KONRAD PUMPE GMBH

*OUR TECHNOLOGY MAKES AN IMPACT.*

# BIG-Mix V

## Solids dosing unit for biogas and recycling plants








# 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 produce high-quality dosing units for our customers worldwide.

As a family-run company since 1830, we are experienced in the development and manufacture of plants and machines for use in biogas and agricultural 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.



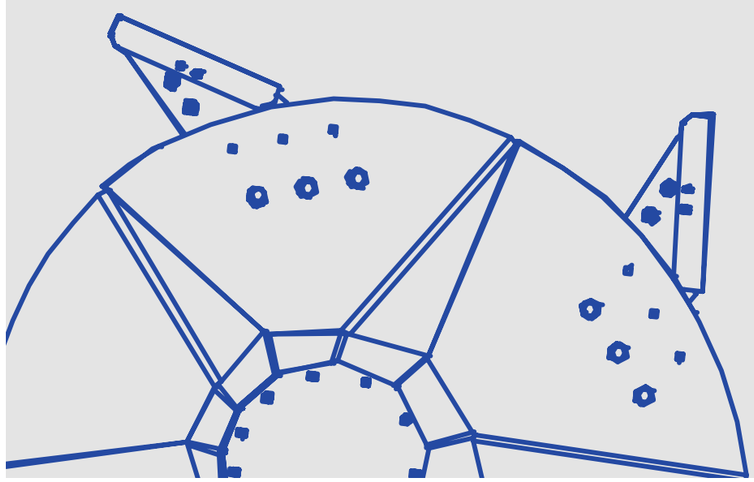

BIG-Mix V120/400

# BIG-Mix V

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

# FUNCTIONAL PRINCIPLE

In the BIG-Mix V, there are stainless steel pusher bars individually driven by hydraulic cylinders, which convey the substrate into a firmly bolted 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 V, 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.



COW MANURE



HORSE MANURE



SUGAR BEET PULP



VEGETABLE WASTE



GRASS SILAGE



PIG MANURE

### 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 45 and 310 m³ 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 V 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**

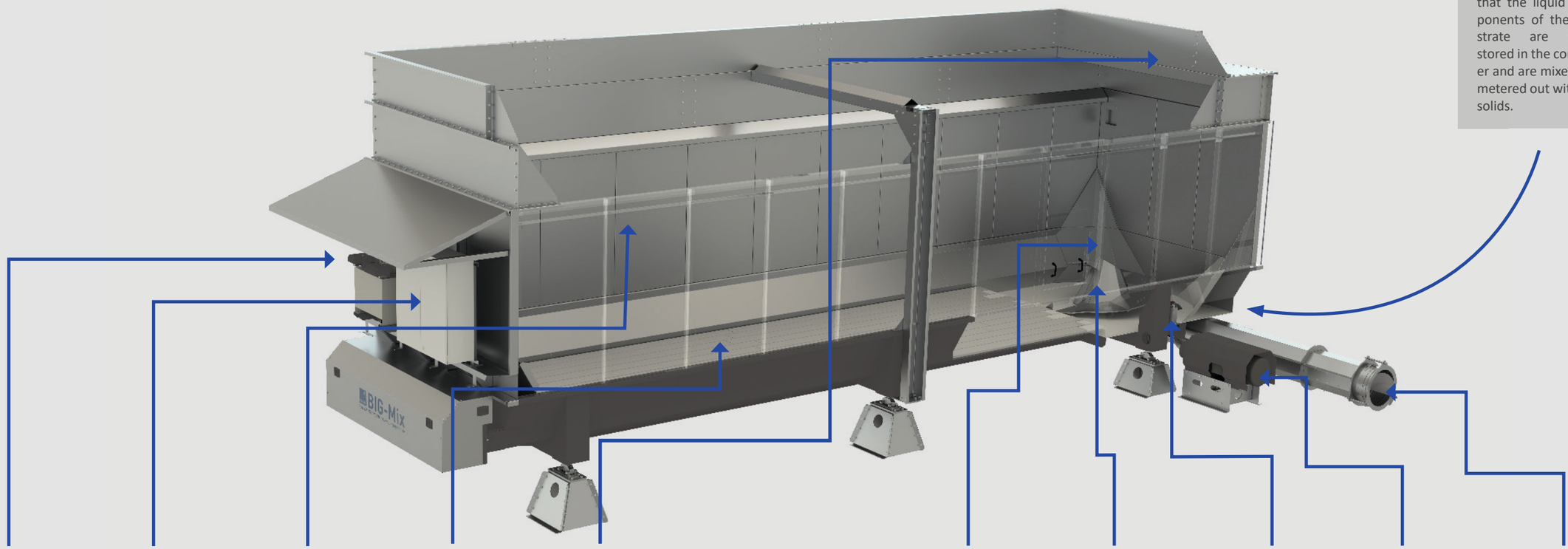
From the idea to commissioning - all development and production steps take place in-house. As a result, you receive a customised, tailor-made system solution, which our expert fitters install and commission for you on site.

