

stolz

desmet ballestra

## Mixing & Coating



## A modern test unit

### ST 60 GF pilot unit

Batch mixing - Coating - Liquids spraying - Unit batch size involved from 18 litres up to 80 litres according to applications - Control and regulation of mixer body temperature - Variable rotors speed - Possible addition of nitrogen, steam, etc... - Insulated, preheated with temperature control liquid pressure vessels - Transparent top cover - Nozzle support removable from outside - Nozzles fitting including heating pins with preset temperature and regulation - Shearing and dispersal tulips knives available with variable speed.

Unit made of stainless steel 316L, inner polishing with grains 240 - on a movable wheel supporting frame, including one sealing reception bin on pneumatic jacks for perfect sealing.



ST 60 GF pilot unit



STS 20 pilot unit

### STS 20 pilot unit

Batch mixing - Coating - Liquids spraying - Drying - Micro granulation - Unit batch size from 6 litres up to 25 litres according to applications - Variable rotors speed - Possible addition of nitrogen, steam, etc... - Transparent top cover - Nozzles support removable from outside - Variable speed PMS system for delumping - Full control of incoming air flow, heating of air temperature - Exhaust air temperature and relative moisture.

Unit made of stainless steel 316L - Inner polishing with grain 240 - on a movable wheel supporting frame, including one reception bin.

# Dosing

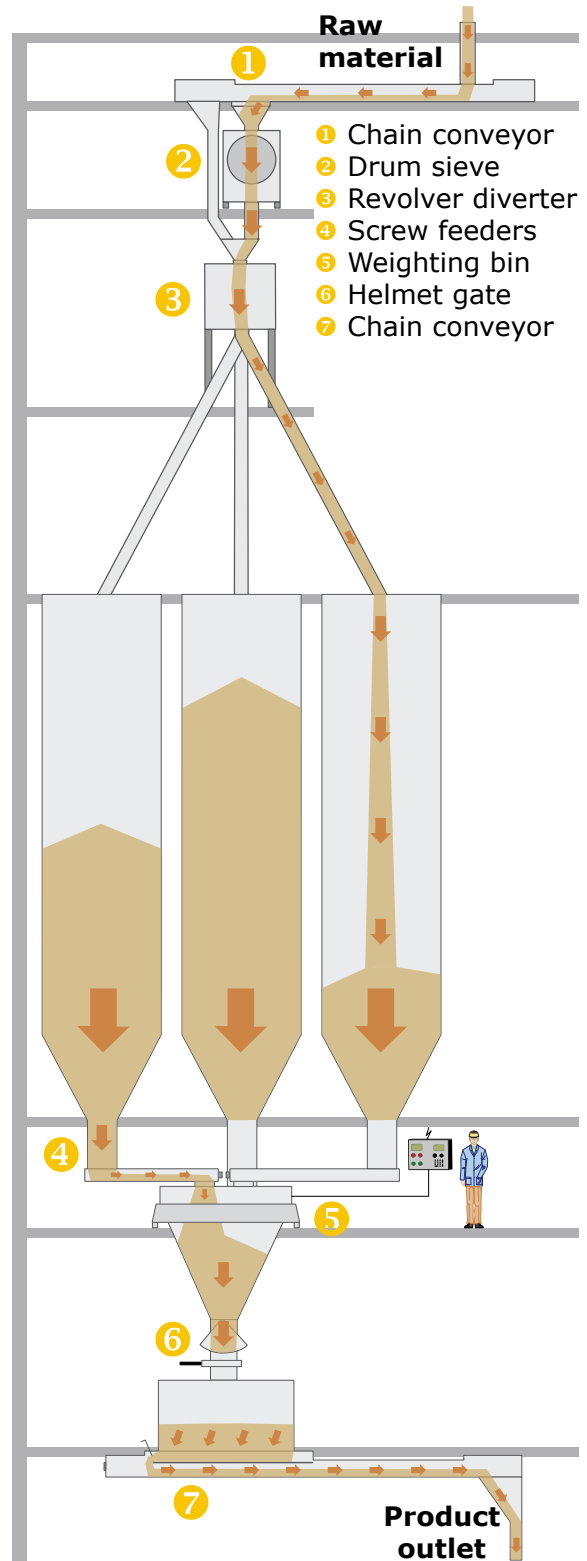


Screw feeders

Dosing allows to improve the accuracy of your formulas. That control over your recipes ensures a constant quality of product, meeting the requirement of your customers and reducing the extra costs of raw materials.

