMO type oxygenators.

Activated sludge treatment

In plug-flow systems the circulation of effluent undergoing treatment for dephosphorization, denitrification and oxygenation is handled by AF model super-high efficiency flow accelerators.

CRI-MAN products

for waste water treatment plants



1. Waste water is transferred by PTS, ETO and ETV pumps.
2. Waste water is mixed and digested by TBM and TBX mixers.
3. Mixing in large tanks and basins by AF flow accelerators.
4. Separation of digested solid/liquid fractions by SM separators

The recirculation of the aerated mixture in the denitrification tank can be achieved using ER model pumps.
The correct oxygen input is achieved using OXIGET and SMO oxygenators.

Sludge recirculation / settler tank

The recirculation of settled sludge can be achieved using a PTS pump, equipped with:

- hydraulic design able to handle concentrations up to 10-12% of TS
- a double chopping system that breaks up and pumps effluents with fibers or solid bodies that escape the mechanical separation treatment or that form after the waste water treatment.



Pumps

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Mixers

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Separators

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PUMPS

Motor-driven pumps, both submersible and external, are used to feed the primary digester and/or handle the substrate between digesters and/or for mixing through the nozzles inside the digester. The chopping system provided on all CRI-MAN pumps aids the anaerobic fermentation process, thus improving the efficiency of the plant.

MIXERS

Submersible mixers are used in digesters to mix and homogenise the substrate, thus increasing the output of the plant and prevent solids settling down and the formation of crusts, that in the long run might reduce the efficiency of the plant.

SEPARATORS

Separators are used to separate the solid fraction from the liquid in the anaerobic fermentation process. The liquid fraction can be used as a fertiliser and for irrigation. The solid fraction may be used as an amender, as cattle beds, etc.. Use of separators is also recommended as a pre-treatment in nitrogen-reducing plants.

