BIOGAS TECHNOLOGY

PUMPE

BIOMISCHER

SOLIDS DOSING UNIT FOR BIOGAS PLANTS

OUR TECHNOLOGY MAKES AN IMPACT.

OUR TECHNOLOGY MAKES AN IMPACT.

We at Konrad Pumpe GmbH have made it our business to make a valuable contribution to sustainability in the biogas and recycling industry. To this end, we develop and design high-quality dosing units for our customers worldwide.

As a long-standing family business, we are experienced in the construction of plants and machines for use in agricultural and biogas technology as well as in industry. Our special expertise lies in storage, processing and conveying technology for use in the biomass and recycling sector.

In order to meet the high quality demands of our customers, we primarily use stainless steel. In this way, we guarantee the highest operational safety with a long service life.

Our entrepreneurial thinking and actions are reflected in our products, which stand for progress, economic efficiency and durability. For this, we give our best every day - out of love for our work and for a better environment that we make more sustainable.

Managing Director
Konrad Pumpe

Managing Director
Stefan Pumpe

BIOMISCHER 30/2M

THE BIOMISCHER

The BIOMISCHER is a solids dosing unit for use in biogas and recycling plants. It is used for the storage, processing and dosing of solids and substrates. The system is offered in various sizes and is equipped with up to three vertical mixing screws, depending on the model.

THE OPERATING PRINCIPLE

After manual (optionally also automated crane) loading, the mixing operation starts. The mixing screws at the bottom of the container are controlled by a geared motor and dose out the substrate in rotating movements. Thus they convey it into a horizontal inferiour screw, which is also driven by a geared motor. Subsequently, the substrate is fed to a further Konrad Pumpe GmbH screw conveyor* or an external feeding system.

* For more information on Konrad Pumpe GmbH screw conveyor technology, see p. 12-13

THE STRENGTHS

QUALITY FEATURES IN DETAIL

ROBUST

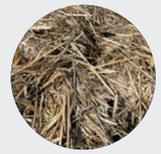
MATERIAL SELECTION

The basic structure of the system and some other technical components are made of low-wear steel and stainless steel. The extremely robust design of the solids feeder guarantees you many years of operational readiness and functional efficiency.

FLEXIBLE

RELIABLE SUBSTRATE PROCESSING

In the BIOMISCHER, different as well as demanding substrates and agricultural waste are reliably processed and dosed. These include solids such as 100% solid manure, grass silage, maize straw, dry chicken manure, sugar beet and green waste.



COW MANURE

HORSE MANURE

MAIZE STRAW

VEGETABLE SCRAPS

GRASS SILAGE

PIG MANURE

PROVEN

TRIED AND TESTED

Today's design is the result of many years of expertise. In order to meet our own requirements and those of our customers, we continuously develop our system technology. This enables us to offer a quality product that is technically mature and characterised by high operational reliability and a long service life.

ACCURATE FIT

INDIVIDUAL EXECUTION

Depending on the model, between 12 and 80m³ of substrate can be stored and processed in the BIOMISCHER. The advantage of this is that the system can be filled over longer intervals. This in turn saves time, capacity and resources.

ECONOMIC

IDEAL SUBSTRATE MIXING

The BIOMISCHER and its vertical mixing and dosing screws are individually configured according to your substrate properties to be processed. Long-fibre substrates can be processed intensively, short-chopped substrates or dry chicken manure less intensively, and then fed into the fermenter.

