

# GEBR. RUBERG

Maschinenfabrik

INNOVATIVE  
AND RELIABLE  
POWERFUL AND  
FLEXIBLE

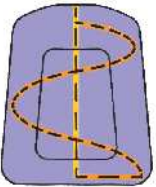
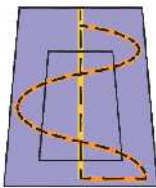
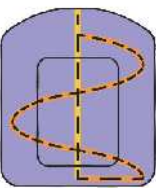
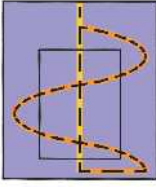
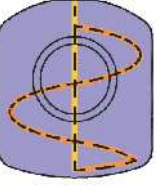
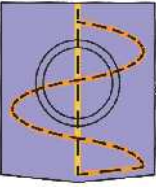


**RUBERG** *Precision Batch Mixer*  
*CM line*

# RUBERG Precision Batch Mixer

for powder, granulates, from low to highly viscous liquids, ...

Thanks to many years of developments the following principal types have been designed within the CM series for various basic and finished products taking their material requirements and processing quality into account. Based on this we manufacture the high-quality, economic **RUBERG precision batch mixers** for the tasks to be fulfilled using the appropriate additional equipment.

Symbol	Series	Short Description
	CM-KG	<p><b>RUBERG precision batch mixer</b>, conical design with dished cover, flat bottom, one-piece jointless mixing chamber suitable for vacuum and pressure, radially symmetrical with rounded off corners and free-floating bearing-suspended mixing spiral, mixing and discharging arm in spiral form, GMP-conforming.</p> <p><b>Pharmaceutical industry, chemical industry, foodstuffs, ...</b></p> <p>Sophisticated mixing operations regarding products of different densities, granulation and consistency in highly sensitive production areas.</p>
	CM-KE	<p><b>RUBERG precision batch mixer</b>, conical design with flat cover, flat bottom, divided mixing chamber, with dismountable mixing spiral in upper and lower maintenance free bearing.</p> <p><b>Chemical industry, building materials, plastic materials, animal feed stuff, ...</b></p> <p>Sophisticated mixing operations regarding products of different densities, granulation and consistency in larger production areas.</p>
	CM-ZG	<p><b>RUBERG precision batch mixer</b>, cylindrical design with dished cover, flat bottom, one-piece jointless mixing chamber suitable for vacuum and pressure, with radially symmetrical, with rounded off corners, dismountable and free floating bearing-suspended mixing spiral, mixing and discharging arm in spiral form, GMP-conforming.</p> <p><b>Pharmaceutical industry, chemical industry, foodstuffs, ...</b></p> <p>Sophisticated mixing operations regarding products of similar densities, granulation and consistency in highly sensitive production areas.</p>
	CM-ZE	<p><b>RUBERG precision batch mixer</b>, cylindrical design with flat cover, flat bottom, divided mixing chamber, with dismountable mixing spiral in upper and lower maintenance free bearing.</p> <p><b>Chemical industry, foodstuffs, building materials, plastic materials, animal feed stuff, ...</b></p> <p>Sophisticated mixing operations regarding products of similar densities, granulation and consistency in large production areas.</p>
	CM-ZGF	<p><b>RUBERG precision batch mixer for liquids</b>, cylindrical design, with dished cover, dished bottom, one-piece jointless mixing chamber, suitable for vacuum and pressure, radially symmetrical with rounded off corners and free-floating bearing suspended mixing spiral. Mixing and discharging arm in spiral form, GMP-conforming.</p> <p><b>Pharmaceutical industry, chemical industry, foodstuffs, ...</b></p> <p>Sophisticated mixing operations regarding liquid and solid products having from low to high viscosities with special process-technological and engineering requirements such as heating, cooling, evacuation, dissolution, emulsification, reaction under pressure, reaction under vacuum, etc.</p>
	CM-ZEF	<p><b>RUBERG precision batch mixer for liquids</b>, cylindrical design with flat cover, conical bottom, divided mixing chamber with dismountable and free-floating bearing-suspended mixing spiral.</p> <p><b>Chemical industry, foodstuffs, plastic materials, ...</b></p> <p>Sophisticated mixing operations regarding liquid and solid products having from low to high viscosities with special process-technological and engineering requirements such as heating, cooling, dissolution, emulsification, etc.</p>

# RUBERG Precision Batch Mixer

## Processes:

Homogenizing, coating, moistening, crystallizing, to feed gas and to degas, foaming, vaporizing, fluidizing, and drying – these are examples of operations which are to be carried out by the **RUBERG precision batch mixer** regarding the different products to be mixed. In these fields the mixer can be used efficiently and flexibly. The special characteristics of the finish and the jointless design radially symmetrical with rounded off corners make germproof and sterile production possible. Special process-technological and engineering criteria such as thermal, pressure and vacuum-related or internal gas conditions are some of the examples of the performance variants of the **RUBERG precision batch mixer**.

