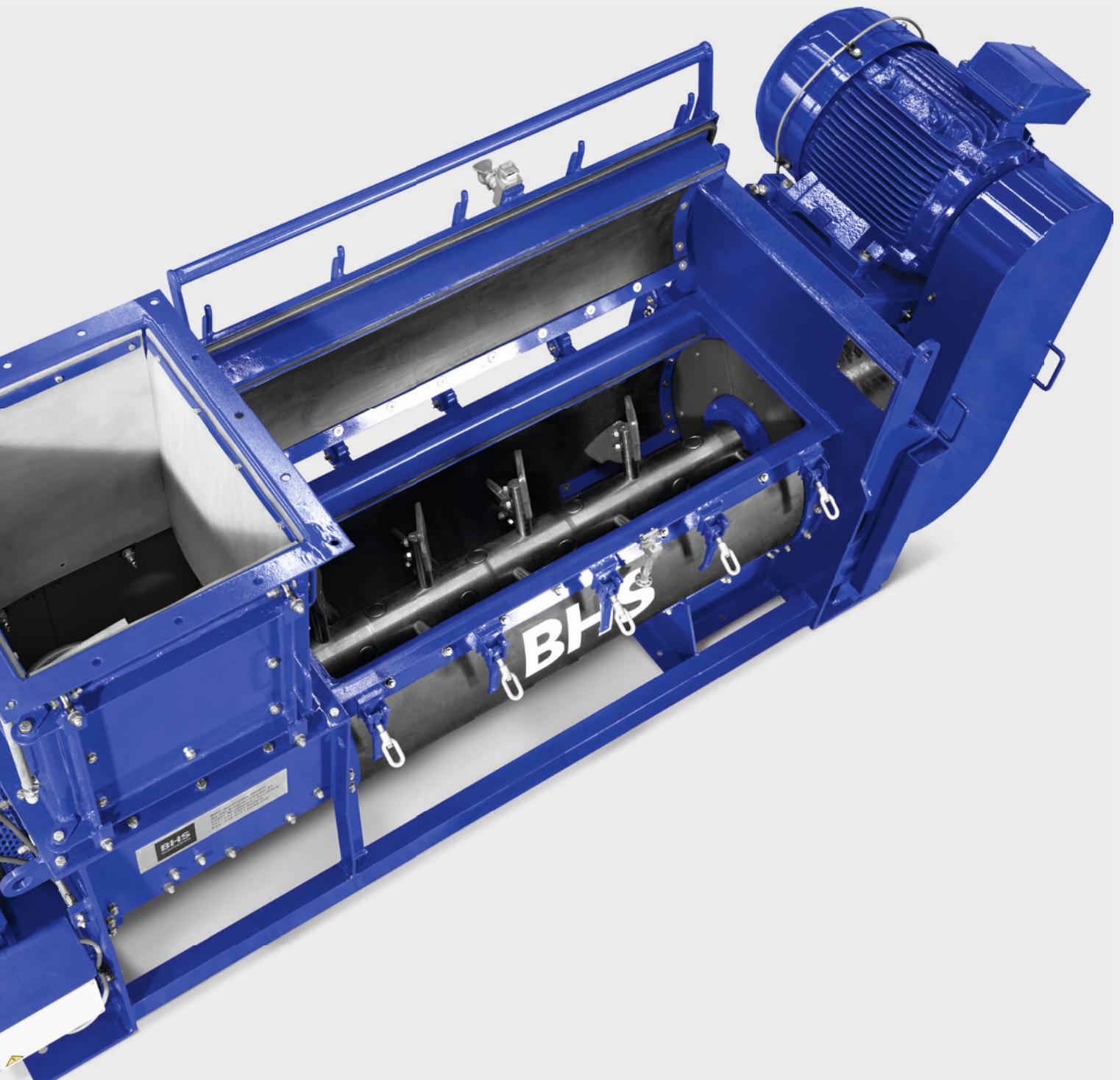


## MFKG

Single-Shaft Continuous Mixer

TRANSFORMING  
MATERIALS INTO VALUE



Headquarters of BHS-Sonthofen



TRANSFORMING MATERIALS INTO VALUE



#### The company

BHS-Sonthofen is an owner-operated group of companies in the field of machinery and plant engineering based in Sonthofen, Germany. The company offers technical solutions for mechanical process technology, concentrating primarily on mixing, crushing, recycling and filtration. BHS-Sonthofen has a global presence with more than 400 employees and several subsidiaries.

#### Over 130 years of experience in mixing technology

BHS-Sonthofen invented the first twin-shaft batch mixer back in 1888 and has been systematically upgrading the design ever since. Today, BHS mixers are the benchmark in mixing technology. Thousands of BHS mixers are in operation throughout the world, providing reliable service day after day.

#### Mixing tests in the BHS test center

BHS offers customers the opportunity to run mixing tests with their own specific materials at the BHS test center in Sonthofen. Furthermore, laboratory mixers can also be operated directly at the customer's location to develop solutions to challenging problems.

#### Valued partner

We are a valued partner with many mixing plant manufacturers around the world.

#### Worldwide service

BHS offers quick and reliable service worldwide with its technical customer support and spare parts stock on three continents for all machine types, including older mixers.

