



# BIG-Mix

SOLIDS DOSING UNIT FOR  
BIOGAS AND RECYCLING 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



BIG-Mix 80/3000

## THE BIG-Mix

The BIG-Mix is a solids dosing unit for storing, processing and dosing solids and substrates for the biogas and recycling sector.

## THE FUNCTIONAL PRINCIPLE

In the BIG-Mix there are 12 stainless steel push bars, individually driven by hydraulic cylinders, which convey the substrate into a mixing and metering area. The substrate is processed via a vertical mixing screw and reliably transferred to a subsequent feed technology such as screw conveyors.





# THE STRENGTHS

## QUALITY FEATURES IN DETAIL

### ROBUST

#### SOLID MATERIAL SELECTION

The basic structure of the system and other technical components is made of stainless steel. The metal is extremely robust, which is why you can count on the operational readiness and functional efficiency of your dosing unit in the long term.

### FLEXIBLE

#### RELIABLE SUBSTRATE PROCESSING

In the BIG-Mix, different as well as demanding substrates are reliably prepared and metered. These include solids such as solid manure, grass silage, maize straw, dry chicken manure, sugar beet and green waste.

### TRIED AND TESTED

#### PROVEN TECHNOLOGY

Today's design is the result of many years of experience. 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.

### LARGE VOLUME

#### LONGER INTERVALS

With its possible storage volumes between 35 and 236 m<sup>3</sup> of substrate can be stored, processed and dosed, depending on the type and expansion module. The advantage of this is that the system can be filled over longer intervals, which in turn saves time, capacity and resources.

### EFFICIENT

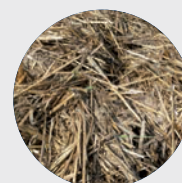
#### HIGH ECONOMIC EFFICIENCY

The BIG-Mix impresses with its high feed rate. With a moving floor conveyor, which is regulated via a filling level radar, the uniform transport of the substrates into the mixing and metering area is successful. This reduces wear and energy costs to a minimum.

### 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.



COW MANURE



HORSE MANURE



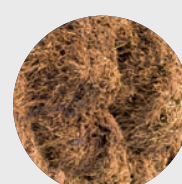
MAIZE STRAW



VEGETABLE WASTE



GRASS SILAGE



PIG MANURE



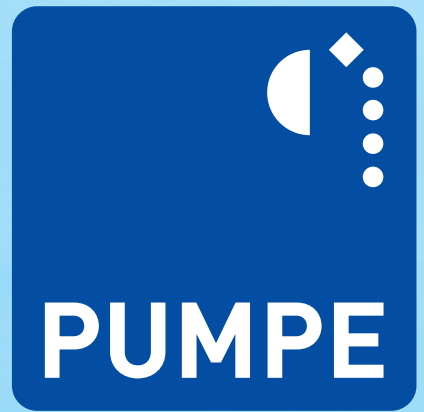
**BIOGAS TECHNOLOGY**



# **BIG-Mix**

**SOLIDS DOSING UN  
BIOGAS AND RECY**





**VIT FOR  
CLING PLANTS**



# CONTROL & INTEGRATION

## OPERATION VIA TOUCHSCREEN

### IN-HOUSE CONTROL TECHNOLOGY

A high-quality web panel is the steering wheel of the BIG-Mix. The monitor has a central interface with its own software programming. The tool provides a variety of options for using the system. You can use it to control various mixing and dosing recipes by touch. In addition, other options such as online services offer you maximum control and operational reliability.

#### WEB-PANEL



The web panel is the control element of the system. The display built into the stainless steel housing with weather protection bonnet can be mounted at a user-friendly location on the BIG-Mix and can be connected to further interfaces if required.

#### SOFTWARE



All mixing and dosing programming is predefined via the user-friendly interface. Options up to a fully automatic mixing process according to a predefined recipe ("AUTO-Mix control") and an automatic dosing process for dosing out within a predefined time and weight ("AUTO-Feed control") can be selected. In addition, the programming offers various communication options, such as remote control and remote maintenance in the event of a fault analysis. Our service staff can see your VNC viewer on their PC and can find the error and correct it directly. This offers you the highest level of reliability at low cost, time and resource expenditure.

#### WEIGHING SYSTEM



An LED display with a clearly visible indicator gives you information about the filled weight of the system. Similar to the web panel, the LED display of the weighing system is protected in a stainless steel weather protection bonnet and can also be mounted in a user-friendly position on the BIG-Mix.