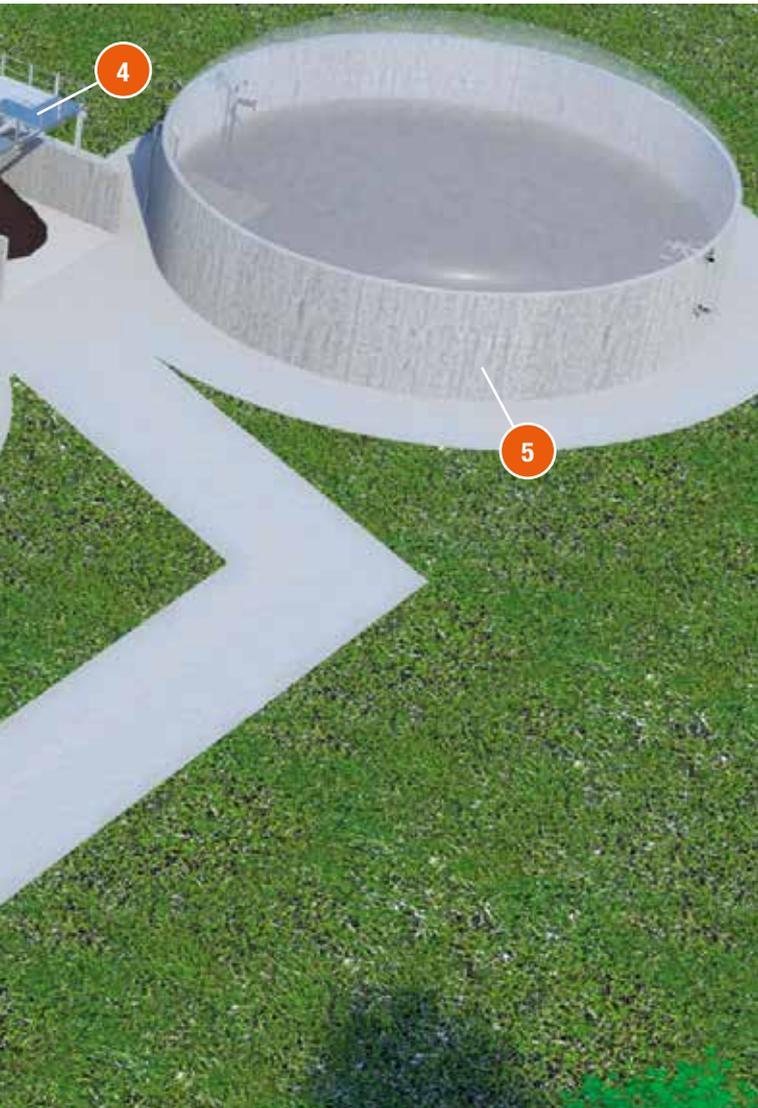
Biogas

MOVING THE SUBSTRATE IN THE PLANTS



CRI-MAN products

for Biogas plants:



1. Pre-storage tank with TBM mixer, MXP mixer and PTS pump.
2. Primary digester with TBM mixer, SB Biogas bracket, MXS mixer and ETO pump.
3. Secondary digester with MXB mixer and CS Service boxes with TBM mixer.
4. SM separator fed by ETO pump.
5. Tank for separated liquid with TBM mixer and SB Biogas brackets.



Pumps

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Mixers

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Separators

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PUMPS

Electric motor-driven pumps, both submersible and external, are used to feed the primary digester, transferring the substrate between digesters and for mixing inside the digester by means of nozzles. The chopping system provided in all CRI-MAN pumps facilitates the anaerobic fermentation process, thereby improving plant efficiency.

MIXERS

Submersible mixers are used in digesters to mix and homogenize the substrate, thus increasing the output of the plant and prevent solids settling down and the formation of crusts, that in the long run might reduce the efficiency of the plant.

SEPARATORS

Separators are used at the end of the anaerobic fermentation process to separate the solids from the liquid fraction. The liquid fraction can be used for fertigation. The solid fraction can be used as a soil improver, bedding for animals, etc. Use of separators is also recommended as a pre-treatment for nitrogen removal systems.

Pumps

Your best choice



01

DOUBLE CHOPPING SYSTEM

The first chopping system is formed by two chrome steel blades fixed to the suction part that skim over a conveyor plate in special cast iron fixed to the rotating shaft. Both materials are subjected to a specific hardening treatment. In a 1450 rpm pump, the first chopping system alone operates at a rate of 140 cuts/second!

The second chopping system features a toothed plate in special cast iron which skims over an impeller, also in special cast iron, with sharp-edged blades. Both materials are subjected to a specific hardening treatment.

02

HIGH EFFICIENCY HYDRAULICS

Hydraulics designed to combine high efficiency (up to 77% efficiency rating) and strong chopping power without clogging. Data in accordance with UNI EN ISO 9906 standards.

03

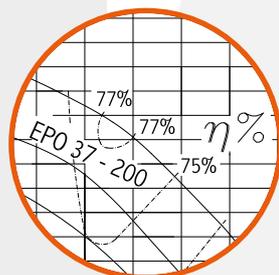
DOUBLE MECHANICAL SEAL*

Mechanical seals in Silicon Carbide and Carbon-Ceramic.

03

04

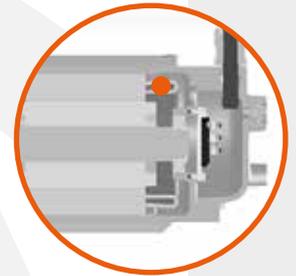
05



04

TEMPERATURE SENSORS

Double temperature sensors embedded in the stator to prevent the motor from overheating and ensure it continues to function correctly over time.



05

HUMIDITY SENSOR (IF REQUESTED)*

The humidity sensor is installed in the oil chamber to prevent damage should fluid leak out.



ACCESSORIES

Broad range of accessories for every type of pump installation.



* Double mechanical seal and Humidity sensor not available for all pump versions.