## Application Range:

The possible application range not only covers the processing of pharmaceutical, fine chemical products and foodstuffs, but also the processing of chemical products, building and plastic materials and animal feed stuff. A large selection of design variants with adapted material and processing standards is available.

## Mixer performance:

A very high degree of mix quality is obtained within the shortest time (60-180 seconds). With variable speeds adapted to the mixing product, an extremely gentle mixing or addition of coarse-grained materials is possible, likewise an extremely intensive dispersion of fine powders, paints / varnishes or liquid materials is achieved through high speeds. Process steps like tempering, reacting or agglomerating under pressure or in vacuum.

## Batching:

Fast and simple for the largest batches. Large and small component quantities can be batched automatically or by hand. Liquids are batched through the central shaft (nozzle assembly), lances or in the IS process. Weighing in the mixer vessel via load cells with electronics or expanded metering control for the precise addition of the main components.



### Type CM-ZE 3000-2SR

Stainless steel 1.4301.

With free floating bearing-suspended mixing spiral, 2 cutting rotors, 2 liquid lances, pneumatic sample taking device and addition equipment for block fat, for bakery products.

## Emptying / cleaning:

This can be performed in a few seconds either batched or in large quantities free of residue, gently, and free of sedimentation by slide or flap. A large inspection door facilitates not only comfortable cleaning by hand, but also any necessary inspections. Automatic cleaning in place (CIP) and disinfection are possible. Clogging by highly adhesive products is counteracted with a nonstick lining.

Installed in the cover next to the inlet are apertures for venting and non return values. The outlet gates and flaps completely cover the base plate, so no dead zones! Strong hinges and hand locks guarantee precise fixing of the door, limit switches prevent accidents.

All shaft exits and seals are leakage- and maintenance-free!



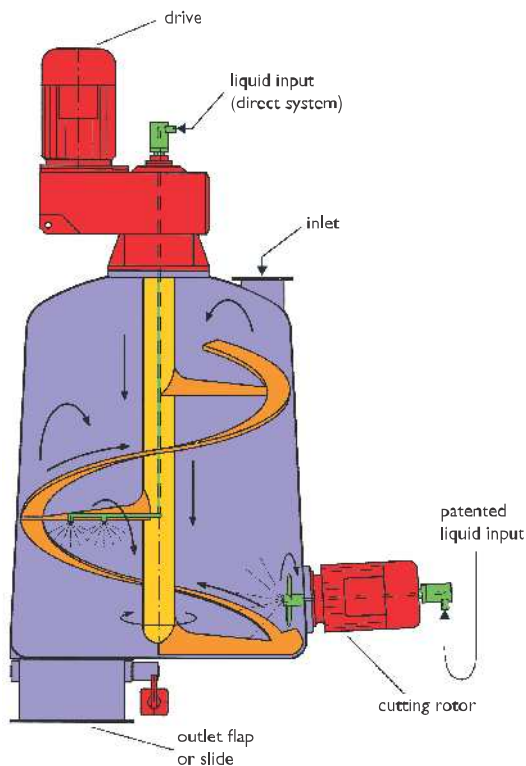
# RUBERG Precision Batch Mixer



## Machine sizes:

From 100 to 25.000 litres working volume in high-quality stainless steels or special steels. Completely wired with complete electrical equipment and integrated control system or integrable in an SPC system. The highest mixing precision of min. 1:100.000 and higher for variable batches, even as low as 10% of the capacity. Dry / moist solid materials for the production of admixed liquids or homogeneous pastes, grainy / powdered materials, fluidizing / hydrogenous materials of high or low density - for the shortest mixing times (60-180 seconds). Comfortable and precise handling. With fully insulated heating and cooling systems or electrically heated casing.

## Operations:



## Mode of operation:

The material to be mixed quickly enters the conical or cylindrical mixing space through a correspondingly large inlet and is simultaneously distributed by the mixing tools. The mixing spiral, held by strong, specially designed support and distribution arms and linked to the centrally arranged drive shaft, transports the content from the core to the outside and upwards along the wall. The product being mixed glides downwards in the middle and is horizontally mixed by the distribution and mixing arms during its progress to the bottom. The complete content is kept in constant motion in alternating directions, there are no dead zones. Even with batches as low as approx. 10% of the capacity, the optimum mixing quality is achieved.