BIG-Mix 100/3000

## VNC- VIEWER

The PLC control has an Ethernet interface. This allows you to operate the BIG-Mix even when it is out of range. All you need to do is connect the control unit to the network on the plant and you can view the processes of the BIG-Mix via PC, tablet or smartphone.





# CUSTOMISED INSTALLATIONS

## SAFE. ECONOMIC. LONG-LASTING.

### INDIVIDUAL CONCEPTS DESIGNED ACCORDING TO CUSTOMER REQUIREMENTS

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

Examples of customised concepts:



MODEL  
BIG-Mix 60/3000  
with 60 m<sup>3</sup> loading volume

- ✓ Mixing screw drive 1x 22 kW
- ✓ Discharge into the digester via the three-part screw conveyor system TYPE 450, consisting of an inferior, a steep and a digester screw.
- ✓ Weighing system KP
- ✓ Substrate processing: solid manure and agricultural waste



#### MODEL

**BIG-Mix 100/3000**  
with 100 m<sup>3</sup> loading volume

- ✓ Mixing screw drive 1x 22 kW
- ✓ Discharge via the horizontal screw conveyor TYPE 450 to an external liquid feed system
- ✓ Weighing system TYPE KP
- ✓ Substrate processing: cow dung, dry chicken manure and green waste



#### MODEL

**BIG-Mix 118/3000**  
with 118 m<sup>3</sup> loading volume

- ✓ Mixing screw drive 1x 22 kW
- ✓ Discharge via the horizontal screw conveyor TYPE 450 to an external liquid feed system
- ✓ Weighing system TYPE KP
- ✓ Substrate processing: grass silage, solid cattle manure and beet pulp



# 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 more convenience, maximum efficiency, longer service life and improved cost-effectiveness of your system. Analogue to the dosing unit, 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.



**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 achieves a high level of operational reliability with low personnel costs.



**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.



**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 for ladder heights of 2.9 m and above in accordance with applicable safety standards.



Loading protection "bottom"

### LOAD PROTECTION

To prevent the substrate from falling into the maintenance area between the BIG-Mix and a wall, an additional loading guard can be fitted. This is a made-to-measure product that is available in two versions. Both variants are only firmly attached to the loading edge or to the concrete wall so as not to falsify the weighing result.



**BIG-Mix 80/3000**



**REVISION OPENING**

To make maintenance work easier, we offer the BIG-Mix with an optional inspection opening that is fitted to the side wall of the container.



**HEIGHT INCREASE**

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



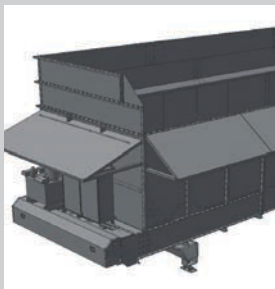
**SHIELD COATING**

The stability and service life of the 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 screws.



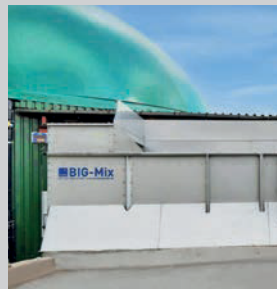
**RADIO REMOTE CONTROL**

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".



**LOADING PROTECTION "TOP"**

The loading protection protects the maintenance area from falling substrate. For bracing, the loading protection is braced towards the machine wall approx. every 3 m.



**LOADING PROTECTION "BOTTOM"**

The stainless steel construction is screwed onto the existing boundary wall and leans loosely against the machine wall.





# INSERTION TECHNOLOGY

## DISCHARGE VIA SCREW CONVEYORS

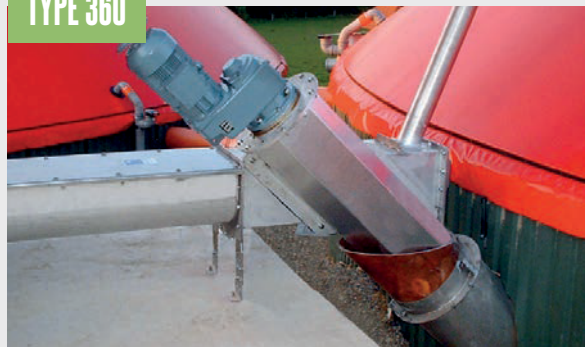
### TECHNOLOGY FROM A SINGLE SOURCE

As a specialist in the implementation of complete machine systems, we recommend discharge via the proven Konrad Pumpe GmbH screw conveyor technology. 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, the screw conveyors can be designed to comply with the 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 600****FERMENTATION SCREW**

The fermenter screw TYPE 600 according to ATEX feeds the fermenter directly. For this purpose, the BIG-Mix is equipped with a slide opening.