# THE TECHNOLOGY

## Proven. Robust. Durable.

### Welded floor pan

The one-piece welded bottom trough is tight and prevents unwanted liquid leakage. This means that the liquid components of the substrate are safely stored in the container and are mixed and metered out with the solids.






### Hydraulic unit

The push bars are driven by an electrically driven hydraulic unit, which is equipped with a low oil switch as standard.



### Control panel

The BIG-Mix V has a control cabinet with in-house memory-programmable control technology („PLC control“). All the necessary power and control processes, such as the weighing system, are centrally interconnected via this and guarantee the perfect interaction of all the system components.



### Large storage tank

A storage container with a volume between 45 and 310 m³ in the largest model type offers enough space for stocking and dosing. The area inside the container that comes into contact with the product is made of durable stainless steel.



### Push bar system

Hydraulically operated push segments made of stainless steel are installed on the push floor. These slide over the container floor on a wear-resistant bearing plastic and convey the filling material into the mixing and dosing area.



### Level measurement

The fill level in the mixing and metering area is monitored by a radar sensor as standard. Further substrate is only fed into the dosing area via the push bars when the level has fallen below a level.



### Preparation & dosing area

For the preparation and dosing of the stored substrate, mixing and dosing screws are used as standard. These are made of stainless steel and are extremely robust in their composition.



### 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.



### Oil expansion tank

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



### 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 power classes from 11 to 22 kW.



### Screw conveyor technology

After preparation, the substrate is reliably fed into a screw conveyor technology developed by us. This feeds the substrate directly into the fermenter or into a subsequent shredding or pumping technology.

# CONTROL & INTEGRATION

## Operation via touchscreen

### In-house control technology

**A high-quality web panel is the steering wheel of the BIG-Mix V. 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 V and can be connected to further interfaces if required.

#### SOFTWARE

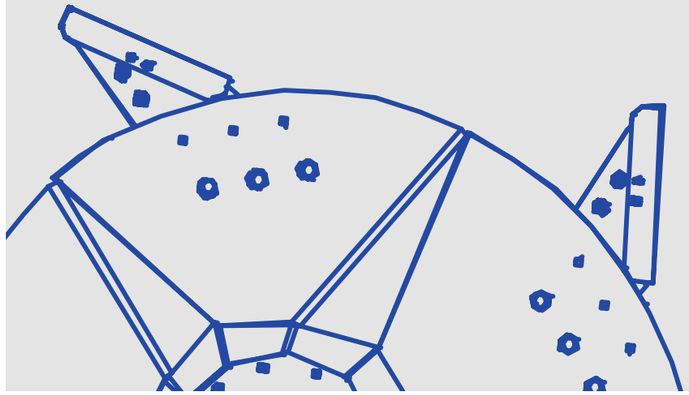


All mixing and dosing programming is predefined via the user-friendly interface. Options up to a fully automatic mixing process according to a predefined recipe ("AUTO-Mix control") and an automatic dosing process for dosing out within a predefined time and weight ("AUTO-Feed control") can be selected. 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 V.








BIG-Mix V120/400

## VNC-VIEWER

The PLC control has an Ethernet interface. This allows you to operate the BIG-Mix V 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 V via PC, tablet or smartphone.