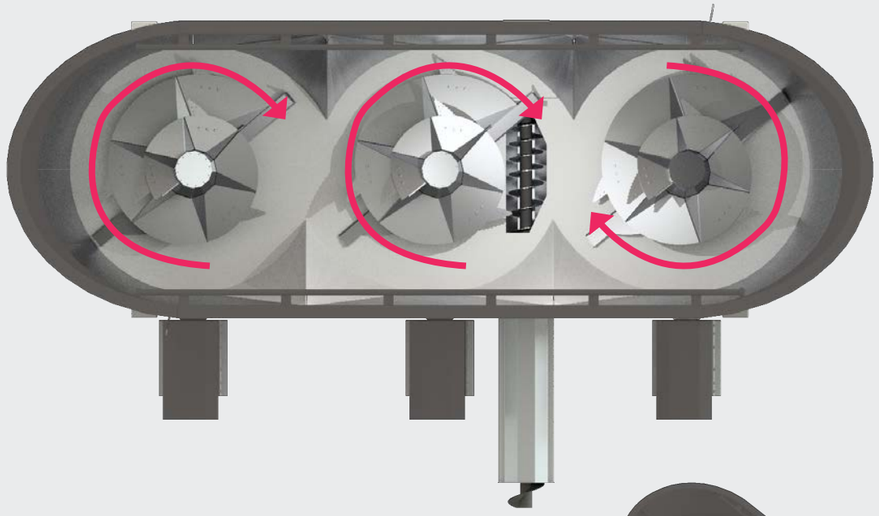
MADE IN GERMANY

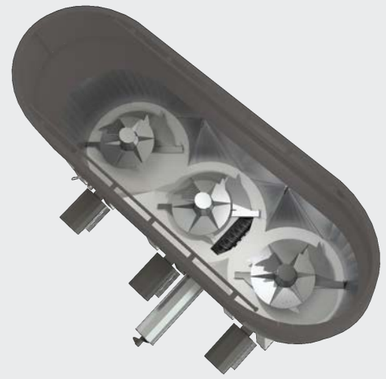
OWN PRODUCTION

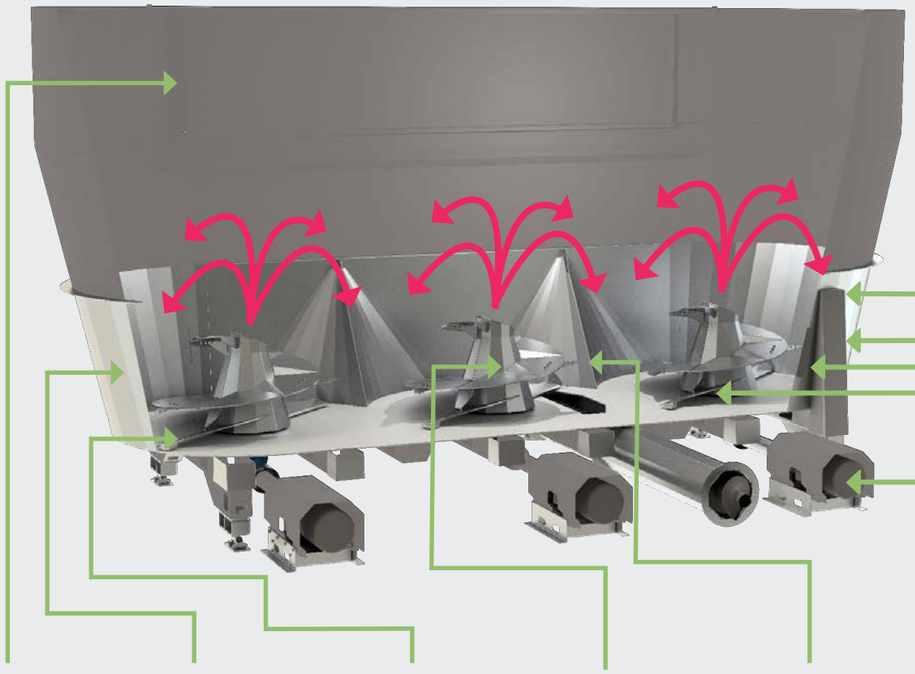
From the idea to commissioning: all development and production steps take place in-house. As a result, you receive a customised, tailor-made system solution, which our expert fitters install and commission for you on site.

THE TECHNOLOGY

PROVEN. ROBUST. LONG-LASTING.







TANK STRUCTURE

The large-volume tank offers sufficient space for stocking, processing and dosing your substrates. This results in model-dependent filling volumes between 12 and 80 m³. The module can be made of steel or stainless steel.

CONTAINER BOTTOM

The tank bottom is made of low-wear stainless steel and thus ensures the necessary stability and longevity of the system.

OIL EXPANSION TANK

Made of stainless steel, the component ensures easy control of the optimum oil level in the planetary angular gear.

VERTICAL MIXING SCREWS

With a speed of 8 to 12 rpm, the mixing screws process the substrate as required and then transfer it to a subsequent feed technology. Depending on the substrate and container volume, different vertical mixing screws in stainless steel design are available. The speed can be varied with a frequency converter.