**TYPE 360****SUBSTRUCTURE AND FERMENTATION SCREW**

If a digester is built on a slope or embedded in the ground due to local conditions, the substrate can be fed safely and reliably via our two-part TYPE 360 screw conveyor system. In this case, the screw conveyor system consists of a substructure screw and a fermenter screw in accordance with ATEX.

**TYPE 450****SCREW CONVEYOR ON LIQUID INPUT**

With the screw conveyor TYPE 450 on liquid feed, the liquid feed is fed via a constant feed flow. This system can be used to supply all common liquid feed systems.

**TYPE 450****TWO-PART SCREW CONVEYOR SYSTEM**

The two-part screw conveyor system TYPE 450 feeds an impact shredder with up to 40 m<sup>3</sup> of solids per hour, while a compensator decouples both systems from each other. A customised transfer box made of stainless steel reliably feeds the selected liquid feed system.

**TYPE 450****SECOND SCREW CONVEYOR**

Up to two screw conveyors can be mounted on the BIG-Mix. This allows two liquid feed systems or two shredding units to be fed simultaneously in a reliable and energy-saving manner.





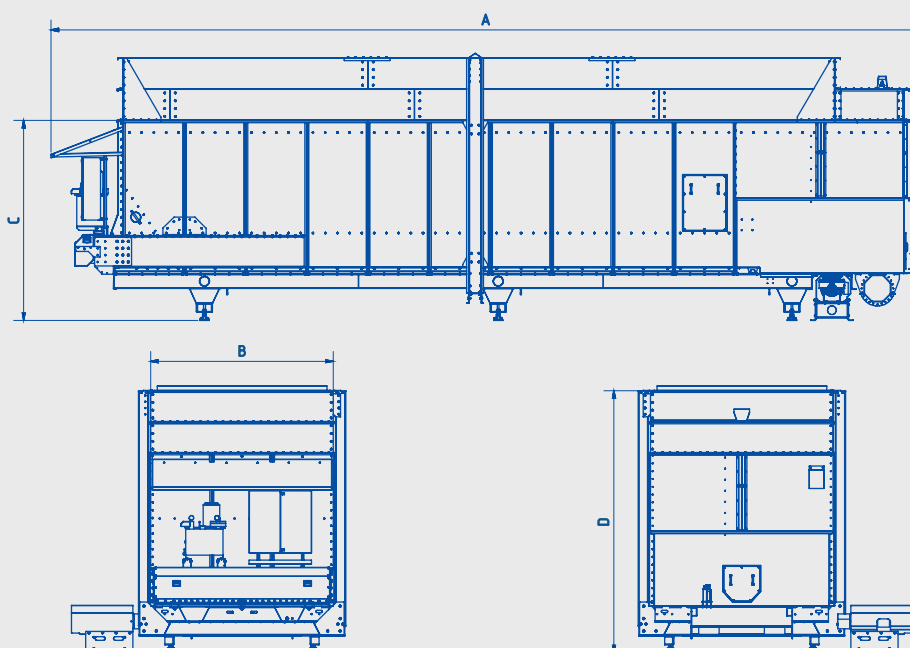
BIG-Mix 100/3000

# MODEL OVERVIEW

## VARIANTS AND EXTENSION MODULES

### THE RIGHT MODEL FOR EVERY BUSINESS

The BIG-Mix is ideally suited for storage, preparation and dosing in both large and small operations. Depending on the size of the plant, the substrates to be metered out and the desired loading intervals, various model types are available.