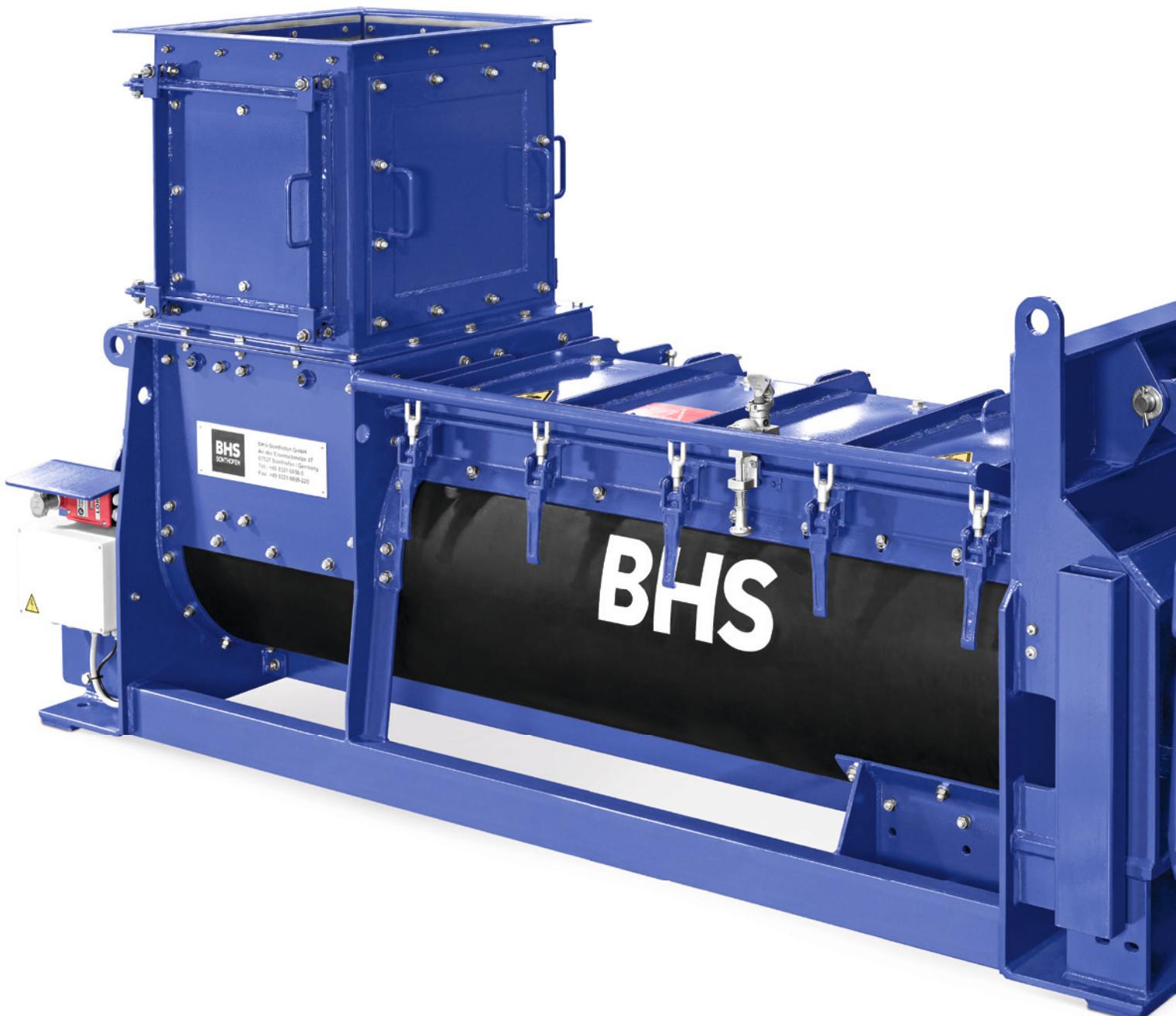
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[www.bhs-sonthofen.com](http://www.bhs-sonthofen.com)

## BHS single-shaft continuous mixer

The BHS single-shaft continuous mixer is a continuous mixing system that has been developed for the mixing of fine materials. The single-shaft continuous mixer can be used for the continuous production of dry or moist recipes or suspension type mixtures. The special shape and arrangement of the mixing tools create an intensive mixing action.

A unique selling point of the BHS single-shaft continuous mixer is the self-cleaning, flexible rubber trough that prevents caking on the inner wall of the trough. Liquids are added via nozzles in the feed area, resulting in total material encapsulation over a large surface area.



MFKG 0520 single-shaft continuous mixer

### Consistently high mixture quality

The design of the mixer inlet, the shape and arrangement of the mixing tools, and the selection of the appropriate speed ensure a consistent mixture quality. The high speeds create turbulent relative movements in the mixture throughout the entire volume of the mixer trough. This results in consistent, homogeneous mixing results can be achieved in a very short time. Furthermore, undesired agglomerations can be reliably disintegrated by means of shear forces.

### Self-cleaning rubber trough

One unique selling point of the single-shaft continuous mixer (MFKG) is the self-cleaning process of the rubber trough. Pulsating vibrations and churning motions of the rubber jacket prevent caking of the mixture. Because of this, the mixer continuously cleans itself during operation.

### Large maintenance hatch

The rubber trough of the mixer is divided longitudinally along the entire mixing section. This results in a large and highly accessible maintenance opening. Actuation of the maintenance hatch is facilitated by means of gas springs or hydraulic cylinders.

### Investment security and operational reliability

Even in the most adverse conditions, the robust, durable design ensures maximum operational reliability and thus long-term investment security.