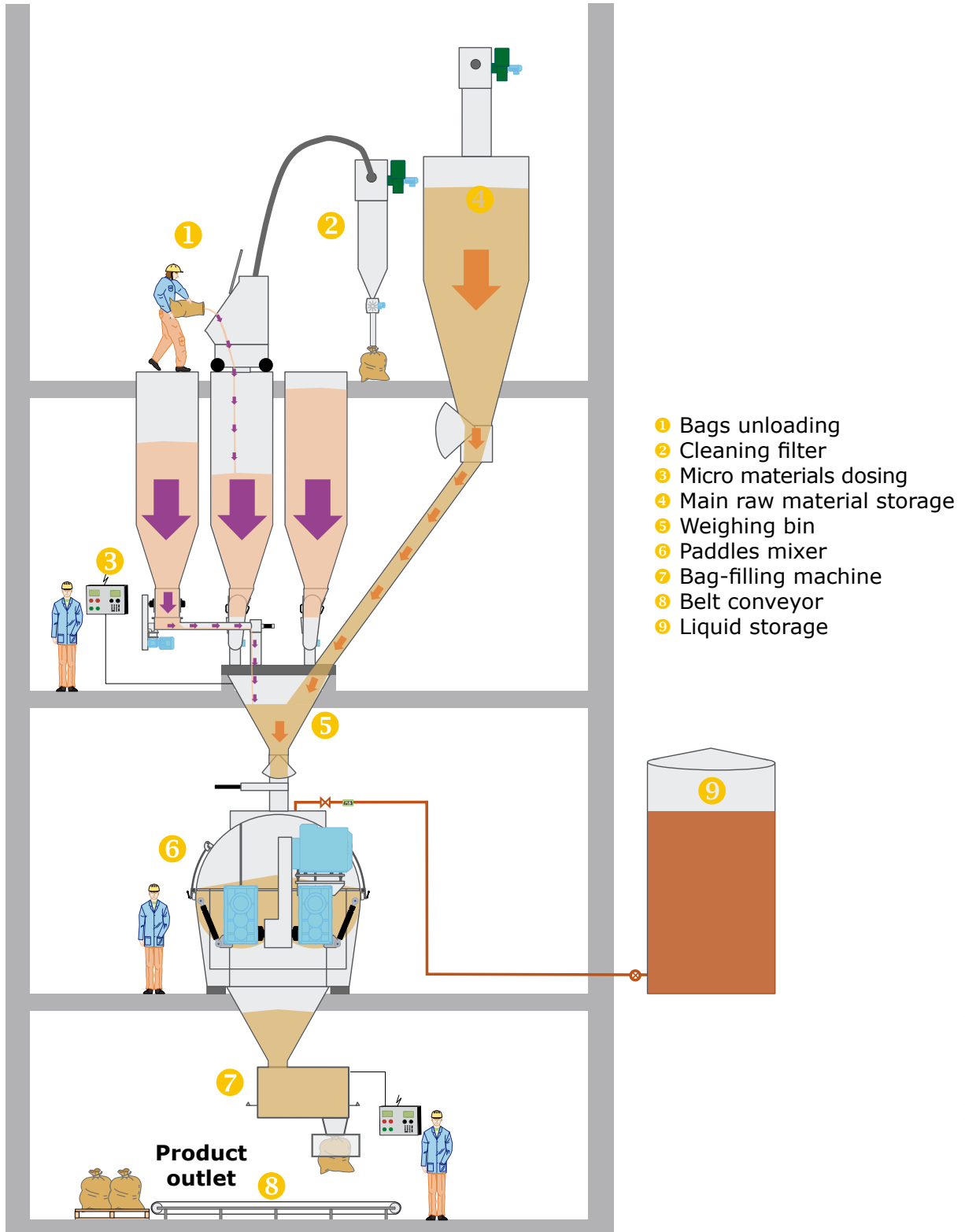
Beyond the supply of mechanical parts, STOLZ brings you a computer assisted management of your installation, allowing :

- Management of process, electrical and mechanical parts and safety devices
- Display of measuring points and faults
- Management of weighing, automatic calibration of the system
- Correction with automatic learning based on the weighing differences
- Rationalization of working and weighing times and idle times between phasis, in order to obtain the best capacity
- Storage calculation in regard of available quantities before weighing and required quantities for the preset formulas
- To insert a batch on operator demand
- To identify the inlet materials by barcode
- Storage of a traceability over 3 axis : origin and destination of each batch ingredient, path followed by an ingredient, batch of previous and following ingredients that flowed in the circuit.