Model type	Loading volume / tonnage (approx.)	A - Total length	B - Container width	C - Loading sill height	D - Overall height	Drive power push bars	Drive power mixing screw
35 / 2500	35 m <sup>3</sup> 25 t	8 m	2,5 m	3,2 m	3,2 m	7,5 kW	22 kW
48 / 2500	48 m <sup>3</sup> 34 t	9 m	2,5 m	3,2 m	3,7 m	7,5 kW	22 kW
55 / 3000	54 m <sup>3</sup> 38 t	9 m	3,0 m	3,2 m	3,7 m	7,5 kW	22 kW
55 / 3000 / 90	94 m <sup>3</sup> 66 t	15 m	3,0 m	3,2 m	3,7 m	2x 7,5 kW	22 kW
60 / 3000	60 m <sup>3</sup> 42 t	10 m	3,0 m	3,2 m	3,7 m	7,5 kW	22 kW
70 / 3000	71 m <sup>3</sup> 50 t	10 m	3,0 m	3,7 m	4,2 m	7,5 kW	22 kW
70 / 3000 / 120	128 m <sup>3</sup> 89 t	17 m	3,0 m	3,7 m	4,2 m	2x 7,5 kW	22 kW
80 / 3000	84 m <sup>3</sup> 58 t	13 m	3,0 m	3,2 m	3,7 m	7,5 kW	22 kW
98 / 3000	98 m <sup>3</sup> 68 t	13 m	3,0 m	3,7 m	4,2 m	7,5 kW	22 kW
80 / 3000 / 146	154 m <sup>3</sup> 107 t	23 m	3,0 m	3,7 m	4,2 m	2x 7,5 kW	22 kW
100 / 3000	102 m <sup>3</sup> 72 t	14 m	3,0 m	3,2 m	4,2 m	7,5 kW	22 kW
110 / 3000	102 m <sup>3</sup> 75 t	14 m	3,0 m	3,7 m	4,2 m	7,5 kW	22 kW
110 / 3000 / 200	199 m <sup>3</sup> 139 t	25 m	3,0 m	3,7 m	4,2 m	2x 7,5 kW	22 kW
118 / 3000	115 m <sup>3</sup> 80 t	15 m	3,0 m	3,7 m	4,2 m	7,5 kW	22 kW
118 / 3000 / 215	216 m <sup>3</sup> 151 t	27 m	3,0 m	3,7 m	4,2 m	2x 7,5 kW	22 kW
126 / 3000	124 m <sup>3</sup> 86 t	16 m	3,0 m	3,7 m	4,2 m	7,5 kW	22 kW
126 / 3000 / 236	234 m <sup>3</sup> 134 t	29 m	3,0 m	3,7 m	4,2 m	2x 7,5 kW	22 kW



# OUR SERVICE

## YOUR GUARANTEE FOR SUCCESS

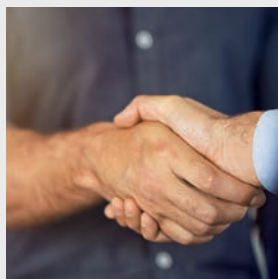
### WE ARE HERE FOR YOU!

Many years of expertise and service know-how qualify us to offer you the best possible after-sales service. In order to sustainably support the operational readiness of your system, we have developed a comprehensive full service that goes beyond the usual services and provides the right solution for every request.



#### EXPERIENCED STAFF

Whether on the phone or on site - our staff will be happy to answer your question. No matter what the issue, our staff are trained and very familiar with our products.



#### SUPPORT

From design and production to assembly and maintenance - we support our customers with advice and assistance in every situation.



#### COSTUMISATION

Every system is unique. For each customer, our design team develops a customised design taking into account the local conditions and with individual adaptation options.



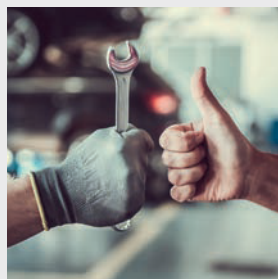
#### PROFESSIONAL INSTALLATION

Our expert fitters are on site on the delivery date and carry out the installation and commissioning of your dosing unit. Afterwards, they train your personnel.



#### MAINTENANCE WORK

To ensure the longevity of your BIG-Mix, we recommend that you have the system serviced by our fitters at regular intervals.



#### SPARE PARTS IN STOCK

Due to our high vertical range of manufacture, spare parts, wear parts and even special components are also available at short notice.



#### EMERGENCY SERVICE

We also offer our support outside business hours. Our emergency service is on standby 365 days a year to help you in emergency situations.



#### MULTILINGUALISM

Some of our staff speak fluent English and French in addition to German to communicate with all contacts.



Get a solid system for storing, mixing and dosing your substrates with the BIG-Mix!

## YOUR ADVANTAGES

- ✓ Quality-tested and proven design „Made in Germany“
- ✓ Generous storage volume
- ✓ Reliable processing even of demanding substrate types
- ✓ Convenient operation
- ✓ Low energy consumption
- ✓ Variety of model types for every system size
- ✓ Compatible with components from other manufacturers
- ✓ Upgrade possible with additional accessories
- ✓ Full service

## ARE YOU INTERESTED IN THE BIG-Mix?

### Contact our sales team:

E-MAIL: [sales@pumpegbmh.de](mailto:sales@pumpegbmh.de)  
 PHONE: +49 (0) 2526 / 9329-0  
 FAX: +49 (0) 2526 / 9329-25

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# KONRAD PUMPE GMBH

## OUR TECHNOLOGY MAKES AN IMPACT.



BIOGAS TECHNOLOGY



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!



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