## Optimized mixing process 1

In the BHS single-shaft continuous mixer, the different formula ingredients are forcefully accelerated by the fast-rotating mixing tools. The centrifugal force results in a ring of mixture with turbulent swirl formation along the inner wall of the mixer. The mixing tools generate extreme relative movements of the mixture. This results in optimal mixing and consistently high levels of homogeneity. It is also possible to process materials that are otherwise very difficult to mix or that are mixed in very different proportions.

## Inlet shaft with efficient liquid nozzles 2

In contrast to conventional systems, liquid formula ingredients are already added directly at the mixer inlet of the MFKG single-shaft continuous mixer through high intensity nozzles, rather than in the mixing zone. This allows all input materials to be encapsulated with liquid prior to entering the mixing chamber. The second phase is performed with the mixing tools that ensure intensive, uniform mixing of all the materials.

## High-performance drive 3

The drive configuration and power are rated according to the specific application and customer requirements. As standard, the system is driven by a high-performance electric motor, an easily accessible V-belt drive and robust worm gearing with a high degree of efficiency. For special requirements, alternative drive concepts can be implemented.

## Mixing tools for specific requirements 4

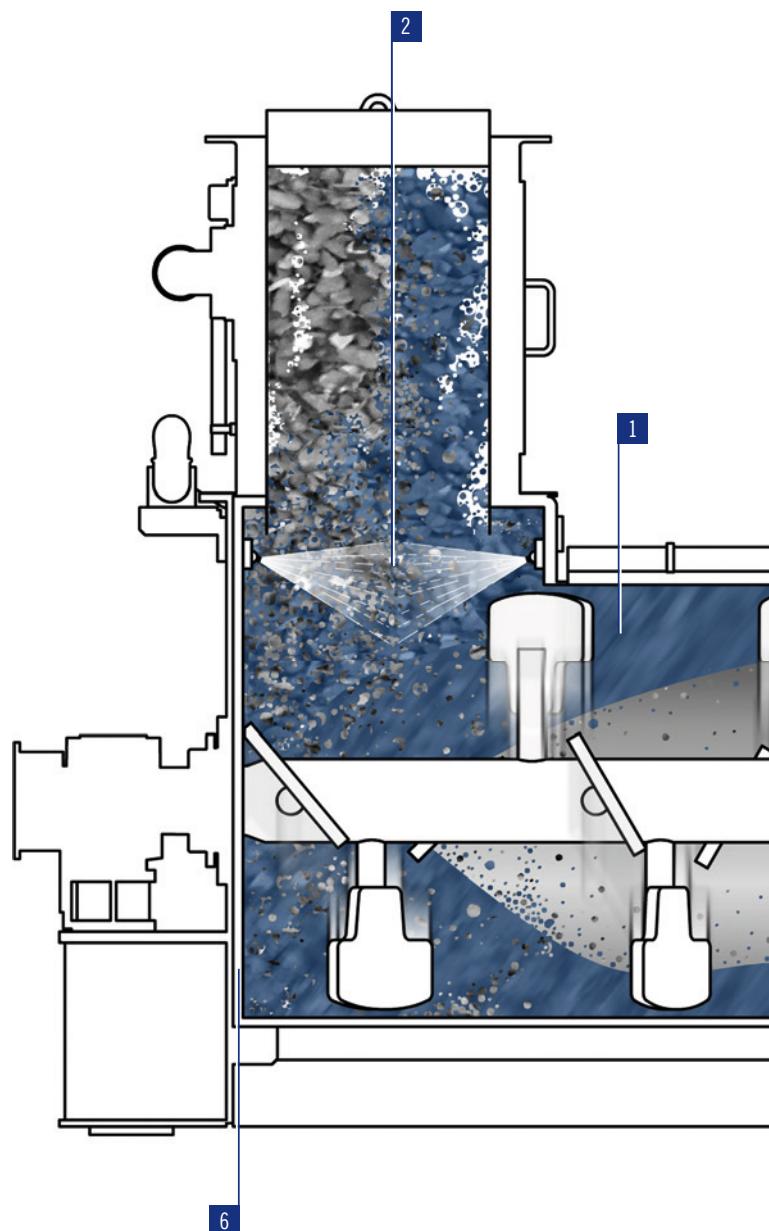
Depending on the application, the mixer can be equipped with different mixing tools in order to achieve the best possible material acceleration, relative movement and shearing forces. The mixing arms and blades are easy to exchange. The mixing shaft is smooth to prevent caking.

## Large maintenance hatch 5

With its large maintenance hatch, the entire mixing section of the mixer is very easy to access. Maintenance work can be carried out very quickly and easily.

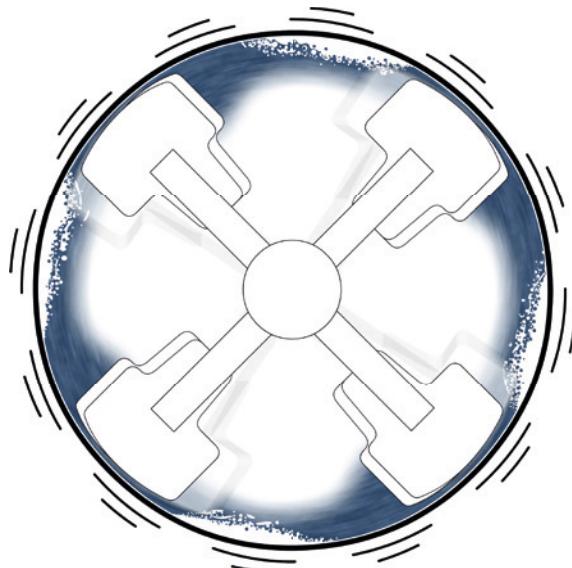
## Seals 6

Depending on the specific mixing task, the mixing shaft is secured by means of special axial face seals or gas seals in order to prevent mixture materials from penetrating the shaft bearings.

