

EQUIPMENT

# Mixing

HOMOGENISE

INCORPORATE

FLUIDIFY

STIR

MIX



**P**  
**Palamatic**  
PROCESS >>> machines • engineering

Bulk material & powder handling solutions



# CONTENT



Means that the equipment is available for testing at PALAMATIC PROCESS



Means that the equipment can be installed in ATEX zone



Means that design and options can be customised

PALAMATIC PROCESS reserves the right to make changes in the design of the facilities listed in this commercial documentation



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# Range of Mixers



PALAMATIC PROCESS HAS DEVELOPED A RANGE OF MIXING EQUIPMENT TO FULFIL THE NEEDS OF ALL INDUSTRY AREAS

**Monorotor Mixer**  
**Discontinuous**  
Plow share and blade



- High capacity and high quality mixing

Page 6

**Monorotor Mixer**  
**Continuous**  
Plow share and blade



- Continuous mixing suitable for dry solids and incorporation of liquids

Page 12

**Vertical Mixer**  
**Discontinuous**



- 500 to 3.000 liters
- Mixing of dry, wet or sticky materials

Page 24

**Conical Screw Mixer**



- 50 to 5.000 liters
- Delicate blending/mixing and storage of materials

Page 28

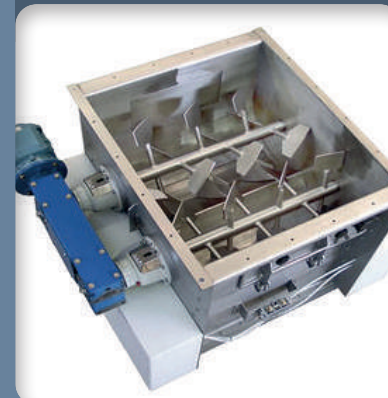
**Monorotor Mixer**  
**Discontinuous**  
Ribbon



- 2 to 8 batches/h.
- Low speed mixing of dry powders and paste-like materials

Page 18

**Biirotor Mixer**  
**Discontinuous**  
Blades



- 48 to 2.800 liters
- Mixing and homogenizing of several materials in successive batches

Page 22

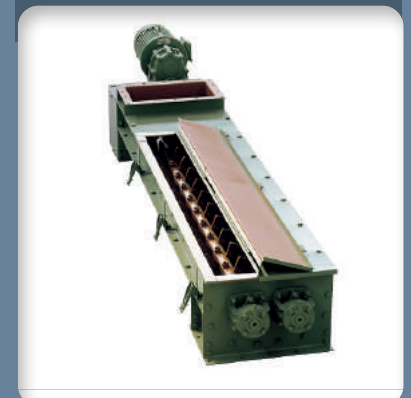
**Intermediate Bulk Container**  
**Blender**



- 4 to 10 rotations/min.
- Homogeneous, fast and simple mixture of container contents

Page 30

**Biirotor Mixer**  
**Continuous**  
Blades



- 4 to 34 m<sup>3</sup>/h.
- Simultaneous conveying and mixing of two or more products

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### TECHNOLOGY ADAPTED TO EVERY PROCESS

PALAMATIC PROCESS plow share or blade mixers are an efficient solution to obtain a homogeneous and high quality mixture in a reduced time. Our mixers, dedicated to the mixing of dry powders and granules, are fitted with plow share or blade type tools creating a strong swirl of the product within the mixing chamber, and an extreme interaction between the materials to be mixed. The particular shape of the plow share creates a "3D" movement of the products introduced to the tank. Our range includes two models designed for:

- batches/discontinuous processes
- continuous processes

Both models share the same general architecture: a horizontal tank with a rotor fitted with a plow share or blade tool.

### DISCONTINUOUS - BATCH MIXING



Featuring an advanced technology, plow share or blade batch mixers provide very good results in terms of speed and consistency of powder mixtures for discontinuous processes. Due to their high performance speed, they are among the fastest mixers with an average mixing time from 1 to 4 minutes.

The performance of the batch mixer allows the mixing of materials with very low dilution ratios of the order of 1/100 000. Deflocculating devices (additional stirrers) with high efficiency knives ensure a very efficient dispersion operation.

Our batch mixer offers maximum flexibility and can easily be a part of a fully automated system or, conversely, a part of manual filling and emptying systems.

The integral emptying hatch combined with the "Clean In Place" system (CIP) enables a rapid change of recipe without any cross-contamination and waste production.

### CONTINUOUS MIXING

The monorotor continuous mixer is designed to mix uniformly and without interruption a wide range of particles (different in sizes or density) without any segregation of powders, granules or high viscosity mixtures. Extremely sensitive products are treated gently and micro-ingredients are mixed with great precision.

This mixer works in a continuous way and is ideal for recipes with a limited number of components or for significant production processes. Its low energy consumption makes it one of the most economical mixers.

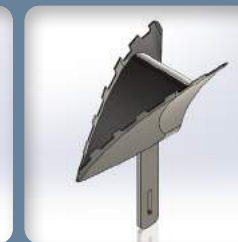


### OUR MIXING TOOLS

#### MIXING PLOW SHARES



Standard



Serrated



Casing

#### MIXING BLADES

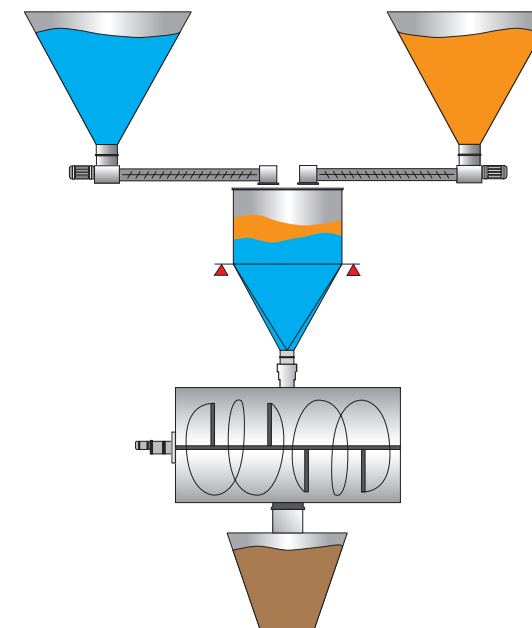


Smooth



Serrated

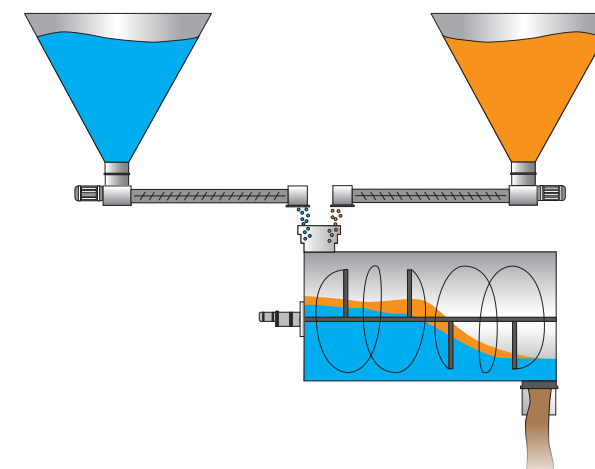
### DISCONTINUOUS - BATCH MIXING



#### [+] Advantages

- Maximum mixing homogeneity
- No product degradation
- Batch repeat accuracy
- Short mixing time
- Low maintenance

### CONTINUOUS MIXING



#### [+] Advantages

- Quality of mixing
- High flow rate
- Compact size
- Short mixing time
- Robust construction
- Easy maintenance



# Monorotor Mixer

## Plow Share & Blade - Discontinuous



Discontinuous Monorotor Mixer

**Capacity:** 75 to 3,000 litres

**Objectives:** short mixing time for high capacity and high quality mix

### MIXING OF 100% SOLID MATERIALS OR WITH LIQUID INCORPORATION UP TO HIGH VISCOCITY

The horizontal single-shaft batch mixers are fitted with plow share or inclined blade type mixing tools to create a swirl in the mixture to engage all the particles in the mixing process.

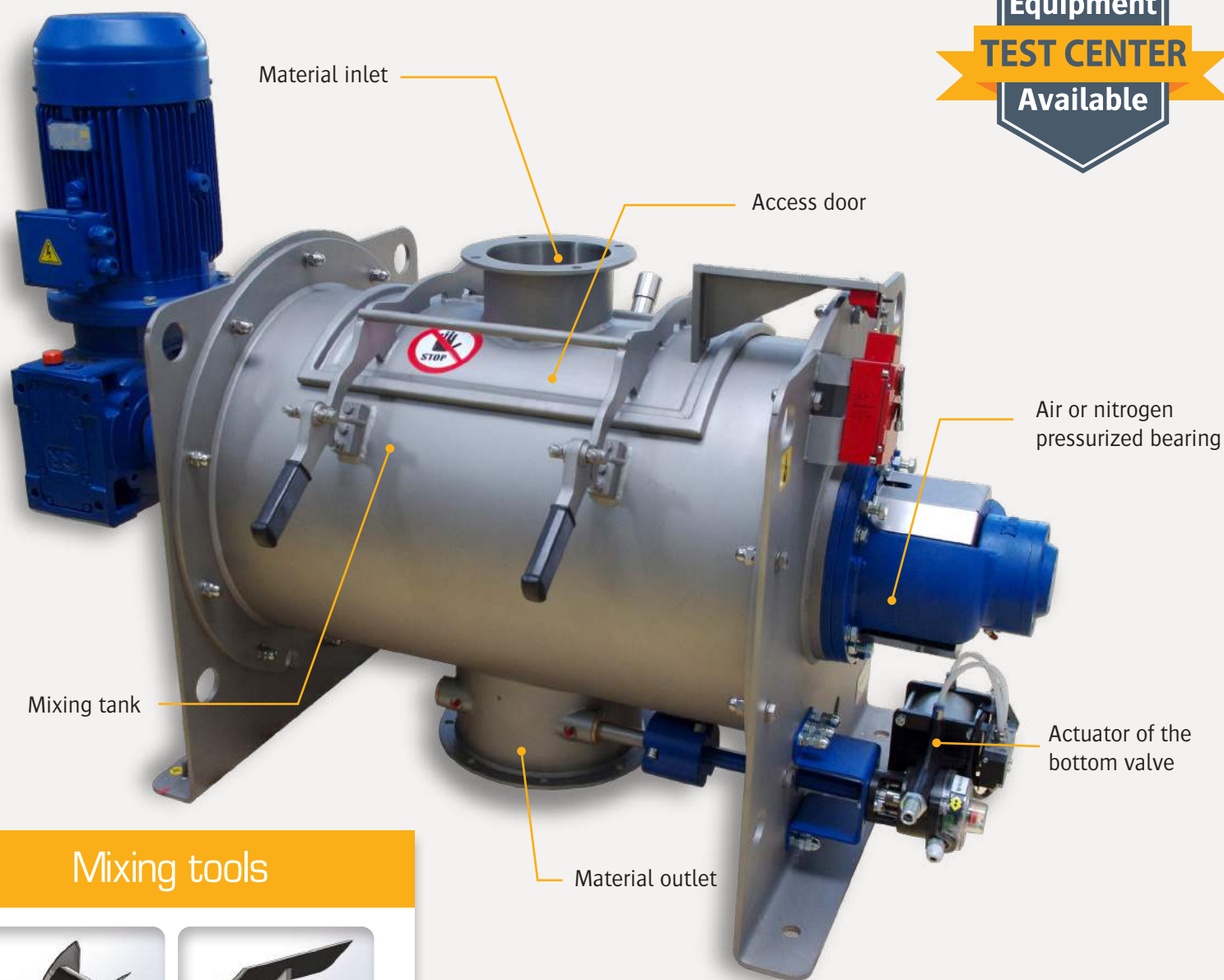
A high mixing accuracy is guaranteed since the dead zones and low-speed movements are avoided. The batch mixers MRS are used to mix powders, granules or short fibers together for moistening, agglomerating, granulating or mixing liquids or pasty products with low viscosity.

### TECHNICAL SPECIFICATIONS

- Hygienic design
- Possibility to add up to 20% of liquid
- End bearing with sealing of the rotor available in different versions (optional air or nitrogen pressurizing)
- Tank manufactured in carbon steel, wear-resistant steel or 304L/316L stainless steel
- External finish in stainless steel: satin finishing, polishing, blasting
- Wide range of mixing tools
- Dispersion 20 gr./t.
- Max. homogenisation of the mixing: number of Froude of 2.7

### OPERATING MODE

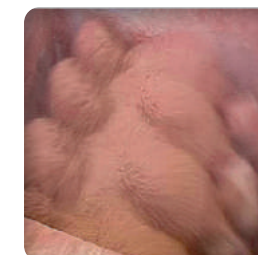
The particular shape, the position and the rotational speed of the mixing tools generate a three-dimensional movement of the different particles present in the tank, favoring their dispersion and their mixing. The complete homogenization and high mixing accuracy are thus guaranteed, even when the particle size and the specific weight of the components are different.



Low maintenance: easy cleaning and access to all the internal parts of the mixer



Short time of mixing (1 to 4 min.)