Chopper Pumps

our complete range



PTS 40 SERIES

Submersible chopper pump

INDUSTRY
BIOGAS

TECHNICAL SPECIFICATIONS

Chopping system		
Max capacity	26 m ³ /h	114 US gpm
Head	17 m	56 ft
Motor power	0,75 - 1,1 kW	1 - 1,5 HP
Discharge	40 mm	1 9/16 inches



PTS 65 SERIES PTSex 65 SERIES

Submersible chopper pump

INDUSTRY
BIOGAS

TECHNICAL SPECIFICATIONS

PTSex = ATEX Version

Chopping system		
Max capacity	110 m ³ /h	484 US gpm
Head	29 m	95 ft
Motor power	7,5 - 11 kW	10 - 15 HP
Discharge	65 mm	2 9/16 inches



PTS 80/80N SERIES PTSex 80/80N SERIES

Submersible chopper pump

INDUSTRY
BIOGAS

TECHNICAL SPECIFICATIONS

PTSex = ATEX Version

Double chopping system version		
Chopping system and anti-clogging screw version		
Max capacity	140 m ³ /h	616 US gpm
Head	46 m	151 ft
Motor power	2,2 - 18,5 kW	3 - 26 HP
Discharge	80 mm	3 1/8 inches



Chopper Pumps

our complete range

PTS 100/150N SERIES PTSex 100/150N SERIES

Submersible chopper pump

INDUSTRY

BIOGAS

TECHNICAL SPECIFICATIONS

PTSex = ATEX Version

Double chopping system

Max capacity	460 m ³ /h	2025 US gpm
Head	21 m	69 ft
Motor power	4 - 22 kW	5,4 - 29 HP
Discharge	100 - 150 mm	4 - 6 inches



PTS 100K SERIES

Submersible chopper pump

INDUSTRY

BIOGAS

TECHNICAL SPECIFICATIONS

Double chopping system

Max capacity	260 m ³ /h	1145 US gpm
Head	51 m	167 ft
Motor power	15 - 45 kW	20 - 60 HP
Discharge	100 mm	4 inches



PTS 200 SERIES

Submersible chopper pump

INDUSTRY

BIOGAS

TECHNICAL SPECIFICATIONS

Double chopping system

Max capacity	720 m ³ /h	3170 US gpm
Head	18 m	59 ft
Motor power	15 - 30 kW	20 - 40 HP
Discharge	200 mm	8 inches



ETO/ETV SERIES

Horizontal electric chopper pump
Vertical electric chopper pump

INDUSTRY

BIOGAS

TECHNICAL SPECIFICATIONS

Double chopping system		
Max capacity	460 m ³ /h	2025 US gpm
Head	112 m	367 ft
Motor power	0,75 - 75 kW	1 - 100 HP
Suction	65 - 200 mm	2 ⁹ / ₁₆ - 8 inches
Discharge	40- 150 mm	1 ⁹ / ₁₆ - 6 inches



Chopper Pumps

our complete range

ETO 200/EPO 200 SERIES

Horizontal electric chopper pump

INDUSTRY
BIOGAS

TECHNICAL SPECIFICATIONS

ETO version: double chopping system

EPO version: without chopping system

Max capacity	720 m ³ /h	3170 US gpm
Head	22 m	72 ft
Motor power	22 - 45 kW	29 - 61 HP
Suction	250 mm	10 inches
Discharge	200 mm	8 inches



CFS SERIES

Shredder for solids

INDUSTRY
BIOGAS

TECHNICAL SPECIFICATIONS

External planetary gearbox

Double shaft with opposing blades pack

Blades profile to shred solids contained in the liquid

Inlet-outlet flanges DN200 PN10

Motor power	11 - 22 kW	15-30 HP
Max capacity	50 m ³ /h	220 US gpm



PLD SERIES

Hydraulic piston pump

INDUSTRY

BIOGAS

Suitable to viscous liquids with high percentage of dry matter. It consists of a pair of parallel pistons controlled by an hydraulic power unit and an automatic valve system that permits alternating loading and unloading of the pistons.