# CUSTOMISED CONCEPTS

## Safe. Economic. Durable.

### Plants designed according to individual customer requirements

**The BIG-Mix V is a series product in customised design. Before designing your plant, we check the local conditions and take into account the special requirements under which you run your operation. We then work with you to develop a customised, high-quality and economical concept that offers you the greatest possible benefits and maximum operational readiness for your biogas plant.**



**MODEL**
**BIG-Mix V60/300**
**with 61 m³ loading volume**

- Mixing screw drive 1x 22 kW
- Discharge via the horizontal screw conveyor TYPE 450 to an external liquid feed system
- Weighing system KP
- Substrate processing: grass silage, green cuttings and agricultural waste





**MODEL**
**2x BIG-Mix V120/400**
**with 126 m³ loading volume each**

- 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: solid manure, cow dung and dry chicken manure



**MODELL**
**BIG-Mix V150/400**
**with 156m³ 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: solid manure, horse manure and pig manure

# EXTENSIVE ACCESSORIES

## Added value by extras

### Customised components with added value

**We offer you sensible additions to your system that give you advantages such as better comfort, maximum efficiency, longer service life and better economy. Each accessory is finished directly at our company site in Sendenhorst and is matched to the model of your dosing unit down to the smallest detail.**



### 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 V 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 V120/300



### Revision opening

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



### Foot 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.



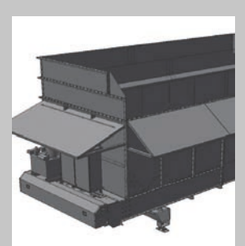
### Shield coating

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.



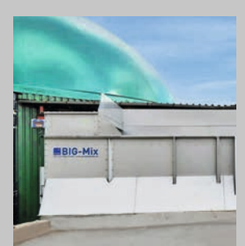
### Radio remote control

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.




BIG-Mix V170/400

# 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 V 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 m³ 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 V. This allows two liquid feed systems or two shredding units to be fed simultaneously in a reliable and energy-saving manner.