Excellent reproducibility of batches; maximum homogeneity of the mixings



No product degradation

### Advantages



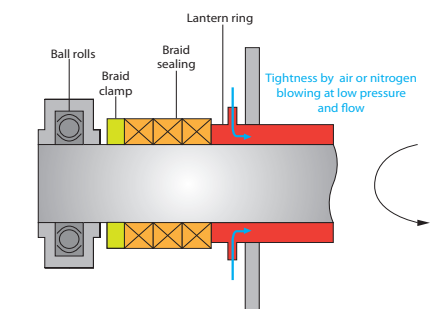
### CHARACTERISTICS OF THE MIXING TANK

Models	MRS75	MRS150	MRS300	MRS550	MRS800	MRS1100	MRS2000	MRS3000	
Total volume of the tank	75	150	300	550	800	1,100	2,000	3,000	Possibility of manufacturing mixing tanks with a capacity up to 15,000 litres
Max. working volume in liters*	56	105	210	385	560	770	1,400	2,100	
Engine power in kW	4	7.5	11	18.5	22	22/37**	37/55**	55	

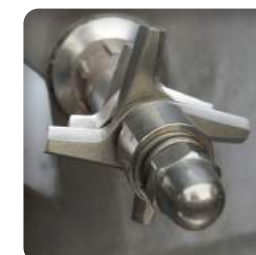
\*minimum volume of the mixture is 30% of the total volume for a configuration with plow shares and 15% for a configuration with blades.  
\*\*according to the product density

### BEARINGS

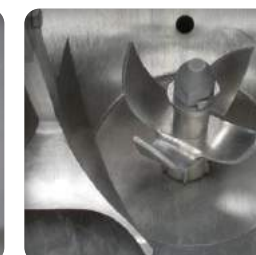
The bearings are made to hold and seal the shaft of the mixer to ensure its operation. The lantern ring blows air or nitrogen (in ATEX conditions) to prevent the introduction of fines in the shaft bearing mechanism.



### CHOPPERS



Blade chopper



Chalice chopper

Choppers are knives used for fast processes of mixing and homogenising of wet and dry materials in the pharmaceutical, chemical, cosmetics, food or plastics industries. These tools offer a high quality material thanks to their abilities of mixing and dispersion in one single operation. Installed next to the plow share, they can easily break down lumps and agglomerates thanks to their compact design with 4 arms. It is possible to use several choppers to enhance the performance of the mixing when incorporating liquid or pasty components.

<https://www.palamaticprocess.com/bulk-handling-equipment/discontinuous-mixer-plow-blade>  
Download videos & layouts from our website

### Options



Temperature sensor



Liquid injection device

See all our options on pages 16-17

### Mixing tools



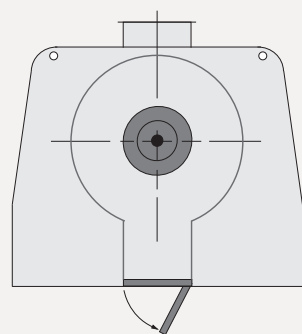
Plow share



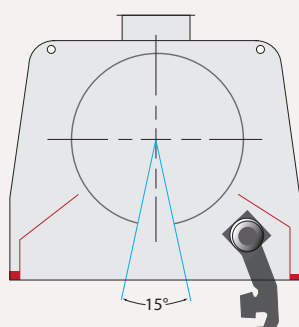
Blade

### Discharge Principles

#### 3 DISCHARGE PRINCIPLES

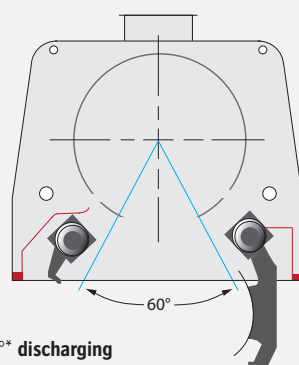


Discharging from bottom hatch



15° discharging

\*Bottom hatch opening on the whole length of the mixer



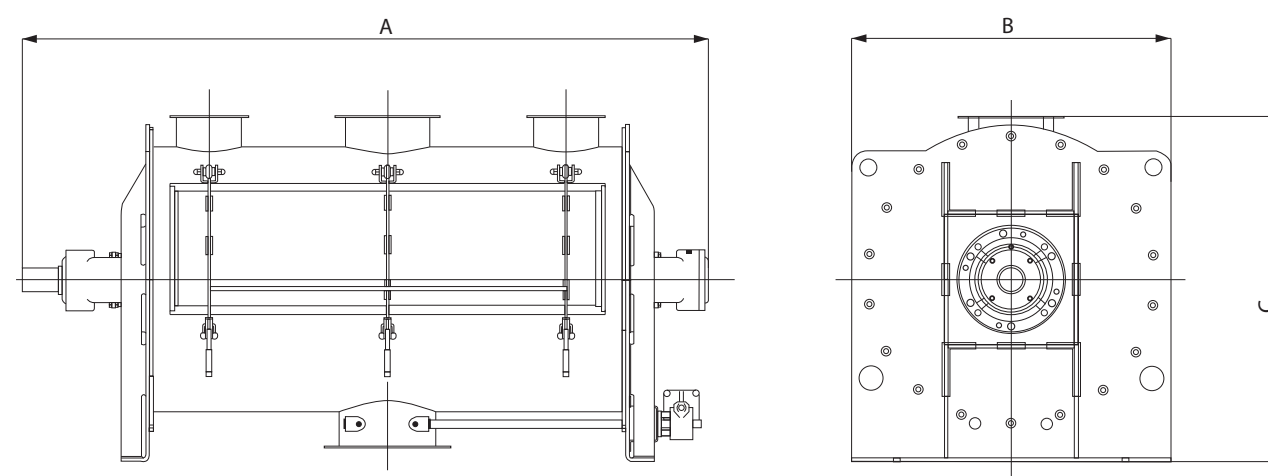
60° discharging



#### INSTALLATIONS



#### DISCHARGING FROM BOTTOM HATCH - (DN version) - Dimensions in mm.



Models	A	B	C	Working capacity in dm <sup>3</sup>	Empty weight in kg
MRS 75	1,300	611	649	56	245
MRS 150	1,460	670	754	105	350
MRS 300	1,840	770	889	210	550
MRS 550	2,150	930	1,075	385	840
MRS 800	2,350	980	1,151	560	1,080
MRS 1100	2,690	1,100	1,278	770	1,400
MRS 2000	2,960	1,340	1,455	1,400	2,100
MRS 3000	3,920	1,340	1,455	2,100	2,800
MRS 4800	4,520	1,500	1,750	3,360	4,300
MRS 6000	4,820	1,600	1,860	4,200	4,800
MRS 8800	5,390	1,810	2,130	6,160	5,800
MRS 10500	5,630	1,910	2,160	7,350	6,900
MRS 15000	6,124	2,110	2,445	10,500	8,200
MRS 20000	6,617	2,312	2,665	14,000	11,903
MRS 25000	6,888	2,432	2,735	17,500	13,653



# Monorotor Mixer

## Plow Share & Blade - Discontinuous



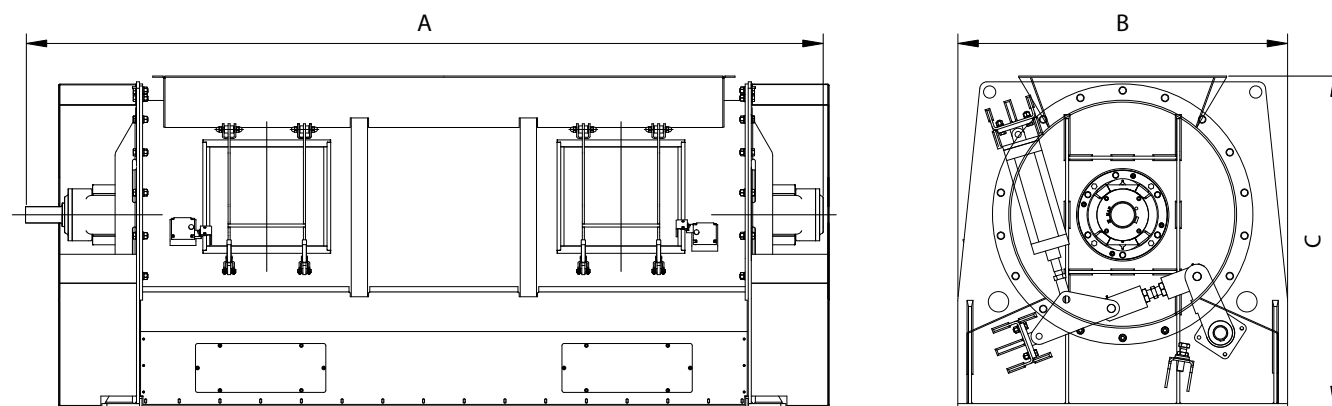
## Discharge Principles

Mixers MRS 15/MRS 60 with total discharge device are particularly suitable for dry premixes for the building, cement, tile adhesive, plastering seal, refractory materials, gypsum based materials, insulation materials, indoor and outdoor coatings, chemical materials for building industry, cattle feed, fillers...

### TECHNICAL SPECIFICATIONS

- Motorizations from 22 kW to 200 kW
- Productivity: 2 to 15 batches/h. (depending on recipe and configuration of the machine)
- Material residue < 0.1%
- Shorter discharging time thanks to the unique unloading door system
- Mixing tank made of carbon steel, wear resistant steel or 304L/316L stainless steel
- Exterior finish in stainless steel: satin finishing, polishing, blasting

### DISCHARGE FROM 15° HATCH - Dimensions in mm.



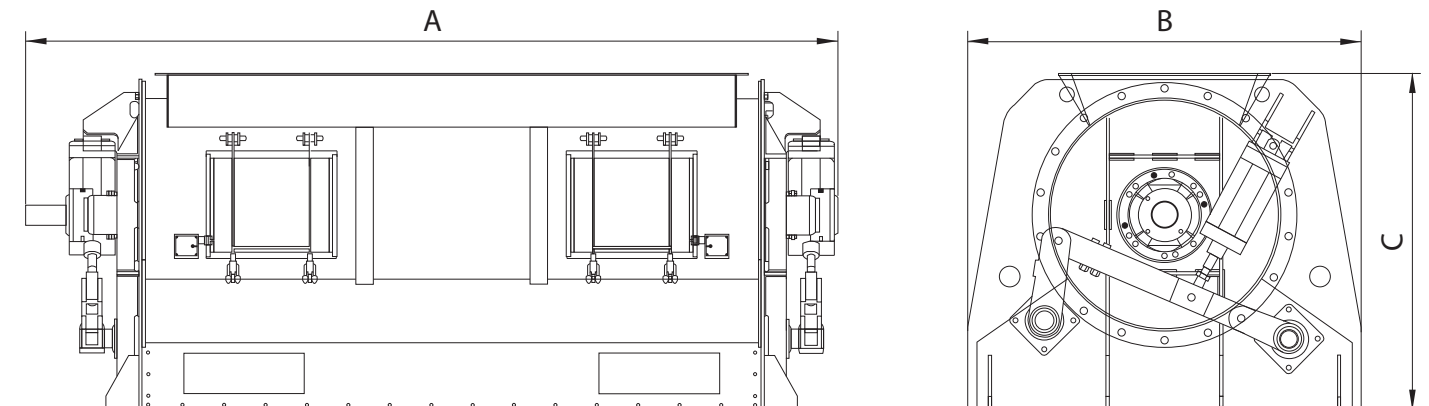
Models	A	B	C	Working capacity in dm <sup>3</sup>	Empty weight in kg
MRS15-550	2,150	1,250	1,200	385	690
MRS15-800	2,350	1,200	1,250	560	850
MRS15-1100	2,615	1,500	1,500	770	1,200
MRS15-2000	2,920	1,900	1,650	1,400	2,400
MRS15-3000	3,920	1,900	1,650	2,100	3,000
MRS15-4800*	4,550	2,000	1,790	3,360	3,800
MRS15-6000*	4,870	1,960	1,900	4,200	4,400
MRS15-8800*	5,390	2,200	2,200	6,160	5,300
MRS15-10500*	5,630	2,400	2,430	7,350	6,900
MRS15-15000*	6,124	2,800	2,525	10,500	8,000

\*Discharge door pneumatically actuated



▶ The unloading door opening on the whole length of the mixer ensures complete draining with almost zero residual of the material in very short time.

### DISCHARGE FROM 60° HATCH - Dimensions in mm.



Models	A	B	C	Working capacity in dm <sup>3</sup>	Tare weight in kg
MRS60-550	2,150	1,250	1,200	385	650
MRS60-800	2,400	1,200	1,250	560	810
MRS60-1100	2,690	1,350	1,500	770	1,100
MRS60-2000	3,030	1,500	1,650	1,400	2,280
MRS60-3000	3,900	1,500	1,650	2,100	2,550
MRS60-4800*	4,550	1,780	1,790	3,360	3,600
MRS60-6000*	4,820	1,820	1,900	4,200	4,200
MRS60-8800*	5,382	2,000	2,200	6,160	5,050
MRS60-10500*	5,630	2,110	2,400	7,350	6,500
MRS60-15000*	6,124	2,380	2,500	10,500	7,600