TECHNICAL SPECIFICATIONS

Hydraulic motor power	9,2 kW	12,3 HP
Capacity	50 m ³ /h	220 US gpm
Head	80 m	262 ft
Piston stroke	900 mm	35,4 inches



ER SERIES

Horizontal axis propeller pump

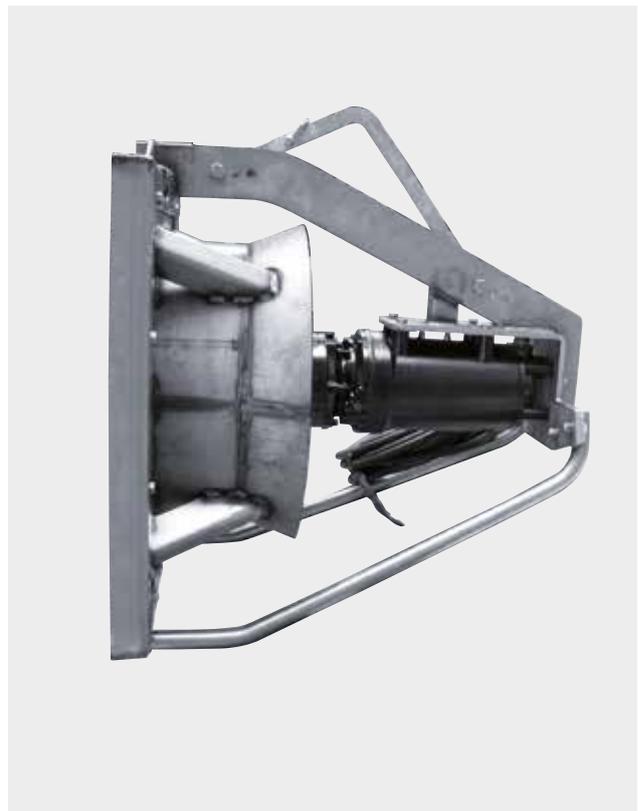
INDUSTRY

BIOGAS

- Quick coupling system at discharge outlet
- Large volumes of water are circulated with excellent hydraulic efficiency
- Cast iron motor housing and planetary gearbox, stainless steel propeller and frame

TECHNICAL SPECIFICATIONS

Motor power rating	2,2 - 18,5 kW	2,9 - 24,8 HP
Flow rate	5000 m ³ /h	22014 US gpm
Head	1,5 m	4,9 ft
Suction inlet	500 - 800 mm	19,7 - 31,5 inches
Discharge outlet	500 - 800 mm	19,7 - 31,5 inches



Mixers

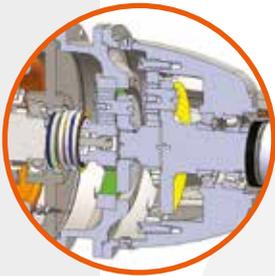
Your best choice



01

HIGH EFFICIENCY PROPELLER

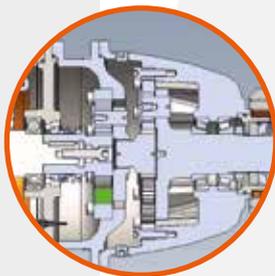
High efficiency propeller designed according to CFD technology for improved performance in non-Newtonian fluids.



02

DOUBLE MECHANICAL SEAL*

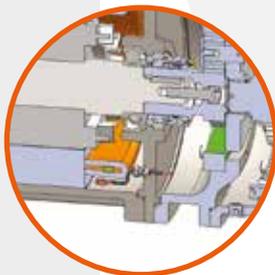
Double mechanical seal at the front in cemented carbide (Widia) and at the rear in SIC for perfect impermeability.