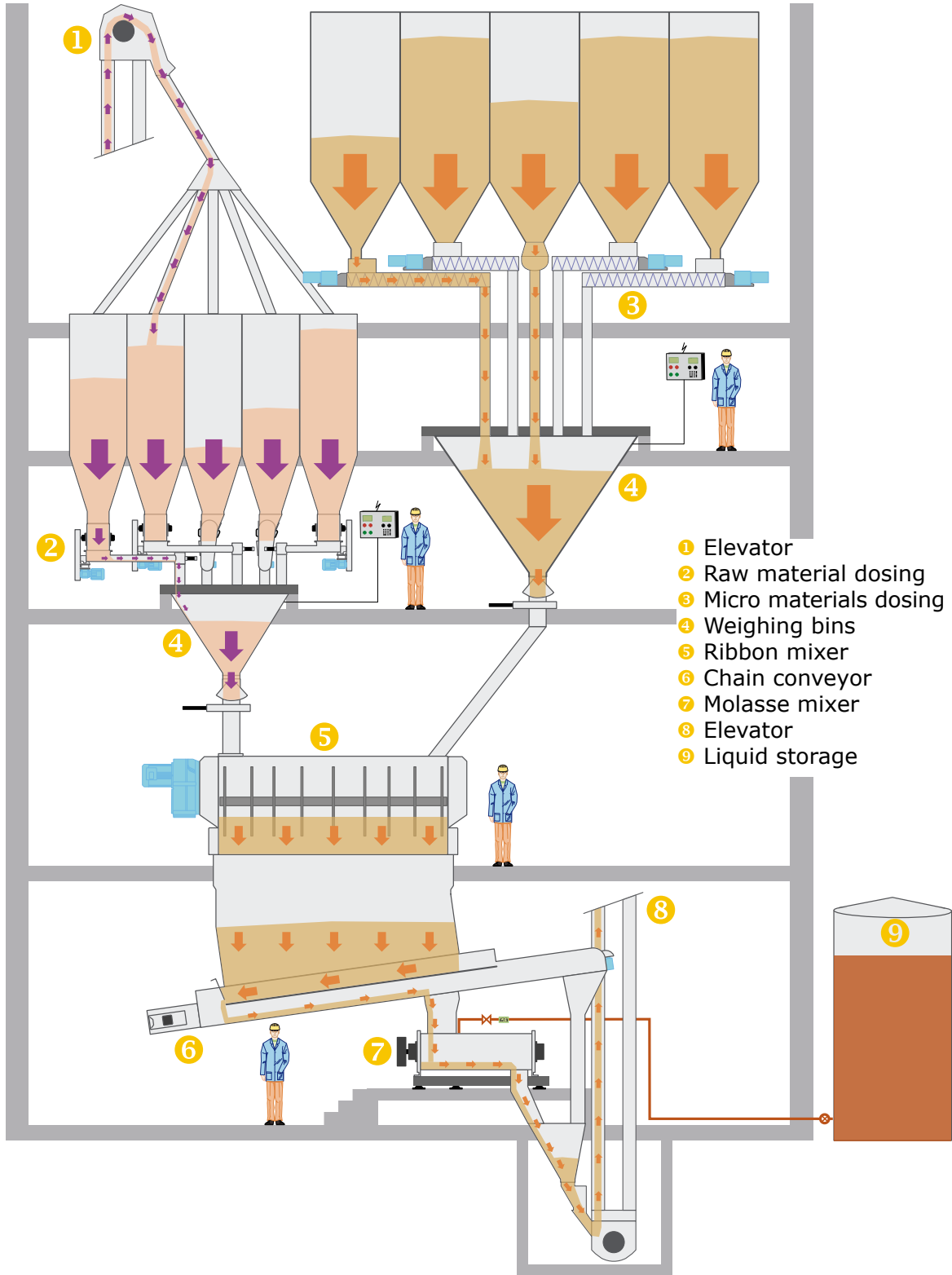


Non-contractual drawings and pictures

# Mixing line : premix



# Mixing line : feedmill



# Ribbon mixer



Ribbon mixer

That type of mixer is dedicated to batch mixing of powdery materials. It ensures the best homogeneity within the shortest time.

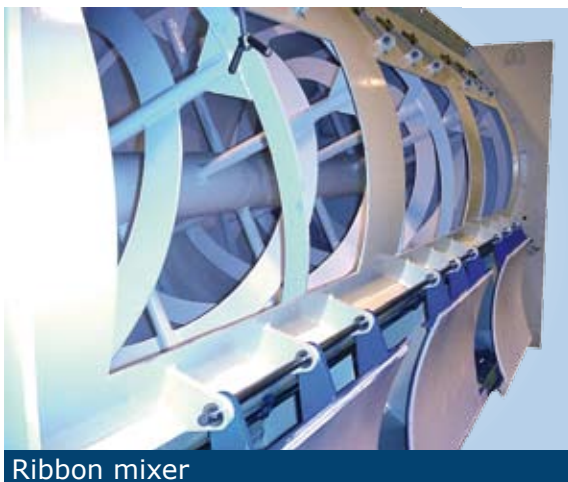
The rotor is made of 2 concentric double-spires with inverted step projecting the raw materials while crossing each other. To obtain the best mix, the external spires must be visible.