## Type CM-ZG 200-2 ISR

Stainless steel 1.4571.

With 2 cutting rotors, ISR, barrier air purging, manual feeding, integrated weighing system, for foodstuffs.

# RUBERG Precision Batch Mixer

For the building industry the **RUBERG precision batch mixer** is manufactured from hard austenitic manganese steel. The high bulk density of mixed products and the strong abrasion, e.g. silica sand requiring highly wear-resistant materials, easily replaceable mixing tools and appropriately dimensioned driving elements. For those products that are subject to high wear the mixing scroll and the supporting arms are armoured with hard metal. Micro-fine powder atomization of colour pigments or additives that are injected by the solid matter injector directly into the operating range of the cutting rotor ensures precise distribution.

## Liquid addition:

There are three fully developed systems depending on the mixing product and its characteristics:

### Direct system (nozzle assembly)

The additional liquid products are added through a single or multiple rotary feedthrough in the central shaft. The medium is fed through a pipe to the second mixer and distribution arm and into a nozzle assembly, where it is distributed homogeneously in the mixing product through the rotation of the supporting arm.

### Injector lance:

Dismountable injector lances with redrop-free spraying nozzles inject the liquid into the flowing past mixing product. The co-operation of mixing spiral and cutting rotors makes it possible to contribute very small to very large quantities of liquids to dry substances and to distribute them precisely. Heated lances and atomizer nozzles are amending the performances.

### IS system:

The patented IS system (Injection Spraying system) has proved itself with particularly critical mixing components. Through a lance in the hollow shaft of the cutting rotor drive the medium enters directly into the nozzles of the cutting rotor and from there it is distributed turbulently and microfinely into the mixing product. The formation of agglomerates is immediately prevented by the blades.

## Cutting rotors:

As a high-speed rotating counterpart to the main mixing spiral these achieve crumbling and crushing of agglomerates. In the additional function of the IS system the liquids or highly viscous media get into the nozzles - integrated in the cutting rotor - which distribute them microfinely into the mixing product. Additions can therefore be introduced in the finest doses. Depending on the mixing product and the additives one or several cutting rotors can be installed.



### Type CM-ZE 3000

Stainless steel 1.4571.  
With bracket support for weighing equipment  
and 8 outlet connections,  
for washing powder.

## Velocity:

Variable circumference velocities, are depending on product  
below 1 m/s (highly volatile products)  
up to 10 m/s (for creamy to liquid products).

## Free-floating bearing-suspended mixing spiral:

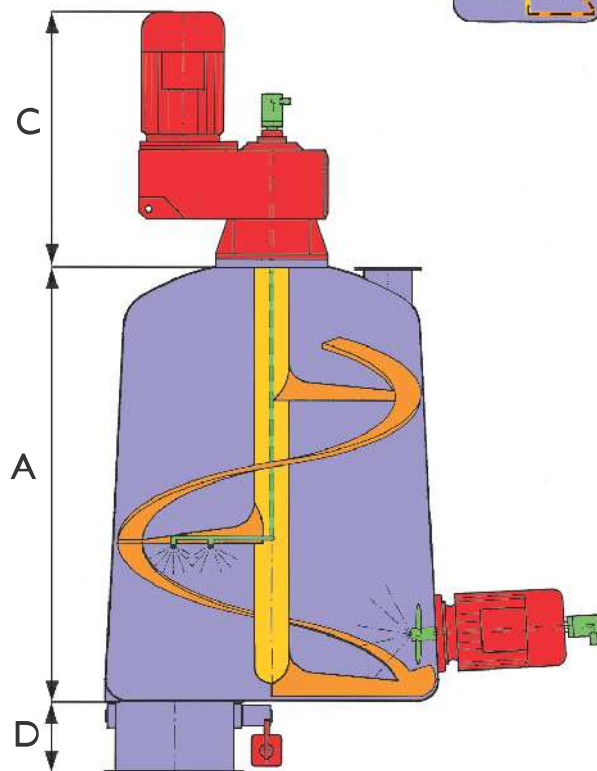
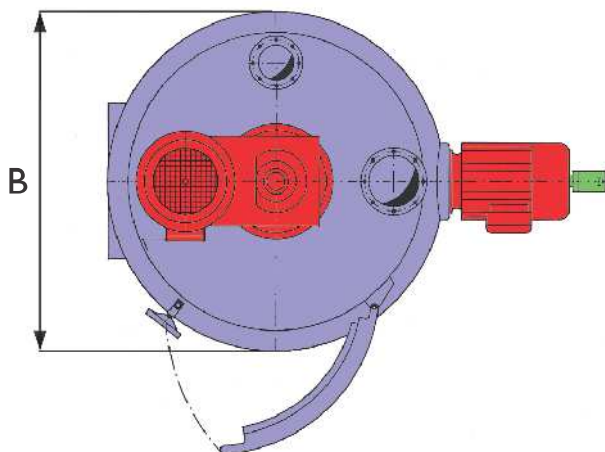
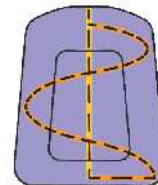
A reinforced mixing spiral is fixed solely to a top bearing, a slip-on gear mechanism on a hollow shaft forms the second stabilizing bearing unit. This accommodates all radial and axial forces.