03

HIGH EFFICIENCY PLANETARY GEARBOX

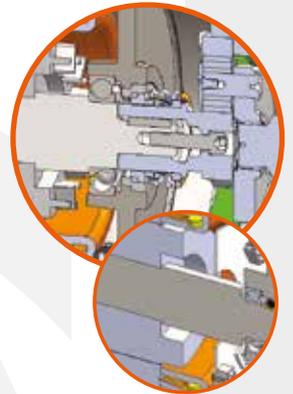
High efficiency planetary gearbox with oversized oil chamber for longer life even under load.



04

HUMIDITY SENSOR (IF REQUESTED)*

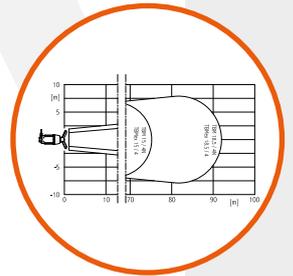
Humidity sensor to protect the motor in the event of infiltrations.



05

DOUBLE TEMPERATURE SENSOR*

Double temperature sensor to prevent the motor from overheating due to abnormal power consumption in heavy duty work.



06

HIGH THRUST EFFICIENCY

The motor, machine mechanics and vane profile have been designed to achieve high efficiency in terms of axial thrust and low energy consumption. Data in accordance with ISO 21630 standards.



ACCESSORIES

Broad range of accessories for every type of mixer installation.

* Double mechanical seal and Humidity sensor not available for all mixer versions.

Mixers

our complete range



TBM SERIES TBMex SERIES

Submersible horizontal mixer

INDUSTRY
BIOGAS

TECHNICAL SPECIFICATIONS

TBMex = ATEX Version

Planetary gearbox

Blades in stainless steel with self-cleaning profile

Rpm	275 - 925 (50 Hz)	388 - 1110 (60Hz)
Motor power	1,5 - 25 kW	2 - 34 HP
Axial thrust	230 - 5369 N	52 - 1206 lb
Capacity	643 - 10138 m³/h	2831-44638 US gpm
Max working temp	40 °C	104 °F



TMS SERIES TMSex SERIES

Mid size submersible mixers

INDUSTRY
BIOGAS

TECHNICAL SPECIFICATIONS

TMSex = ATEX Version

Planetary gearbox

Blades in stainless steel with self-cleaning profile IE3 high efficiency electrical motor

Rpm	116 (50 Hz)	140 (60Hz)
Motor power	7.5 - 15 kW	10-20 HP
Axial thrust	3265 - 4695 N	734 - 1055 lb
Capacity	9300 - 11930 m³/h	40946-52526 US gpm
Max working temp	40 °C	104 °F

IE3
PREMIUM
EFFICIENCY
MOTOR



TBX/E SERIES

Stainless steel horizontal submersible mixer

INDUSTRY

BIOGAS

TECHNICAL SPECIFICATIONS

Completely produced in stainless steel AISI316

IE3 high efficiency electrical motor

Rpm	950 - 1430 (50 Hz)	1140 - 1716 (60Hz)
Motor power	0,75-4 kW	1 - 5 HP
Axial thrust	137-794 N	31 - 179 lb
Capacity	251-1448 m ³ /h	1105 - 6375 US gpm
Max working temp	40°C	104 °F



MXP SERIES

Vertical internal mixer

INDUSTRY

BIOGAS

TECHNICAL SPECIFICATIONS

Planetary gearbox

Open tank version: parts in contact with liquid in painted steel

Digester version (water tight): parts in contact with gas in stainless steel

Shaft in various lengths

N. 4 adjustable blades

Atex II 2G Ex d T4 (on request)

Rpm	10 - 15 (50 Hz)	12 -18 (60Hz)
Motor power	7,5 - 18,5 kW	10 - 25 HP



MXS SERIES

Adjustable external mixer

INDUSTRY

BIOGAS

TECHNICAL SPECIFICATIONS

Planetary gearbox		
Propeller in stainless steel with two (400rpm) or three (60rpm) blades		
Atex Motor II 2G Ex d T4 (on request)		
Adjustable Inclination high-low and right-left		
Rpm	60 - 400 (50 Hz)	72 - 480 (60Hz)
Motor power	11 - 22 kW	15 - 29 HP
Axial thrust	2697 - 6474 N	606 - 1455 lb
Capacity	5335 - 20165 m ³ /h	23489-88784 US gpm
Max length of shaft	4,5 m	15 ft
Max working temp.	60°C	140 °F