\*Discharge door pneumatically actuated

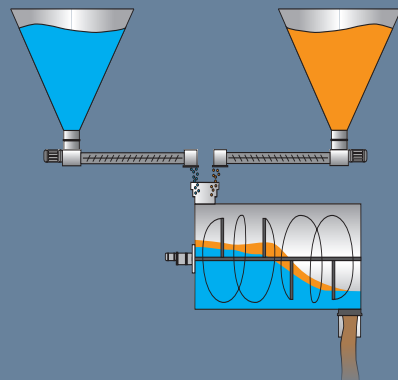


# Monorotor Mixer

## Plow Share & Blade - Continuous



**Capacity:** 75 to 25,000 litres  
**Objectives:** high capacity and high quality mix



### CONTINUOUS MIXING OF MATERIALS

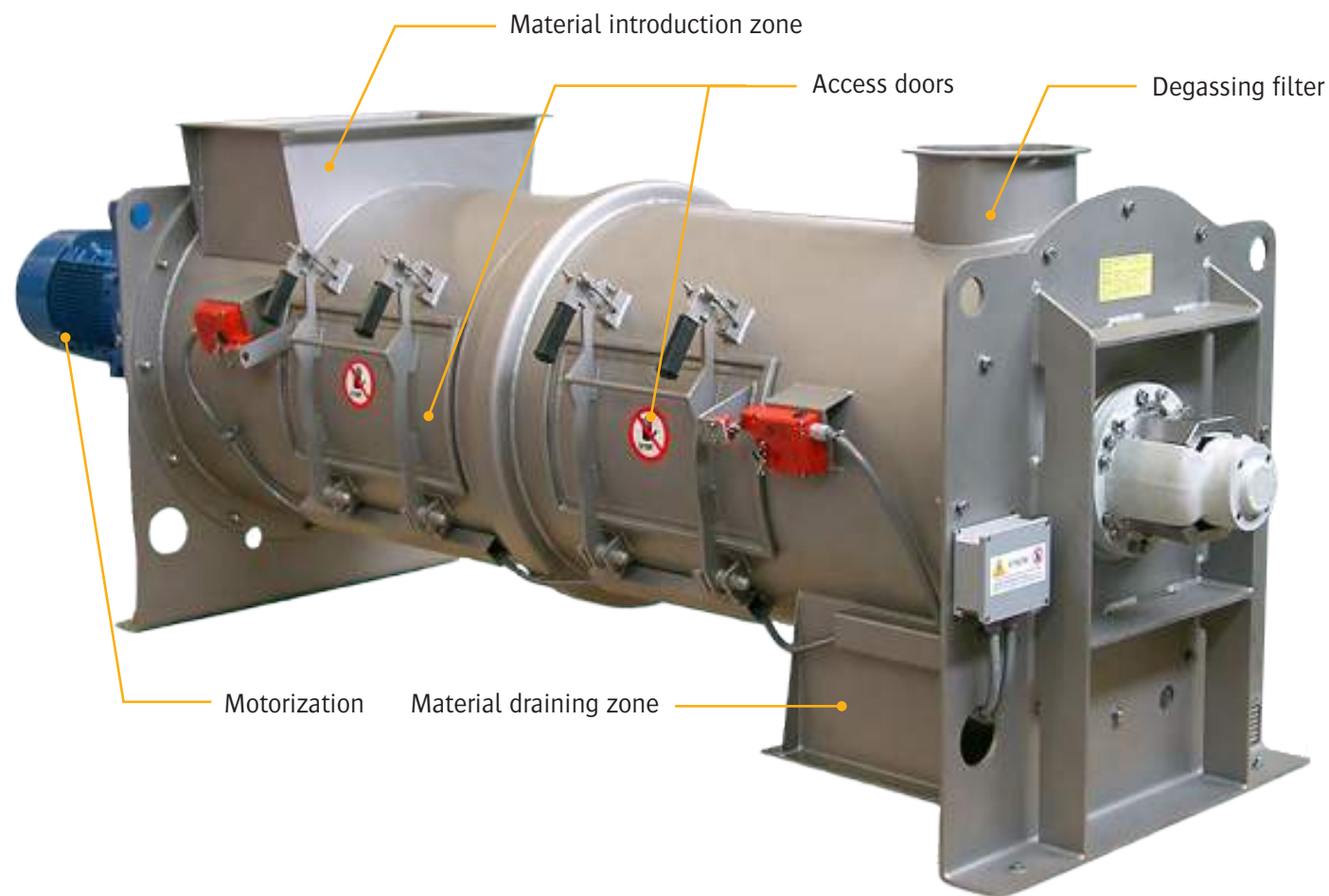
The continuous process is suitable for mixtures with a limited number of components and important manufacturing campaigns. The feeding of materials to be mixed is continuous, without interruption. MRSC continuous mixers are suitable for dry solids (powders, granules, short fibers), dry solids + liquids (moistening + granulating), sludges and low-viscosity pastes.

### TECHNICAL SPECIFICATIONS

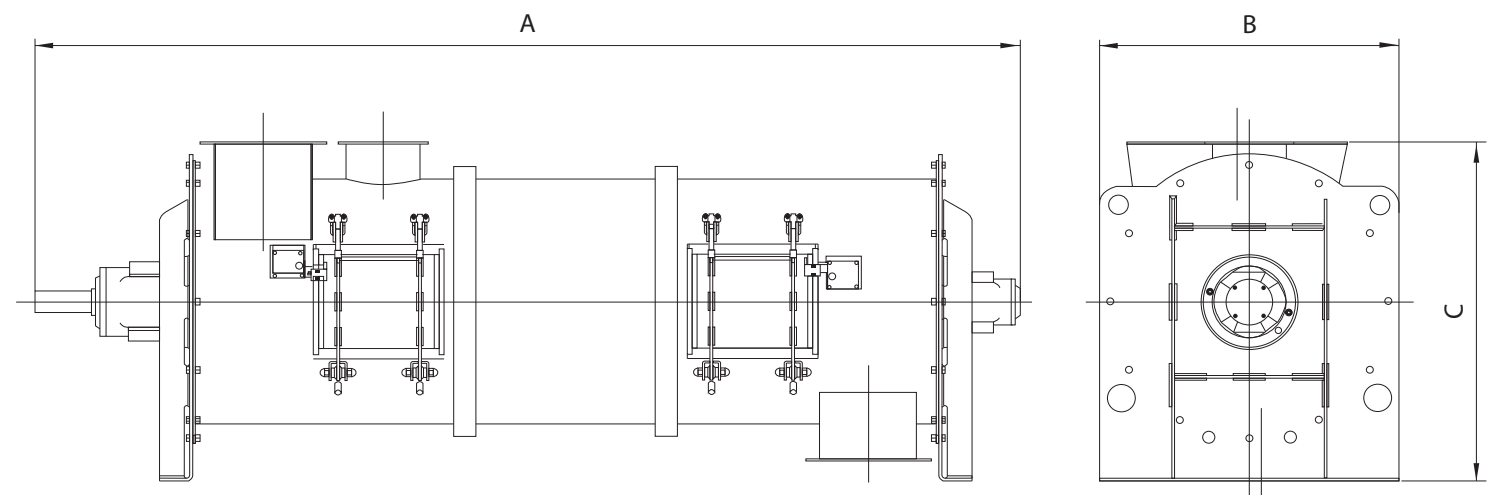
- Manual cylinder or pneumatic actuator for slide valve
- Adjustable slide valve
- Adjustable flow by slide valve on outlet
- Adjustable filling rate from outside without stopping the mixer
- Minimum Residual in case of complete draining
- Rate from 2 to 1,000 m<sup>3</sup>/h. according to mixing recipe and mixer configuration
- Stand-by state of mixing

### OPERATING MODE

Maximum quality of mixing is obtained when the material reaches the outlet opening. Continuous mixers MRSC operate on the principle of mechanically produced fluidized layer. Plow share or inclined blade shaped tools rotate closer to the horizontal cylindrical tank by lifting the components to be mixed from the material layer towards the open mixing area.



### DIMENSIONS in mm.



Models	A	B	C	Rate per duration of stay in dm <sup>3</sup> /h. 50% filling		Tare weight (kg)
				60 s.	180 s.	
MRSC 75	1,690	485	556	2.022	0.674	210
MRSC 150	1,960	570	634	4.031	1.344	350
MRSC 300	2,220	670	801	7.892	2.631	580
MRSC 500	2,550	770	920	13.716	4.572	840
MRSC 1000	3,140	930	1,118	27.993	9.331	1,390
MRSC 1800	3,670	1,100	1,265	50.170	16.723	2,100
MRSC 3000	3,920	1,340	1,472	82.577	27.526	2,800
MRSC 4800	4,510	1,500	1,800	134.281	44.760	3,800
MRSC 6000	4,816	1,600	1,860	165.708	55.236	4,500
MRSC 8800	5,325	1,810	2,133	245.796	81.932	5,840
MRSC 10500	5,580	1,910	2,237	295.322	98.441	6,600
MRSC 15000	6,090	2,110	2,465	411.885	137.295	8,200
MRSC 20000	6,617	2,312	2,665	549.180	183.060	11,903
MRSC 25000	6,888	2,432	2,735	686.475	228.825	13,653

Management of rate and duration of stay of the material in the tank are carried out according to two technologies:

- The diaphragm valve, that is a controlled and sealed valve for powders, powdered or granulated material. It consists of a diaphragm which is held by rings at each end. The upper ring is fixed, while the lower ring rotates to gradually reduce the passage opening. In a 180° rotation position, the passage is completely closed. This version is better for monoprocesses in which setting operations rarely occur.
- The slide gate valve which cuts the passage of the fluid via the central blade and provides a complete sealing. Height adjustment from the outside allows simple and easy setting of batches changing.

### Mixing tools



Plow shares

Blades



# Examples of Installations

## Plow Share & Blade Monorotor Mixer



➤ Inside view of the mixer with blades and chopper made of stainless steel



➤ Loading of the mixer by means of pneumatic conveying



➤ Mixing skid the debacterization of seaweed powder (cosmetic application)



➤ Multi-choppers mixer for incorporation of high proportion of liquid



➤ Laboratory mixing skid with incorporation of liquid



➤ Direct loading of the mixer with big bags



➤ Feed industry mixer



➤ Installation of several mixers for high rate production



➤ Mixer for testing

# Process Integration



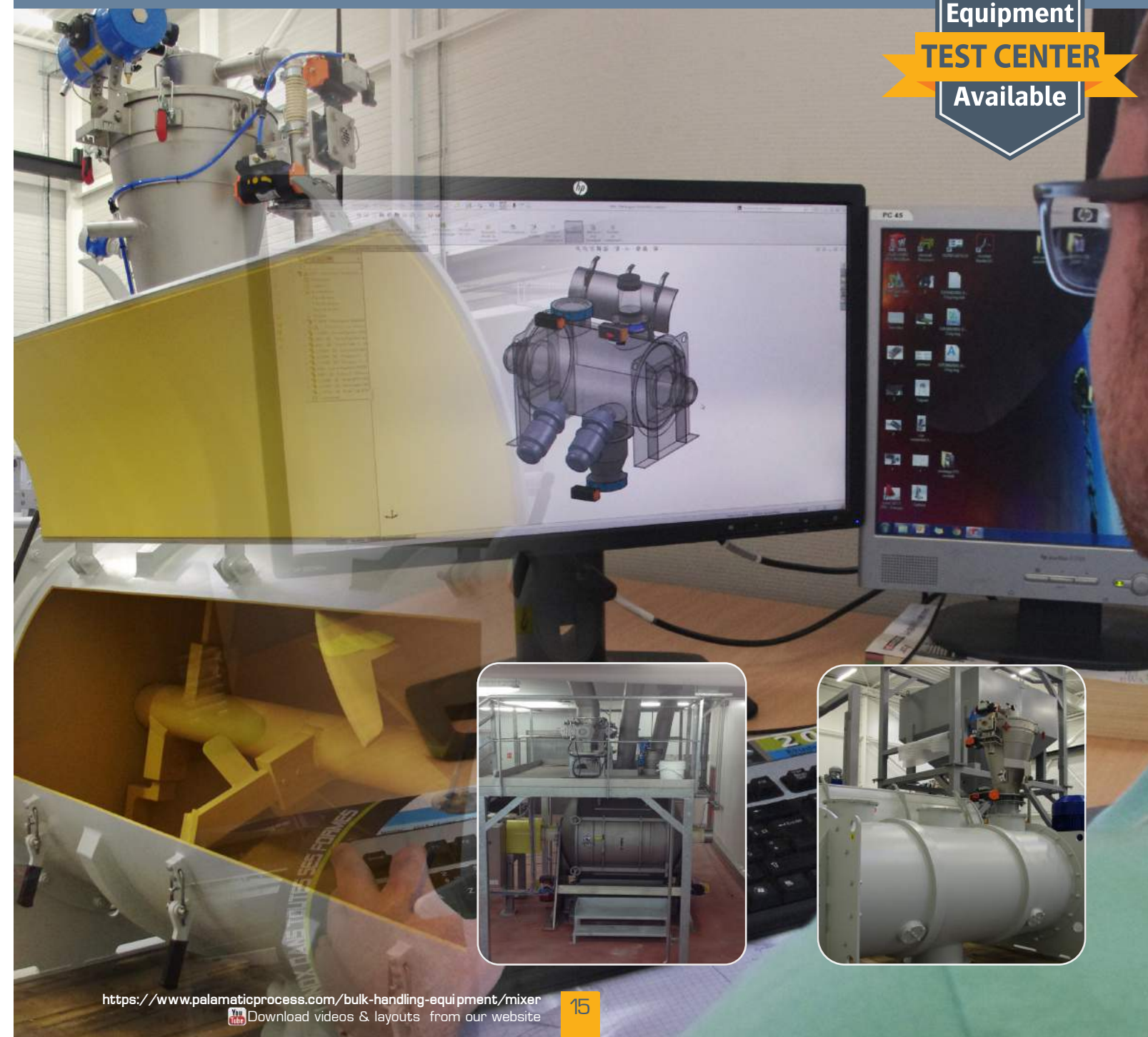
Our design office teams perform precise and detailed drawings of your installations via the Solidworks software for a perfect integration of the process in your site.

## MIXING AND ENSURING HOMOGENEIZATION

PALAMATIC PROCESS meets the needs of manufacturers from various sectors. Petrochemical, water treatment, chemical, pharmaceutical, food or cosmetics, we offer the industrial mixer that meets specific needs of your production line.

The configurations of mixers are numerous: feeding with weighing tippers for raw material dosing, under big bag unloading structure, screw conveyor or sack tip unit, in-line on a pneumatic conveying system, upstream of a collecting hopper, a bagging machine, a drum filling installation...

Equipment  
TEST CENTER  
Available





# OPTIONS Plow Share & Blade Monorotor Mixer



## ➤ SURFACE TREATMENT

**Wear lining (Hardox), carbide charging of the tools, wear-resistant coating with easily replaceable plates, ceramic coating, Teflon® coating, stainless steel mesh.**



## ➤ INSPECTION HATCH

**To monitor and control the mixing of materials.**

The inspection hatch allows to control and validate the quality of the materials mixing. In addition, the hatch provides easy access to all internal parts of the mixer to ensure complete cleaning.



## ➤ LIQUID INJECTION DEVICE

**For the addition of additive to the mix.**

The liquid spray device is located at the level of the plow shares and the dispersers and thus enables the controlled addition of liquids in small quantities to the mix. The chopper, positioned beneath the device, creates a vortex for better dispersion of the liquid.