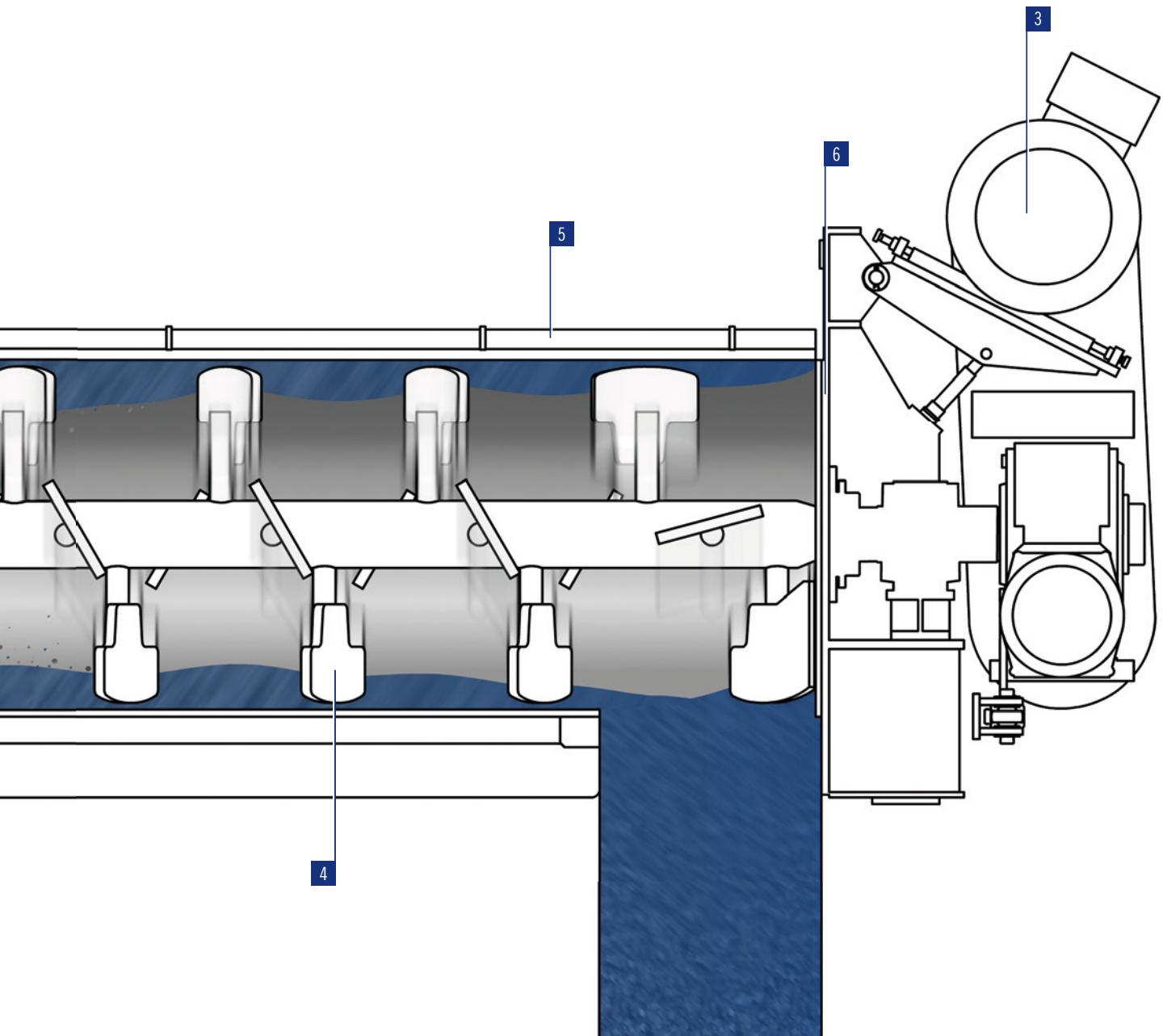


### Self-cleaning rubber trough

The mixing trough of the MKG single-shaft continuous mixer consists of a flexible rubber jacket fixed in a steel frame. It is made of a very tough industrial material that is also resistant to temperatures of up to 150 °C in continuous operation. During operation, gentle vibrations and churning motions of the rubber trough prevent caking of the curable mixture on the walls of the trough. This ensures a continual self-cleaning process during mixer operation. The elasticity of the rubber jacket reduces friction losses due to caking and also significantly decreases wear to the mixing tools.



Cross section



## AREAS OF APPLICATION

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### Production of suspensions and pastes

Coal dust suspensions, overburden, mortar suspensions, ash suspensions, etc.



### Sludge and soil conditioning

Sewage sludge, chalk slurry, ferric arsenate sludge, paper sludge, etc.



