Industrial Technology

Agricultural Technology

Mixing & Cleaning

GEBR. RUBERG
MASCHINENFABRIK
ORIGINAL – SINCE 1848

RUBERG
Batch mixers & mixing silos

- Precision batch mixer | CM series
- Container batch mixer | CCM series
- Drum batch mixer | FCM series
- Laboratory batch mixer | LCM series
- Conical ribbon mixer | RKB series
- Reactor mixer | RCM series
- Mixing silo | RMS & RMS plus series

Technical data sheet and product overview

Areas of application:

- Chemical industry
- Pharmacy
- Food
- Building materials
- Plastics
- Animal feed

RESEARCH | DEVELOPMENT | DESIGN | ENGINEERING | SERVICE

CONTENTS

BATCH MIXERS &

& MIXING SILOS

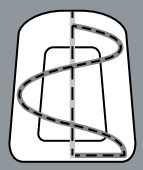
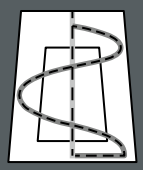
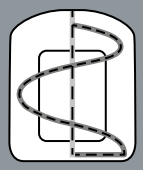
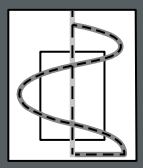
Precision batch mixer | CM series

CM

RUBERG

Innovative and
reliable
Powerful
and flexible

Through years of development of the CM series, we have created the main types described below, which are based on the diversity of the basic and finished products as well as their demands on materials and processing quality. In combination with auxiliary equipment, we produce highly sophisticated and efficient RUBERG precision batch mixers for the mixing tasks in question – for powders, granulates, low to high viscosity liquids etc.

Symbol type	Series type	Brief description
	CM-KG	▶ Pharmaceutical, chemical, food industries ... RUBERG precision batch mixer in conical design with domed lid, flat bottom, rounded transition, one-piece, joint-free, optionally pressure- and vacuum-resistant mixing chamber, rotationally symmetrical radius passages and free-floating removable mixing unit. Mixing and clearing arm in involute shape, GMP-compliant. Most demanding mixing tasks of products of different density, grain size and consistency in highly sensitive production areas.
	CM-KE	▶ Chemicals, building materials, plastics, animal feed ... RUBERG precision batch mixer in conical design with flat lid, flat bottom, split mixing chamber on request, removable mixing unit on top and optionally also on bottom with maintenance-free bearings. Most demanding mixing tasks of products of different density, grain size and consistency in large production areas.
	CM-ZG	▶ Pharmaceutical, chemical, food industries ... RUBERG precision batch mixer in cylindrical design with domed lid, flat bottom, with rounded transition, one-piece, joint-free, optionally pressure- and vacuum-resistant mixing chamber, rotationally symmetrical radius passages and free-floating removable mixing unit. Mixing and clearing arm in involute shape, GMP-compliant. Most demanding mixing tasks of products with similar density, grain size and consistency in highly sensitive production areas.
	CM-ZE	▶ Chemicals, food, building materials, plastics, animal feed ... RUBERG precision batch mixer in cylindrical design with flat lid, flat bottom, split mixing chamber on request, removable mixing unit on top and optionally on bottom with maintenance-free bearings. Most demanding mixing tasks of products with similar density, grain size and consistency in large production areas.
	CM-ZGF	▶ Pharmaceutical, chemical, food industries ... RUBERG precision liquid batch mixer in cylindrical design with domed lid, domed base, one-piece, joint-free, pressure- and vacuum-resistant mixing chamber, rotationally symmetrical radius passages and free-floating mixing mechanism. Mixing and clearing arm in involute shape, GMP-compliant. The most demanding mixing tasks of liquid, low to high viscosity and solid products with special process engineering features such as heating, cooling, evacuating, dissolving, emulsifying, reacting under pressure, reacting under vacuum etc.
	CM-ZEF	▶ Chemical, food, plastics industries ... RUBERG precision liquid batch mixer in cylindrical design with flat lid, funnel-shaped bottom, divided mixing chamber and free-floating removable mixing mechanism. Most demanding mixing tasks of liquid, low to high viscosity and solid products with process engineering features such as heating, cooling, dissolving, emulsifying, etc.

Precision batch mixer | CM series

Processes

Homogenizing, coating, wetting, crystallizing, aerating and degassing, foaming, steaming, fluidizing and drying are examples of tasks for the various mixing products that the RUBERG precision batch mixer is engineered for. Here it can be used powerfully and flexibly.

It enables aseptic and sterile production thanks to special surface finish and joint-free processing (rotationally symmetrical radii). Process-related special features such as thermal, pressure, vacuum or inert gas conditions are some examples of powerful options of the RUBERG precision batch mixer.

Applications

The spectrum of applications ranges from the processing of highly sensitive products in pharmaceuticals, fine chemicals and foodstuffs to bulk materials in the chemicals, building materials, plastics and animal feed industries.

A wide range of design variants with adapted material and machining standards is available.

Type CM-ZE 3000-2SR
Stainless steel

Material: 1.4301.

With free-floating mixing unit, 2 cutting rotors, 2 liquid lances, pneumatic sampler and admixing device for block fat, suitable for bakery products

Mixing capacity

A very high level of mixing quality is achieved within a very short time (30 - 180 seconds / 30 seconds possible for muesli). With variable speeds adapted to the mixing product, extremely gentle blending or admixing of, for example, coarse-grained materials is possible. Likewise, the most intensive dispersion of e.g. fine powders, paints/ lacquers or liquid substances is achieved by high speeds.

Processing steps: Tempering, reacting or agglomerating under pressure or vacuum etc.

Charging

Quick and easy charging, even for the largest quantities. Large and small components can be metered automatically or manually. Liquids are fed in by lances, the centre shaft (nozzle bar) or in the IS process. Calibratable weighing in the mixing vessel is ensured by means of measuring cells with evaluation electronics or an extended metering control for calibrated feeding of the main components.

DRAINING & CLEANING

Allows gentle and segregation-free dosing in a few seconds by slide valve or flap valve, or in large quantities. A large inspection door allows not only convenient cleaning by hand, but also necessary inspections. Automatic wet cleaning (CIP) and disinfection are possible. Strongly sticking products are counteracted with a non-stick coating.

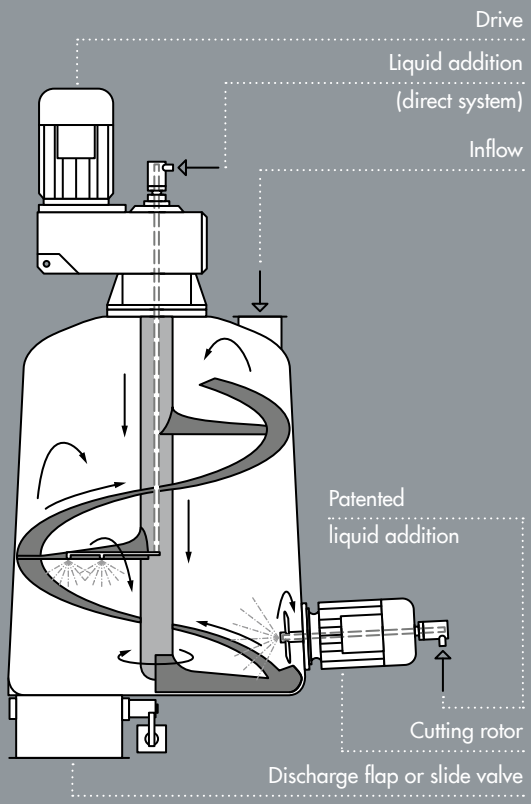
In the cover, in addition to the inlet, other openings are provided for venting and control. Discharge slides or flaps run in the base plate without a shoulder, free of dead space.

Strong hinges and hand latches ensure accurate fixation of the door. Limit switch fuses prevent accidents.

All shaft feedthroughs and seals are leakage and maintenance-free.

Precision batch mixer | CM series

Work and flow diagram



Sizes

From 100 - 25.000 litres usable capacity, in suitable high-quality stainless or special steels. Ready for connection with complete electrical equipment, with its own control system or can be integrated into a PLC system. Highest mixing accuracy 1:100.000 with variable filling quantities already from 10 % content.

Mode of operation

The mixing product enters the mixing chamber, which tapers conically from bottom to top, in the shortest possible time through an appropriately large inlet and is immediately distributed by the mixing tools. The mixing mechanism, held by strong, specially shaped support and distribution arms and connected to the centrally located drive shaft, transports the contents from the core to the outside and up the wall. The mixing product sliding down the centre is mixed horizontally by the spreading and mixing arms during its path to the floor. All the content is constantly moving in changing directions, there are no dead spaces. The optimum mixing quality is already achieved with fillings from approx. 10 % of the total useful content.

CM

Dry/moist solids, for the production of liquid mixtures or homogeneous pastes, granular/powdery materials, fluidizing/hydrogenated materials, with high or low density at shortest mixing times (30 - 180 seconds / 30 seconds possible for muesli). Comfortable and precise handling. With fully insulated heating or cooling systems or electrically heatable jacket.

Type CM-ZG 200-2 ISR
Stainless steel
Material: 1.4571.

With 2 cutting rotors, ISR, sealing air flushing, manual feed, integrated weighing system, for foodstuffs

Precision batch mixer | CM series

The RUBERG precision batch mixer designed for the building materials industry, for example, is made of high-manganese steel. A high bulk density of the mixed materials or a high abrasion, e.g. with quartz sand, require highly wear-resistant materials and strongly dimensioned drive elements.

In the case of particularly abrasive products, the mixing unit and the holding arms are armoured with hard metal. Microfine powder atomization of e.g. colour pigments or additives, brought directly into the working area of the cutting rotor by the solid injector, guarantees highly precise and fine distribution.

Liquid addition

We offer two sophisticated systems, depending on the mixed product and its behaviour:

- Injector lance

Removable lances with drip-free spray nozzles inject the liquid into the passing mix. The interaction of the mixing unit and cutting rotors enables very small to very large quantities of liquids to be introduced into dry materials and precisely distributed. Heated lances and two-substance nozzles complement the features (see also page 37).

- IS system

The patented IS system (Injection Spraying System) has proven its worth with particularly critical mixing components. Through a lance in the hollow shaft of the drive, the medium enters directly into the nozzles of the cutting rotor, where it is distributed turbulently and microfinely in the mixed product. Agglomeration is prevented by the knives (see also page 37).

Cutting rotors

As a fast-rotating counterpart to the main mixer, they effect de-clumping and crushing of agglomerates. In the additional function of the IS system, liquids or highly viscous media enter the nozzles integrated in the cutting rotor, which distribute them microfinely into the mixing product. Additions can be made in extremely fine dosages. Depending on the mixing and feed material, one or more cutting rotors can be installed.

Type CM-ZE 3000
Stainless steel
primed and painted

Material: 1.4571.

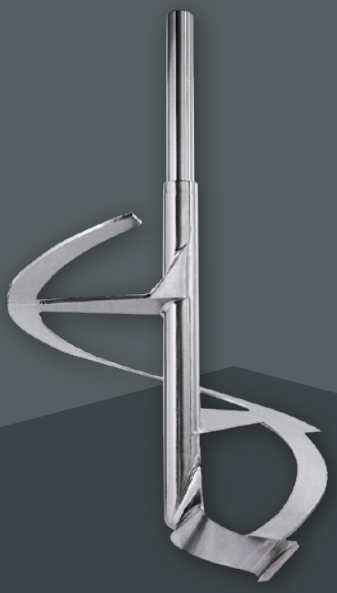
With support claws for weighing device and 8 outlet nozzle, for washing powder

Speed

Depending on the product, the variable circumferential speeds range from:

- 1.0 - 2.8 m /s (for powder products and muesli)
- up to 10 m /s (for creamy to liquid products)

The speed is set via a frequency inverter.



Mixing unit

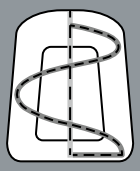
CM-ZG 2000-SR

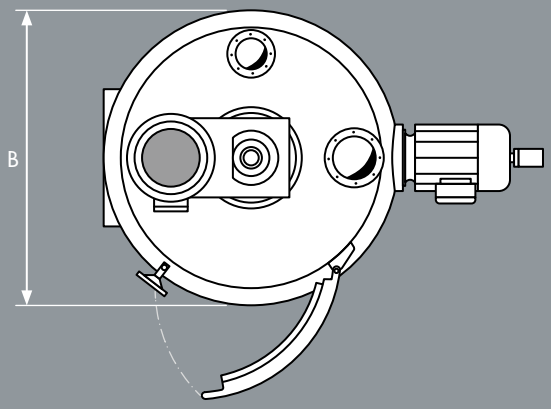
Free-floating mixing unit

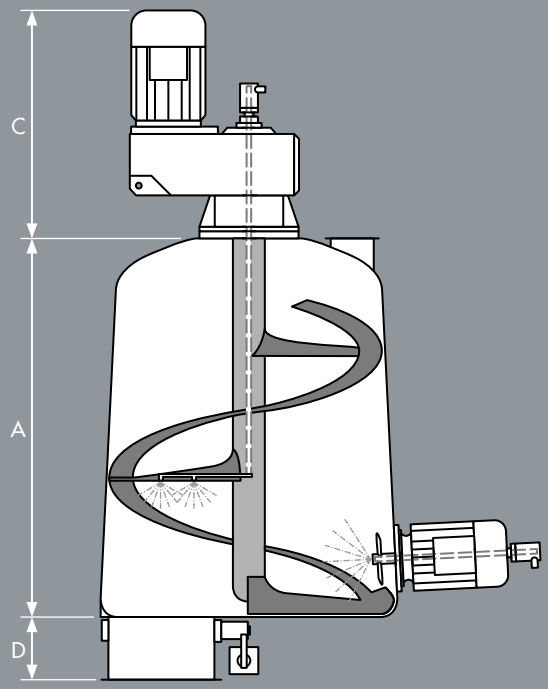
The reinforced mixing unit is supported exclusively at the top, i.e. a hollow shaft slip-on gearbox provides the stabilizing bearing unit. It absorbs the radial and axial forces.