## ➤ PNEUMATIC SAMPLING DEVICE

**Validation of the quality of the batch.**

The sampler takes a sample of the mixture to verify its quality.



## ➤ AIR OR NITROGEN BLOWING BOX

**For the management of air or nitrogen blowing in.**

The pneumatic control box manages the speed and pressure of the air or nitrogen and ensures the sealing of the bearings.



## ➤ DOUBLE CASING - HEATING / COOLING

**To control the temperature of the mix inside the mixer.**

The double casing of the mixer allows heating of its contents through the circulation of the coolant fluid in the double casing, or cooling by circulation of chilled water.



## ➤ STAINLESS STEEL, STEEL, FOOD-GRADE PAINT MANUFACTURING

**Materials adapted to your process constraints.**

The manufacture of building materials in direct contact with the powders are set to be in line with their specificities.



## ➤ DISPERSER

**For agglomeration, granulating and coating process.**

Dispersers, also known as choppers or knives, are tools that break the lumps and agglomerates and allow the production of high quality and homogeneous final product.



## ➤ TEMPERATURE SENSOR

**Set on the mixing tank.**

The temperature sensors transmit reliable temperature measurements for applications dealing with sensitive products (eg for sanitary/cosmetic/pharmaceutical applications).



## ➤ DETACHED PRESSURIZED BEARING WITH AIR OR NITROGEN BLOWING

**To ensure sealing of the shaft.**

To avoid the introduction of fines in the rotation mechanism of the mixing shaft, air or nitrogen is blown continuously at low rate and pressure through the lantern ring.



## ➤ INTEGRAL DISCHARGE HATCH

**For a full discharge of the mixer.**

The integral discharge hatch allows to limit cross-contamination by reducing the maximum retention of product in the mixer. Opening size: 15 ° or 60 °.



## ➤ PRESSURIZED TANK FOR LIQUID ADDITION

**A pressurized tank allows the addition of liquid during the mixing phase.**

In order to ensure the introduction of fluids (oil, fat, aromas ...), we offer pressure tanks or metering pumps to ensure the spraying of the liquid amidst the mixture. This option must be combined with the implementation of choppers/dispersers.



# Monorotor Mixer

**Capacity :** from 75 to 15,000 liters  
**Rate:** 2 to 8 batches/h. (depending on recipe and configuration of the machine)  
**Objectifve:** low-speed mixing

## FOR LOW VISCOCITY DRY POWDERS AND PASTY MIXTURES

Ribbon or belt technology allows high-quality mixing at low speed. The products are preserved and the risk of overheating is reduced. The resulting low attrition allows to maintain the initial characteristics of powders or granules blended, such as density, particle size or shape. The mixing principle is based on cross and repeated exchanges in the longitudinal direction established by the helical belt of the rotor. The slow movement of rotation is particularly suitable for heat-sensitive, fragile and abrasive materials.

# Ribbon Discontinuous



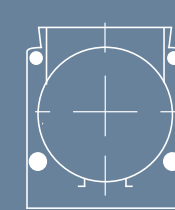
Discontinuous Monorotor Mixer

## TECHNICAL SPECIFICATIONS

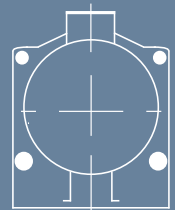
- The discharging trap reduces any unmixed product retention (the gasket ensures sealing of the tank)
- The discharge trap is built-in into a tube for connection to any downstream system (gravity flow, lock, screw...)
- The operation of the discharge trap is carried out by a pneumatic control system including: pneumatic cylinder, distributor, coil, limit switch
- Dispersion 1 kg/ton

## OPERATING MODE

There are two types of mixer loading:



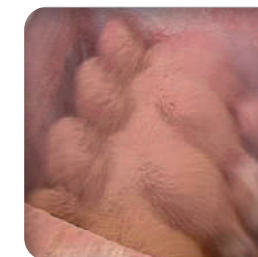
▶ Loading by hopper/trough body



▶ Loading by cuff/cylindrical body



▶ Gentle handling of the materials without any damage



▶ Homogeneity of the mixture



▶ Possibility to load the mixer up to 100%



▶ Possibility of complete discharge

## Advantages



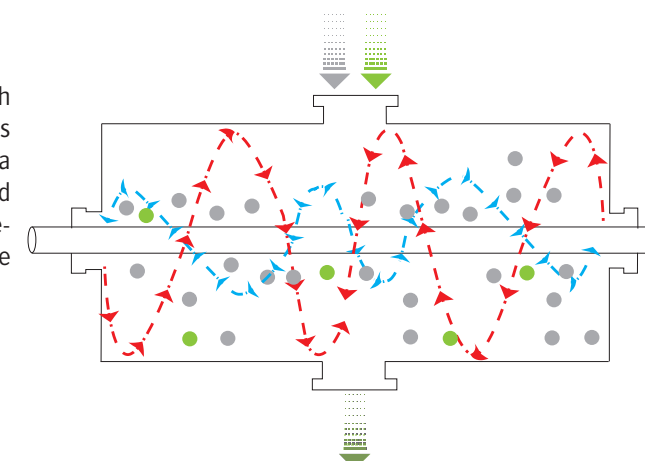
## TECHNICAL CHARACTERISTICS OF THE MIXING TANK

Models	MRR-A/ C75	MRR-A/ C150	MRR-A/ C300	MRR-A/ C550	MRR-A/ C800	MRR-A/ C1100	MRR-A/ C2000	MRR-A/ C3 000	Possibility to manufacture tanks with a capacity up to 15,000 liters
Total volume of the tank	75	150	300	550	800	1,100	2,000	3,000	
Max. net capacity in litres*	56	105	210	385	560	770	1,400	2,100	
Engine power in kW	2.2	3	4	5.5	7.5	11**	13**	15	

\*\*according to density of the product

## OPERATING MODE

The external axis conveys the material from both sides towards the center, while the inner axis transfers the material to the sides, producing a convective mixing. The product is gently mixed in a relatively short time: from 5-15 minutes depending on the complexity of mixtures and the amount of each ingredient.



## Options



Pneumatic control box



Heating/cooling casing

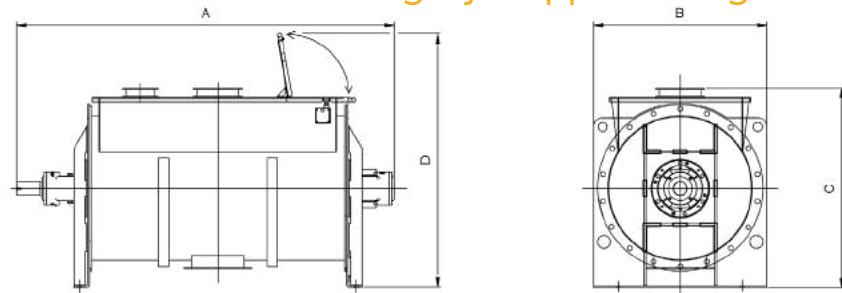
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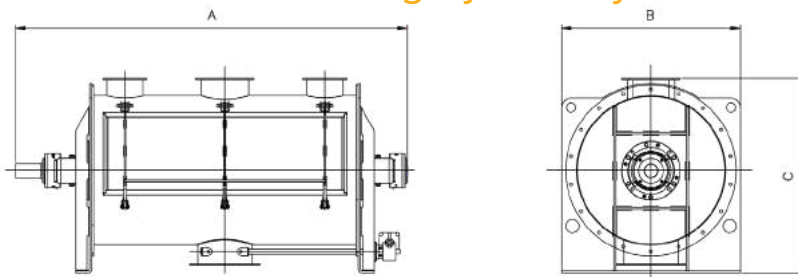
# Monorotor Ribbon Mixer

## ► DIMENSIONS in mm. - Loading by hopper/trough body



Models	A	B	C	D	Net capacity in dm <sup>3</sup>	Weight when empty in kg
MRR-A 75	1,300	611	670	1,051	56	160
MRR-A 150	1,460	670	763	1,271	105	270
MRR-A 300	1,840	770	930	1,393	210	400
MRR-A 550	2,150	930	1,133	1,585	385	690
MRR-A 800	2,350	980	1,154	1,602	560	850
MRR-A 1100	2,690	1,100	1,260	1,754	770	1,200
MRR-A 2000	2,920	1,340	1,465	1,975	1,400	2,400
MRR-A 3000	3,920	1,340	1,465	2,090	2,100	2,700
MRR-A 4800	4,520	1,500	1,725	2,199	3,360	3,800
MRR-A 6000	4,820	1,600	1,876	2,325	4,200	4,400
MRR-A 8800	5,390	1,810	2,067	2,665	6,160	5,300
MRR-A 10500	5,630	1,910	2,413	2,862	7,350	6,900
MRR-A 15000	6,124	2,110	2,706	3,190	10,500	8,000

## ► DIMENSIONS in mm. - Loading by cuff/cylindrical body



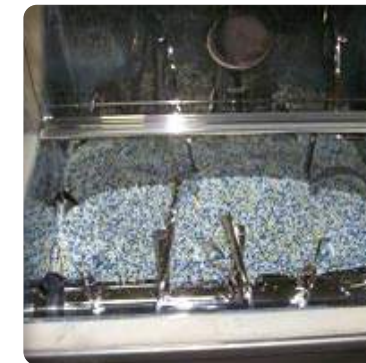
Models	A	B	C	Net capacity in dm <sup>3</sup>	Weight when empty in kg
MRR-C 75	1,300	611	649	56	160
MRR-C 150	1,460	670	754	105	270
MRR-C 300	1,840	770	889	210	400
MRR-C 550	2,150	930	1,075	385	690
MRR-C 800	2,350	980	1,151	560	850
MRR-C 1100	2,690	1,100	1,278	770	1,200
MRR-C 2000	2,920	1,340	1,455	1,400	2,400
MRR-C 3000	3,920	1,340	1,455	2,100	2,700
MRR-C 4800	4,520	1,500	1,750	3,360	3,800
MRR-C 6000	4,820	1,600	1,860	4,200	4,400
MRR-C 8800	5,390	1,810	2,130	6,160	5,300
MRR-C 10500	5,630	1,910	2,160	7,350	6,900
MRR-C 15 000	6,124	2,110	2,445	10,500	8,000

# Examples of Installations

## Monorotor ribbon mixer



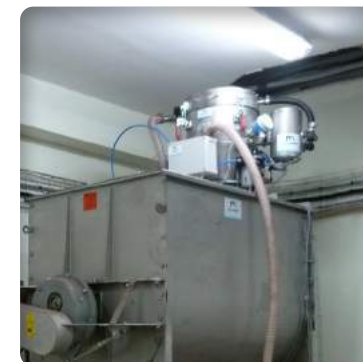
► Stainless steel cylindrical mixer



► Gentle mixing and compliance with the detergent



► Loading of the trough mixer with pneumatic conveying



► Cocoa mixing



► Inside view with opposite belts



► Mixer set in a complete grinding and bagging line



► Chain drive of the agitation device



► Inside view



► Mixer with detached engine



# Biorotor Mixer

# Blades Discontinuous



Discontinuous Biorotor Mixer

**Capacity:** 48 to 5,000 liters  
**Objectives:** homogenization and mixing of products with different characteristics

## MIXING AND HOMOGENEIZATION OF SEVERAL MATERIALS (SUCCESSIVE BATCHES)

The BRP double shaft mixer with blades is a continuous mixer with two parallel tanks, each fitted with blades which promote a homogeneous mixing regardless of the particle size and density. The intensive mixing action ensures, even with delicate or very brittle products, an optimal process without the formation of fine particles. The mixer can be started fully loaded.

## TECHNICAL SPECIFICATIONS

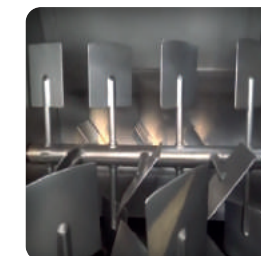
- **Coefficient of variation reached (CV): less than 3%**
- **Mixing ratio: 1/100,000**
- **High homogeneity (CV < 5%)**
- **Bearing end with rotor sealing group in various versions with optional air or gas pressurization**
- **Double bomb bay discharge**
- **Robust mixing tank made of carbon steel or 304 L stainless steel**

## FUNCTION

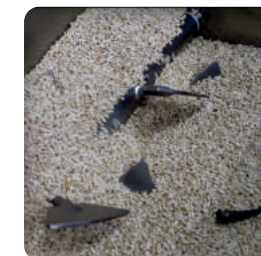
The BRP batch mixer is used for dry solids (powders, granules, short fibers), dry solids + liquids (moistening, granulating, coating), as well as for liquid and low-viscosity pastes.



Shorter discharge time due to double discharge mouth



Low residue (0-5.5% of the volume)



Short mixing time (5-30 sec.)