- No bearings and no sealing elements in the mixing product
- The mixing spiral does not come into contact with the base
- No product carry-over
- Mixing and discharging arm in evolvent form
- Radially symmetrical with rounded off corners
- No friction, cakings or emptying residues in the lower region of the mixing spiral
- Elaborate sealing systems for pressure or vacuum mode are not necessary



Mixing spiral  
CM-ZG 2000-SR

# RUBERG Precision Batch Mixer CM-KG line



Pharmaceutical industry, chemical industry, foodstuffs, ...

■ Sophisticated mixing operations can be carried out regarding products with many different densities, granulation and consistency in highly sensitive production areas

- Conical design
- Dished cover
- Flat bottom
- One-piece jointless mixing chamber, suitable for vacuum and pressure
- Radially symmetrical with rounded off corners
- Dismountable and free floating bearing-suspended mixing spiral
- Mixing and discharging arm in spiral form
- GMP-conforming

Effective volume in litres	Type	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 of all sizes can be made to individual requirements. Likewise, the inlets and outlets as well as the arrangement of the inspection door can be freely selected.

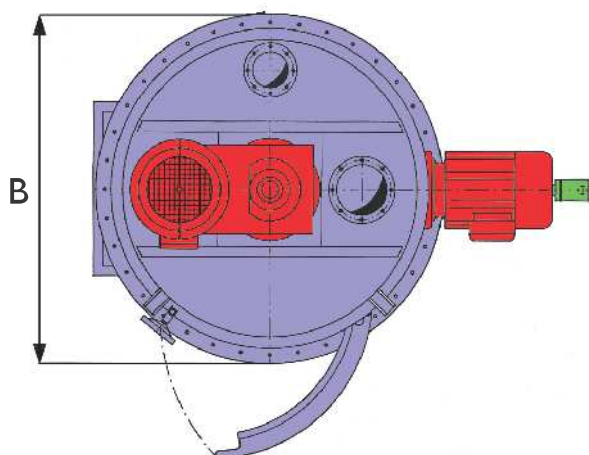
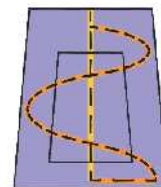


**Type CM-KG 3000-ISR**  
Stainless steel 1.4571.  
With cutting rotor, ISR,  
barrier air purging, sample taker,  
for pharmaceutical products.



# RUBERG Precision Batch Mixer

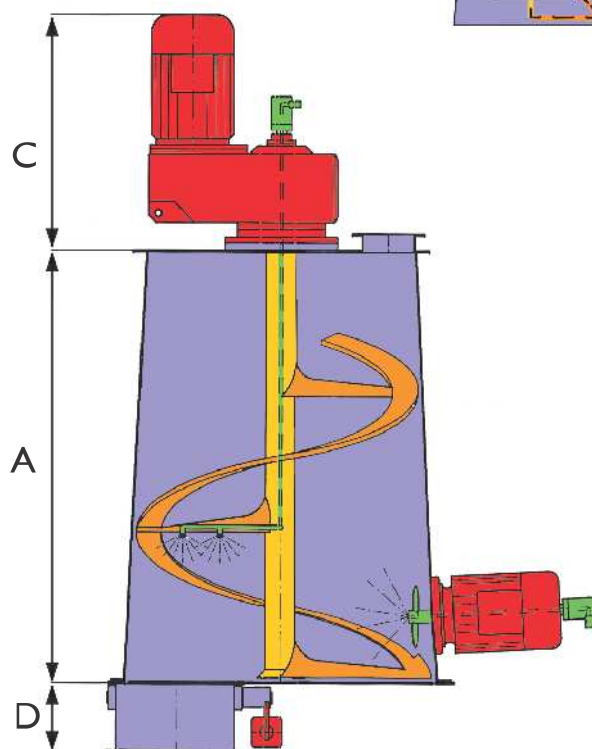
## CM-KE line



**Chemical industry, building materials, plastic materials, animal feed stuff, ...**

■ Sophisticated mixing operations can be carried out regarding products with many different densities, granulation and consistency in larger production areas

- Conical design
- Flat cover
- Flat bottom
- Divided mixing chamber
- Dismountable mixing spiral in upper and lower maintenance free bearing or free floating bearing-suspended mixing spiral



Effective volume in litres	Type	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** of all sizes can be made to individual requirements. Likewise, the inlets and outlets as well as the arrangement of the inspection door can be freely selected.