- No bearings and sealing elements in the mixing product
- No ground contact of the mixing unit
- No product carryover
- Involute mixing and clearing arm
- Rotationally symmetrical radius paths
- No attrition (friction), caking oremptying of residues lower area of the mixing unit
- Costly sealing systems in pressurized or vacuum operated systems are no longer required

Precision batch mixer | CM-KG series







Useful capacity in litres	Type	Approx. dimensions			
		A in mm	B in mm	C in mm	D in mm
100	CM-KG 100	720	540	650	200
200	CM-KG 200	850	685	700	200
300	CM-KG 300	970	780	750	200
500	CM-KG 500	1130	920	900	200
750	CM-KG 750	1280	1050	1000	200
1000	CM-KG 1000	1425	1175	1050	250
1500	CM-KG 1500	1600	1320	1100	250
2000	CM-KG 2000	1780	1480	1100	250
3000	CM-KG 3000	1985	1660	1100	250
4000	CM-KG 4000	2195	1840	1200	250
5000	CM-KG 5000	2360	1980	1250	250
6000	CM-KG 6000	2515	2120	1300	250
7000	CM-KG 7000	2645	2230	1500	400
8000	CM-KG 8000	2770	2340	1500	400
10000	CM-KG 10000	2980	2520	1800	400
15000	CM-KG 15000	3390	2880	1800	600
20000	CM-KG 20000	3730	3170	2200	600
25000	CM-KG 25000	4030	3430	2200	600

RUBERG precision batch mixers can be adapted to individual building conditions in any size. Likewise, the design of the inlets and outlets as well as the arrangement of the inspection door can be freely selected.

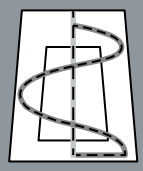
Pharmaceutical, chemical, food industries …

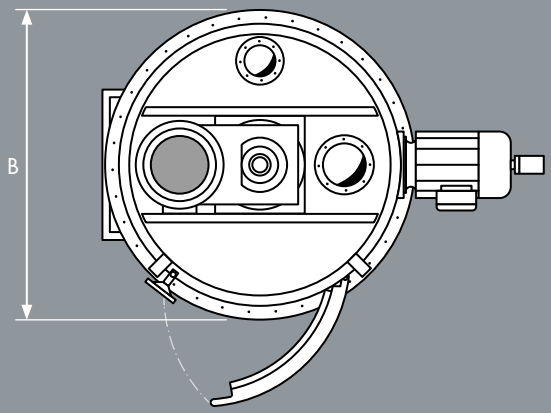
Most demanding mixing tasks of products of different density, grain size and consistency in highly sensitive production areas.

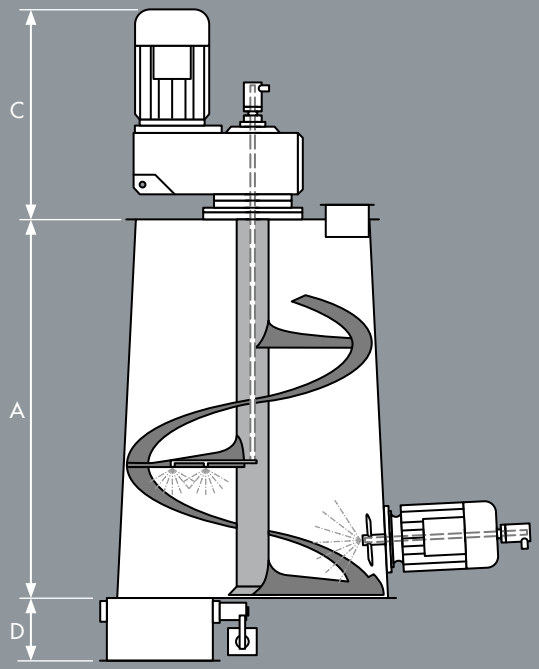
- Conical design
- Domed lid
- Flat bottom with rounded transition
- One-piece, joint-free, pressure- and vacuum-tight mixing chamber
- Rotationally symmetrical radius paths
- Free-standing mixing unit
- Involute mixing and clearing arm
- GMP compliant

CM-KG

Precision batch mixer | CM-KE series







Useful capacity in litres	Type	Approx. dimensions			
		A in mm	B in mm	C in mm	D in mm
100	CM-KE 100	770	600	480	200
200	CM-KE 200	960	740	550	200
300	CM-KE 300	1090	830	560	200
500	CM-KE 500	1290	960	630	200
750	CM-KE 750	1480	1100	660	200
1000	CM-KE 1000	1650	1210	740	250
1500	CM-KE 1500	1890	1380	800	250
2000	CM-KE 2000	2040	1480	850	250
3000	CM-KE 3000	2300	1660	960	250
4000	CM-KE 4000	2550	1830	550	250
5000	CM-KE 5000	2700	1930	550	250
6000	CM-KE 6000	2900	2030	550	250
7000	CM-KE 7000	3000	2150	650	400
8000	CM-KE 8000	3150	2250	650	400
10000	CM-KE 10000	3400	2450	900	400
15000	CM-KE 15000	3900	2800	900	600
20000	CM-KE 20000	4300	3060	900	600
25000	CM-KE 25000	4600	3300	900	600

RUBERG precision batch mixers can be adapted to individual building conditions in any size. Likewise, the design of the inlets and outlets as well as the arrangement of the inspection door can be freely selected.

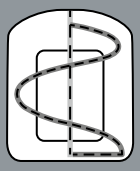
Chemical, building materials, plastics, animal feed industries ...

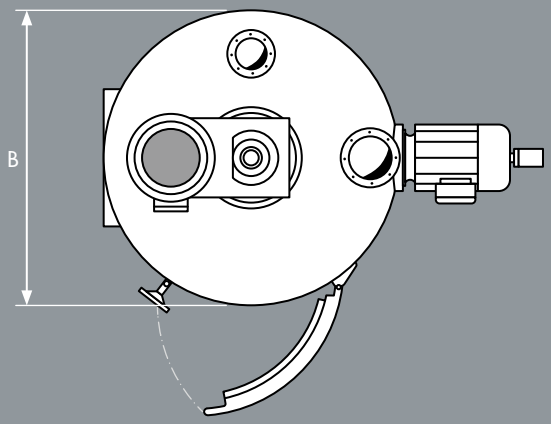
Most demanding mixing tasks of products of different density, grain size and consistency in large production areas.

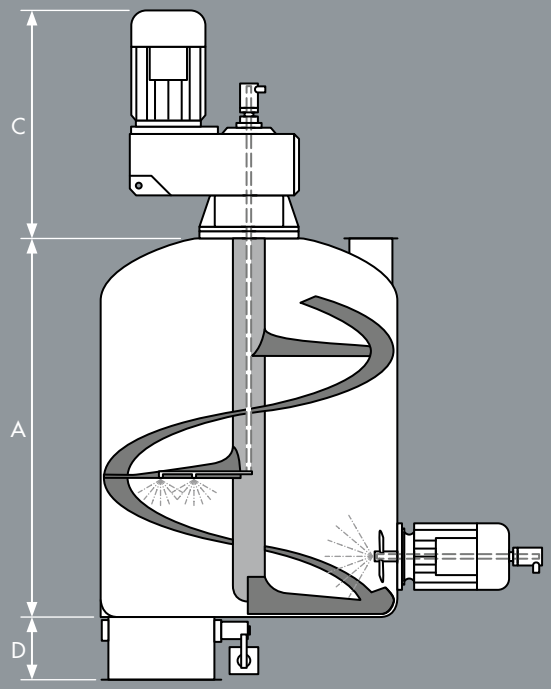
- Conical design
- Flat lid
- Flat bottom
- Maintenance-free bearing-mounted or free-floating removable mixer at top and bottom

CM-KE

Precision batch mixer | CM-ZG series







Useful capacity in litres	Type	Approx. dimensions			
		A in mm	B in mm	C in mm	D in mm
100	CM-ZG 100	550	550	650	200
200	CM-ZG 200	700	700	700	200
300	CM-ZG 300	800	800	750	200
500	CM-ZG 500	950	950	900	200
750	CM-ZG 750	1100	1100	1000	200
1000	CM-ZG 1000	1200	1200	1050	250
1500	CM-ZG 1500	1400	1400	1100	250
2000	CM-ZG 2000	1500	1500	1100	250
3000	CM-ZG 3000	1750	1750	1100	250
4000	CM-ZG 4000	1900	1900	1200	250
5000	CM-ZG 5000	2050	2050	1250	250
6000	CM-ZG 6000	2200	2200	1300	250
7000	CM-ZG 7000	2300	2300	1500	400
8000	CM-ZG 8000	2400	2400	1500	400
10000	CM-ZG 10000	2600	2600	1800	400
15000	CM-ZG 15000	3000	3000	1800	600
20000	CM-ZG 20000	3300	3300	2000	600

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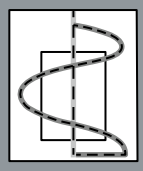
Pharmaceutical, chemical, food industries …

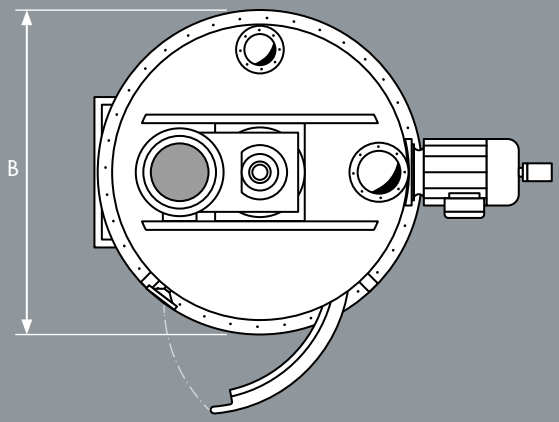
Most demanding mixing tasks of products of different density, grain size and consistency in highly sensitive production areas.

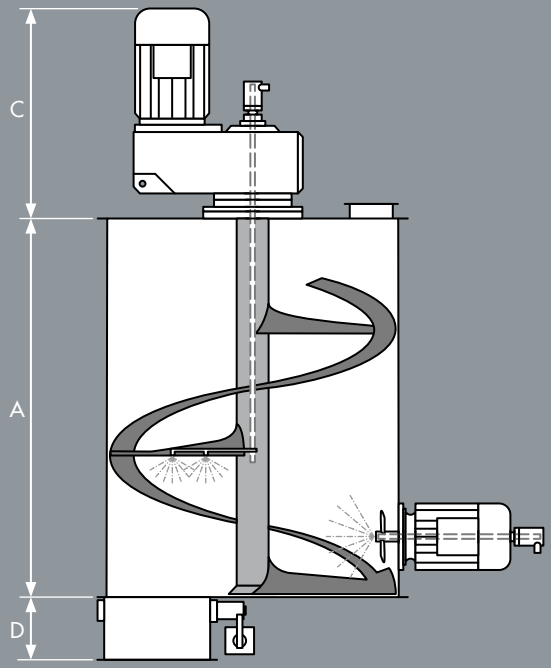
- Cylindrical design
- Domed lid
- Flat bottom with rounded transition
- One-piece, joint-free, pressure- and vacuum-tight mixing chamber
- Rotationally symmetrical radius paths
- Free-standing mixing unit
- Involute mixing and clearing arm
- GMP compliant

CM-ZG

Precision batch mixer | CM-ZE series







Useful capacity in litres	Type		Approx. dimensions			
			A in mm	B in mm	C in mm	D in mm
100	CM-ZE	100	770	600	480	200
200	CM-ZE	200	850	740	550	200
300	CM-ZE	300	1000	830	560	200
500	CM-ZE	500	1120	960	630	200
750	CM-ZE	750	1300	1100	660	200
1000	CM-ZE	1000	1500	1210	740	250
1500	CM-ZE	1500	1650	1380	800	250
2000	CM-ZE	2000	1900	1480	850	250
3000	CM-ZE	3000	2200	1660	960	250
4000	CM-ZE	4000	2400	1830	550	250
5000	CM-ZE	5000	2650	1930	550	250
6000	CM-ZE	6000	2800	2030	550	250
7000	CM-ZE	7000	2900	2150	650	400
8000	CM-ZE	8000	3000	2250	650	400
10000	CM-ZE	10000	3200	2450	900	400
15000	CM-ZE	15000	3600	2800	900	600
20000	CM-ZE	20000	4000	3060	900	600
25000	CM-ZE	25000	4250	3300	900	600

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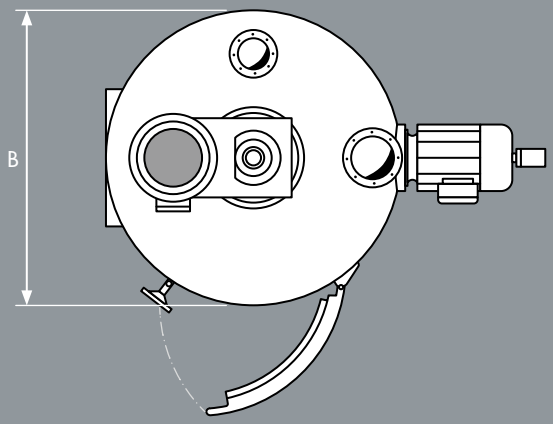
Chemical, building materials, plastics, animal feed industries ...