The range of STOLZ ribbon mixers includes 3 types :

- Type MH (100 liters to 12000 liters), with tough tank and a rotor with a single or dual rotation direction, with

draining through one or several gates, or by the standard opening bottom.

- Type MHR with lyre-shaped tank design and dual rotation direction rotor (option), with discharge through the wide opening bottom.
- Type MHC with lyre-shaped tank ended with conical parts in order to allow a full discharge. Rotor with dual rotation direction (option) and emptying with 2 wide opening bottoms.



Ribbon mixer



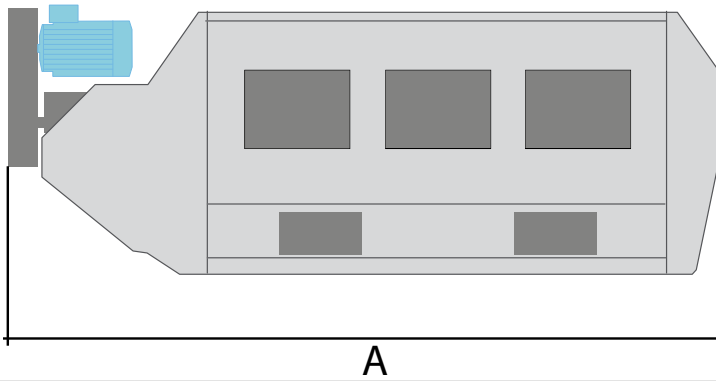
Opening bottom



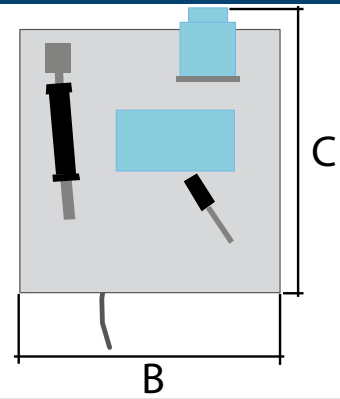
Ribbon mixer



Ribbon mixer



A



B

Type	Used volume	Overall sizing (mm)			Weight	Installed power*
	L	A	B	C	kg	kW
<b>MH 1</b>	100	1480	690	655	470	2.2
<b>MH 2</b>	200	1680	800	760	500	2.2
<b>MH 4</b>	400	2190	900	905	620	3
<b>MH 8</b>	800	2875	1000	1000	900	4
<b>MH 10</b>	1000	3200	1100	1235	1100	5.5
<b>MH 15</b>	1500	3245	1200	1205	1300	5.5
<b>MH 20</b>	2000	3300	1500	1360	1400	7.5
<b>MH 25</b>	2500	4520	1400	1500	1600	11
<b>MH 30</b>	3000	4500	1500	1360	1780	11
<b>MH 40</b>	4000	4225	1650	1485	2350	15
<b>MH 50</b>	5000	5025	1650	1485	2660	22
<b>MH 60</b>	6000	5025	1850	1755	2920	22
<b>MH 80</b>	8000	4460	2200	2005	3780	30
<b>MH 100</b>	10 000	5260	2200	2005	4310	30
<b>MH 120</b>	12 000	6160	2200	2005	5580	37

\* Power indicated for a specific weight of 0.5 without liquid

# Twin shafts paddle mixer



Batch mixer - Capacity 750 L - Option Nitrogen addition

## Laws of gravity challenged

Lack of segregation due to a wide range of bulk densities, of particle sizes or shapes.

## Accurate mixing

- Minor components without premixing : 10 ppm,
- No overheating,
- Variation coefficient value less than 3% with powders according to applications.

Wide opening side inspection doors :

- Quick inner inspection,
- Quick eventual cleaning,
- Full access.

## All kinds of steel finishing

Internal finishing :

- Stainless steel : all types of grains polishing, electropolishing, seamless welding
- Mild steel : 1 protective coating layer, high wear resistance coating on option.

External finishing :

- Stainless steel : fine glassbeatshot, protecting coating layer on steel plates
- Mild steel : primary coating layer, final coating layers

## A shorter mixing time

Depending on applications, mixing time is from 10 seconds up to 1 minute to achieve a stabilized mix involving dry material.

### Flexible unit batch size

Loading rate from 30% up to 140% of the nominal capacity according to applications without changing operating parameters.

### Shearing and dispersal tulip knives

According to applications, possible addition of active shearing and cutting devices even with a 30% loading rate efficiency.