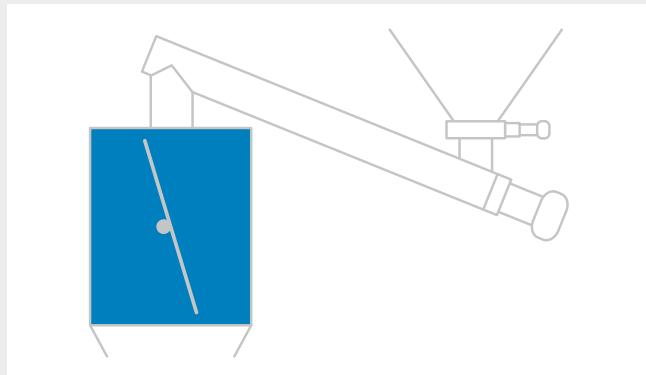
### Moistening of dust

Fly ash from waste incineration, fly ash from power plants, foundry dust, limestone powder, etc.



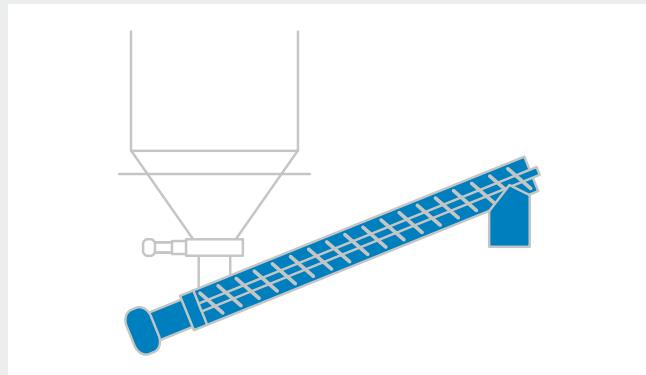
In a continuous mixer, the continuous dosing and weighing of the mixture are of decisive importance for achieving optimal mixing results for the required formula.