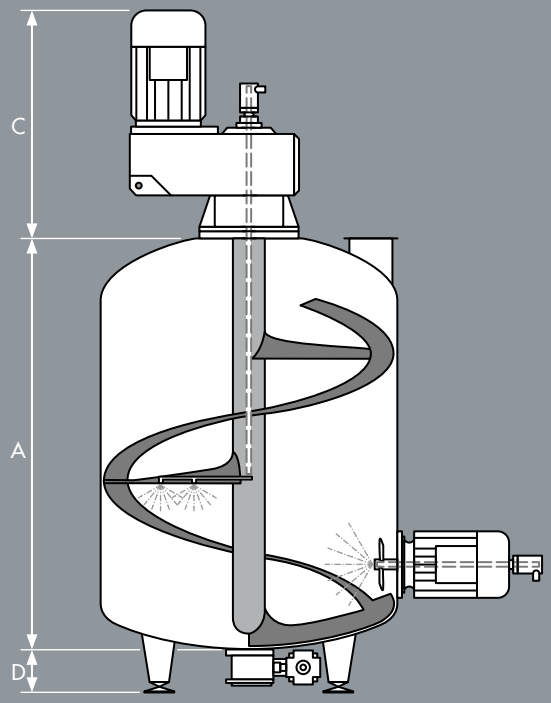
Most demanding mixing tasks of products of different density, grain size and consistency in large production areas.

- Cylindrical design
- Flat lid
- Flat bottom
- Maintenance-free bearing-mounted or free-floating removable mixer at top and bottom

CM-ZE

Precision batch mixer | CM-ZGF series





Useful capacity in litres	Type	Approx. dimensions			
		A in mm	B in mm	C in mm	D in mm
100	CM-ZGF 100	550	550	650	200
200	CM-ZGF 200	700	700	700	200
300	CM-ZGF 300	800	800	750	200
500	CM-ZGF 500	950	950	900	200
750	CM-ZGF 750	1100	1100	1000	200
1000	CM-ZGF 1000	1200	1200	1050	250
1500	CM-ZGF 1500	1400	1400	1100	250
2000	CM-ZGF 2000	1500	1500	1100	250
3000	CM-ZGF 3000	1750	1750	1150	250
4000	CM-ZGF 4000	1900	1900	1200	250
5000	CM-ZGF 5000	2050	2050	1250	250
6000	CM-ZGF 6000	2200	2200	1300	250
7000	CM-ZGF 7000	2300	2300	1500	400
8000	CM-ZGF 8000	2400	2400	1500	400
10000	CM-ZGF 10000	2600	2600	1800	400
15000	CM-ZGF 15000	3000	3000	1800	600
20000	CM-ZGF 20000	3300	3300	2000	600
25000	CM-ZGF 25000	3550	3550	2000	600

RUBERG precision batch mixers can be adapted to individual building conditions in any size. Likewise, the design of the inlets and outlets as well as the arrangement of the inspection door can be freely selected.

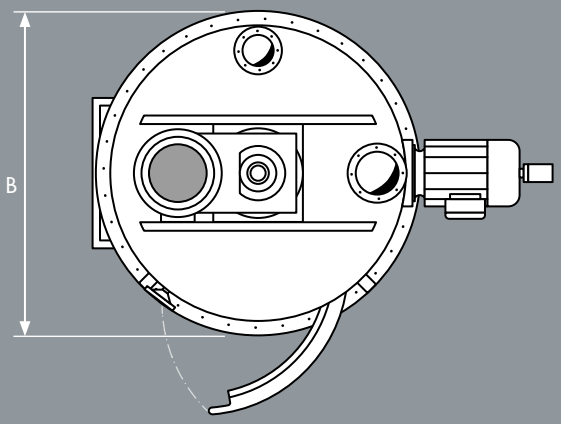
Pharmaceutical, chemical, food industries …

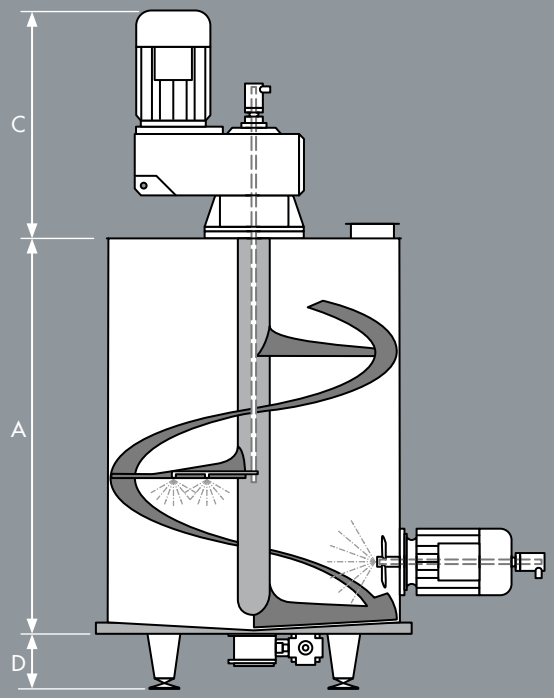
Most demanding mixing tasks of liquid, solid and low to high viscosity products with special process engineering features such as heating, cooling, evacuating, dissolving, emulsifying, reacting under pressure, reacting under vacuum etc.

- Cylindrical design
- Domed lid
- Curved bottom
- One-piece, joint-free, pressure- and vacuum-tight Mixing chamber
- Rotationally symmetrical radius paths
- Free-standing mixing unit
- Involute mixing and clearing arm
- GMP compliant

CM-ZGF

Precision batch mixer | CM-ZEF series





Useful capacity in litres	Type	Approx. dimensions			
		A in mm	B in mm	C in mm	D in mm
100	CM-ZEF 100	770	600	480	200
200	CM-ZEF 200	850	740	550	200
300	CM-ZEF 300	1000	830	560	200
500	CM-ZEF 500	1120	960	630	200
750	CM-ZEF 750	1300	1100	660	200
1000	CM-ZEF 1000	1500	1210	740	250
1500	CM-ZEF 1500	1650	1380	800	250
2000	CM-ZEF 2000	1900	1480	850	250
3000	CM-ZEF 3000	2200	1660	960	250
4000	CM-ZEF 4000	2400	1830	550	250
5000	CM-ZEF 5000	2650	1930	550	250
6000	CM-ZEF 6000	2800	2030	550	250
7000	CM-ZEF 7000	2900	2150	650	400
8000	CM-ZEF 8000	3000	2250	650	400
10000	CM-ZEF 10000	3200	2450	900	400
15000	CM-ZEF 15000	3600	2800	900	600
20000	CM-ZEF 20000	4000	3060	900	600
25000	CM-ZEF 25000	4250	3300	900	600

RUBERG precision batch mixers can be adapted to individual building conditions in any size. Likewise, the design of the inlets and outlets as well as the arrangement of the inspection door can be freely selected.

Chemical, food, plastics industries …

Most demanding mixing tasks of liquid, solid and low to high viscosity products with process engineering features such as heating, cooling, dissolving, emulsifying, etc.

- Cylindrical design
- Flat lid
- Funnel bottom
- Split mixing chamber
- Free-standing mixing unit

CM-ZEF

Precision batch mixer | different series

Type CM-KG 3000-ISR
Stainless steel

Material: 1.4571.

With cutting rotor, ISR, sealing air purging, sampler, for pharmaceutical products

Type CM-KE 3000
Stainless steel

Material: 1.4301.

With rupture disc and split, free-floating mixing helix, for cellulose processing

Type CM-ZG 2000-SR
Stainless steel

Material: 1.4301.

With cutting rotor, sealing air flushing, for baby food

Type CM-ZE 10000-2SR
Steel

Material: 1.0037.

With 2 cutting rotors, 2 discharge flaps, heated liquid lances, wear-resistant non-stick coating, for feed with molasses added

Type CM-ZGF 1500-SR
Stainless steel

Material: 1.4571.

With cutting rotor, vacuum pump, insulated heating and cooling jacket, liquid dosing, manual addition, level sensors, CIP cleaning, electrical control, emptying by diaphragm pump, for the production of household cleaners

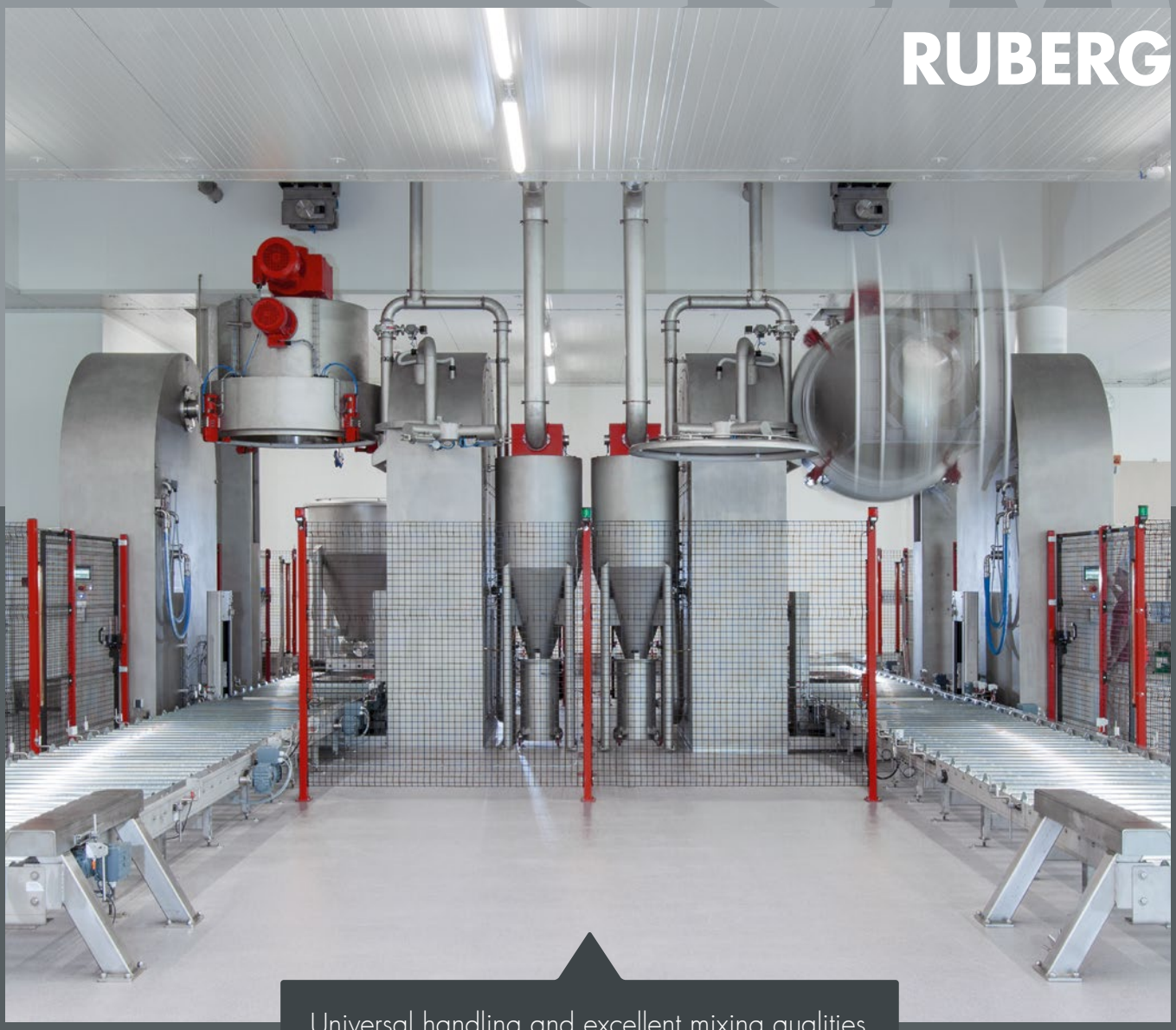
Type CM-ZEF 750
Stainless steel lacquered

Material: 1.4301.

With insulated heating jacket, vacuum pump, level sensors, integrated foam monitoring, electrical control, for the production of adhesives and potting compounds.