### Fluidization and particles movement areas

Direction of rotating shafts :

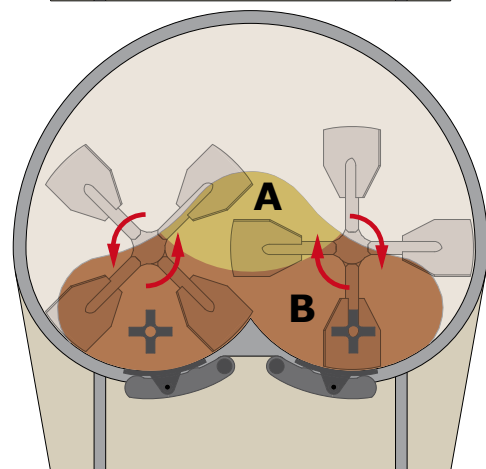
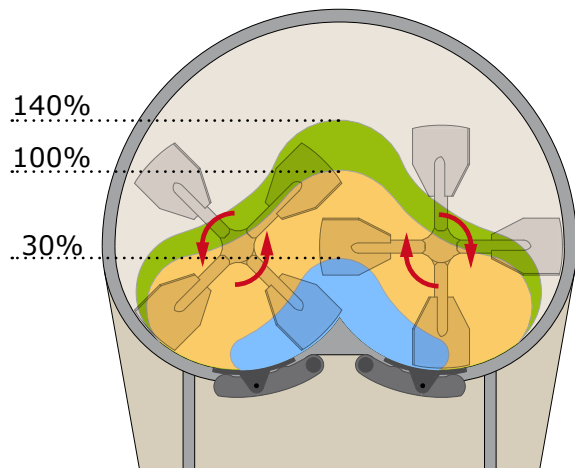
- The different particles are moved up into the central area of interpenetrating paddles by synchronized rotors.

**Area A :** Mechanical fluidization area :

- Area for interpenetration of paddles moving downward. Area A is the actual mixing area.

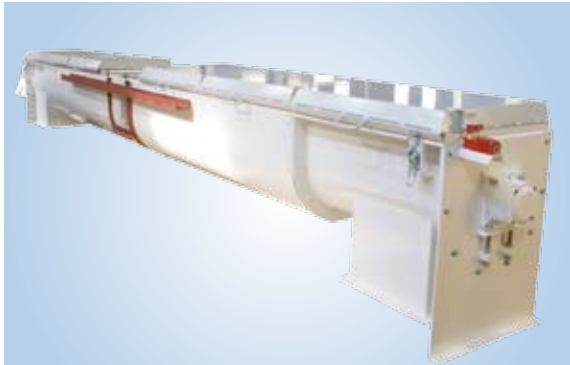
**Area B :** Circular movement of particles :

- Zone where particles have a circular and planetary movement and move simultaneously with complex movements in area A.



Type	Capacity	Used volume (L)				Overall sizing (mm)			Weight kg	Installed power kW
		Mini		Maxi		Length	Width	Height		
	L	No liquid	With liquid	Powders	Fragile materials					
<b>ST6</b>	6	0.6	4.8	9	7.2	900	600	600	160	0.37
<b>ST20</b>	20	2	16	28	24	1000	650	700	250	1.1
<b>ST60</b>	60	6	48	84	72	1000	1350	850	280	3
<b>ST120</b>	120	12	96	168	144	1500	1100	1000	450	4
<b>ST200</b>	200	20	160	280	240	1850	1400	1150	800	4/5.5
<b>ST350</b>	350	35	280	490	420	1850	1600	1350	1200	5.5/7.5
<b>ST500</b>	500	50	400	700	600	2100	1650	1450	1500	7.5/11
<b>ST750</b>	750	75	600	1050	900	2400	1850	1600	2500	11/15/22
<b>ST1000</b>	1000	100	800	1400	1200	2700	1950	1700	4000	15/22/30
<b>ST1500</b>	1500	150	1200	2100	1800	2900	2200	2150	4500	22 to 37
<b>ST2000</b>	2000	200	1600	2800	2400	3100	2550	2300	5500	30 to 45
<b>ST2500</b>	2500	250	2000	3500	3000	3300	2600	2400	7000	30 to 45
<b>ST3600</b>	3600	360	2880	5040	4320	3500	2950	2600	8000	37 to 55
<b>ST5000</b>	5000	500	4000	7000	6000	3900	3250	2600	9500	45 to 110
<b>ST6000</b>	6000	600	4800	8400	7200	4150	3350	2600	13000	55 to 110
<b>ST8000</b>	8000	800	6400	11000	9600	4800	3600	2600	17000	75 to 160
<b>ST10000</b>	10000	1000	6000	13750	12000	5600	3600	2600	22000	110 to 160

# Fat coater and enzymer



Enzymer with 2 outlets and rotation direction

Mainly used for coating of pellets with grease (2 to 8%) in order to improve the nutritive value and to favour appetite.