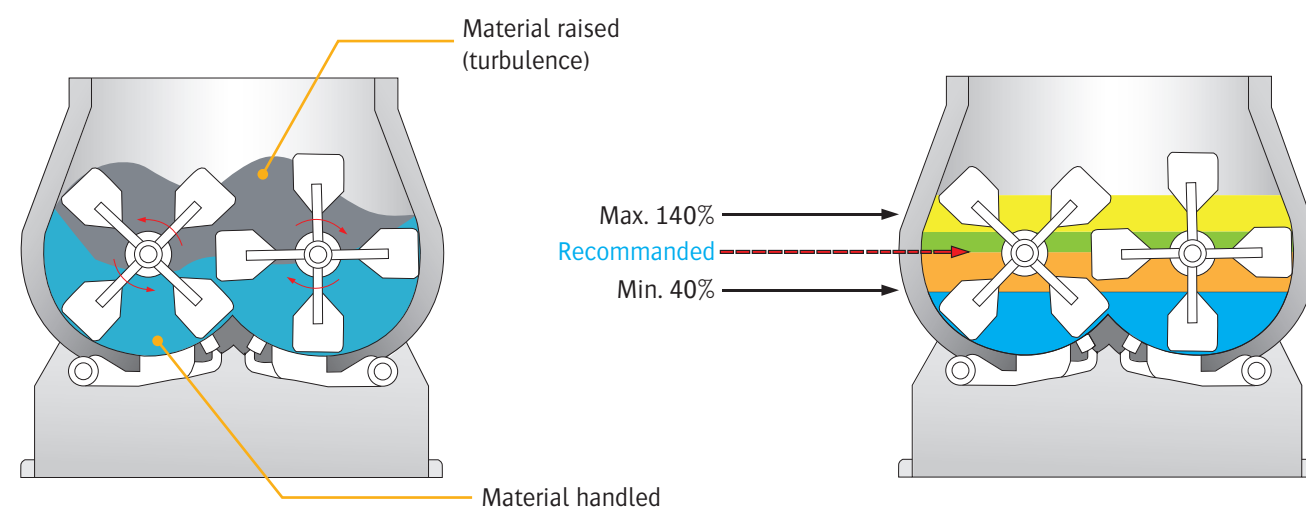


Easy cleaning

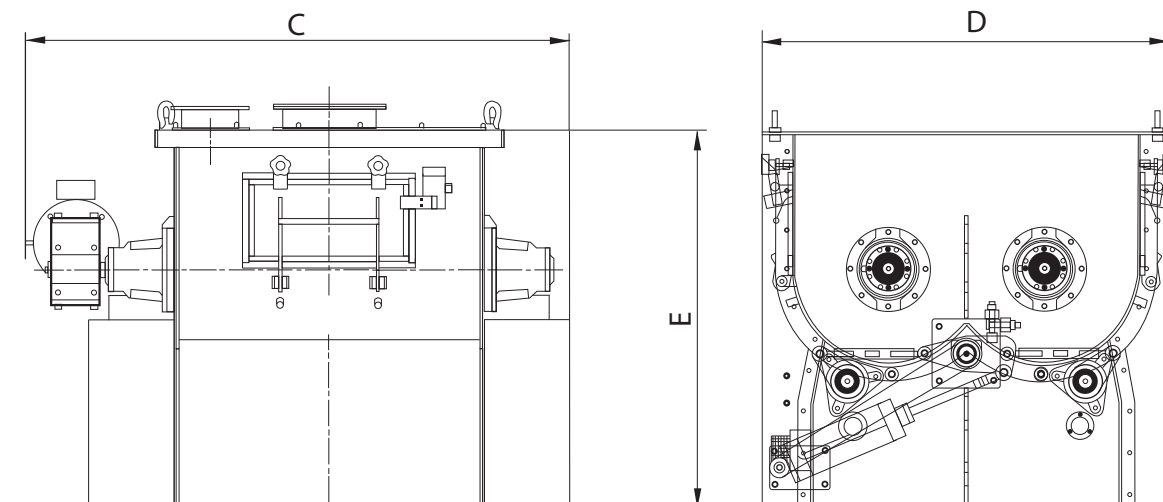
## Advantages

## OPERATING MODE

The horizontal rotors, which rotate in opposite directions, create a fluidization zone which ensures accurate mixing of products. The fluidization zone is generated by combining two technologies, the first in turbulence and the second in conveying. In these fluidized zones, powders and granules are dispersed optimally within a very short time. The double shaft mixer with blades, BRP, guarantees high performance in terms of homogeneity and mixing speed.



## DIMENSIONS in mm.



Models	C	D	E	Nominal volume in litres	Operating capacity in litres		Possibility to manufacture tanks with a capacity up to 5,000 liters
					Min.	Max.	
BRP 120	1,484	1,059	1,004	120	48	168	
BRP 250	1,784	1,363	1,104	250	100	350	
BRP 500	2,269	1,835	1,630	500	200	700	
BRP 1000	2,690	2,170	2,036	1,000	400	1,400	
BRP 2000	3,170	2,662	2,373	2,000	800	2,800	

<https://www.palamaticprocess.com/bulk-handling-equipment/discontinuous-mixer-paddle>

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## Options



Double casing heating/cooling



Tank and rotor shaft manufactured in 316 L stainless steel

# Vertical Mixer



## Birotor

**Capacity:** 1,000 to 5,000 litres  
**Objectives:** efficient mixing at variable filling levels

### MIXING SOLUTION FOR DRY, MOIST AND VISCOUS MATERIALS

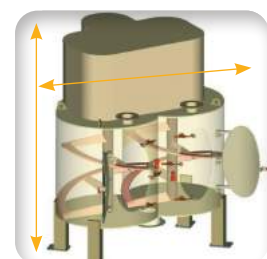
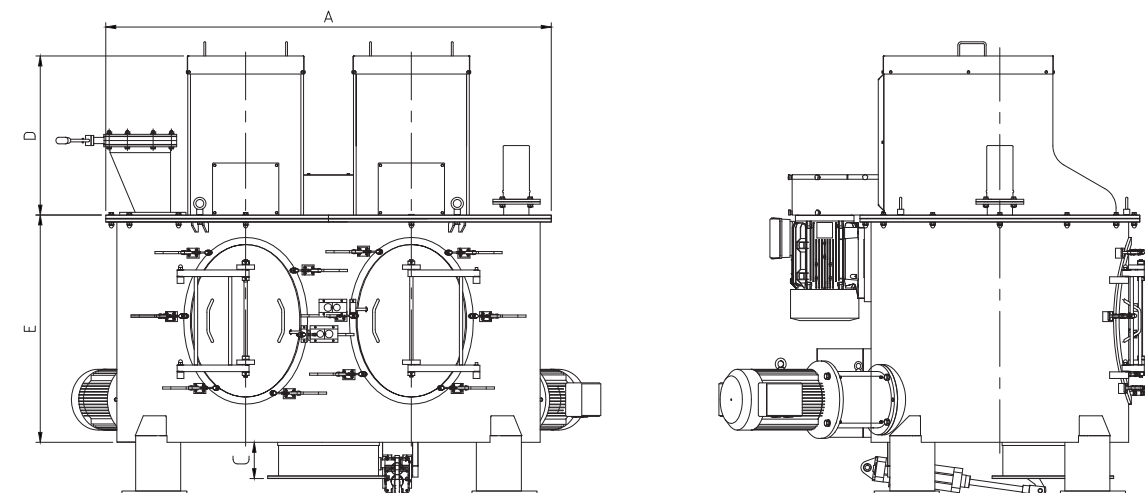
The double vertical shaft mixer offers a delicate treatment of dry, wet and sticky materials during mixing operations. The spiral blade of the vertical mixer activates a three-dimensional mixing of materials. This mixer can be used for dry powder, wet suspensions, liquid or pasty materials.

### TECHNICAL SPECIFICATIONS

- Vertical move of the product
- Soft brewing of all the contents
- High quality mixing and short cycles
- Filling level from 10% to 100% of the volume
- Minimum space between the walls and belt to prevent any product agglomeration
- No retention, continuous movement of the materials to be mixed



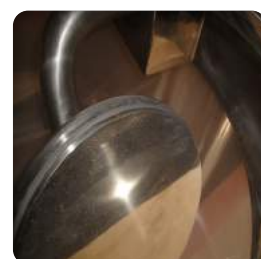
### DIMENSIONS in mm



Compact size



External drive



Unloading valve



Large doors for maximal accessibility



Clean In Place (CIP)



Multiple materials inlets are possible



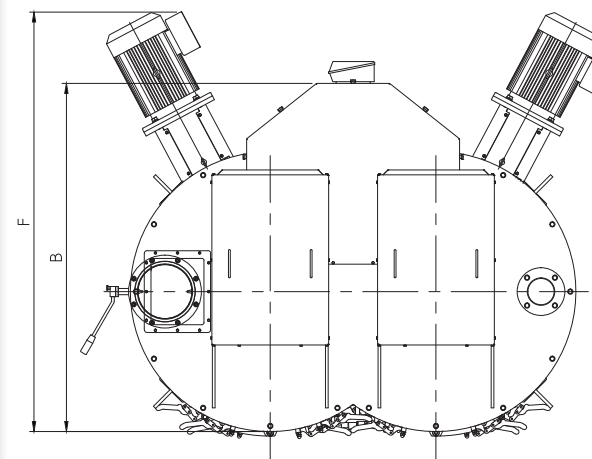
Polishing of welded components for hygienic finish



Can be installed on load cells for dosing

### Advantages

By its design, this type of mixer does not have any bearing in the product. Only two bearings, located on the upper part, ensure the guiding of the mixing shafts



Models	Mixing capacity (L)	A	B	C	D	E	Power kW
VTM 1000	1,000	1,780	1,610	145	450	990	11
VTM 1500	1,500	1,950	1,760	145	520	1,140	15
VTM 2000	2,000	2,170	1,960	145	620	1,280	22
VTM 2500	2,500	2,500	1,935	145	710	1,250	22
VTM 3000	3,000	2,500	1,940	145	710	1,415	30
VTM 4000	4,000	2,780	2,140	145	710	1,560	37
VTM 5000	5,000	3,040	2,260	145	710	1,680	45

### Options



Load cells to inform the process about the amount of powder introduced



Inspection hatch



# Vertical Mixer



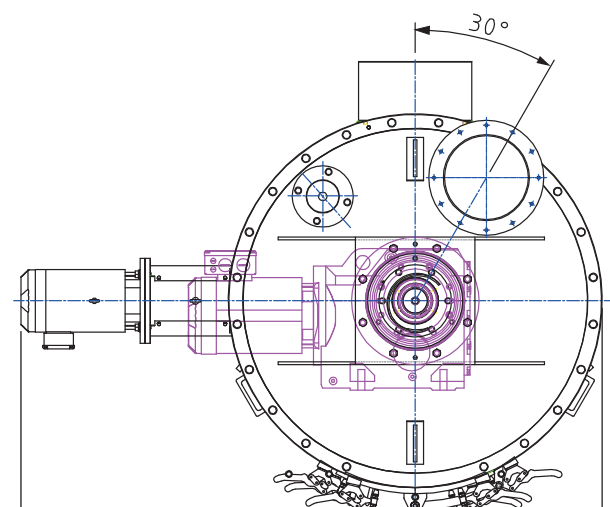
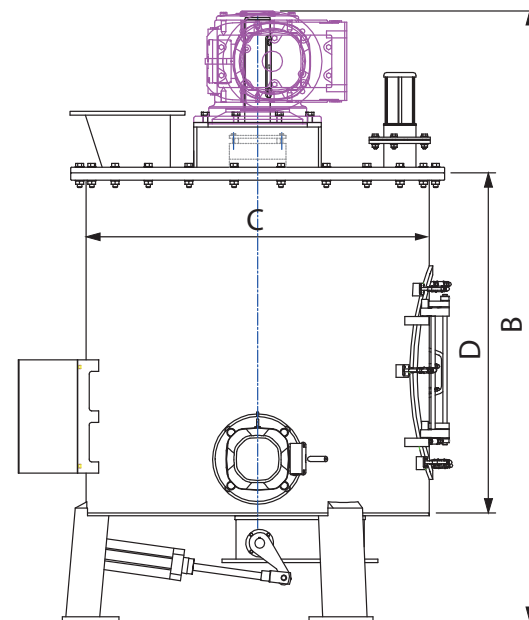
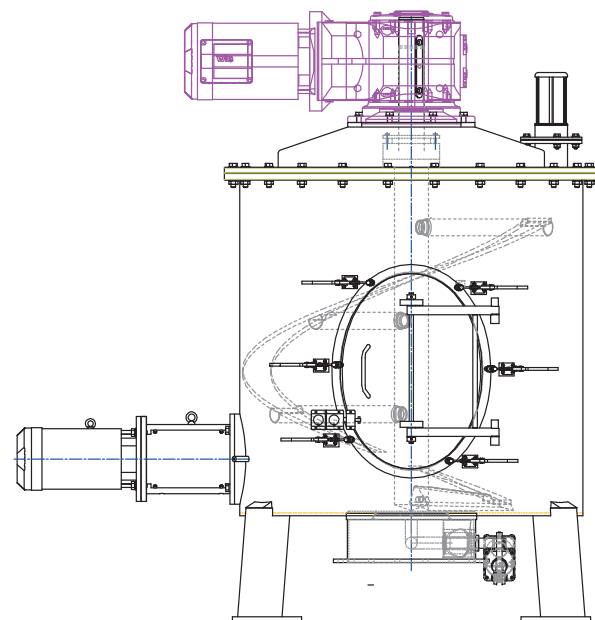
## Monorotor

Capacity: 500 to 4,000 litres

### HIGH MIXING QUALITY DUE TO THE THREE-DIMENSIONAL EFFECT

The vertical mixer with single shaft performs quality mixing of dry, moist and viscous materials. This mixer is ideal for the food industry as it complies with hygienic standards. It provides excellent mixing results, regardless of the materials to be mixed, through the helical movement of the central blade.

### ► DIMENSIONS in mm



Models	Mixing capacity (L)	A	B	C	D	Power kW
VM 500	500	2,050	1,900	880	1,115	7,5
VM 1000	1,000	2,050	2,155	1,212	1,200	11
VM 1500	1,500	2,250	2,600	1,410	1,235	11
VM 2000	2,000	2,350	2,600	1,515	1,500	15
VM 3000	3,000	2,350	3,550	1,515	2,200	22
VM 4000	4,000	2,750	3,400	1,900	1,900	30

## Case Studies



### ► MIXING LINE AND BABY FOOD HOMOGENIZATION

**Client:** Food factory

**Materials:** Milk powder and vitamins

**Installation details:** Loading of the ingredients packed in big bags and sacks with pre-weighing in a dedicated room to ensure complete hygiene.