Container batch mixer | CCM series

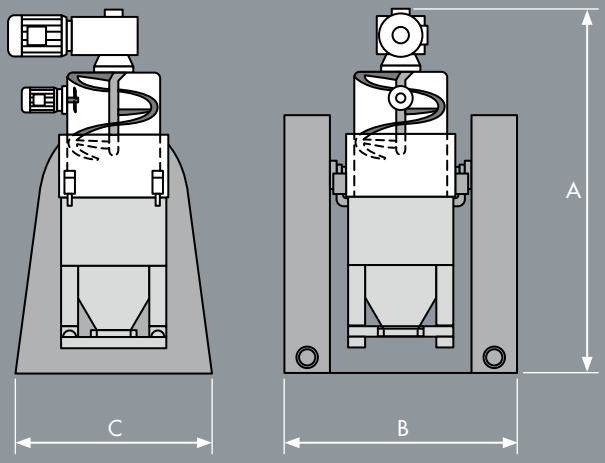
CCM



Universal handling and excellent mixing qualities

The task: compact plant technology with simple logistics in handling containers. Based on the customer requirements, we developed the RUBERG container batch mixers of the series CCM-U (containers docked from below) and CCM-O (containers docked from above).

Container batch mixer | CCM-U series



Type CCM-U 1000
Stainless steel
Material: 1.4571.
With cutting rotor, IS system, heated liquid lances, CIP cleaning and container in docking position

Products are picked in standard or individual containers of up to approx. 2000 litres (GMP-compliant). The containers are integrated into the mixing process by docking to the slewable mixing chamber. A distinction is made between containers that are to be docked from above (CCM-O) or below (CCM-U). The mixing variations are equivalent to those of the RUBERG precision batch mixers.

Useful capacity in litres	Type	Approx. dimensions		
		A in mm	B in mm	C in mm
50	CCM-U 50	1600	800	1200
100	CCM-U 100	2400	2300	1400
200	CCM-U 200	2600	2300	1400
250	CCM-U 250	2800	2300	1400
300	CCM-U 300	2900	2300	1400
500	CCM-U 500	3100	2230	1500
650	CCM-U 650	3100	2230	1500
800	CCM-U 800	3550	2430	1500
1000	CCM-U 1000	3550	2430	1500
1300	CCM-U 1300	4300	3000	1800
1600	CCM-U 1600	4300	3000	1800
2000	CCM-U 2000	4900	3000	2000

RUBERG container batch mixers can be adapted to individual building conditions in any size.

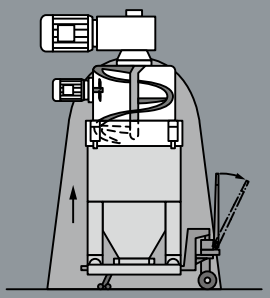
Design variants

The CCM-U series is suitable for use with containers featuring inlet and outlet cone as well as containers that can be completely opened at the top. The entire unit swivels into working position with the container docked at the bottom and empties the product completely into the mixing chamber. The closed system prevents product emissions in the process. Aspiration and filtration systems are not required. In a very short time, the slow-running mixer produces a completely homogeneous mixture in a way that is very gentle on the product. The unit then swivels back to the home position. The rotating mixer supports the complete emptying of the product back into the container, which is then decoupled and sent for further use.

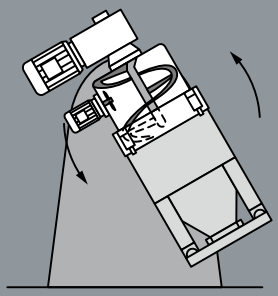
CCM-U

Working steps of a RUBERG container batch mixer – docked below

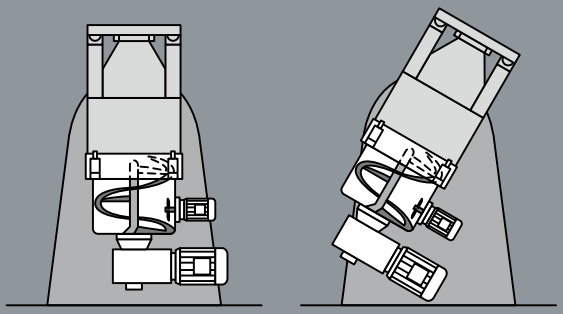
Dock container



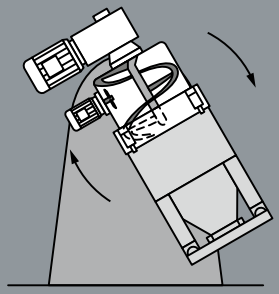
Swivel container and fill mixing chamber



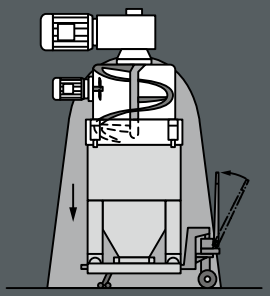
Variable mixing positions



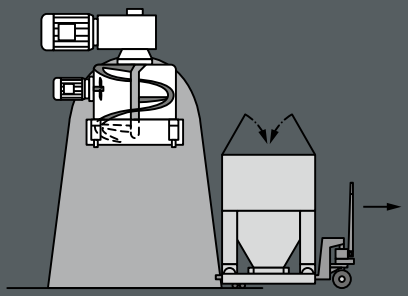
Swivel mixing chamber and fill container



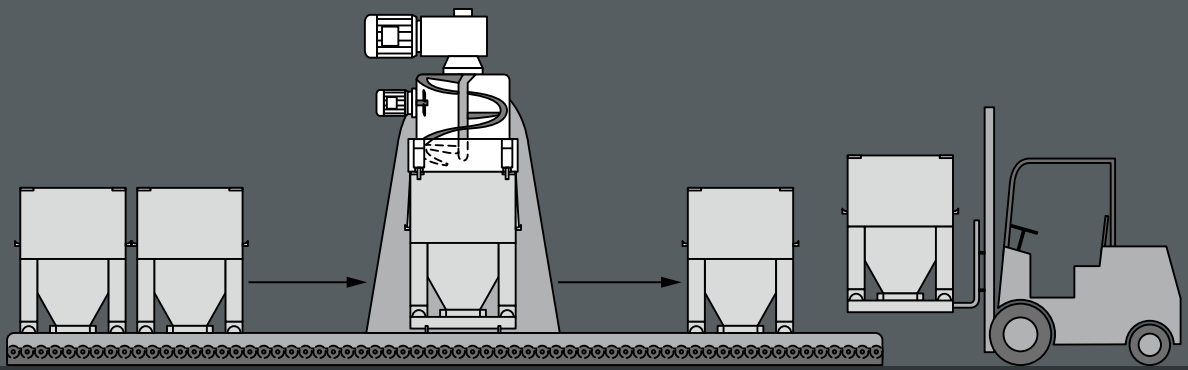
Decouple container



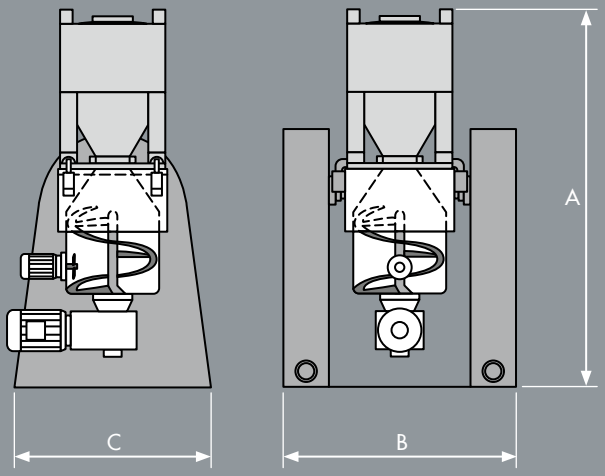
Move out container



Automated RUBERG container mixing station | Container size 50 to 2000 litres



Container batch mixer | CCM-O series



The CCM-O series is suitable for containers that can only be emptied downwards. They are placed on the mixing chamber with a forklift or hoist and docked. The outlet is opened and the product is discharged into the mixing chamber without emissions.
When mixing is complete, the entire unit swings down and empties the product back into the container. The running mixer supports the complete discharge of the product from the mixing chamber.

The container is then closed, swung upwards into the home position, decoupled and sent to its further use.

Easy exchange of adapter pieces allows docking of different container diameters. Appropriate adapter pieces are available for special containers and company-specific systems. Batch sizes can vary from 10 % to 100 % of the mixing chamber volume with constant mixing quality. By using cutting rotors, agglomerates can be crushed and various liquids can be added. The designs in high-quality stainless or special steels make the RUBERG container batch mixer suitable for use in all product areas.

Useful capacity in litres	Type	Approx. dimensions		
		A in mm	B in mm	C in mm
50	CCM-O 50	1600	800	1200
100	CCM-O 100	2400	2300	1400
200	CCM-O 200	2500	2300	1400
250	CCM-O 250	2800	2300	1400
300	CCM-O 300	2900	2300	1400
500	CCM-O 500	3100	2230	1500
650	CCM-O 650	3100	2230	1500
800	CCM-O 800	3550	2430	1500
1000	CCM-O 1000	3550	2430	1500
1300	CCM-O 1300	4300	3000	1800
1600	CCM-O 1600	4300	3000	1800
2000	CCM-O 2000	4900	3000	2000

RUBERG container batch mixers can be adapted to individual building conditions in any size.

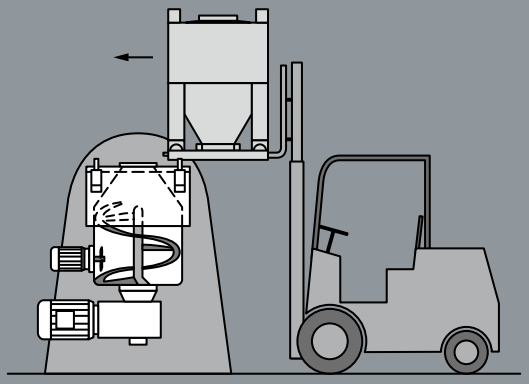
Cleaning

The mixing chamber can be cleaned by CIP, SIP or manually by swivelling it horizontally and then washing it out. Alternatively, containers with cleaning medium can be docked and cleaning performed by running normal mixing cycles.