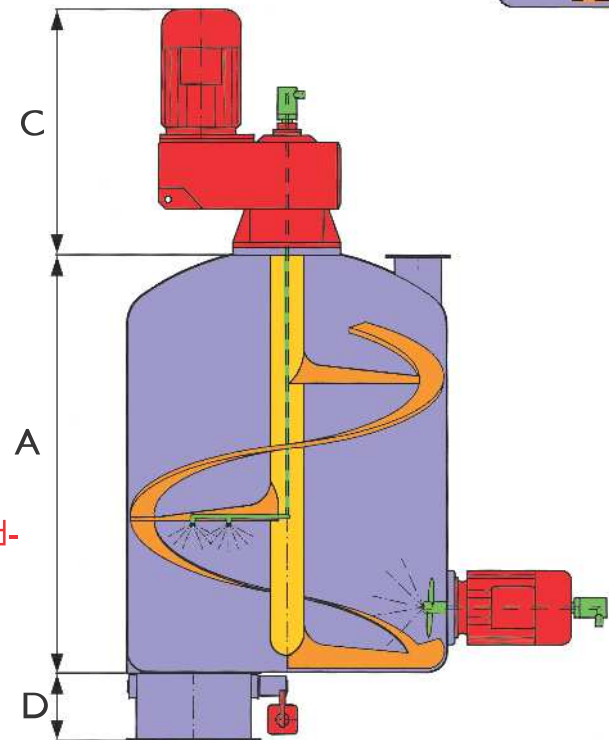
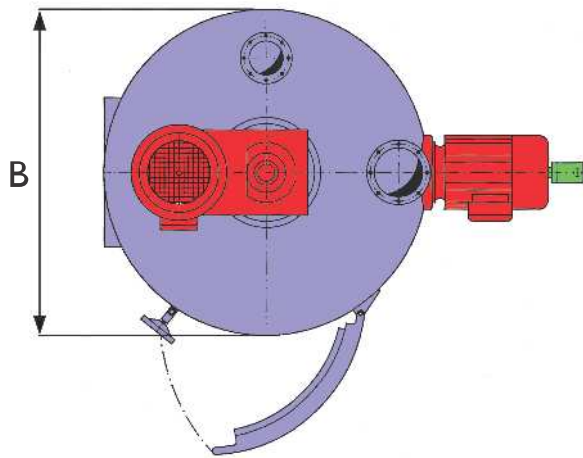
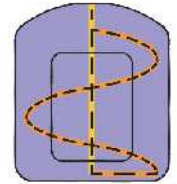
**Type CM-KE 3000**

Stainless steel 1.4301.

With bursting disc and divided free floating bearing-suspended mixing spiral, for cellulose processing.

# RUBERG Precision Batch Mixer

## CM-ZG line



Pharmaceutical industry, chemical industry, food-stuffs, ...

■ Sophisticated mixing operations can be carried out regarding products of similar densities, granulation and consistency in highly sensitive production areas

- Cylindrical design
- Dished cover
- Flat bottom
- One-piece jointless mixing chamber, suitable for vacuum and pressure
- Radially symmetrical with rounded off corners
- Dismountable and free floating bearing-suspended mixing spiral
- Mixing and discharging arm in spiral form
- GMP-conforming

Effective volume in litres	Type	A	B	C	D
		in mm	in mm	in mm	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	1150	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
25000	CM-ZG 25000	3550	3550	2000	600

RUBERG precision batch mixers of all sizes can be made to individual requirements. Likewise, the inlets and outlets as well as the arrangement of the inspection door can be freely selected.