STAINLESS STEEL CUTTING KNIFES

The stainless steel cutting blades screwed to the mixing and dosing augers loosen lumps and loosen larger chunks of the substrate.

DRIVE TECHNOLOGY

They are driven by robust electric motors (with spur gears, depending on the version), which transmit power to the planetary angular gear via a cardan shaft. We offer them in the power classes 15, 22, 30 and 45 kW.

PLANETARY ANGULAR GEAR

This type of gearbox offers the advantage of transmitting high torques in a compact design by distributing the load over several planetary gears. This increases efficiency, productivity and process reliability.

WEIGHING SYSTEM

For exact measurement of the filling quantities, we rely on a weighing system with an easy-to-read, large alphanumeric display and double-row LEDs. The user-friendly interface allows easy programming of the optimum dosing quantities. For further processing of the data, analogue signal outputs as well as professional bus interfaces can be provided.

AUTOMATIC LUBRICATION SYSTEM

To automate the lubrication process, we offer a cost-effective procedure that supplies the grease-filled shaft seal ring of the gearbox of the mixing and metering screws with sufficient grease at specific intervals. This creates a high level of operational reliability with low personnel costs.

MECHANICAL COUNTER CUTTING

The individually adjustable counter blades interrupt the rotation of the substrates if necessary and support optimum mixing of the filling material.

CUSTOMISED INSTALLATIONS

SAFE. ECONOMIC. LONG-LASTING.

INDIVIDUAL CONCEPTS DESIGNED ACCORDING TO YOUR NEEDS

Every system is unique. Even before the start of design, we check the local conditions and take into account the special requirements under which you run your business. We then work out a customised, safe and economical concept that offers you the greatest possible benefit and compatibility with a more advanced technology.

Examples of customised concepts:

MODEL
BIOMISCHER 16/1M
with 16m³ loading volume

- One vertical mixing screw
- Mixing screw drive 22 kW, optional 15 kW
- Discharge via the TYPE 360 screw conveyor for connection to an external liquid feed system
- One flex transfer inferior-screw TYPE 360
- Substrate processing: 100% solid manure and agricultural waste

MODEL
BIOMISCHER 25/2M
with 25m³ loading volume

- Two vertical mixing screws per dosing unit
- Mixing screw drive 22 kW, optional 15 kW
- Discharge via the screw conveyor TYPE 450 for connection to a hammer mill and downstream liquid feed system
- Automatic crane loading around the clock
- Substrate processing: 100% solid manure and agricultural waste

MODEL
BIOMISCHER 80/3M
with 80m³ loading volume

- Three vertical mixing screws per dosing unit
- Mixing screw drive 45 kW, optional 30 kW
- Discharge via the screw conveyor TYPE 450 for connection to a hammer mill and downstream liquid feed system
- Substrate processing: straw and solid manure

IN-HOUSE ACCESSORIES

ADDED VALUE THROUGH EXTRAS

CUSTOMISED COMPONENTS WITH ADDED VALUE

Increase the profit of your system by upgrading to additional accessories. These offer you advantages such as better comfort, maximum efficiency, longer service life and economy of your system. As with the BIOMISCHER, all additional components are manufactured at the Sendenhorst site. In this way, we create customised solutions that are perfectly matched to the design of your dosing unit and meet your special customer-specific requirements.

ACCESS LADDER

The hot-dip galvanised and welded access ladder ensures safe access to the tank. The accessory is available up to a ladder height of 4.9 m and can be attached to the dosing unit at various points on request. An additional back protection is installed from a ladder height of 2.9 m in accordance with applicable safety standards.

COVER

A hydraulically operated cover serves to reduce emissions and weather influences. The sturdy segmental design is made of stainless steel and can be optionally controlled via a radio remote control.

OVERLOAD PROTECTION

An overload protection can be installed to prevent substrate from falling behind the container. The equipment consists of superstructure segments in stainless steel and is to be installed exclusively on systems without a cover.

SIDE DISCHARGE

Depending on the intended use, the BIOMISCHER can be manufactured with a front-mounted outlet slide. This can be operated either manually or hydraulically.

REVISION OPENING

For easier maintenance work, we offer the BIOMISCHER with an optional inspection opening. This is attached to the side wall of the tank.