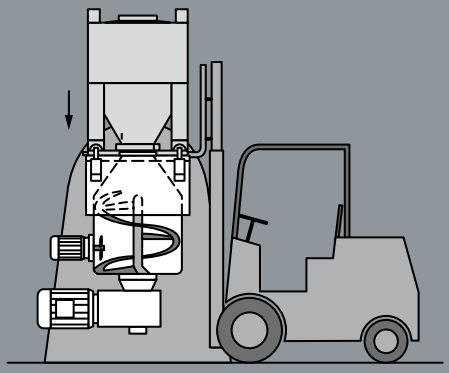
CCM-O

Working steps of a RUBERG container batch mixer – docked on top

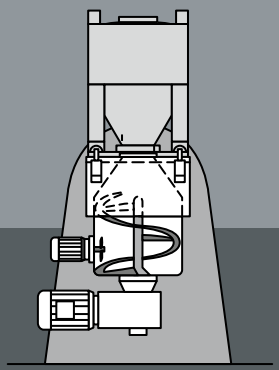
Approach container



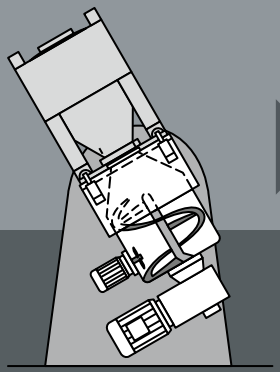
Put down and couple container



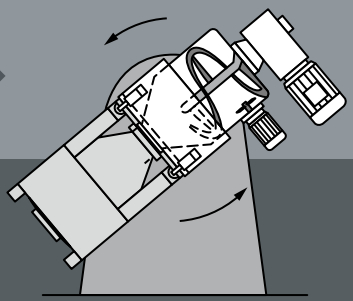
Open container and fill mixing chamber



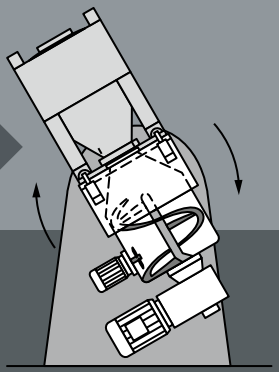
Variable mixing position



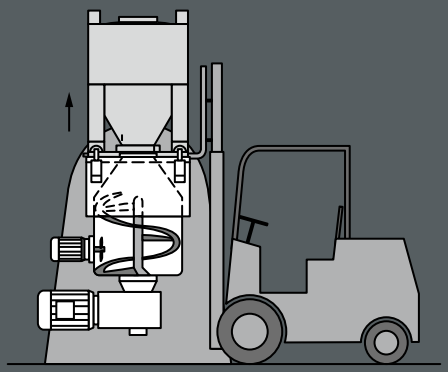
Swivel, fill and close container



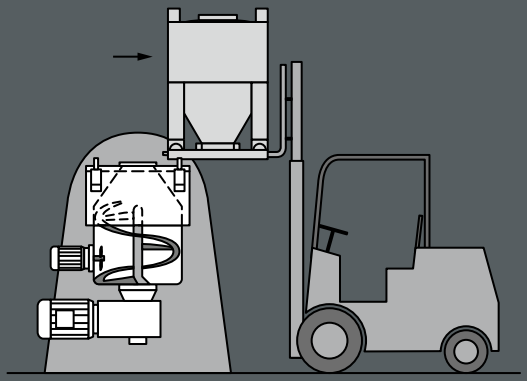
Swivel back container

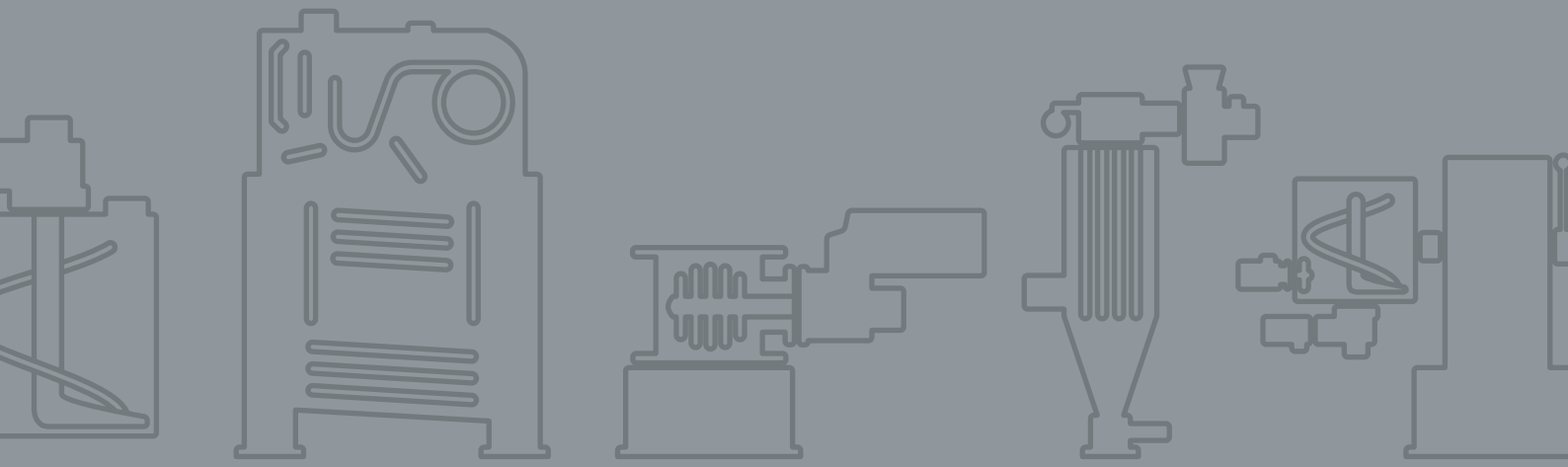


Decouple container and lift



Drive container off





Drum batch mixer | FCM series

FCM

RUBERG

Dynamic handling and excellent mixing grades

Increasing requirements and universal application possibilities in everyday mixing require innovative ideas and experts who turn them into reality. Out of many small and big thoughts, we developed the RUBERG drum batch mixer of the FCM series for commercial drums.

Drum batch mixer | FCM series

Mode of operation

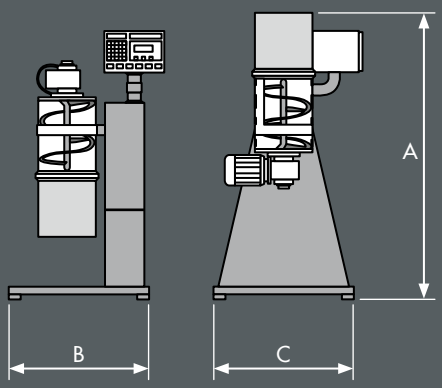
Products are picked in commercially available drums from 5 to 500 litres (GMP-compliant). The drums are integrated into the mixing process by docking to the fixed mixing chamber. A freely programmable control system starts the mixing cycle after the start command.

The entire mixing unit swivels into working position and empties the drum completely into the mixing chamber. The absolutely closed system prevents product emissions or carryover. Elaborate filters and aspirations are no longer necessary. In a very short time, the slow-running mixing thread produces a completely homogeneous mixture that is very gentle on the product.

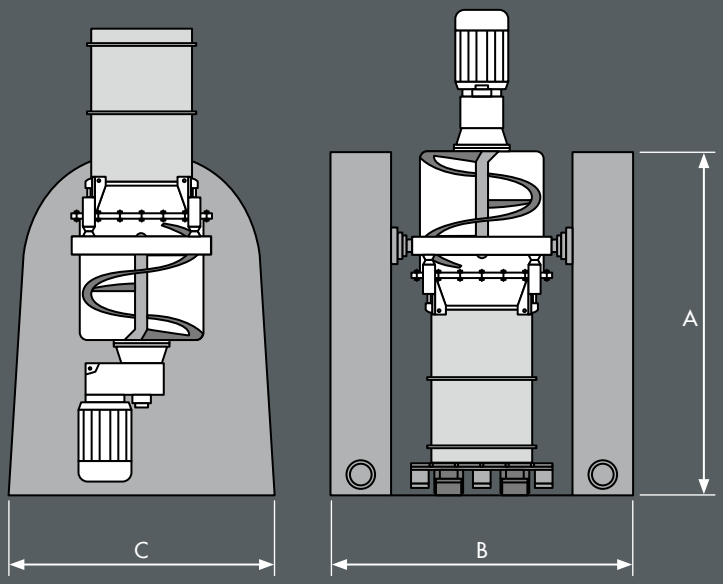
The unit then swivels back to the home position. The rotating mixing tool supports the complete emptying of the product back into the drum, which is then decoupled and delivered for further use.

Type FCM 200
Stainless steel
Material: 1.4571.
With docked stainless steel drum

Drum batch mixer
Version FCM 20 (litres)



Drum batch mixer
Version FCM 50 (litres)



Design variants

The standard sizes of commercially available drums resulted in the sizes of the RUBERG drum batch mixer series FCM.

Simple exchange of corresponding adapter pieces makes it possible to dock different drum diameters. Suitable adapter pieces are available for special drums and in-house systems. Batch sizes can vary from 10 % to 100 % of the mixing chamber volume with constant mixing quality. By using cutting rotors, agglomerates can be crushed and various liquids can be added. The design in high-quality stainless or special steels makes the RUBERG drum batch mixer suitable for use in all product areas.

The mixing chamber can be cleaned by swivelling it to a horizontal position and then sweeping or washing it out. Alternatively, you can dock a drum with a cleaning medium and clean by starting a normal mixing cycle.

Type FCM 50-SR
Stainless steel
Material: 1.4571.
With cutting rotor, liquid lance, special spout and enclosed drives

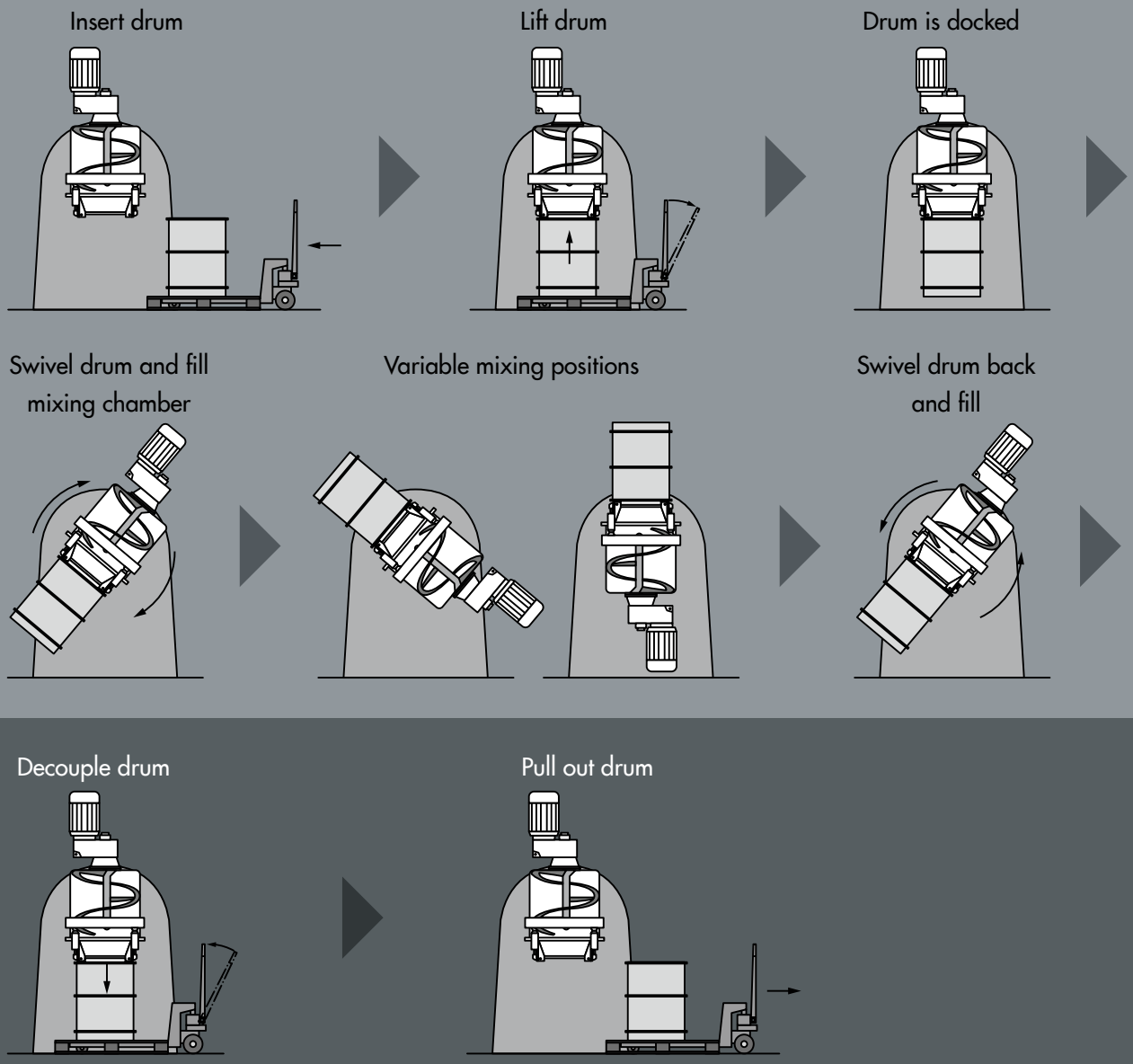
Type FCM 20
Stainless steel
Material: 1.4571.
With adapter piece for 10 litre drum in docking position

Useful capacity in litres	Type	Approx. dimensions		
		A in mm	B in mm	C in mm
20	FCM 20	1750	800	700
30	FCM 30	2000	1000	1000
50	FCM 50	2350	2030	1400
75	FCM 75	2400	2030	1400
100	FCM 100	2450	2030	1400
200	FCM 200	2750	2200	1400
300	FCM 300	2750	2200	1400
400	FCM 400	2750	2200	1500
500	FCM 500	2850	2200	1500

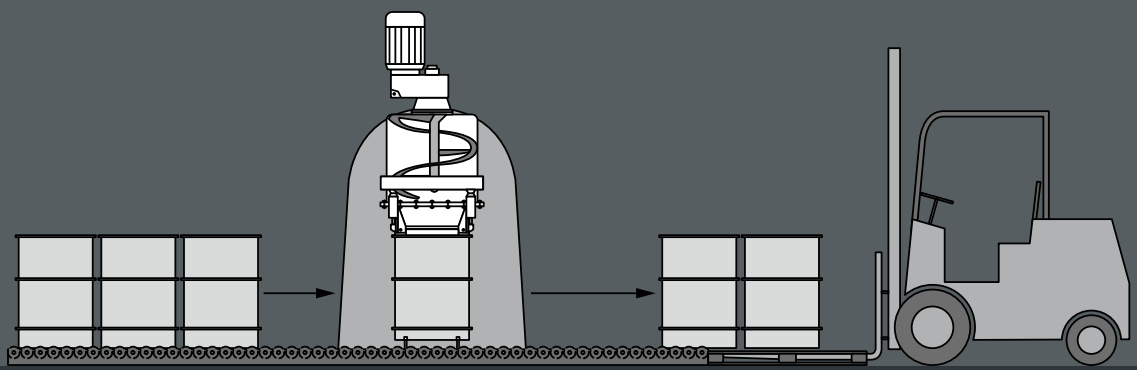
RUBERG drum batch mixers can be adapted to individual building conditions in any size.