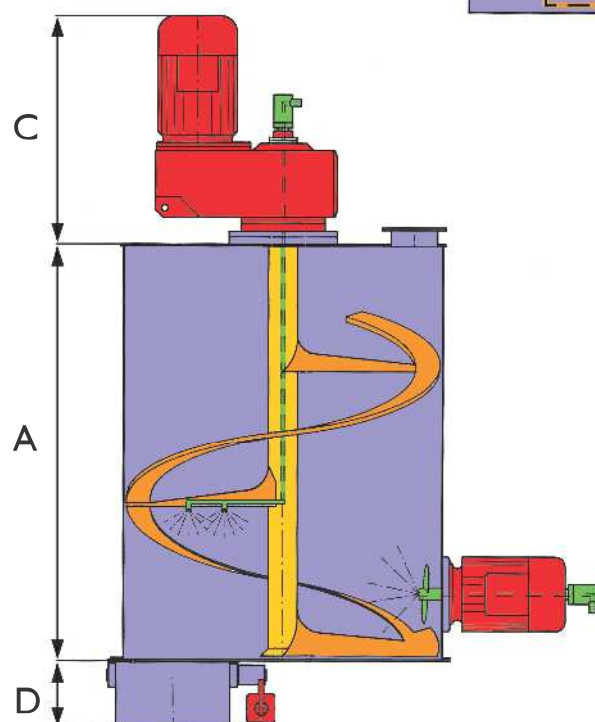
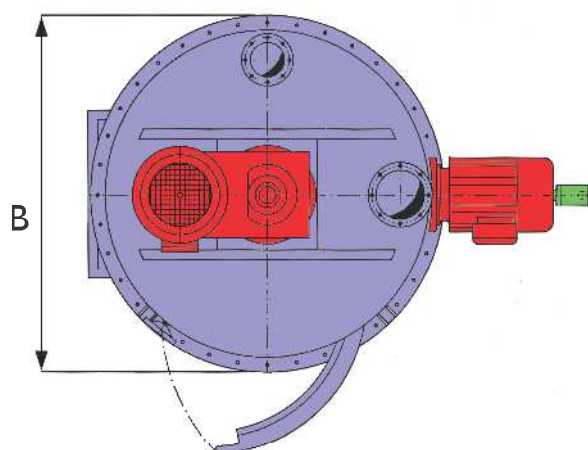
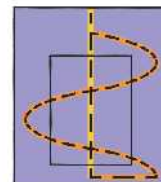
**Type CM-ZG 2000-SR**

Stainless steel 1.4301.  
With cutting rotor, barrier air purging,  
for baby food.



# RUBERG Precision Batch Mixer

## CM-ZE line



Chemical industry, building materials, plastic materials, animal feed stuff, ...

■ Sophisticated mixing operations can be carried out regarding products of similar densities, granulation and consistency in larger production areas

- Cylindrical design
- Flat cover
- Flat bottom
- Divided mixing chamber
- Dismountable mixing spiral in upper and lower maintenance free bearing or free floating bearing-suspended mixing spiral

Effective volume in litres	Type	A	B	C	D
		in mm	in mm	in mm	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

RUBERG precision batch mixers of all sizes can be made to individual requirements. Likewise, the inlets and outlets as well as the arrangement of the inspection door can be freely selected.



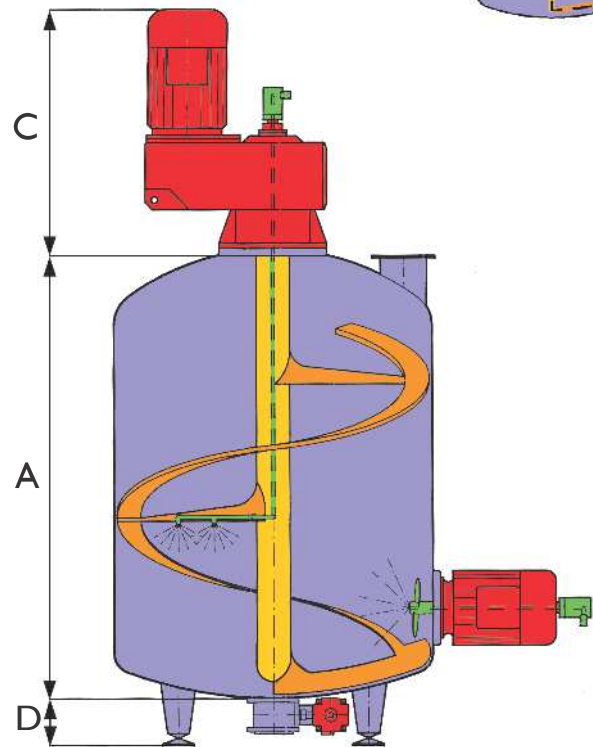
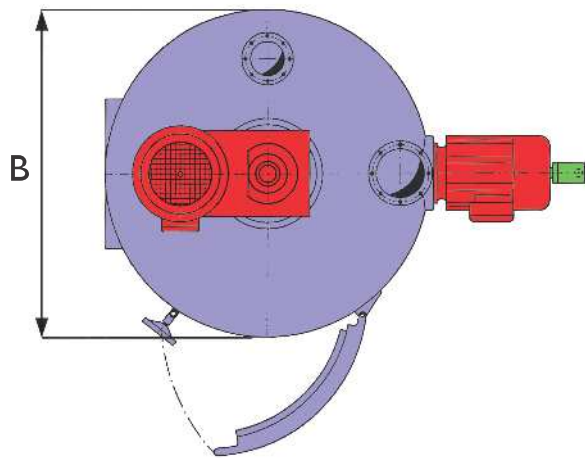
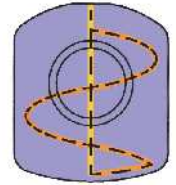
**Type CM-ZE 10000-2SR**

Steel 1.0037.