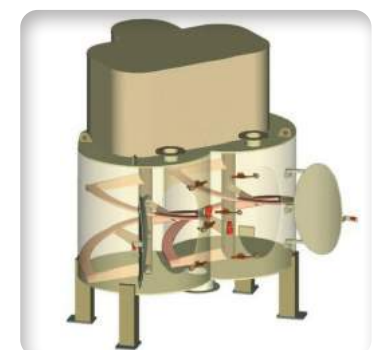


### ► PRODUCING A PREMIX FOR SPREAD MANUFACTURING

**Client :** Dairy products

**Materials:** Milk powder, sugar, alginate cocoa

**Installation details:** Preparation and mixing line with manufacturing in masked time for introduction into a powder disperser. This technology was chosen for its cleanliness and sanitation characteristics considering the absence of bearing in the product. The prepared mixture is packed in containers thus allowing management of masked time.



# Conical Screw Mixer



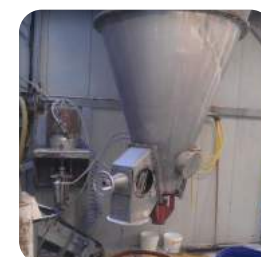
**Capacity:** 50 to 5,000 litres  
**Objective:** sticky liquid mixture or wet, pasty or powdery materials

## DELICATE MIXING AND BLENDING, SIMULTANEOUS STORAGE OF MATERIALS

The CV mixer is a conical mixer with high mixing efficiency. It allows the delicate mixing of products, while ensuring the highest level of accuracy without deterioration. CV mixer is based on a three-dimensional action produced by an axis suspended from a rotating arm inside the conical tank combined with the rotation of the axis itself. This equipment is suitable for intermediate product storage, combined with temporary homogenization.

## TECHNICAL SPECIFICATIONS

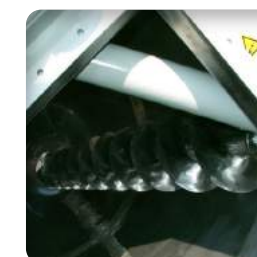
- Mixing vessel made of steel, stainless steel 304L/316L
- Surface finish: satin finishing, polishing, blasting
- Manual cylinder or pneumatic actuator for knife gate valve
- Adjustable knife gate valve
- Adjustable flow
- Minimum residual material in case of complete emptying
- Possibility of a mobile mixer



Compact size



Mild mixing, respect of the materials



Minimum residual material



Low power consumption

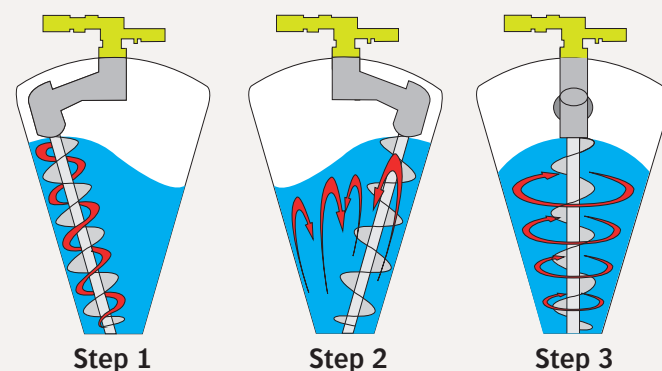
## Advantages



## OPERATING MODE

Mixing is carried out by means of three separate actions:

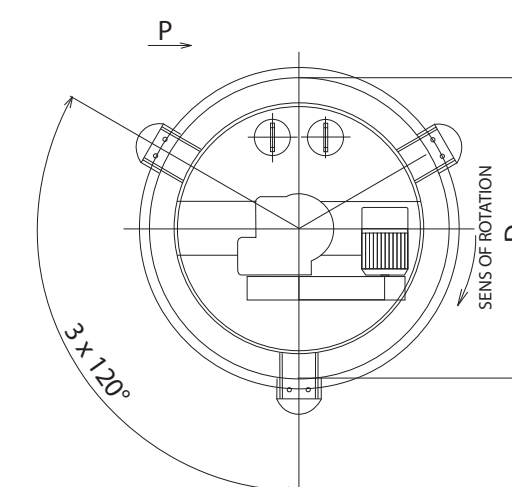
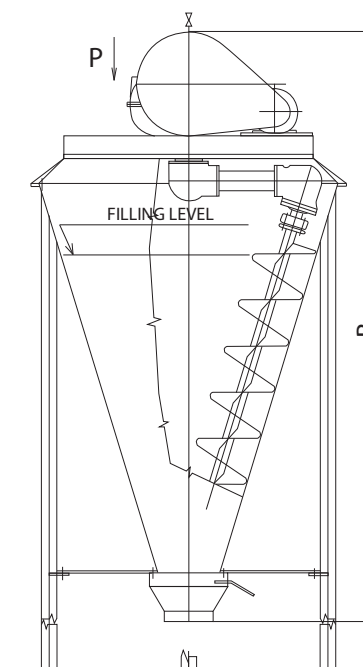
- 1) Mixing screw, rotating on its axis, produces a lifting action of materials
- 2) At the same time, the screw turns in orbit around the vessel, removes the materials from the wall and directs them to the center of the vessel
- 3) The materials, detached by the screw, gravitate downwards and are mixed thoroughly with those lifted by the axis.



The cleaning of this type of mixer is a significant asset for manufacturers carrying out frequent recipe changes

## DIMENSIONS in mm.

Models	CV 50	CV 100	CV 200	CV 300	CV 600	CV 1000	CV 1500	CV 2000	CV 3000	CV 5000
B	1,222	1,372	2,200	2,400	2,714	3,054	3,410	3,650	4,110	4,805
D	730	822	1,130	1,300	1,492	1,560	1,753	1,936	2,180	2,950
Weight	250	300	550	600	650	700	800	900	1,000	5,000
Net volume	50	100	200	300	600	1,000	1,500	2,000	3,000	5,000
Power kW	0.75	1.1	2.2	3.0	3.0	3.0	4.0	4.0	5.5	11.0 + 0.75



## Options



Manual discharging valve



Access door



# IBC Tumbler Blender



## Technical Characteristics

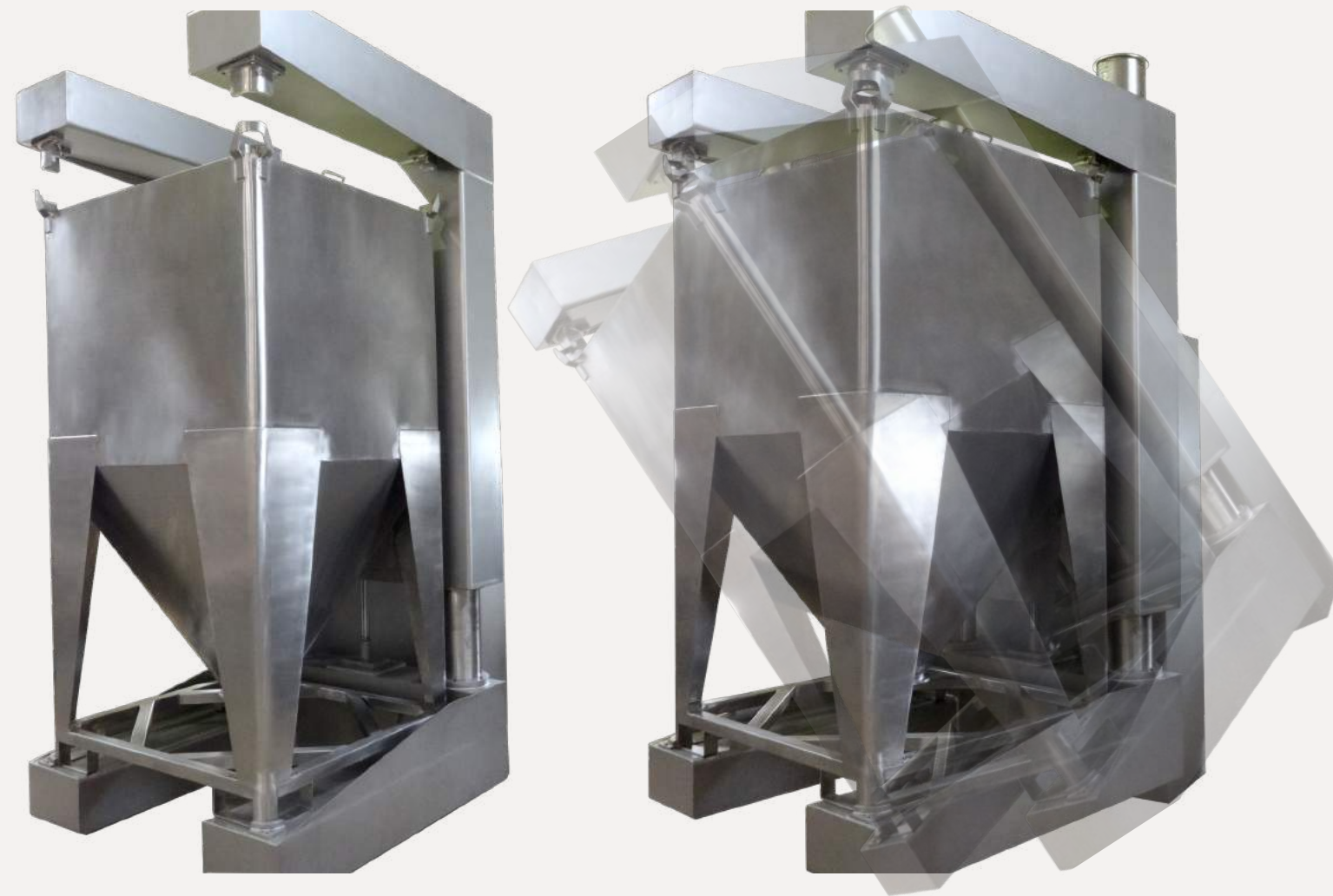
**Rate:** 4 to 10 revolutions/min.  
**Capacity:** 200 to 1,500 liters  
**Objective:** homogeneous mixing,  
 no material loss

### FOR A HOMOGENEOUS, QUICK AND EASY MIXING OF YOUR POWDERS

Our IBC blending stations are specially designed for pharmaceutical and food industries in which the constraints of cleanliness and hygiene are high. Our equipment offers high mixing performance for a wide variety of powders, while maintaining the quality of your material and avoiding the mechanical action of the standard mixers.

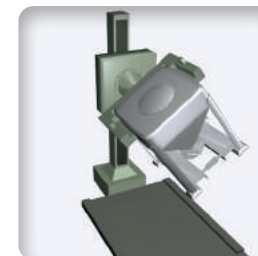
### TECHNICAL SPECIFICATIONS

**Manufacturing:** mild steel, 304L stainless steel, 316L stainless steel.  
**Control:** fully automated system with touchscreen. Automatic acceleration at start and deceleration at stop with the frequency variator and the dynamic braking module. Control elements include the indication of "rpm", the cycle duration, start, pause, lock/unlock position. The mixing program can be selected from pre-programmed cycles.  
**Engine:** variable frequency with adjustable rotations from 4 to 10 rpm.  
**Security:** a safety lift barrier can be provided to ensure the safety of the operator by prohibiting its access.



Positioning on the structure

Rotation of the container



Variable mixing speeds  
depending on the products to be  
blended



Control panel: ergonomic  
and easy to use



Secured locking of the  
container for mixing without  
any risk to operators

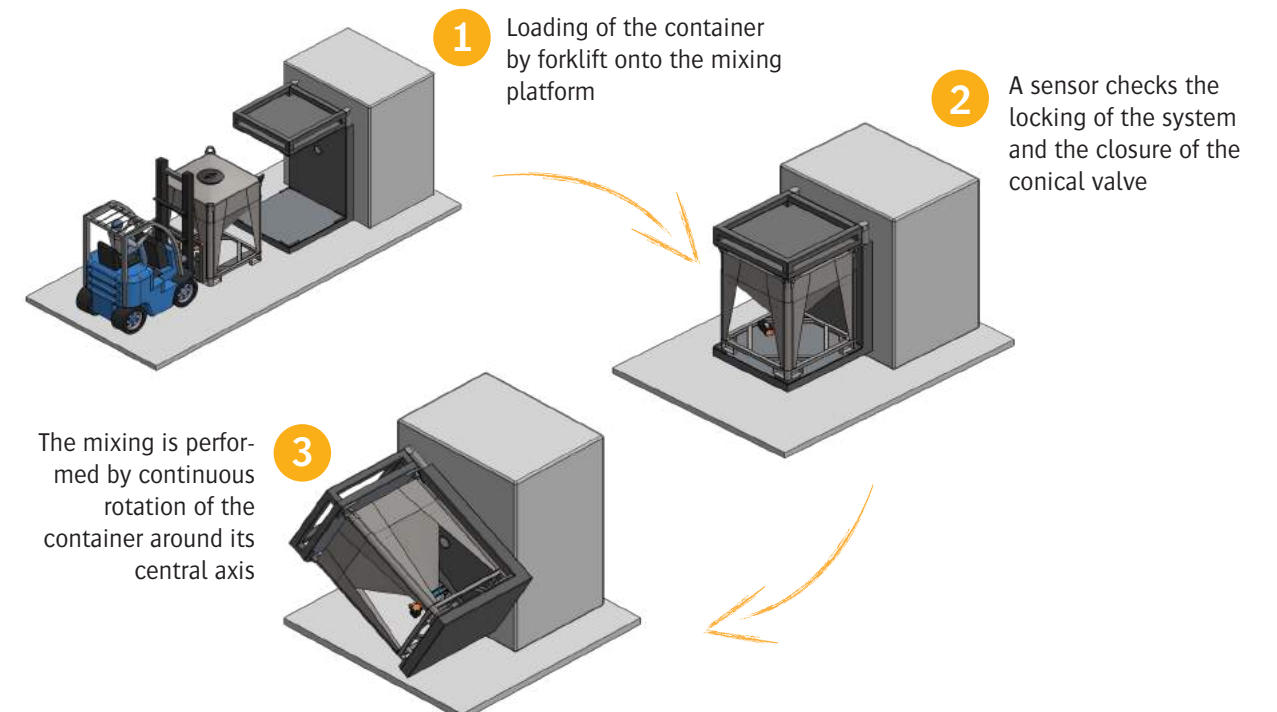


Uniform mixture of powders

### Advantages



### OPERATING MODE



# Biorotor Mixer

# Blades Continuous



Biorotor Mixer  
Blades Continuous

**Rate:** 4 to 34 m³/hr.

**Objectives:** homogenization and mixing of dry or wet materials

## SIMULTANEOUS CONVEYING AND MIXING OF TWO OR MORE PRODUCTS

PALAMATIC PROCESS continuous mixer with overlapping blades is ideal for homogenization and mixing of dry or wet materials.