Drum batch mixer | FCM series

Working steps of a RUBERG drum batch mixer



Automated RUBERG drum mixing station | Drum size 20 to 500 litres



Laboratory batch mixer | LCM series

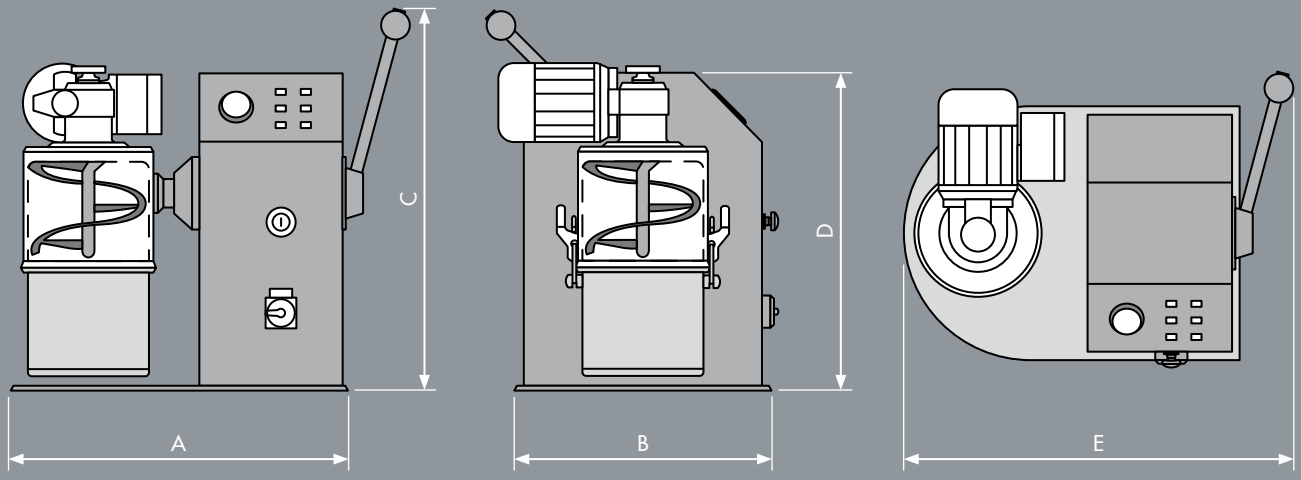
LCM

RUBERG

Product development
Micro batches

The RUBERG laboratory batch mixers offer versatile applications in the laboratory or small-scale production. They range from recipe and product development of pure drystock blends to liquid additions to drystocks and pure liquid blends. From gentle homogenization of sensitive materials to size reduction of agglomerates by cutting rotor application. Temperature control and evacuation are further process options. Reproducible trial and reference mixes are indispensable elements for product development and quality assurance.

Laboratory batch mixer | LCM series



Working methods

The product components are picked in commercially available drums and docked to the mixing chamber. The entire unit is manually swivelled into working position and the mixing cycle is started. The helix circulates the product components with variable speeds in a large-volume manner that is gentle on the product. In the process, they are cross-flowed by the distribution and holding arms. The maximum mixing quality is achieved in the shortest possible time and the unit can be swivelled back to the home position. The homogenized product empties completely back into the container, which can then be decoupled and sent for further use.

Useful capacity in litres	Type	Approx. dimensions				
		A in mm	B in mm	C in mm	D in mm	E in mm
0,5 - 3,0	LCM - 3	700	530	800	680	830
1,0 - 5,0	LCM - 5	700	530	800	680	830
2,0 - 10,0	LCM - 10	700	530	800	680	830
4,0 - 20,0	LCM - 20	700	530	800	680	830
5,0 - 25,0	LCM - 25	700	530	800	680	830

RUBERG laboratory batch mixers can be adapted to individual building conditions in any size.

Design variants

- Stable tabletop unit
- Mobile unit on movable tripod
- Cutting rotor for agglomerate solution
- Liquid addition with ISR system
- Heating and cooling jacket with insulation
- Fully automated for production
- Computer control with logging

LCM

Conical ribbon mixer | RKB series

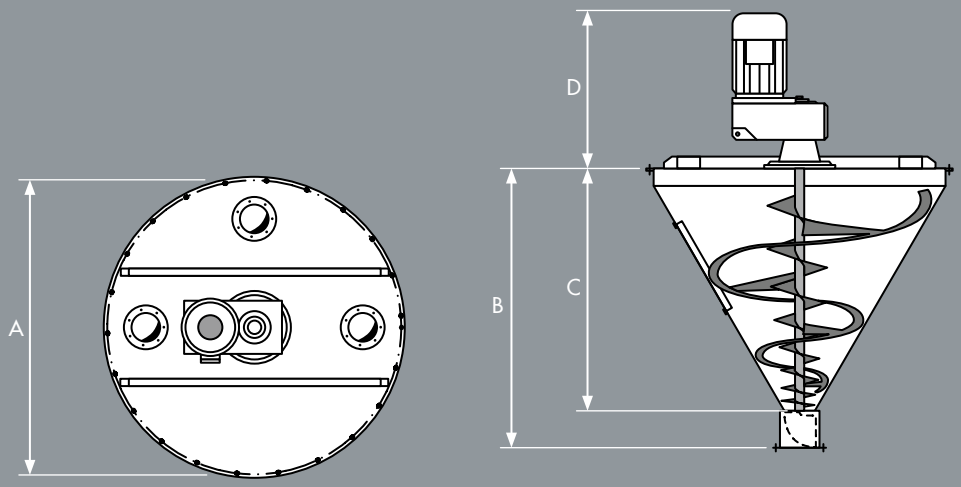
RKB

RUBERG

Residue-free rapid emptying, variable batch sizes

The RUBERG conical ribbon mixer is suitable for the production of sophisticated dry material mixtures. Its slowly rotating mixing tools ensure gentle action on the product. The funnel shape of the mixing chamber offers optimum possibilities for attaching a large number of process connections at the top as well as guaranteeing residual emptying at the bottom.

Conical ribbon mixer | series RKB-ZE



RUBERG conical ribbon mixers of the RKB-ZE and RKB-ZG series extend the performance range of RUBERG batch mixers. Cylindrical mixing chambers with conical bottoms allow batch sizes from 5 - 100 % of the useful volume. RUBERG conical ribbon mixers are manufactured in stainless or special steels with high-quality surfaces, according to the product requirements. A large inspection door on the side allows easy cleaning by hand. A sophisticated CIP system is available for fully automatic operation.

Useful capacity in litres	Type	Approx. dimensions			
		A in mm	B in mm	C in mm	D in mm
250	RKB-ZE 250	1060	1240	985	740
500	RKB-ZE 500	1320	1490	1240	840
750	RKB-ZE 750	1500	1780	1420	950
1000	RKB-ZE 1000	1660	1940	1565	1150
1500	RKB-ZE 1500	1880	2200	1800	1350
2000	RKB-ZE 2000	2070	2370	1970	1350
3000	RKB-ZE 3000	2300	2600	2300	1500

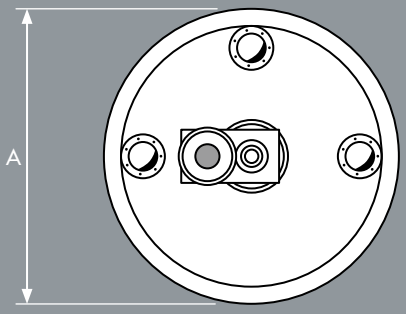
RUBERG conical batch mixers can be adapted to individual building conditions in any size.

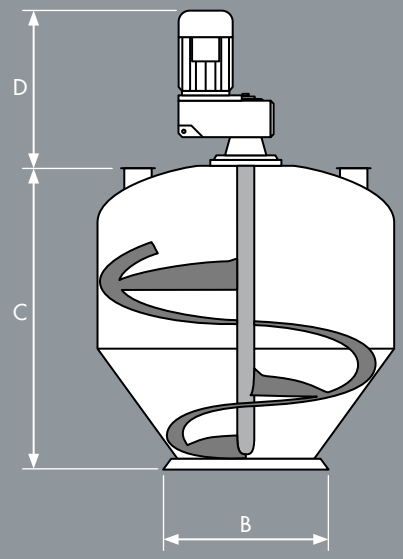
Working methods

The ribbon helix, which is adapted to the conical mixing chamber, raises the product by a large volume on the outside and allows it to flow back down into the cavities created in the centre. In the process, it is cross-flowed by the holding arms, optimally homogenized in the shortest possible time, and discharged segregation-free through the central outlet.

RKB-ZE

Conical ribbon mixer | RKB-ZG series





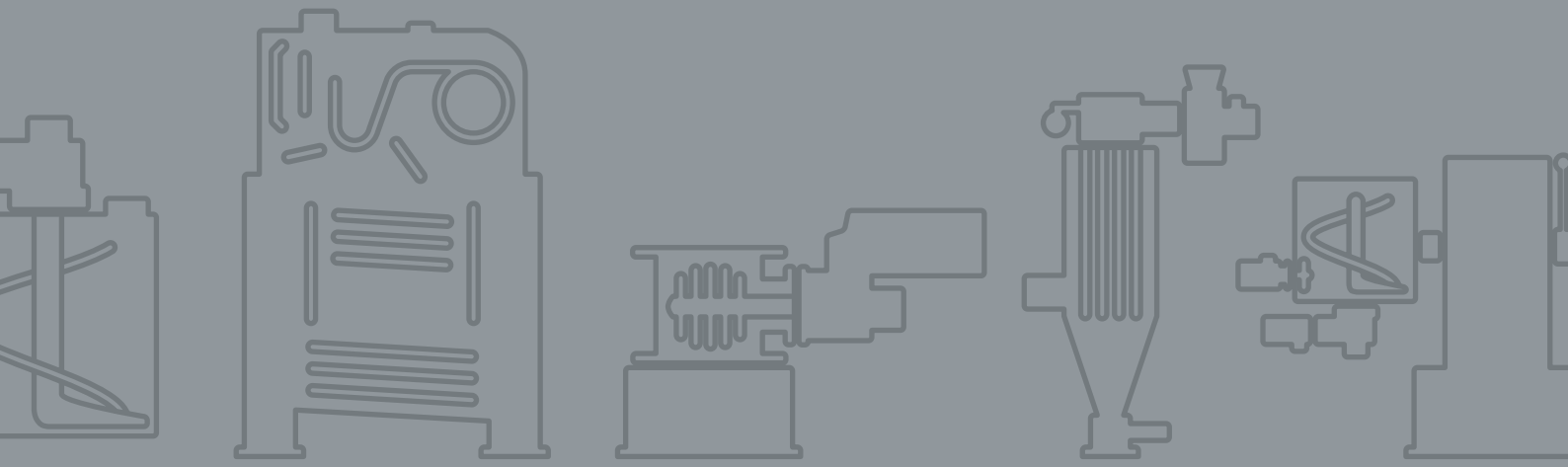
Useful capacity in litres	Type		Approx. dimensions			
			A in mm	B in mm	C in mm	D in mm
250	RKB-ZG	250	800	500	700	700
500	RKB-ZG	500	1100	600	900	900
750	RKB-ZG	750	1200	630	1100	1000
1000	RKB-ZG	1000	1300	710	1250	1050
1500	RKB-ZG	1500	1500	800	1400	1100
2000	RKB-ZG	2000	1600	900	1500	1100
3000	RKB-ZG	3000	1900	1000	1800	1150
4000	RKB-ZG	4000	2050	1200	2050	1200
5000	RKB-ZG	5000	2200	1200	2200	1300
6000	RKB-ZG	6000	2300	1250	2300	1300
8000	RKB-ZG	8000	2600	1400	2600	1500
10000	RKB-ZG	10000	2750	1400	2750	1800

RUBERG conical batch mixers can be adapted to individual building conditions in any size.

Design variants

- Variable designs
- Product-specific materials with refined surfaces
- Maintenance-free shaft seal
- Free-standing mixing helix
- Large inspection and maintenance door
- Best residual emptying
- Fill level from 5 - 100
- Weighing equipment with dosing control
- Cutting rotor for agglomerate disintegration
- Liquid addition with IS system
- Heating or cooling jacket with insulation
- Comprehensive accessories

RKB-ZG



Reactor mixer | RCM series

RCM

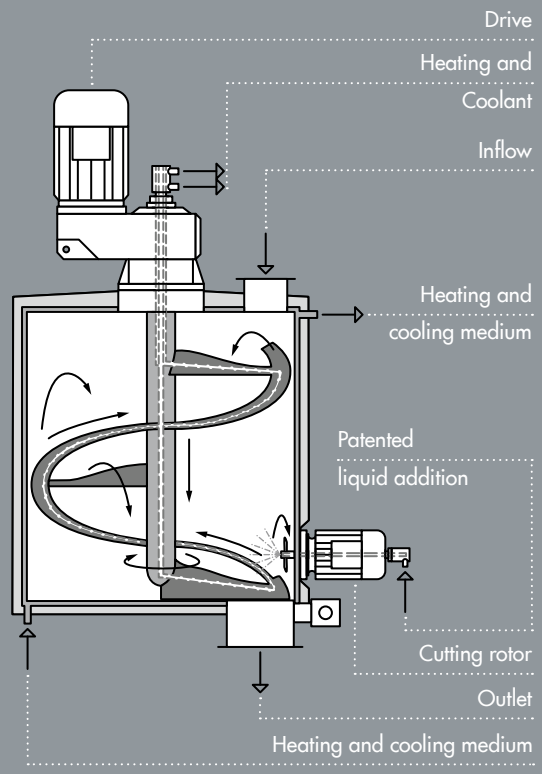
RUBERG

Multiple processes, innovative and reliable

The spectrum of possible applications ranges from the processing of highly sensitive products in the pharmaceutical, fine chemical and food industries to bulk materials in the chemical, building materials, plastics and animal feed industries. A wide range of design variants with adapted material and machining standards is available.