HEIGHT INCREASE

Robust cradle foot elevations compensate for a difference in height between the sub-screw and the subsequent placement technology. These are made of galvanised steel and are available in various heights.

SHIELD COATING

The stability and service life of dosing and feed screws can be positively influenced by a wear coating when using certain types of substrate. The material zones coated by a special application process prevent premature wear and strengthen the resistance of the dosing and feed screw.

RADIO REMOTE CONTROL

With a radio remote control of protection class IP67, various functions can be operated easily and with a long range. At the touch of a button, it can be used to control, among other things, the hydraulic stainless steel cover or the loading with the "AUTO-Mix Software".

CONTROL CABINET

For independent operation of the plant processes, the BIOMISCHER can be equipped with the in-house developed control technology. All technical components, such as the weighing system, are centrally connected in the control cabinet and offer advantages such as maximum control of the running processes and fast operational readiness through remote maintenance.

AUTOMATIC CRANE LOADING

The BIOMISCHER can be equipped with superstructures made of stainless steel to ensure clean filling by an indoor crane. Depending on the diameter of the grab, the superstructures are customised.

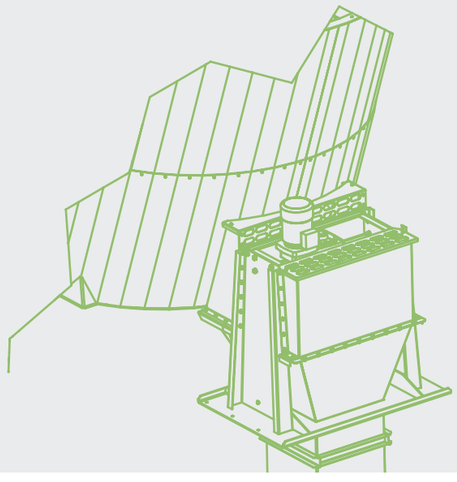
BIOMISCHER 18/1M

INSERTION TECHNOLOGY
DISCHARGE VIA SCREW CONVEYORS

TECHNOLOGY FROM A SINGLE SOURCE

As a specialist in the implementation of complete machine systems, discharge via the proven Konrad Pumpe GmbH screw conveyor technology is recommended. Thanks to the flexible transfer, we respond specifically to your wishes and offer differentiated solution techniques that are compatible with our own dosing systems and with the subsequent discharge techniques of different manufacturers. At the customer's request, these screw conveyors can be designed to comply with international ATEX directives.

Regardless of whether your metered-out substrate is to be fed into the fermenter via a direct feed or onto a further liquid feed system - we develop safe and economical concepts for your individual use.



TYPE 360

SCREW CONVEYOR ON LIQUID INPUT

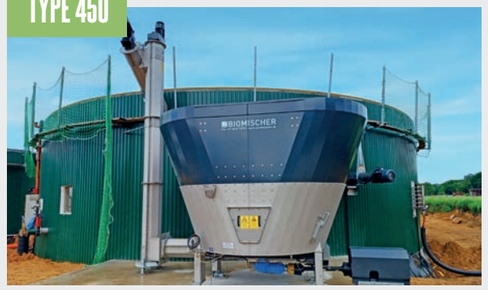
The BIOMISCHER conveys the processed substrate to a TYPE 360 horizontal screw conveyor, from where it is transferred to a liquid feed system of your choice.

TYPE 450

TWO-PART SCREW CONVEYOR SYSTEM

We offer screw conveyors in various designs and conveying capacities. Here, a two-part screw conveyor system TYPE 450 reliably transfers the processed substrate to a downstream processing plant.

TYPE 450



THREE-PART SCREW CONVEYOR SYSTEM ACCORDING TO ATEX

A three-part screw conveyor system feeds the substrate directly into the fermenter. The screw conveyor drives are durable and robust flat gear motors that are designed in the EX range according to the valid ATEX directives. Thanks to the easy-to-assemble system technology, the pre-assembled screw conveyor systems can be installed ready for operation in just a few hours.

TYPE 360

HORIZONTAL SCREW CONVEYOR

We adapt the screw conveyor technology to your structural and topographical conditions on site. In this case, a liquid feed is fed with the TYPE 360 screw conveyor.