With 2 cutting rotors, 2 outlet flaps, heated liquid lances, wear-resistant non-stick lining, for animal feed with molasses addition.

# RUBERG Batch Mixer for Liquids

## CM-ZGF line



Pharmaceutical industry, chemical industry, foodstuffs, ...

■ Sophisticated mixing operations can be carried out on liquid and solid products ranging from low to high viscosities with special process-technological and engineering requirements such as heating, cooling, evacuating, dissolving, emulsifying, reacting under pressure, reacting under vacuum, etc.

- Cylindrical design
- Dished cover
- Dished bottom
- One-piece jointless mixing chamber, suitable for pressure and vacuum
- Radially symmetrical with rounded off corners
- Free floating bearing-suspended mixing spiral
- Mixing and discharging arm in spiral form
- GMP-conforming

Effective volume in litres	Type	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-ZGF10000	2600	2600	1800	400
15000	CM-ZGF15000	3000	3000	1800	600
20000	CM-ZGF20000	3300	3300	2000	600
25000	CM-ZGF25000	3550	3550	2000	600

**RUBERG batch mixers for liquids** of all sizes can be made to individual requirements. Likewise, the inlets and outlets as well as the arrangement of the inspection door can be freely selected.



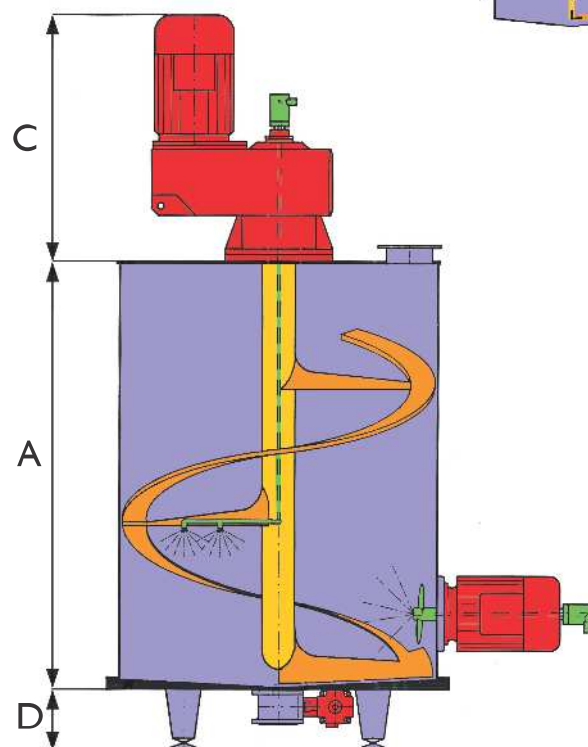
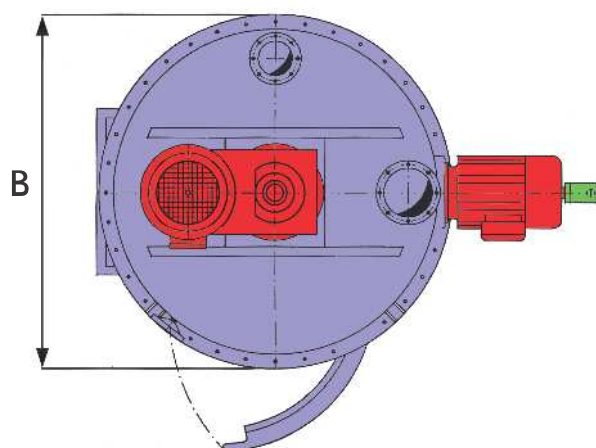
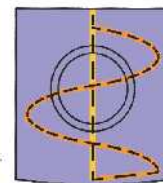
**Type CM-ZGF 1500-SR**

Stainless steel 1.4571.

With cutting rotor, vacuum pump, insulated heating and cooling casing, liquid dosing, manual feeding, level indication sensors, CIP-cleaning, electric control, emptying by diaphragm pump, for production of detergents.