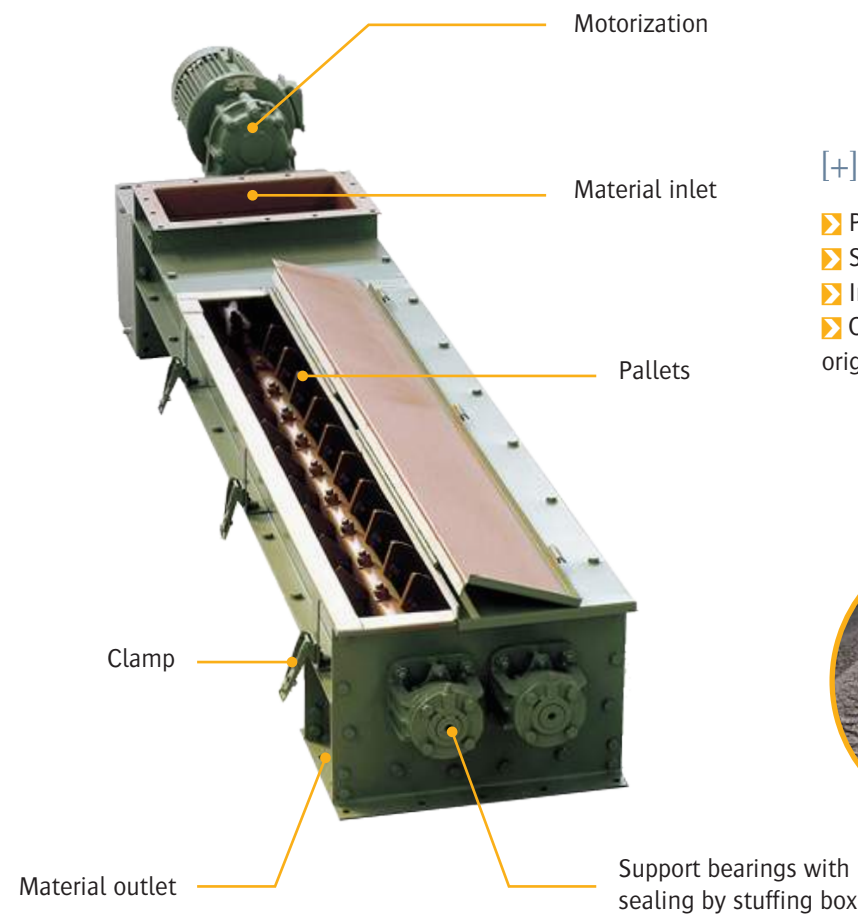
These machines, of simple and robust design, are fitted with double parallel rotors and ensure the mixing of two or more materials but also their conveying during the mixing process. These mixers are ideal to carry out neutralization of sludge with lime, moistening of dust, extinction of quicklime etc...

## TECHNICAL SPECIFICATIONS

- Possibility to add up to 20% of liquid material
- Robust mixing tank made of carbon steel or stainless steel 304 L/316 L
- Trough shaped tank with bolted or welded flanges
- Gasket at the passage of the shaft supporting the rotor, external bearings
- Driven by gear motor with hollow shaft or coupling

## OPERATING MODE

Double shaft mixers with blades BRPC are adapted to dust mixing, granulation, neutralization of sludge and moistening of dust, ash or sludge. The overlapping of the blades and the adjustment of their inclination ensure a very good adaptation to the products to be mixed. The continuous mixer is made of a tank which contains two parallel rotors fitted with blades which intersect during operation thus covering the entire surface of the trough. The start of the mixer is also possible when fully loaded.



### [+] Most common application

- ▶ Powder handling
- ▶ Sludge granulation
- ▶ Inerting of sewage sludge
- ▶ Conditioning of dust, ash and sludge of industrial origin (metallurgy, fly ashes)



▶ This mixer enables sludge handling with quicklime or dead lime.

### The horizontal shaft continuous mixers consist of:

- a mixing vessel equipped with a filling mouth
- a discharge mouth
- two mixing rotors
- two-end closure plates
- detached end bearings with passage of the shaft by packing gland
- gear units with power transmission



▶ Homogeneous conveying and mixing



▶ Self-cleaning rotors thanks to overlapping blades



▶ Adjustable blades with or without wear protection

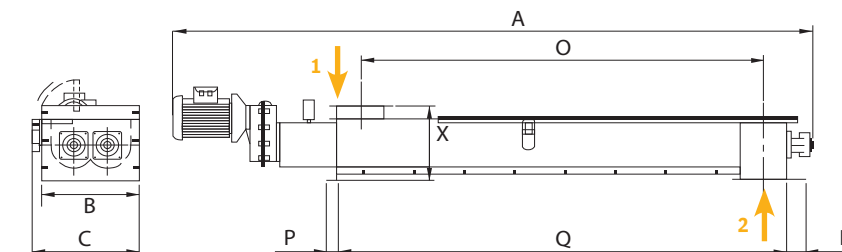
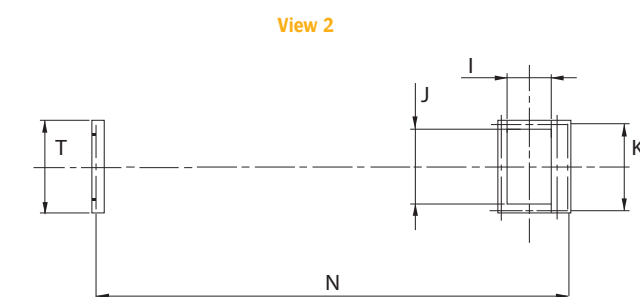
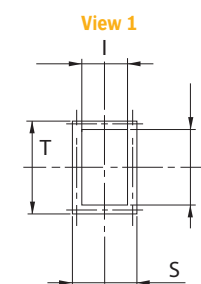


▶ Powers adapted to demand

## Advantages

## DIMENSIONS in mm.

Models	A	B	C	I	J	K	N	O	P	Q	R	S	T	X	Installed power in kW		Rate in m³/h.	Kg
BRPC 200	3,180	522.5	528	225	390	445	2,349	2,003	56	2,228	96	311	476	390	1.5	2.2	4 to 6	400
BRPC 300	4,414	742.5	755	325	595	655	3,439	3,004	70	3,329	100	433	703	540	3.0	4.0	7.5 to 12	700
BRPC 400	5,181	922.5	905	425	745	815	4,083	3,504	80	3,929	134	533	853	675	5.5	7.5	15 to 24	870
BRPC 500	5,934	1,147.5	1,130	525	950	1,027	4,679	4,004	90	4,529	120	653	1,078	870	7.5	15.0	25 to 34	1,050



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## Options



Antiwear coating



Liquid additive system



# Biorotor Mixer

## Sludge Processing Facility

# Blades Continuous



Biorotor Mixer  
Blades Continuous

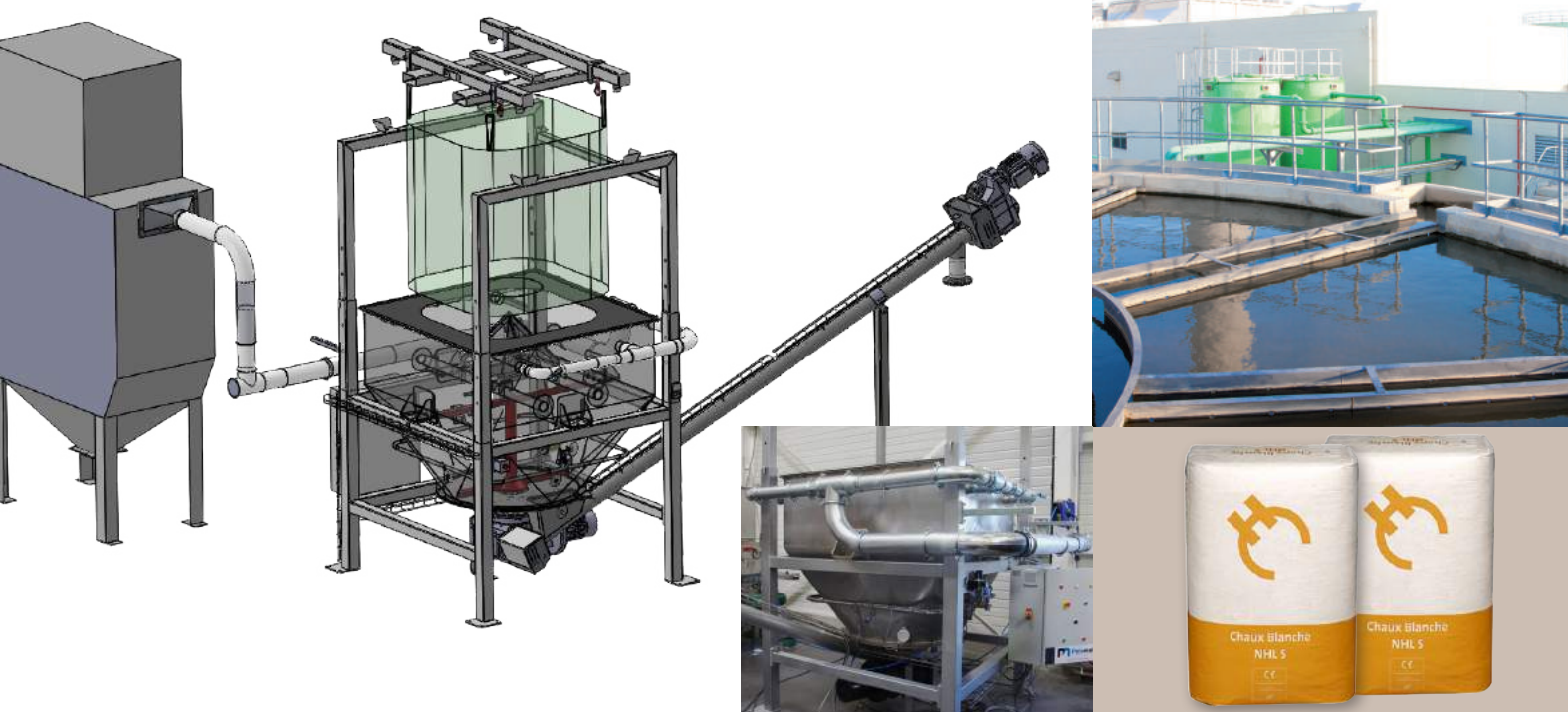
### SLUDGE INERTIZATION PROCESS

Typical diagram of a sludge liming facility.

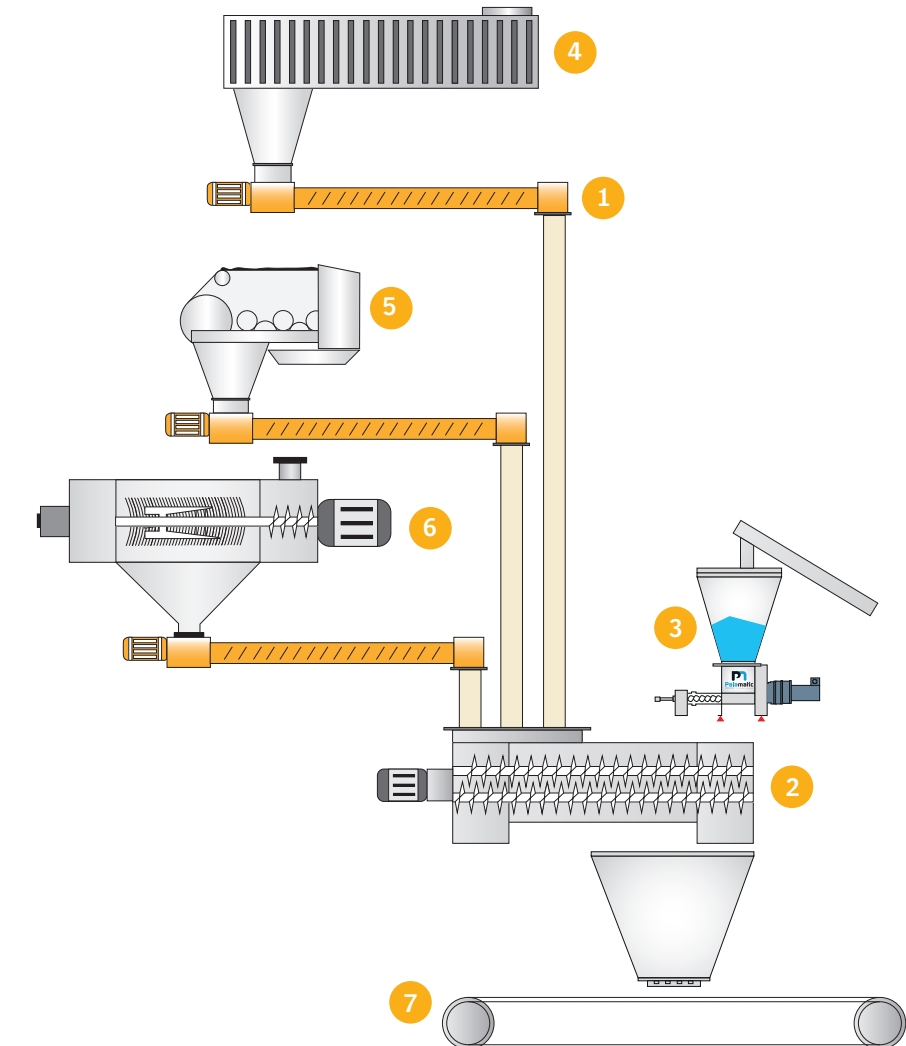


PALAMATIC PROCESS designs mixing tanks for preparing lime milk or activated carbon slurry. Our offer includes the incorporation of carbonate in smoke ducts, activated carbon dispersion or urea dissolution. The stirring methods we offer are various: homogenization, dissolution, suspension, dilution, flocculation...