MXL SERIES

Lateral external mixer

INDUSTRY

BIOGAS

TECHNICAL SPECIFICATIONS

Planetary gearbox		
Blades in stainless steel with self-cleaning profile		
Atex II 2G Ex d T4 (on request)		
Rpm	350 (50 Hz)	420 (60 Hz)
Motor power	11 - 18,5 kW	15 - 25 HP
Axial thrust	2158 - 3826 N	485 - 860 lb
Capacity	3977 - 6884 m ³ /h	17510-30309 US gpm
Max length of shaft	5,5 m	18 ft
Max working temp.	60 °C	140°F



SERIE AF

Submersible flow accelerator

- Two-stage planetary gearbox
- Blades in glass fibre-reinforced polyamide
- Stainless steel propeller hub

INDUSTRY

BIOGAS

TECHNICAL SPECIFICATIONS

Motor power rating	1,5-5,5 kW	2-7,3 HP
Flow rate	11490 - 17803 m ³ /h	50588- 78384 US gpm
Rpm	34	40
Axial thrust	1226 - 2943 N	275-661 lbf
Max. working temp.	40 °C	104 °F



SERVICE BOX

INDUSTRY

BIOGAS

The service box is used to mount the mixers on the concrete covers of digesters. This solution is perfectly waterproof and can be used to move and rotate the mixer 120° while it works. In the event of unscheduled maintenance, it allows to take the mixer out of the digester while minimising gas leaks. In addition, it is provided with an inspection porthole to check the mixer at regular intervals.

Entirely made of AISI 304 stainless steel.



BIOGAS BRACKET

INDUSTRY

BIOGAS

The bracket is used to mount the mixers on the wall and features a system that enables it to move up and down and rotate around the vertical axle. So the location of the mixers and the direction of the flow may be adjusted at any time.

Entirely made of AISI 304 stainless steel.



Your best choice

Separators



01

NEW INSPECTION WINDOW

Double, generously sized inspection window that makes checking the filter and its state of cleanliness much easier.



02

NEW FILTER SUPPORT

New support inside the filter to improve stress distribution over the entire length of the filter itself.



03

NEW DESIGN

New design for separator body.



04

NEW SCREW PRESS SUPPORT

New, sturdily built front screw press support for the Professional, DM and FADM versions.

05

STAINLESS STEEL FRAME

New frame to support the separator completely made of stainless steel, with wider bearing base for improved stability.



06

NEW GEARBOX

New high-efficiency gearbox with improved resistance to severe stress.



PRESSING SYSTEM WITH ACTUATOR (ON REQUEST)

Instead of the pressing system with weights we can supply an electric actuator to guarantee stability of the dry percentage when non-homogeneous effluents are separated (on request).



ACCESSORIES

Broad range of accessories for every type of separator installations.



Separators

our complete range



SM260 MINI SERIES

INDUSTRY
BIOGAS

For small plants

TECHNICAL SPECIFICATIONS

Screw in AISI 304 treated stainless steel		
Standard Screen in stainless steel		
Planetary gear box		
Sealing system with three lip seals		
Capacity	4,5 - 18 m ³ /h	20 - 79 US gpm
Rpm	20 (50Hz)	24 (60Hz)
Motor power	3 kW	4 HP
Screen mesh	0,25 - 1 mm	0,01 - 0,04 inches
Up to 30% Dry Matter		
Available in mono-phase version		