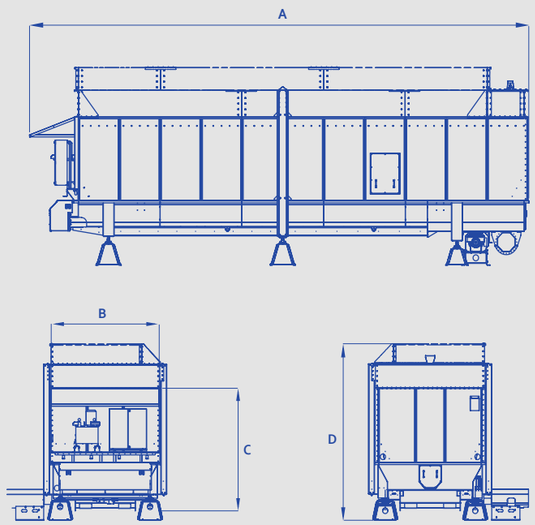
BIG-Mix V120/400

# MODEL OVERVIEW

## Variants and extension modules.

### The right solution for every application

**The BIG-Mix V is the ideal system for storage, preparation and dosing for biogas plants. Depending on the size of the plant, the substrates to be metered out and the desired loading intervals, various model types with different equipment options 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 |
|---|---|---|---|---|---|---|---|
| V45/300 | 44 m³/31 t | 7 m | 3,0 m | 3,3 m | 3,9 m | 7,5 kW | 22 kW |
| V45/300/70 | 71 m³/49 t | 11,5 m | 3,0 m | 3,3 m | 3,9 m | 2x 7,5 kW | 22 kW |
| V50/300 | 52 m³/37 t | 8 m | 3,0 m | 3,3 m | 3,9 m | 7,5 kW | 22 kW |
| V50/300/86 | 87 m³/61 t | 13,5 m | 3,0 m | 3,3 m | 3,9 m | 2x 7,5 kW | 22 kW |
| V60/300 | 60 m³/42 t | 9 m | 3,0 m | 3,3 m | 3,9 m | 7,5 kW | 22 kW |
| V60/300/100 | 103 m³/72 t | 15,5 m | 3,0 m | 3,3 m | 3,9 m | 2x 7,5 kW | 22 kW |
| V65/300 | 68 m³/48 t | 10 m | 3,0 m | 3,3 m | 3,9 m | 7,5 kW | 22 kW |
| V65/300/117 | 119 m³/83 t | 17,5 m | 3,0 m | 3,3 m | 3,9 m | 2x 7,5 kW | 22 kW |
| V75/300 | 76 m³/53 t | 11 m | 3,0 m | 3,3 m | 3,9 m | 7,5 kW | 22 kW |
| V75/300/133 | 135 m³/94 t | 19,5 m | 3,0 m | 3,3 m | 3,9 m | 2x 7,5 kW | 22 kW |
| V80/300 | 84 m³/59 t | 12 m | 3,0 m | 3,3 m | 3,9 m | 7,5 kW | 22 kW |
| V80/300/148 | 151 m³/105 t | 21,5 m | 3,0 m | 3,3 m | 3,9 m | 2x 7,5 kW | 22 kW |
| V90/300 | 92 m³/64 t | 13 m | 3,0 m | 3,3 m | 3,9 m | 7,5 kW | 22 kW |
| V90/300/167 | 167 m³/116 t | 23,5 m | 3,0 m | 3,3 m | 3,9 m | 2x 7,5 kW | 22 kW |
| V100/300 | 105 m³/73 t | 13 m | 3,0 m | 3,7 m | 4,3 m | 7,5 kW | 22 kW |
| V100/300/190 | 190 m³/133 t | 23,5 m | 3,0 m | 3,7 m | 4,3 m | 2x 7,5 kW | 22 kW |
| V110/300 | 114 m³/80 t | 14 m | 3,0 m | 3,7 m | 4,3 m | 7,5 kW | 22 kW |
| V110/300/208 | 208 m³/146 t | 25,5 m | 3,0 m | 3,7 m | 4,3 m | 2x 7,5 kW | 22 kW |
| V120/300 | 123 m³/86 t | 15 m | 3,0 m | 3,7 m | 4,3 m | 7,5 kW | 22 kW |
| V120/300/226 | 226 m³/158 t | 27,5 m | 3,0 m | 3,7 m | 4,3 m | 2x 7,5 kW | 22 kW |
| V130/300 | 132 m³/92 t | 16 m | 3,0 m | 3,7 m | 4,3 m | 7,5 kW | 22 kW |
| V130/300/244 | 244 m³/171 t | 29,5 m | 3,0 m | 3,7 m | 4,3 m | 2x 7,5 kW | 22 kW |
| V100/400 | 103 m³/72 t | 10 m | 4,0 m | 3,3 m | 3,9 m | 7,5 kW | 22 kW |
| V100/400/184 | 188 m³/131 t | 20 m | 4,0 m | 3,3 m | 3,9 m | 2x 7,5 kW | 22 kW |
| V120/400 | 125 m³/87 t | 12 m | 4,0 m | 3,3 m | 3,9 m | 7,5 kW | 22 kW |
| V120/400/226 | 232 m³/162 t | 24 m | 4,0 m | 3,3 m | 3,9 m | 2x 7,5 kW | 22 kW |
| V150/400 | 155 m³/108 t | 14 m | 4,0 m | 3,7 m | 4,3 m | 7,5 kW | 22 kW |
| V150/400/286 | 289 m³/202 t | 26 m | 4,0 m | 3,7 m | 4,3 m | 2x 7,5 kW | 22 kW |
| V170/400 | 167 m³/116 t | 15 m | 4,0 m | 3,7 m | 4,3 m | 7,5 kW | 22 kW |
| V170/400/310 | 289 m³/219 t | 28 m | 4,0 m | 3,7 m | 4,3 m | 2x 7,5 kW | 22 kW |

# FULL-SERVICE

## For your success.

### We are there for you!

**Even after commissioning, we are your professional partner who supports the operational readiness of your system in the long term. For this purpose, we have developed a comprehensive full service that offers you professional competence, fast availability and high readiness as well as flexibility for every request. In this way, we guarantee the economic success of your operation.**



### Support

From design and production to assembly and maintenance - our trained staff is there to advise and support you in every situation.




### Customisation

We create customised solutions for every installation. Taking into account the local conditions, our designers work out a customised, economical and durable concept.



### Professional assembly

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 in the operation of the system.




### Maintenance work

To ensure the longevity of your BIG-Mix V, we recommend that you have your 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

In case of an emergency, you can also reach us outside business hours, 365 days a year. You can find the office hours of our emergency service at: www.pumpegmbh.de/en/emergency-service






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

## 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 V?

CONTACT OUR SALES TEAM:

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# KONRAD PUMPE GMBH

*OUR TECHNOLOGY MAKES AN IMPACT.*



## The specialist company for plants

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.

### BIOGAS TECHNOLOGY



We produce high-quality and robust dosing systems for the biogas and recycling sector, which are designed for different uses. Our proven product range impresses with high quality, durability and energy-efficient use in the processing of demanding substrates.

### DOSING TECHNOLOGY



For the agricultural sector, we build dosing technology and mixing containers for different feedstuffs. Our machines are suitable for various fields of application 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 machinery. Here, we produce customised products and our own developments for a wide range of applications in the agricultural and industrial sectors. Steel and stainless steel are the main materials processed.

Errors and changes excepted

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