- Also allow incorporating of oil (palm oil, enzymes, ...).
- Grease incorporated during the mixing have good results.

## Characteristics

- Specific feeder for accurate and optimised product distribution.
- Solid material introduced under in a curtain shape way.
- Typical spraying nozzles according to the different types of liquids for accurate flowrates.
- Mixing tools ensuring a perfect particles distribution and movements.
- Mixing ribbon ensuring a better coating.
- Trough or tubular design
- Heating and insulation of trough



Enzymer / fat coater



Enzymer / fat coater

## Option

- 2 product outlets and dual-rotation direction

Type	Capacity	Diameter	Overall sizing (mm)			Installed power
	t/h		mm	Length	Width	Height
<b>10</b>	10	300	4950	500	1560	3
<b>20</b>	20	400	4950	550	1665	4
<b>40</b>	40	400	4950	550	1665	5.5
<b>40</b>	40	500	4950	655	1765	5.5
<b>60-400</b>	60	400	5060	755	1930	7.5
<b>60-600</b>	60	600	5060	755	1930	7.5

# Conical vertical mixer

## A wide range of vertical conical mixer :

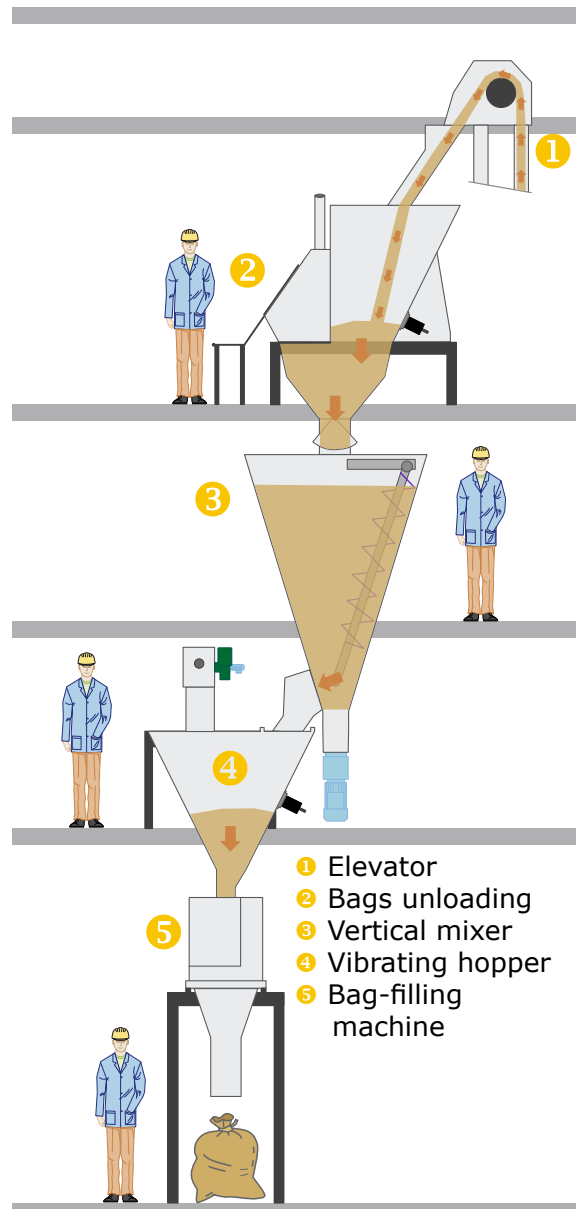
- Suitable to gravitary process
- Possibility of bagging line directly connected to the product outlet
- Small footprint
- Low installed power



Conical vertical mixer



Mixing screw



Type	Used volume	Overall sizing (mm)		Upper gearmotor		Lower gearmotor	
	L	Diameter	height	kW	rpm	kW	rpm
<b>PMAD1000</b>	1000	1830	3660	0.75	46	4	62
<b>PMAD1500</b>	1500	1990	3970	0.75	46	4	62
<b>PMAD2000</b>	2000	2123	4190	0.75	46	4	62
<b>PMAD3000</b>	3000	2378	4810	1.1	46	5.5	63
<b>PMAD4000</b>	4000	2580	5140	1.1	46	5.5	63