SM260 BASIC SERIES

INDUSTRY
BIOGAS

For medium size plants

TECHNICAL SPECIFICATIONS

Screw in AISI 304 treated stainless steel		
Standard Screen in stainless steel		
Planetary gear box		
Sealing system with three lip seals		
Capacity	4 - 50 m ³ /h	18 - 220 US gpm
Rpm	33 (50Hz)	40 (60Hz)
Motor power	4 kW	5,4 HP
Screen mesh	0,25 - 1 mm	0,01 - 0,04 inches
Up to 30% Dry Matter		



SM260 PROFESSIONAL SERIES

INDUSTRY
BIOGAS

For medium-large size plants

TECHNICAL SPECIFICATIONS

Screw in AISI 304 treated stainless steel		
Front side supported screw		
Standard Screen in stainless steel (Heavy Duty screen on request)		
Planetary gear box		
Sealing system with three lip seals		
Capacity	4 - 50 m ³ /h	18 - 220 US gpm
Rpm	33 (50Hz)	40 (60Hz)
Motor power	4 kW	5,4 HP
Screen mesh	0,25 - 1 mm	0,01 - 0,04 inches
Up to 30% Dry Matter		



SM300 PROFESSIONAL SERIES

INDUSTRY
BIOGAS

For large plants

TECHNICAL SPECIFICATIONS

Screw in AISI 304 treated stainless steel		
Front side supported screw		
Standard Screen in stainless steel (Heavy Duty screen on request)		
Planetary gear box		
Sealing system with three lip seals		
Capacity	6 - 72 m ³ /h	26 - 317 US gpm
Rpm	33 (50Hz)	40 (60Hz)
Motor power	5,5 kW	7,4 HP
Screen mesh	0,25 - 1 mm	0,01 - 0,04 inches
Up to 30% Dry Matter		



SM260 SERIES MINI DM DRY MATTER

INDUSTRY

BIOGAS

Suitable to obtain a drier solid fraction
For small plants

TECHNICAL SPECIFICATIONS

Standard screen in stainless steel

Screw in treated stainless steel

Planetary gear box

Sealing system with three lip seals

Capacity	4 - 16 m ³ /h	17 - 70 US gpm
Rpm	15 (50 Hz)	17 (60Hz)
Motor power	5,5 kW (7,5 HP)	7,5 HP
Screen mesh	0,50 - 1 mm	0,02 - 0,04 inches

Up to 35% Dry Matter



SM260 SERIES DM DRY MATTER

INDUSTRY

BIOGAS

Suitable to obtain a drier solid fraction
For medium size plants

TECHNICAL SPECIFICATIONS

Screw in AISI 304 treated stainless steel

Front side supported screw

Heavy Duty Screen in stainless steel

Planetary gear box

Sealing system with three lip seals

Capacity	6 - 22 m ³ /h	26 - 97 US gpm
Rpm	14 (50Hz)	17 (60Hz)
Motor power	5,5 kW	7,4 HP
Screen mesh	0,50 - 1 mm	0,02 - 0,04 inches

Up to 35% Dry Matter



SM260FA SERIES DM DRY MATTER

INDUSTRY

BIOGAS

Suitable to obtain a drier solid fraction
For large plants

TECHNICAL SPECIFICATIONS

Screw in AISI 304 treated stainless steel

Front side supported screw

Heavy Duty main Screen in stainless steel

Heavy Heavy Duty Auxiliary Screen in stainless steel

Planetary gear box

Sealing system with three lip seals

Capacity	5 - 32 m ³ /h	22 - 140 US gpm
Rpm	20 (50Hz)	24 (60Hz)
Motor power	7,5 kW	10 HP
Screen mesh	0,50 - 1 mm	0.02 - 0,04 inches

Up to 35% Dry Matter







ITALY



ITALY



ITALY



GERMANY



ITALY



SPAIN



ITALY



SWEDEN



SWEDEN



ITALY



SPAIN



POLAND



ITALY



GERMANY



LITHUANIA

Biogas

Plants installed



ITALY



ITALY



FRANCE



GREECE



ITALY



ITALY



ITALY



ITALY



ITALY



ITALY



ARGENTINA



FRANCE



ITALY



GERMANY



ITALY



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