## Gravimetric dosing and weighing

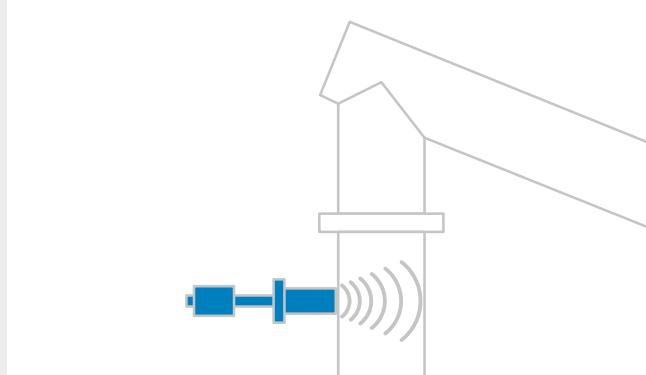


Bulk material flowmeter

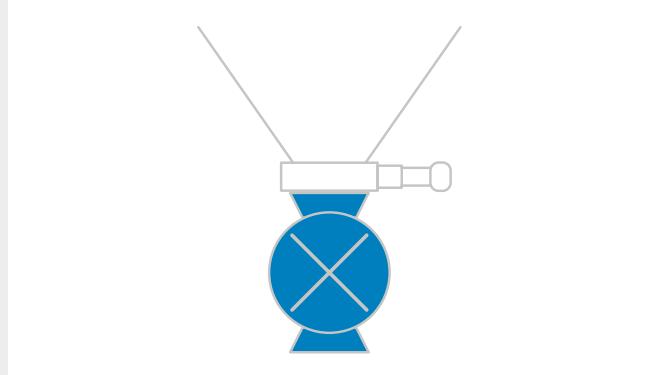
## Volumetric dosing and weighing



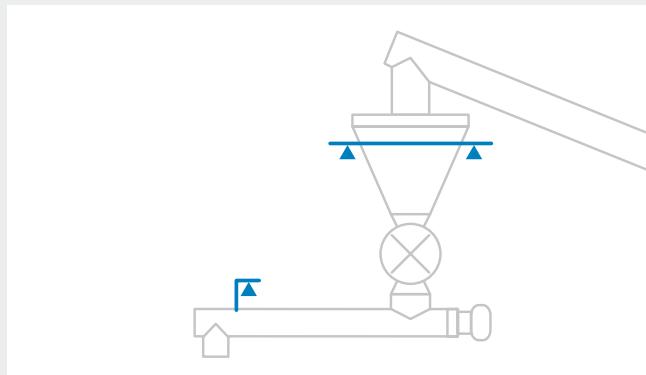
Screw conveyor



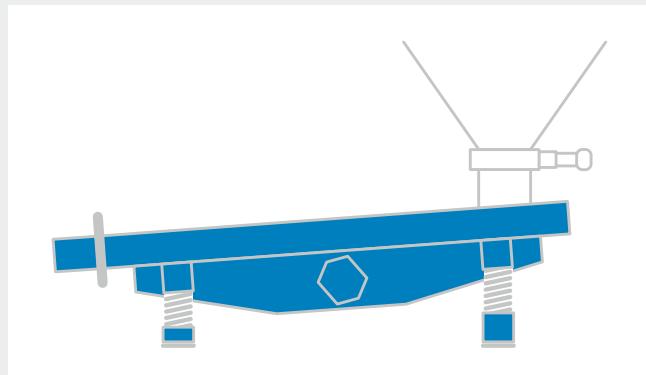
Non-contact ultrasound flow measurement



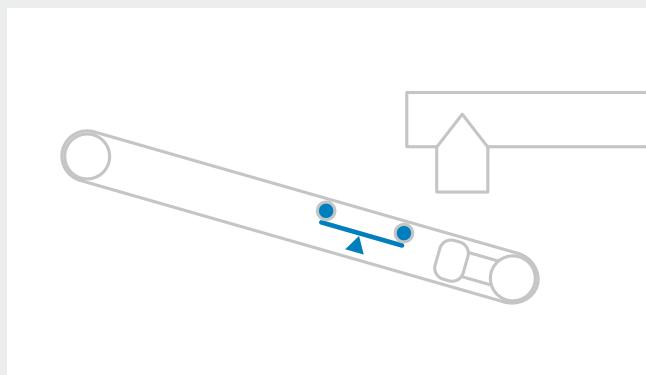
Rotary valve



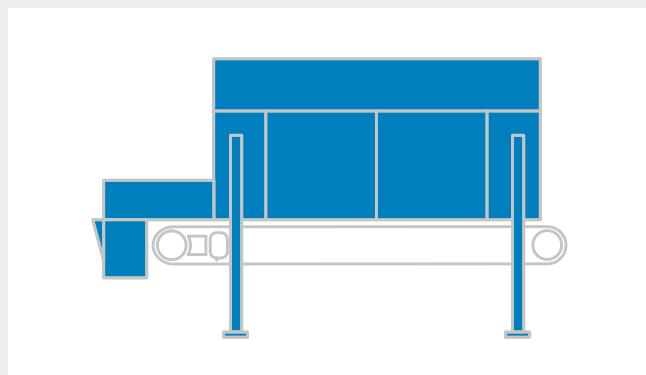
Double weighing



Vibrating chute



Belt weigher



Box feeder

## Automatic central lubrication 1

During operation, the central lubrication continuously supplies the inner shaft seals with barrier grease, thereby reducing maintenance requirements.

## Water control system 2

Liquids are added in proportion to the solid input material via a fully automatic dosing station. This consists of a flowmeter, regulating valve, dosing valve, pressure regulator and pressure switch.

## Hydraulic system for cover opening 3

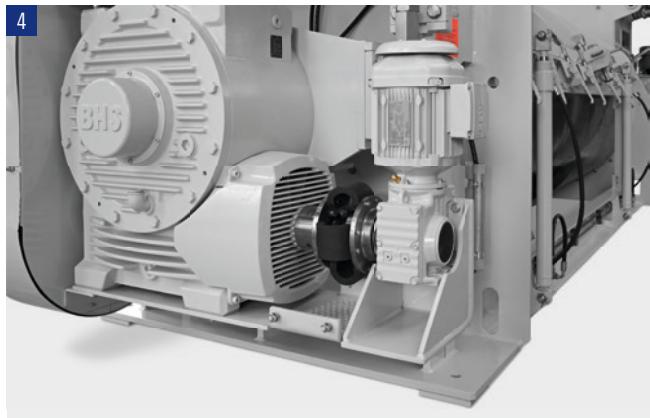
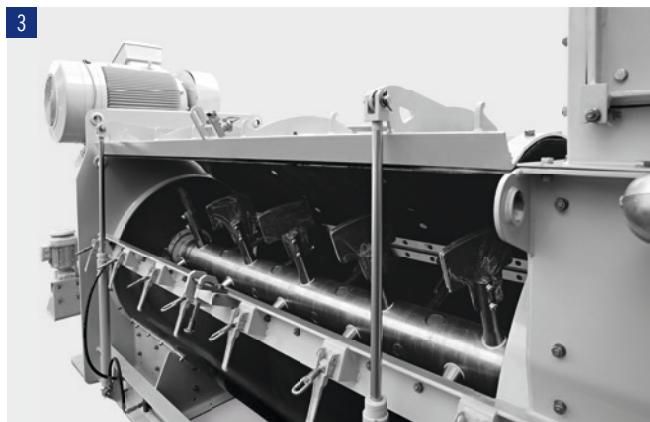
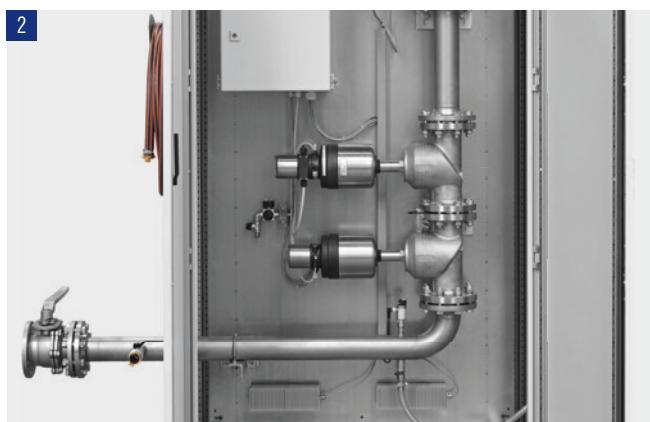
For quicker and easier opening of the cover for maintenance and inspection, an optional hydraulic actuation mechanism is available for the cover.

## Auxiliary motor for mixer shaft 4

An auxiliary motor can be installed for slow or cyclical rotation of the mixer shaft. This simplifies cleaning and maintenance work.