Reactor mixer | RCM series

Working and flow diagram



Procedure

Heating, cooling, drying, conditioning, homogenizing, aerating and degassing, crystallizing, foaming, etc. are just a few tasks that the RUBERG reactor mixer is designed for. Here it can be used powerfully and flexibly. Special surfaces, joint-free processing as well as rotationally symmetrical radii enable germ-free and sterile production. The reactor chamber is equipped with a mixer based on the principle of the RUBERG precision batch mixer and thus represents an ideal combination for process engineering processes. Sensitive granulates, fine powders, low to high viscosity liquids, are treated extremely gently and effectively.

Mixing unit
RCM-ZG 6000-SR

Exposed mixing unit

The solidly designed mixing unit is exclusively mounted on top. The agitator drive contains the complete bearing arrangement. It absorbs all forces and moments acting there.

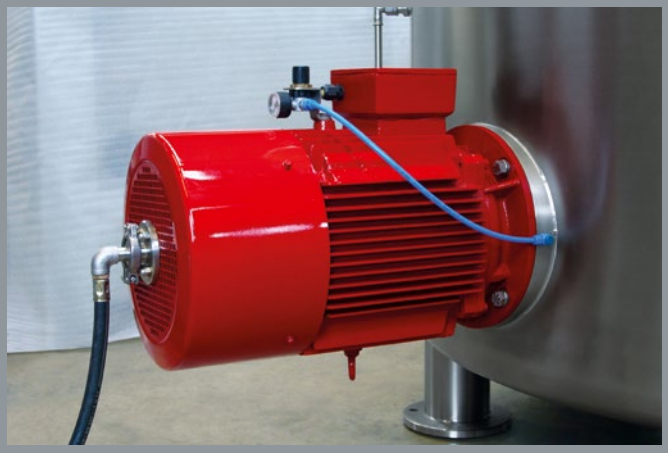
- Variable peripheral speeds from "slow move" (for powder products and muesli) to "turbulent" (for creamy to liquid products)
- No bearings and sealing elements in the mixing product
- No ground contact of the mixing unit
- Involute mixing and clearing arms
- Rotationally symmetrical radius paths
- No friction and caking
- Clean out the reactor chamber
- Sterile processes, bacteriologically controllable
- Weighing equipment with dosing control

Mode of operation

The mixing product enters the reactor chamber through the inlet at the top and is distributed immediately. The powerful mixing unit connected to specially shaped support and distribution arms transports the contents from the core to the outside and up the wall. The product sliding down the centre is mixed horizontally and transversely by the distribution and mixing arms during the path to the bottom. All the content is constantly moving in changing directions, there are no dead spaces. Optimal process reactions and temperature exchange are ensured. Built-in measurement technology and sensors integrate the RUBERG reactor mixer into the overall plant. This allows targeted production processes to be run.

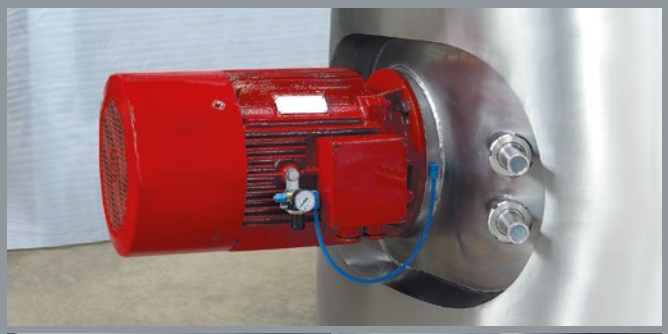
IS system

For particularly critical components such as highly viscous liquids, the patented IS system (Injection Spraying System) has proven its worth as an additional function of the cutting rotor. The liquid enters the rotating cutter head directly through a nozzle lance in the cutting rotor drive. There it is distributed turbulently and microfinely in the product. The knives prevent agglomeration. Additions can be made in large quantities as well as in very fine dosages.



Injector lance

A removable lance with a drip-free spray nozzle injects the liquid into the passing mix. The interaction of the mixing unit and cutting rotors makes it possible to introduce very small to very large quantities of liquids into dry materials precisely and homogeneously.

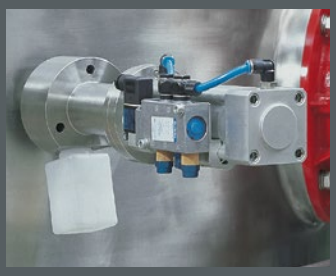


Cutting rotors

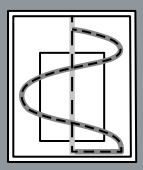
As a fast-rotating counterpart to the main mixer, they effect de-clumping and crushing of agglomerates. Depending on the application, the knives can be cutting, percussive or based on the rotor-stator principle. Variable speeds support the gentle treatment of the products.

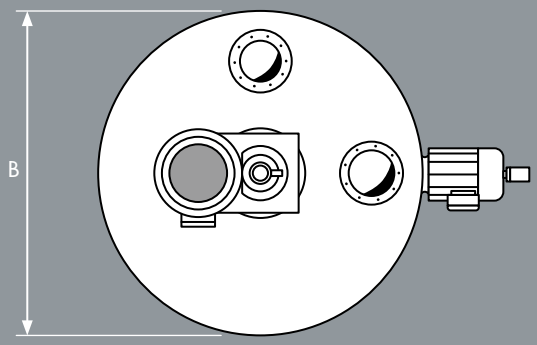
Sampler

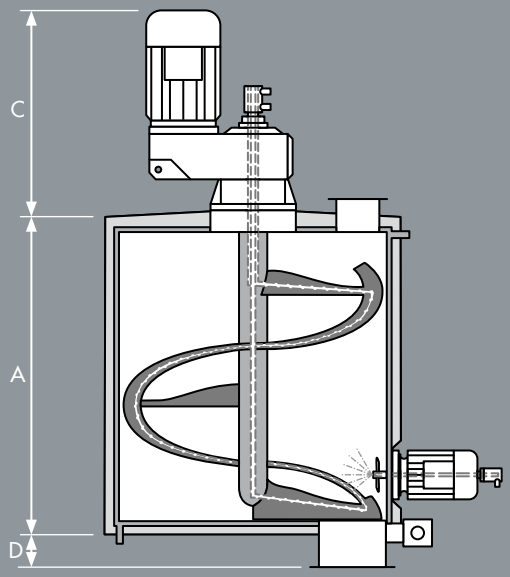
Representative samples ensure validation, the process flow and document the production. Manual samplers are available for manual sampling, and electro-pneumatically operated samplers are available for the automated process. The simple design with secured sterile clamp connections makes them quick and easy to clean.



Reactor batch mixer | RCM-ZE series







Useful capacity in litres	Type		Approx. dimensions			
			A in mm	B in mm	C in mm	D in mm
100	RCM-ZE	100	700	750	480	200
200	RCM-ZE	200	800	800	550	200
300	RCM-ZE	300	950	1000	560	200
500	RCM-ZE	500	1100	1200	630	200
750	RCM-ZE	750	1200	1300	660	200
1000	RCM-ZE	1000	1400	1400	740	250
1500	RCM-ZE	1500	1500	1600	800	250
2000	RCM-ZE	2000	1650	1750	850	250
3000	RCM-ZE	3000	1800	1950	960	250
4000	RCM-ZE	4000	2000	2100	550	250
5000	RCM-ZE	5000	2100	2300	550	250
6000	RCM-ZE	6000	2200	2400	550	250
7000	RCM-ZE	7000	2400	2500	650	400
8000	RCM-ZE	8000	2500	2600	650	400
10000	RCM-ZE	10000	2700	2800	900	400
15000	RCM-ZE	15000	2900	3200	900	600
20000	RCM-ZE	20000	3200	3500	900	600
25000	RCM-ZE	25000	3200	3500	900	600

RUBERG reactor batch mixers can be adapted to individual building conditions in any size. Likewise, the design of the inlets and outlets as well as the arrangement of the eventual inspection door can be freely selected.

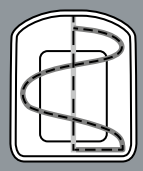
Pharmaceutical, chemical, food industries …

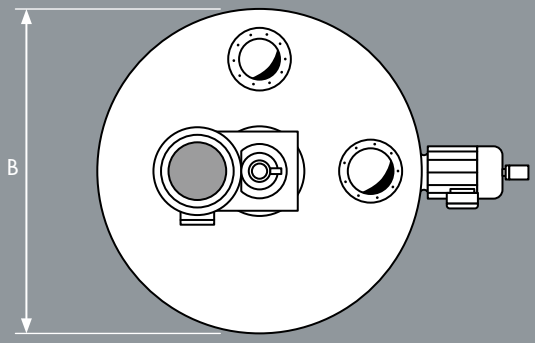
Demanding process and mixing tasks of products of various densities, grain sizes and consistencies in highly sensitive production areas.

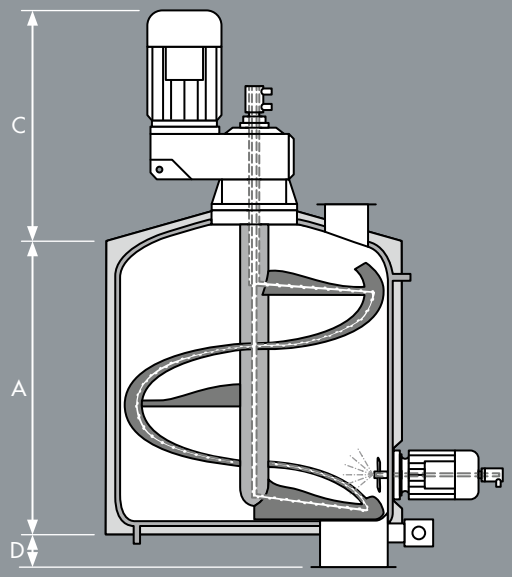
- Cylindrical, flat design
- Short CIP and SIP cycles for product changeover
- One-piece, joint-free, presure- and vacuum-resistant mixing chamber
- Free-standing, temperature-controlled mixing unit
- Specially shaped mixing and clearing arms
- GMP, FDA, EHEDG compliant with highest hygiene standards
- Diffusion-tight temperature control and insulating jacket

RCM-ZE

Reaktor-Chargenmischer | Baureihe RCM-ZG







Useful capacity in litres	Type		Approx. dimensions			
			A in mm	B in mm	C in mm	D in mm
100	RCM-ZG	100	650	750	480	200
200	RCM-ZG	200	850	850	550	200
300	RCM-ZG	300	950	1000	560	200
500	RCM-ZG	500	1150	1200	630	200
750	RCM-ZG	750	1300	1300	660	200
1000	RCM-ZG	1000	1500	1400	740	250
1500	RCM-ZG	1500	1600	1600	800	250
2000	RCM-ZG	2000	1800	1750	850	250
3000	RCM-ZG	3000	2000	2000	960	250
4000	RCM-ZG	4000	2200	2100	550	250
5000	RCM-ZG	5000	2300	2100	550	250
6000	RCM-ZG	6000	2400	2400	550	250
7000	RCM-ZG	7000	2600	2500	650	400
8000	RCM-ZG	8000	2700	2600	650	400
10000	RCM-ZG	10000	2900	2800	900	400
15000	RCM-ZG	15000	3200	3200	900	600
20000	RCM-ZG	20000	3200	3500	900	600
25000	RCM-ZG	25000	3500	3500	900	600

RUBERG reactor batch mixers can be adapted to individual building conditions in any size. Likewise, the design of the inlets and outlets as well as the arrangement of the eventual inspection door can be freely selected.

Pharmaceutical, chemical, food industries …

Demanding process and mixing tasks of products of various densities, grain sizes and consistencies in highly sensitive production areas.

- Cylindrical, with rounded bottom and domed lid
- Short CIP and SIP cycles for product changeover
- Flat bottom with rounded transition
- One-piece, joint-free, pressure- and vacuum-resistant mixing chamber
- Drop-free drying
- Free-standing, temperature-controlled mixing unit
- Specially shaped mixing and clearing arms
- GMP, FDA, EHEDG compliant with highest hygiene standards
- Diffusion-tight temperature control and insulating jacket

RCM-ZG

Reactor batch mixer | RCM-ZE / RCM-ZG series

Type RCM-ZE 5000
Stainless steel

Material: 1.4539.

In Ex version according to ATEX, sterile class 5, nitrogen blanketing, bottom and jacket cooling by half-pipe coils with water, outlet with high performance ball valve, CIP-cleaning, for ceiling installation, as mixing cooler for pharmaceutical products

Type RCM-ZG 1000-SR
Stainless steel

Material: 1.4571.

With cutting rotor, vacuum pump, insulated heating and cooling jacket, liquid dosing, manual addition, level sensors, CIP cleaning, electrical control, feed pump for production of washing lotions

RCM-ZE/-ZG

Mixing silo | RMS series

RMS

RUBERG

Mixing system with universal capabilities

Horizontal and vertical flows mix the entire silo contents in large volumes and in a short time. Equipped with an insulated double jacket, thermal mixing tasks can be carried out in the RUBERG mixing silo.