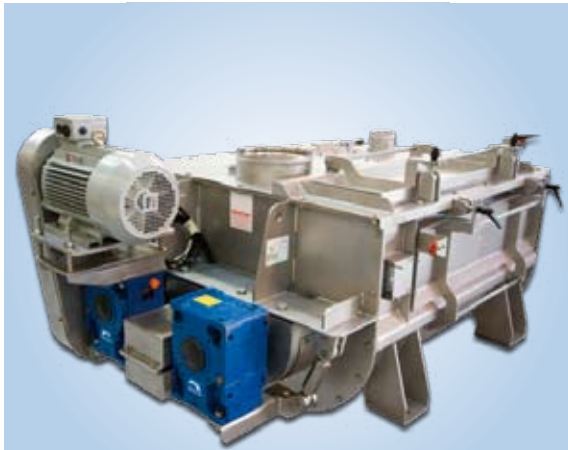
# Continuous mixer

## Continuous mixing quality and flexibility

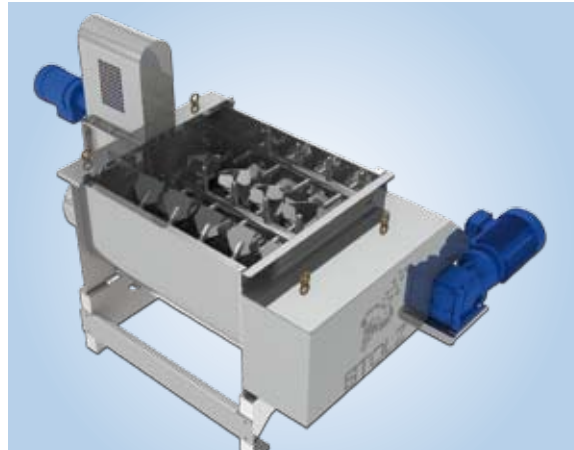
- Mechanical fluidisation cut down the front dosing variations,
- No beginning and queue of production not perfectly mixed and adjustable discharging opening,
- Adjustable average residence time,
- Control of rotors speed, refilling level, liquid spraying.



Continuous mixer



Continuous mixer



Continuous mixer

Type	Capacity	Used volume	Overall sizing (mm)			Weight	Installed power	Rotation speed
	m3/h	L	Length	Width	Height	kg	kW	rpm
<b>STC60</b>	10	84	1800	1350	950	350	3/4	74
<b>STC120</b>	20	168	1500	1100	1100	550	5.5/7.5	60
<b>STC200</b>	30	280	2200	1200	1300	960	7.5	50
<b>STC350</b>	60	490	2400	1400	1600	1380	11	41
<b>STC500</b>	85	700	2900	1700	2300	1900	15	36
<b>STC750</b>	125	1050	3300	1900	2350	3400	22	35
<b>STC1000</b>	170	1400	3360	1810	1760	5000	30	32
<b>STC1500</b>	250	2100	3540	2070	2150	5400	37	32
<b>STC2000</b>	340	2800	4200	2295	2300	7200	45	30
<b>STC2500</b>	420	3500	4690	2430	2420	8400	45	30
<b>STC3600</b>	600	5000	5360	2810	2500	9600	55	30
<b>STC5000</b>	850	7000	5730	2110	2500	12600	75	32
<b>STC6000</b>	1000	8500	6100	3500	2500	14000	90	28

Capacity based on a 30 seconds average resident time

# Rotating vacuum coater

## Why the vacuum

- Porosities air removed and replaced by liquid,
- Increase liquid penetration within the porosities,
- Keep out surface free of excess liquid,
- Favour encapsulation of aromatic additives in the product

## Technology

- A mixing technology that guarantees a high level of homogeneity,
- Liquid spraying with specific nozzles giving a perfect uniform coating liquid supply,
- Absolute pressure down to 200 mbar (80%) when required,
- Discharging by rotation,
- Filtration and monitoring of the exhaust air,
- No sealing maintenance required because of no bottom discharge doors,
- Sealing guaranteed by butterfly valve.

## Technical details

- Vacuum rotating coater refilling through a wide butterfly valve,
- Closing of the butterfly valve and air suction with vacuum pump,
- Liquid spraying under vacuum nozzles,
- Vacuum pressure released,
- Liquid is forced to penetrate the porosities,
- Rotation of coater at 180° after pressure balance,
- Butterfly valve opening and batch discharging,
- Back to refilling position for a new batch,
- One cycle duration : from 3 up to 5 minutes.