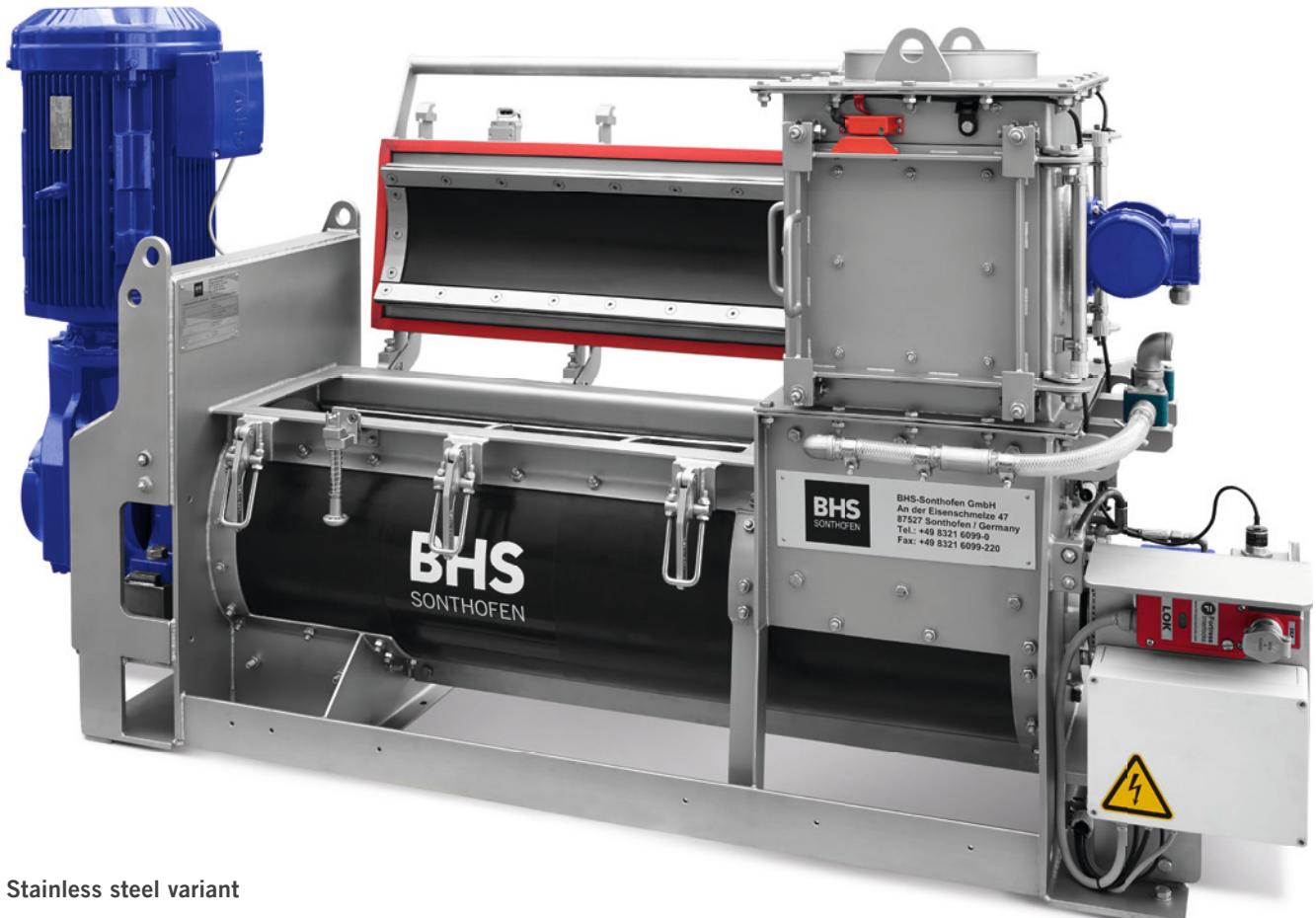
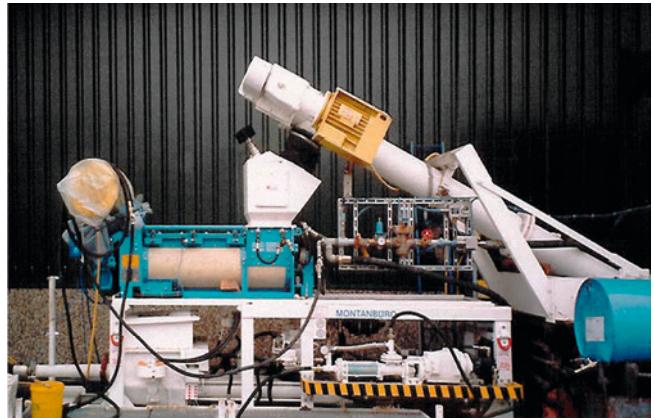
## Dual nozzle

Liquids can be controllably introduced via spray nozzles to the product that is to be wetted. Depending on the required dosing, different nozzle variants are available.



### ATEX design

The mixer and its peripheral equipment can be configured for specific ATEX zones. BHS-Sonthofen meets all the relevant requirements and is ATEX certified.



### Stainless steel variant

For special requirements, such as corrosive mixtures, the single-shaft continuous mixer can be made of stainless steel.

## PLANT EXAMPLES

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Continuous mixing plant with an MFKG 0728 for producing a suspension of fly ash and bottom ash. The mixture is then pumped into a landfill site.



MFKG 0520 at the heart of a plant for moistening fine materials, such as ash and dust, from silos.