Mixing silo | RMS series

Sizes

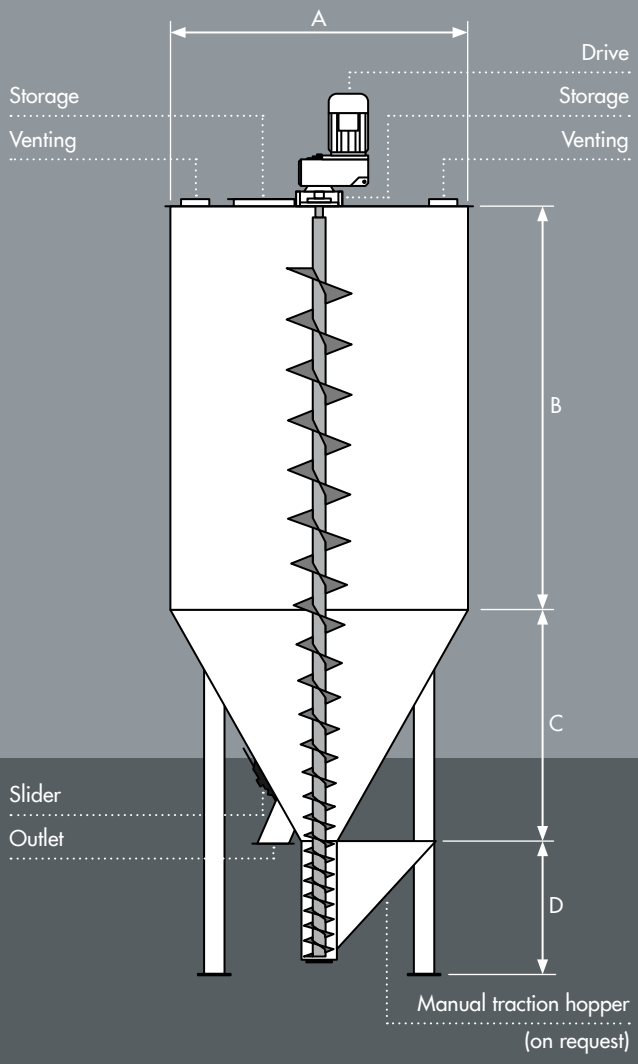
As a mixing silo with a useful volume of 100 - 20.000 litres or as a large-capacity mixing silo ith up to 100 cbm capacity. Standing vertically, they are suitable for indoor and outdoor installation. Low operating costs due to low drive power and low-maintenance and low-wear design.

Product-friendly homogenizing, drying, cooling and colouring, for example, can be carried out in a single operation.

Useful capacity in litres	Type	Approx. dimensions			
		A in mm	B in mm	C in mm	D in mm
100	RMS 100	500	500	350	600
200	RMS 200	600	600	400	600
400	RMS 400	750	800	550	600
500	RMS 500	800	900	600	600
750	RMS 750	900	1000	700	600
1000	RMS 1000	1000	1350	700	1000
2000	RMS 2000	1250	1500	900	1000
3000	RMS 3000	1250	2500	900	1000
4000	RMS 4000	1500	2250	1100	1000
5000	RMS 5000	1550	2500	1100	1000
6000	RMS 6000	1650	2500	1200	1000
7000	RMS 7000	1700	2850	1300	1000
8000	RMS 8000	1800	3000	1350	400
9000	RMS 9000	200	2850	1550	1000
10000	RMS 10000	2200	3000	1850	1000
12500	RMS 12500	2300	3000	1900	1000
15000	RMS 15000	2300	3500	1900	1000
17500	RMS 17500	2300	4000	1900	1000
20000	RMS 20000	2300	4500	1900	1000

RUBERG mixing silos are variable in both diameter and overall height.

Working and flow diagram



RMS

Mode of operation

The mixing product is fed from above or from the side, or directly to the mixing screw by bottom feeding, depending on the design. This consists of a strong central tube with welded-on helical screws. Conical diameters and progressive gradient are the defining variables of the mixing tools, which are selected according to the silo diameter. The special geometry of the open, slowly rotating mixing thread allows products to flow slowly toward the centre from all horizontal levels of the silo. From there they are brought to the top with slowly increasing speed.

Processing options

- Mixing
- Homogenizing
- Loosening
- Storage
- Heating
- Cooling
- Drying
- Ageing
- Flooding
- Colouring
- Wetting
- Annealing
- Inerting

Design variants

- Sizes and designs are variable and can be adapted to almost any application and location. The mixing silo diameter and height are freely selectable, and have no influence on the mixing quality.
- RUBERG mixing silo completely in mild steel 1.0037, primed and painted, depending on the task at hand. Alternatively completely in stainless steel or in combined design, e.g. mixing chamber housing in aluminium, mixing screw in mild steel, stainless steel or high-manganese steel.
- With bottom feeding of manual feed components or side feeding screw e.g. of BIG-BAG feed stations or bag feeders. With all necessary protective devices and safety limit switches for lids or flaps as well as the correspondingly necessary electrical safety interlocks.
- Additional equipment such as cooling or ventilation connection spigots on the mixing chamber, filter spigots or point filters on top of the housing cover for separating dust particles from the exhaust air and simultaneously returning them to the work process. Mixing silo standing on a weighing device (pressure cells) for weight recording or dosing. Heating, cooling or air drying systems for various working processes, complete with control cabinet or PLC control.

Mixing silo | RMS series

Type RMS 6000
Steel

Material: 1.0037.

With insulating mantles, drying system and exhaust air filter

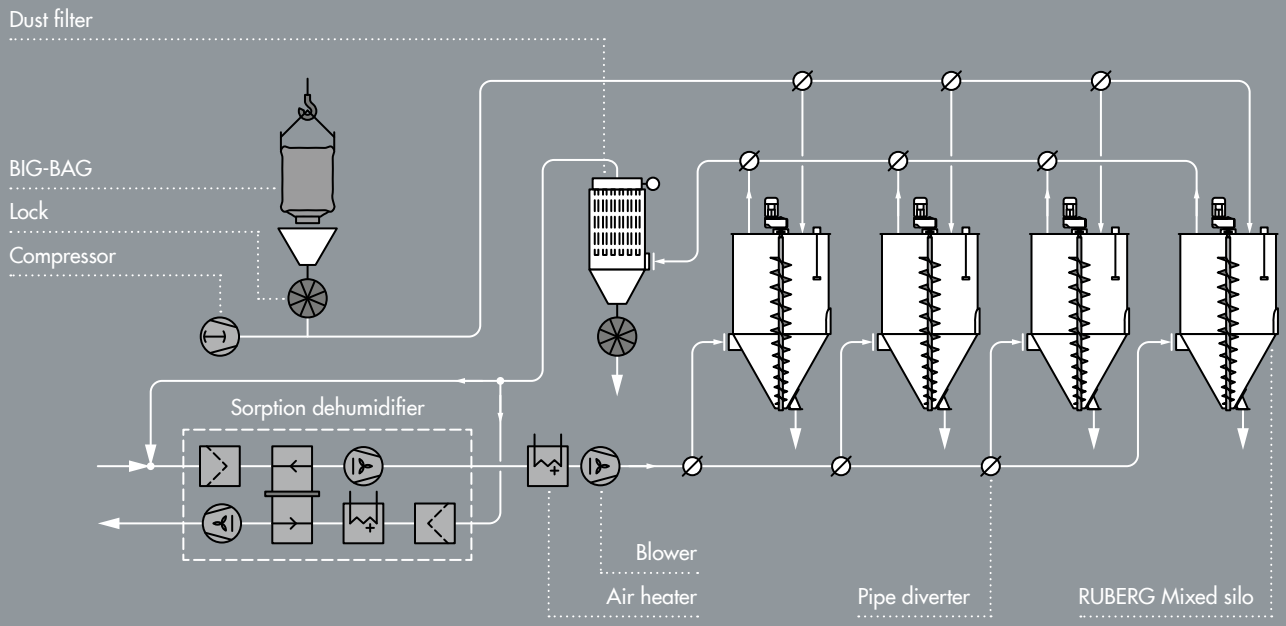
Type RMS 8000
Stainless steel

Material: 1.4301.

With feeding screw

RMS

Diagram: RUBERG granulate mixing and drying plant with RUBERG mixing silos



Ready-to-ship RUBERG mixing silos type RMS 10000

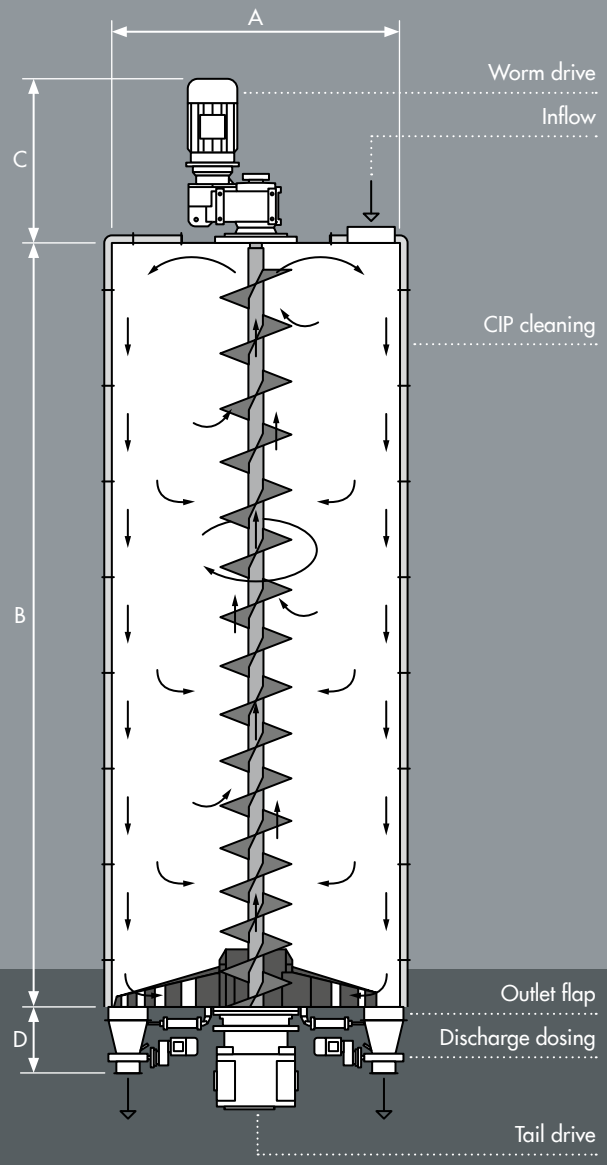
Mixing silo | RMS plus series

RMS plus RUBERG

Mixing system with universal capabilities

RUBERG blending silos of the RMS plus series are suitable for the production of sophisticated dry material blends in very large batches. They are used in sensitive production areas, such as the pharmaceutical, chemical and food industries through to bulk materials in the building materials and animal feed industries.

Working and flow diagram



Design variants

- Cylindrical compact design
- Product-specific materials with refined surfaces
- Large inspection and maintenance doors, thus best cleaning capabilities
- Maintenance-free shaft seals
- Very good residual drainage
- Automatic CIP cleaning
- Deadspace-free discharge flaps
- Outlet metering device
- Weighing equipment with dosing control

Useful capacity in litres	Type	Approx. dimensions			
		A in mm	B in mm	C in mm	D in mm
10000	RMS plus 10000	2000	3500	1285	675
20000	RMS plus 20000	2500	4250	1285	675
30000	RMS plus 30000	3000	4500	1415	675
40000	RMS plus 40000	3000	6000	1415	675
50000	RMS plus 50000	3000	7500	1695	675
60000	RMS plus 60000	3500	6500	1695	675
70000	RMS plus 70000	3500	7500	1695	675
80000	RMS plus 80000	3500	9000	1695	675
90000	RMS plus 90000	3500	10000	1695	675
100000	RMS plus 100000	3750	9500	1750	750
110000	RMS plus 110000	3750	10500	1750	750
120000	RMS plus 120000	3750	11500	1750	750

RUBERG mixing silos are variable in both diameter and overall height.

Mode of operation

RUBERG mixing silos of the RMS plus series are filled in the usual way pneumatically, mechanically or by hand through connecting pieces at the top of the silo.
A vertical, free-standing, conically progressive mixing screw conveyor picks up products at all levels and transports them to the top. The rotation of the screw helix directs the mixing product above the fill level radially towards the silo shell. At the bottom of the vessel, guide and agitator paddles with their own drive move the product back into the mixing screw conveyor. The interaction of both mixing tools results in very short circulation cycles. Very large batches are homogenized to mixing grades better than 1:100.000 in less than 15 minutes.

RUBERG Technology Centre

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MASCHINENFABRIK
ORIGINAL – SINCE 1848

Would you like more information about these RUBERG machine types? – Contact us, we will be happy to advise you!

Gebr. Ruberg GmbH & Co. KG – Maschinenfabrik • Christian-Ruberg-Straße 4 • 33039 Nieheim, Germany
Phone +49 (0) 52 74 - 9 85 10 - 0 • info@g-ruberg.de • www.g-ruberg.de