TYPE 600

FERMENTER SCREW ACCORDING TO ATEX

The fermenter screw TYPE 600 according to ATEX feeds the fermenter directly. Here, the BIOMISCHER is equipped with a slide opening.

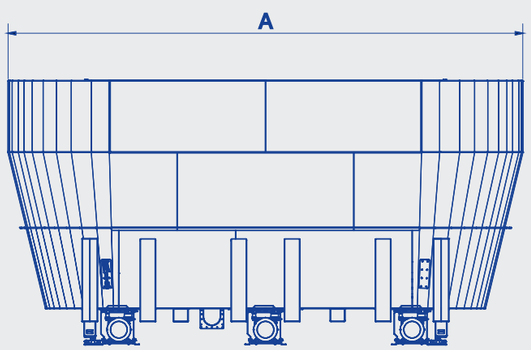
BIOMISCHER 50/3M

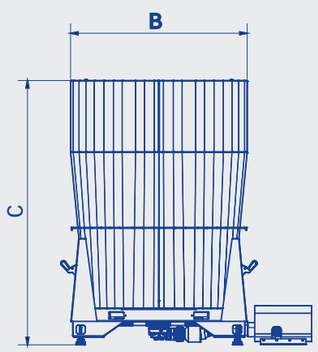
MODEL OVERVIEW

VARIANTS AND EXTENSION MODULES

THE RIGHT MODEL FOR EVERY BUSINESS

The BIOMISCHER is excellently suited for storage, preparation and dosing in both large and small farms. Depending on the size of the plant, the substrates to be dosed out and the desired loading intervals, various model types are available.





Model type	Capacity	A - Tank length	B - Tank width	C - Overall height	Max. Payload	Drives	Recommended drive	Optional drive
12/1 M	12 m³	3,92 m	2,45 m	2,60 m	6 t	1	22 kW	15 kW
16/1 M	16 m³	4,20 m	2,45 m	2,95 m	8 t	1	22 kW	30 kW
18/1 M	18 m³	4,20 m	2,45 m	3,20 m	9 t	1	22 kW	30 kW
20/1 M	20 m³	4,20 m	2,45 m	3,40 m	10 t	1	30 kW	22 kW
25/2 M	25 m³	6,40 m	2,45 m	2,60 m	12,5 t	2	22 kW	15 kW
30/2 M	30 m³	6,65 m	2,45 m	2,95 m	15 t	2	22 kW	30 kW
35/2 M	35 m³	6,65 m	2,45 m	3,35 m	17,5 t	2	30 kW	22 kW
40/2 M	40 m³	6,65 m	2,45 m	3,70 m	20 t	2	30 kW	22 kW
50/3 M	50 m³	9,10 m	2,45 m	3,95 m	25 t	3	22 kW	30 kW
60/3 M	60 m³	8,60 m	2,95 m	3,70 m	45 t	3	30 kW	/
80/3 M	80 m³	8,60 m	2,95 m	4,40 m	45 t	3	45 kW	30 kW

KONRAD PUMPE GMBH

OUR TECHNOLOGY MAKES AN IMPACT.

Founded in 1830 as a blacksmith's shop, we at Konrad Pumpe GmbH are now an innovative specialist company for mechanical and plant engineering with approx. 80 employees. We have made it our business to make a valuable contribution to the sustainable handling of waste materials. To this end, we produce customised machine components for a wide range of applications such as dosing and conveying systems, including switch cabinet and control system construction for biogas and recycling plants.

SUBJECTS

BIOGAS TECHNOLOGY

We produce dosing systems for the biogas and recycling sector and are experts in individual dosing technology. Our proven product range impresses with high quality, durability and low-energy and efficient use in the processing of demanding substrates.

DOSING TECHNOLOGY

For the agricultural sector, we build dosing technology and mixing containers for various feedstuffs. Our machines are suitable for a wide range of applications and are characterised by their functionality and flexibility, which meet the highest demands for quality, performance and durability.

MECHANICAL ENGINEERING

State-of-the-art CNC and laser technology is part of the basic equipment of our in-house machine park. Here, we produce customised products and our own developments for various applications in the agricultural and industrial sectors. Steel and stainless steel are the main materials processed.

VISIT OUR WEBSITE!

PUMPE

Konrad Pumpe GmbH
Schörmelweg 24
D-48324 Sendenhorst
www.pumpegmbh.de