- ▶ Lime milk preparation
- ▶ Urea Dissolution
- ▶ Activated carbon treatment
- ▶ Sludge processing/Conveying/Storage/Cooling
- ▶ Smoke treatment



Sack discharging and conveying of sewage sludge



1 Screw conveyor



2 Double shaft mixer with blades



3 Dosing system for incorporation of lime



4 Press filter



5 Belt filter



6 Sludge centrifuge



7 Belt conveyor



## ► PACKAGING OF SUGAR IN BIG BAGS

**Client:** Agrifood industry

**Materials:** Baking powder and vanilla sugar

**Objectives:** Process designed to control the feeding of a big bag loading station - 6 batches/hour.

**PALAMATIC PROCESS equipment:** Sack tipping unit with buffer hopper, conveying cyclone of a capacity of 20 litres, dedusting system connected to the sack tipping unit and the big bag loading station, mixer on a handling base and nozzle for liquid incorporation, security vibrating sifter at the outlet of the mixer, pneumatic conveying system for feeding the big bag loading station installed on weight cells with a handling base.



## ► PACKAGING OF SEAWEED IN BAGS

**Client:** Organic seaweed culture

**Materials:** Dry seaweed

**Objectives:** Milling of seaweed with collection of the powders in sacks or big bags under the separation filter.

**PALAMATIC PROCESS equipment:** Mill with independant dedusting unit, pouyès ring, monorotor belt discontinuous mixer, rotary valve for dosing and weighing tray.



## ► SUGAR PROCESSING LINE

**Client:** Cookies Manufacturer

**Material:** Granulated sugar

**Objectives:** Reduction of the particle size of the product.

**PALAMATIC PROCESS equipment:** Manual sack tipping unit with integrated vibratory sifter for removal of agglomerates, tubular screw conveyor, mill to reduce the granulometry of the material, threshing hopper with monorotor belt mixer, dust extraction system with explosion vent, rotary valve to stop the fire in case of explosion, inflatable seal for total containment when filling the sacks and weighing tray for automatic management of the filling process.



## ► PROCESS LINE AT THE OUTLET OF ATOMIZATION TOWER

**Client:** Food industry

**Materials:** Food flavoring

**Objectives:** To package the materials at the outlet of atomization tower

**Characteristics:** The conical mixer ensures perfect homogenization of manufacturing batches. This mixer is implemented "in-line" in order to have a continuous packaging, respecting the flow of the atomization tower.

**PALAMATIC PROCESS equipment:** Pneumatic conveying, sieve, packaging unit.



## ► SUGAR PACKAGING LINE

**Client:** Rusks manufacturer

**Materials:** Cane sugar, cocoa powder, corn starch, cinnamon, praline powder

**Objectives:** Feeding of the mixer with cane sugar, cocoa and other additives.

**PALAMATIC PROCESS equipment:** Standard bag emptying hopper, buffer hopper, gearbox for conveying the material to the cyclone, horizontal belt ribbon blender with a screw with two inverted axes.



## ► IBC BLENDER FOR FLEXIBLE LINE

**Client:** Manufacturer of ceramic materials

**Materials:** Refractory bricks

**Objectives:** Homogeneous material and regular change of recipe.

**PALAMATIC PROCESS equipment:** Mixers are manually filled by the operator in order to comply with each recipe. According to the application, changes of materials are very frequent thus justifying this conception of line. The containers, after mixing operation, are positioned on a packaging unit to provide customers with ready-to-use bags.



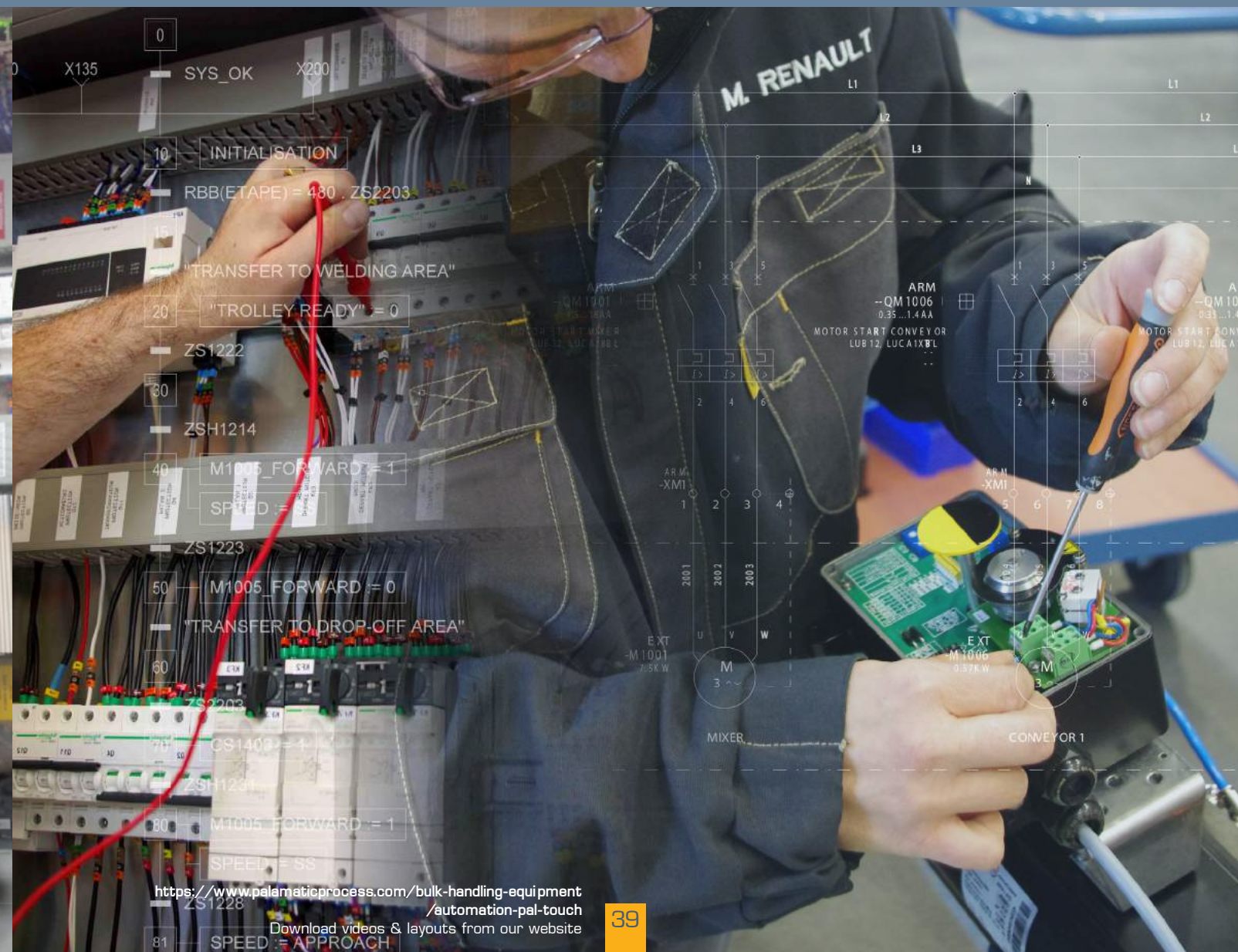
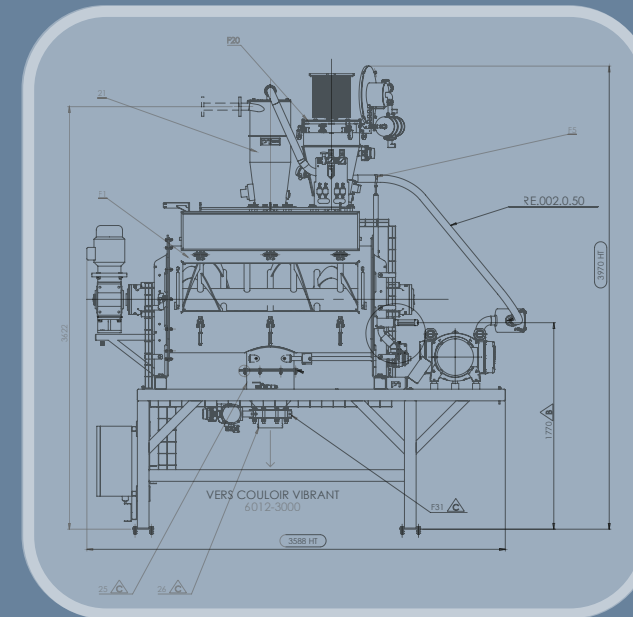


# AUTOMATION & ELECTRICITY

## PAL'TOUCH® TECHNOLOGY

Designer of specific equipments, PALAMATIC PROCESS associates programmed PLCs with its production units in an ergonomic and visual way. The production control is as important as the result. That is why automation and IT engineers of PALAMATIC PROCESS review the raw material feeding, the batches traceability, operators identification and dosings database. Thanks to continuous exchanges during the phase of project execution, between your production team and our engineering office, screens for packaging lines control offer ergonomic and easy use with unique personalization.

**Equipment and programs used:** Schneider, Siemens, Rockwell, Omron, Philips, Intouch, Pc View, VijeoDesigner...





# Test Plant



INDUSTRIAL-SCALE TESTS & FLEXIBILITY



Our test center is made up of the latest machinery of the powder handling sector. Specialist engineers are there to advise you on the industrial processes best suited to your requirements and to guide you at every stage of the decision to design the most efficient installation.

Our mixer, available for trials, may be tested as a unit or integrated in sieving, pneumatic conveying or packaging solutions.

## 3 STEPS TO VALIDATE YOUR PROCESS

### Step 1 - Before Test

- Select the likely optimal machine configuration based on your technical requirements (powders, flow rate, dosing)
- Draft test proposal by our sales-engineers representatives

### Step 2 - During Test

- Process validation for product testing
- Perform testing and sample collection
- Discussion on results after the test with machines (phase diagram, degradation tests, fines content)

### Step 3 - After Test

- Analysis of machine test data and samples
- Write a summary report
- Collaborate on the optimal solution for your requirements
- Submit a quotation

## THE BENEFITS OF MECHANICAL TESTING

- An individual consultation with and on-going support by our R&D engineers
- Confirmation of the appropriate machines to conduct a test with your product
- Tests at various operating conditions to define the most efficient process according to your industrial requirements
- Evaluation of the profitability of equipment configuration
- Possibility to test additional options using PALAMATIC PROCESS' range of products
- Maximize the return on your investment
- Maximize the optimum selection of the proper machine
- Capitalize on the wide experience of our experts

**300**  
+ than **300** configurations

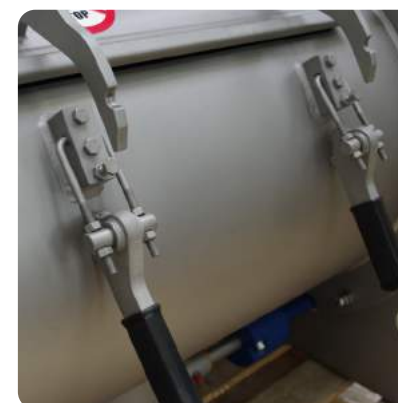
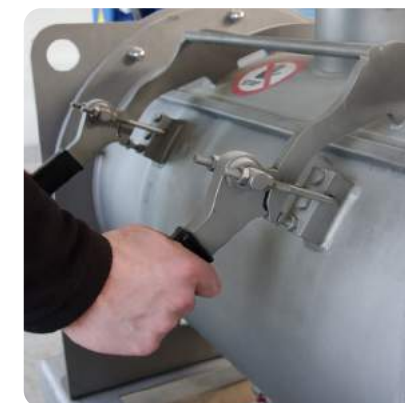
- ▶ Come with your materials
- ▶ Participate in selecting the test machines
- ▶ Maximize your productivity

- + than **300** process configurations
- **2,400** sq. feet of surface dedicated to the test
- **35** industrial machines
- **35** feet of ceiling
- Test with **all types of products**
- **2 support engineers**
- **ATEX** configurations



## TEST PLANT

Our test plant is located in the heart of the head office of our company. Each device has been carefully designed to meet the needs of our customers. Because your satisfaction and the performance of our solutions are important criteria for us, our engineers paid particular attention to the details of our installations to ensure total success of your projects.





# Our expertise:

## **FILLING SOLUTIONS FOR BIG BAG AND OCTABIN**

To fill

## **EMPTYING SOLUTIONS FOR BIG BAG AND OCTABIN**

To empty, compact and massage

## **SACK, DRUM AND CARDBOARD FILLING SOLUTIONS**

To fill, package, handle

## **SACK AND DRUM EMPTYING SOLUTIONS**

To empty, compact, handle, discharge

## **SOLUTIONS FOR PNEUMATIC CONVEYING**

Vacuum, pressure

## **SOLUTIONS FOR MECHANICAL CONVEYING**

To transfer with screw, belt conveyor, bucket elevator, aeromechanical or vibratory conveyor, truck loading spout

## **CRUMBLING AND GRINDING EQUIPMENT**

To granulate, crumble, grind, pound, micronise, disagglomerate

## **SIFTING EQUIPMENT**

To sift, segregate, sieve, protect

## **CONTAINERS AND STORAGE SOLUTIONS**

To fill, charge, empty, contain

## **DOSING EQUIPMENT**

To control, regulate, empty, extract

## **MIXING EQUIPMENT**

To homogenise, incorporate, fluidify, stir, mix

## **FLOW AND CONNECTION**

To vibrate, fluidise, unclog, drain, facilitate extraction, control the descent, prevent stacks and vaults, connect

## **INDUSTRIAL DUST COLLECTING EQUIPMENT**

To filter, clean, confine, secure



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