Type	Used capacities	Overall sizing (mm)			Vacuum pump	Installed power
	L	Length	Width	Height	kW	kW
<b>STR6 SV</b>	2.5-9	1185	700	1340	0.37	0,37
<b>STR60 SV</b>	25-90	2950	2300	2400	1.5	2x1.5
<b>STR120 SV</b>	50-170	3060	2430	2670	1.5	2x1.5
<b>STR500 SV</b>	200-700	3400	2500	2050	11	2x4
<b>STR1000 SV</b>	500-1400	3750	2750	2450	18.5	2x7.5
<b>STR1500 SV</b>	750-1200	4200	3110	2670	2x18.5	2x11
<b>STR2000 SV</b>	1000-2800	4500	3500	3050	2x18.5	2x15
<b>STR2500 SV</b>	1250-3500	4900	4000	3350	2x18.5	2x18.5
<b>STR3600 SV</b>	1500-5000	5500	4950	4430	2x18.5	2x22
<b>STR5000 SV</b>	2000-7000	5800	5200	4500	3x22	2x30

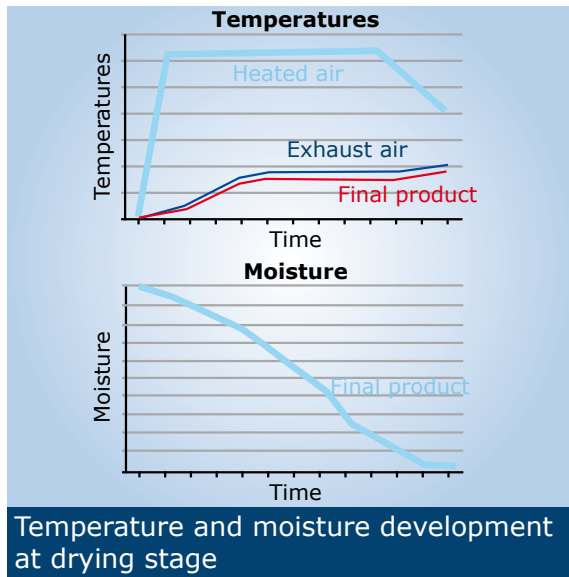
# Drying system

## Possibilities

- High thermal efficiency,
- Product temperature presetting,
- Control of airflow, air and product temperature at drying stage.

## Homogeneous drying

- No overheating point,
- Low temperature drying,
- Closed loop system,
- Energy savings.



Type	Overall sizing (mm)		Mixer motor	Air	Fan	Filter area	Heater	Weight
	Length	Width	kW	m <sup>3</sup> /h	kW	m <sup>2</sup>	kW	kg
<b>STC20</b>	2000	700	1.1	250	0.25	3	11	2400
<b>STC60</b>	2900	2500	2.2	500	1,1	6	22	3000
<b>STC120</b>	3400	2400	3	850	2,2	11	38	3300
<b>STC200</b>	3600	3900	4	1400	3	18	62	3500
<b>STC350</b>	3600	4200	7.5	2400	4	30	106	3900
<b>STC500</b>	3800	4300	11	3300	5.5	41	146	4200
<b>STC750</b>	4000	4400	15	4800	7.5	60	212	4800
<b>STC1000</b>	5800	4500	22	6300	11	79	278	5300
<b>STC1500</b>	8900	6100	37	9300	11	116	411	6000
<b>STC2000</b>	9600	6800	45	12400	15	155	548	6900
<b>STC2500</b>	11000	7200	55	15500	22	194	685	7500
<b>STC3600</b>	13000	7600	75	22300	30	279	986	7900

# Molasse mixer



Molasse mixer

Mostly used for molasse incorporation (up to 8% in the mealy products for animal feed).

Machines built in mild steel with a HMW 1000 coating as standard or stainless steel.

Used as a conditioner before a pellet mill or a mulling room where there is a liquid incorporation greater than 3%. That machine is built with both stainless and mid steel (body in stainless steel).

Used as mixer and crusher.

Used as continuous mixer.

The specific type MM630 can be used with minerals. It is provided with a double jacket of the body for circulation of cooled air in a closed loop circuit on each half hull of the body. Provided with stainless steel wearing plate instead of jacketing.



Molasse mixer



Molasse mixer

## Characteristics

- Molassing chamber provided with wide opening access doors.
- Anti adhesive coating inside.
- High molasse dispersion level due to high rotation speed.
- Dynamically balanced rotors.
- Treated or tungsten carbide coated tipped knives.
- Spraying of 1 to 3 different liquid simultaneously possible.
- Support frame including elastic plots.

Type	Capacity	Diameter	Overall sizing (mm)			Weight	Installed power
	t/h	mm	Length	Width	Height	kg	kW
<b>RMCP 2E</b>	20	456	2615	1365	800	1200	22
<b>RMCP 3E</b>	30	620	2655	1635	1285	1600	45
<b>RMCP 4E</b>	40	620	3170	1635	1285	1770	45
<b>RMCP 6E</b>	60	740	3300	1970	1130	2700	75
<b>RMCP 8E</b>	80	850	3425	2330	1500	4100	90
<b>RMCP 10E</b>	100	850	3425	2330	1500	4100	110

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*Handling equipment & Dedusting*

*Grinding and milling*

*Thermal conditioning & Cooling*

*Pelletizing*

*Mixing & Coating*

*Sifting & Cleaning*

*Services*

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