Plant for moistening dry ash from a power plant with an MFKG 0728. Moist ash can also be deposited on the discharge belt.



Turnkey mixing plant with an MFKG 0520 for continuous moistening of waste materials. These powdery fine materials, such as fly ash from incinerating plants, dust or fine sand, are deposited in landfills after moistening.

## Tests give certainty

BHS offers customers the opportunity to run mixing tests with their own specific materials at its technical center in Sonthofen. Furthermore, laboratory mixers can also be loaned for operation directly at the customer's plant. All test results are recorded, documented and analyzed according to mutually agreed criteria. We would be pleased to advise and assist you.

BHS technical center in Sonthofen for customer-specific testing



## Performance data (standard designs)

Type	Throughput rate <sup>1)</sup>	Max. particle size	Max. temp.	Drive power <sup>2)</sup>
MFKG 0313	11–22 tons/h	0.5 in	302.0 °F	12–30 HP <sup>3)</sup>
MFKG 0520	22–55 tons/h	0.6 in	302.0 °F	50 HP <sup>3)</sup>
MFKG 0728	55–110 tons/h	0.6 in	302.0 °F	60–74 HP
MFKG 1032	110–331 tons/h	0.6 in	302.0 °F	121–177 HP
MFKG 1237	331–496 tons/h	0.6 in	302.0 °F	148–215 HP

## Dimensions and weights (standard designs)

Type	L1 <sup>4)</sup>	L2 Rubber trough	D Rubber trough	L3	H1	H2	H3	B	Weight <sup>5)</sup>
MFKG 0313	39.4 in	51.2 in	13.8 in	86.6 in	47.2 in	24.4 in	43.7 in	27.6 in	1984.2 lbs
MFKG 0520	61.4 in	78.7 in	20.9 in	118.1 in	55.1 in	32.1 in	55.9 in	35.4 in	5511.5 lbs
MFKG 0728	90.6 in	110.2 in	29.5 in	153.5 in	63.0 in	45.3 in	74.0 in	47.2 in	8157.1 lbs
MFKG 1032	100.4 in	126.0 in	39.4 in	185.0 in	86.6 in	55.1 in	87.8 in	59.1 in	12786.8 lbs
MFKG 1237	118.1 in	145.7 in	49.2 in	204.7 in	94.5 in	66.9 in	98.4 in	70.9 in	18739.3 lbs

<sup>1)</sup> The bulk density of the specific input materials must be specified for selection of the suitable mixer size.

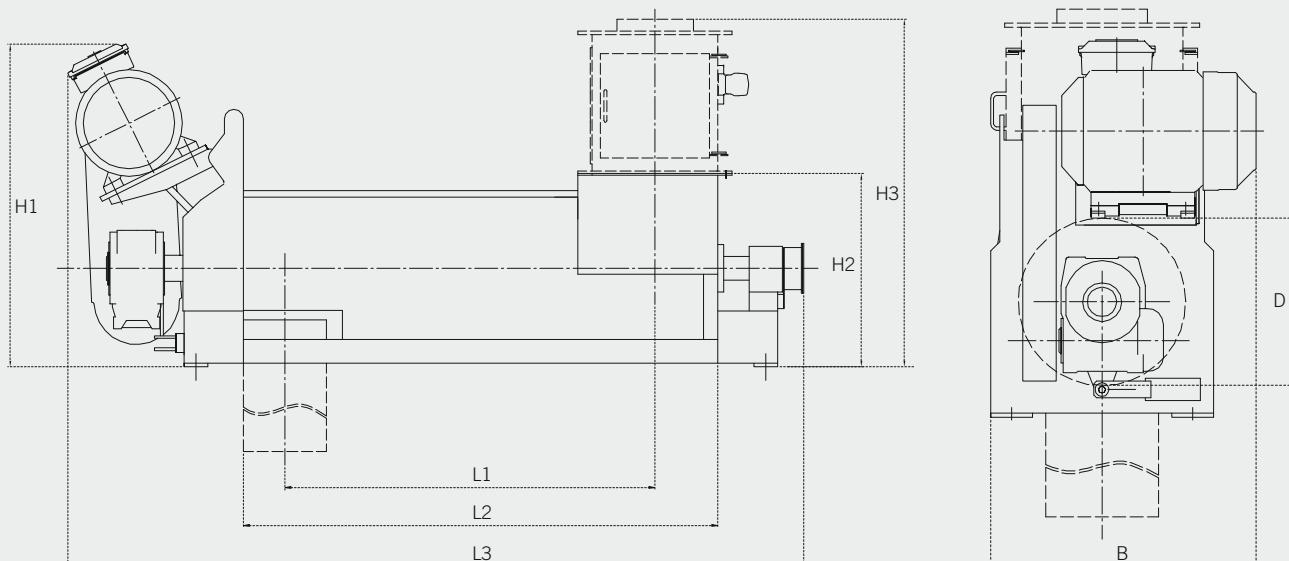
<sup>2)</sup> The throughput parameters (max. particle size, bulk density, etc.) of the specific input materials must be specified for selection of the suitable drive power rating.

<sup>3)</sup> Drive via bevel gear motor.

<sup>4)</sup> Dimension from center of mixer inlet to center of mixer outlet.

<sup>5)</sup> Weight for standard design without accessories.

All specifications apply to the standard design. Technical data for customized designs may differ from the specified data.  
All technical data may change due to development. Subject to modification without notice.



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