# RUBERG Batch Mixer for Liquids

## CM-ZEF line



Chemical industry, foodstuffs,  
plastic materials, ...

■ Sophisticated mixing operations can be carried out on liquid and solid products ranging from low to high viscosities with special process-technological and engineering requirements such as heating, cooling, dissolving, emulsifying etc.

- Cylindrical design
- Flat cover
- Funnel shaped bottom
- Divided mixing chamber
- Dismountable and free floating bearing-suspended mixing spiral

Effective volume in litres	Type	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 batch mixers for liquids** of all sizes can be made to individual requirements. Likewise, the inlets and outlets as well as the arrangement of the inspection door can be freely selected.



**Type CM-ZEF 750**

Stainless steel 1.4301.

With insulated heating jacket, vacuum pump, level indication sensors, integrated foam control, electric control, for production of glues and sealing compounds.





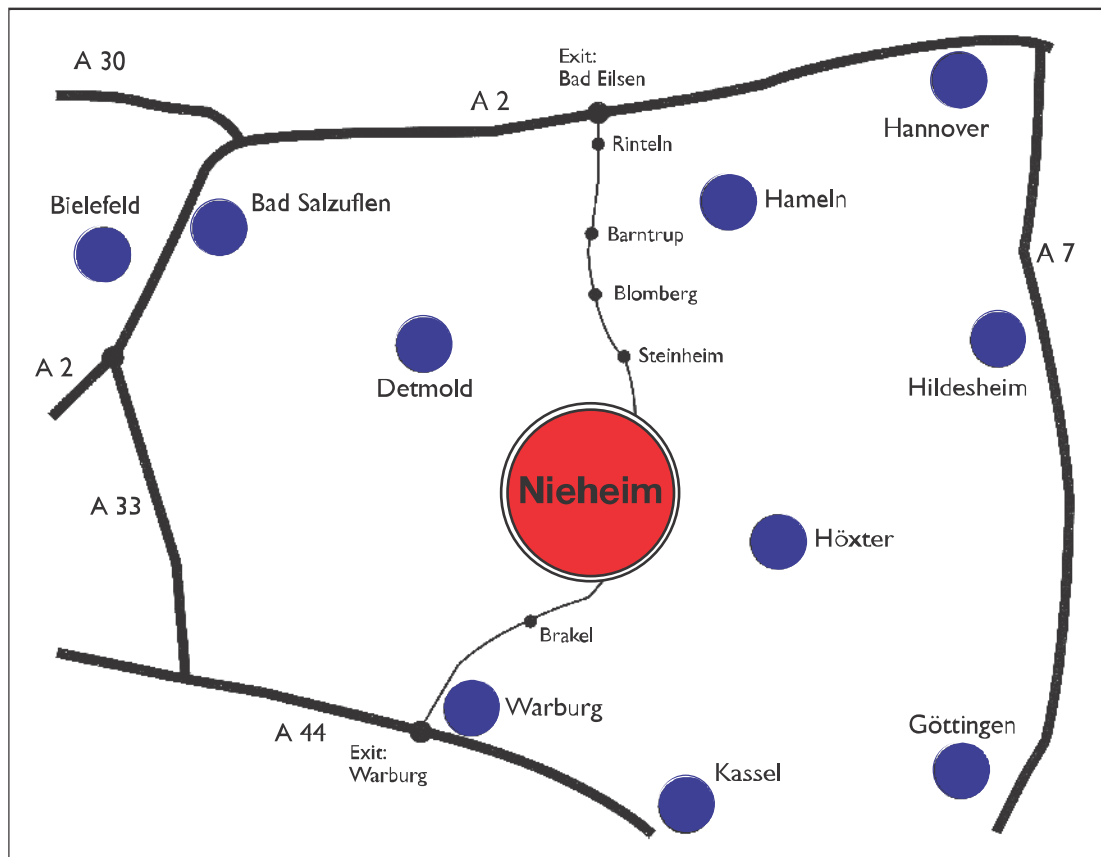
Modern Testing Centre

#### RUBERG Precision Batch Mixer

*Different types at economical manufacturing.*



As a factory for machinery, the company Gebr. Ruberg GmbH & Co. KG was founded as a family concern in 1848. From the then production of primarily wind- and watermills there arose through the decades a modern machinery production facility. Our machines are used for chemicals, foodstuffs, pharmaceuticals, construction and plastic materials and our production programme extends over the complete planning, production and installation of complete plants and individual machines. A specialized staff of about fifty members have made innovation and progress our business. The tests and trials conducted in our testing centre allows us to develop systems and machines to the most advanced level of technology and standards.



# GEBR. RUBERG

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