

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

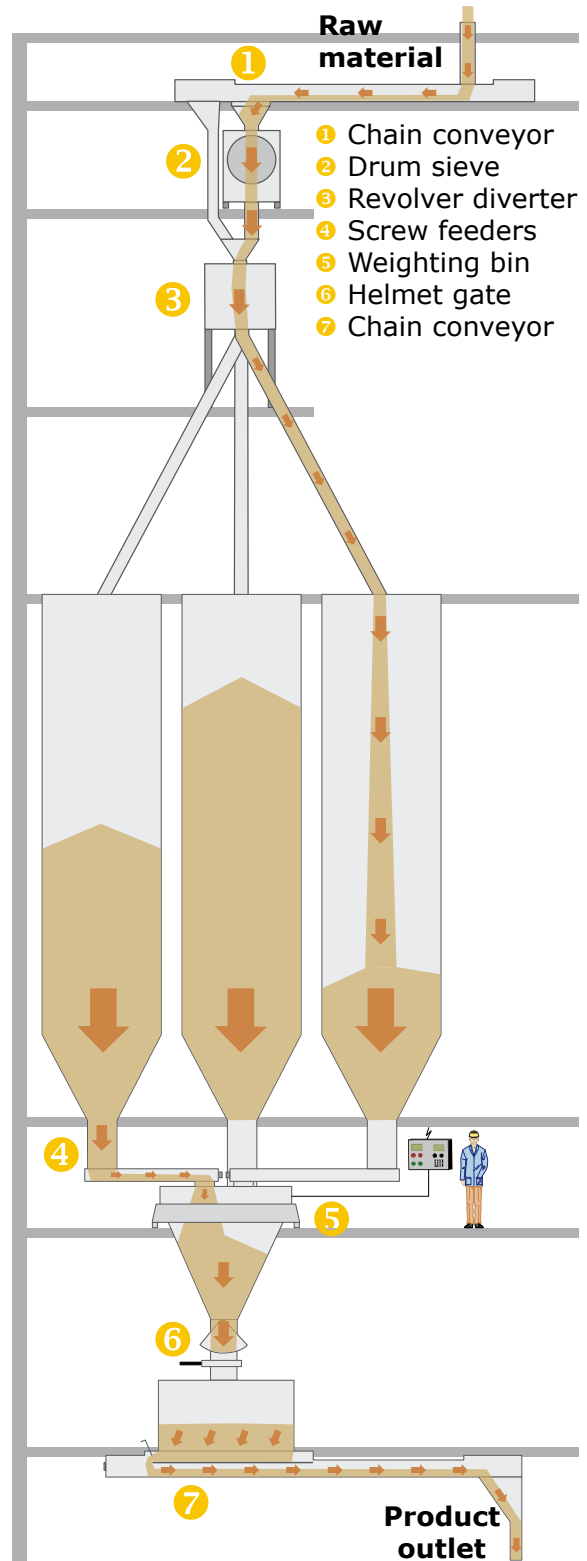


Screw feeders

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.

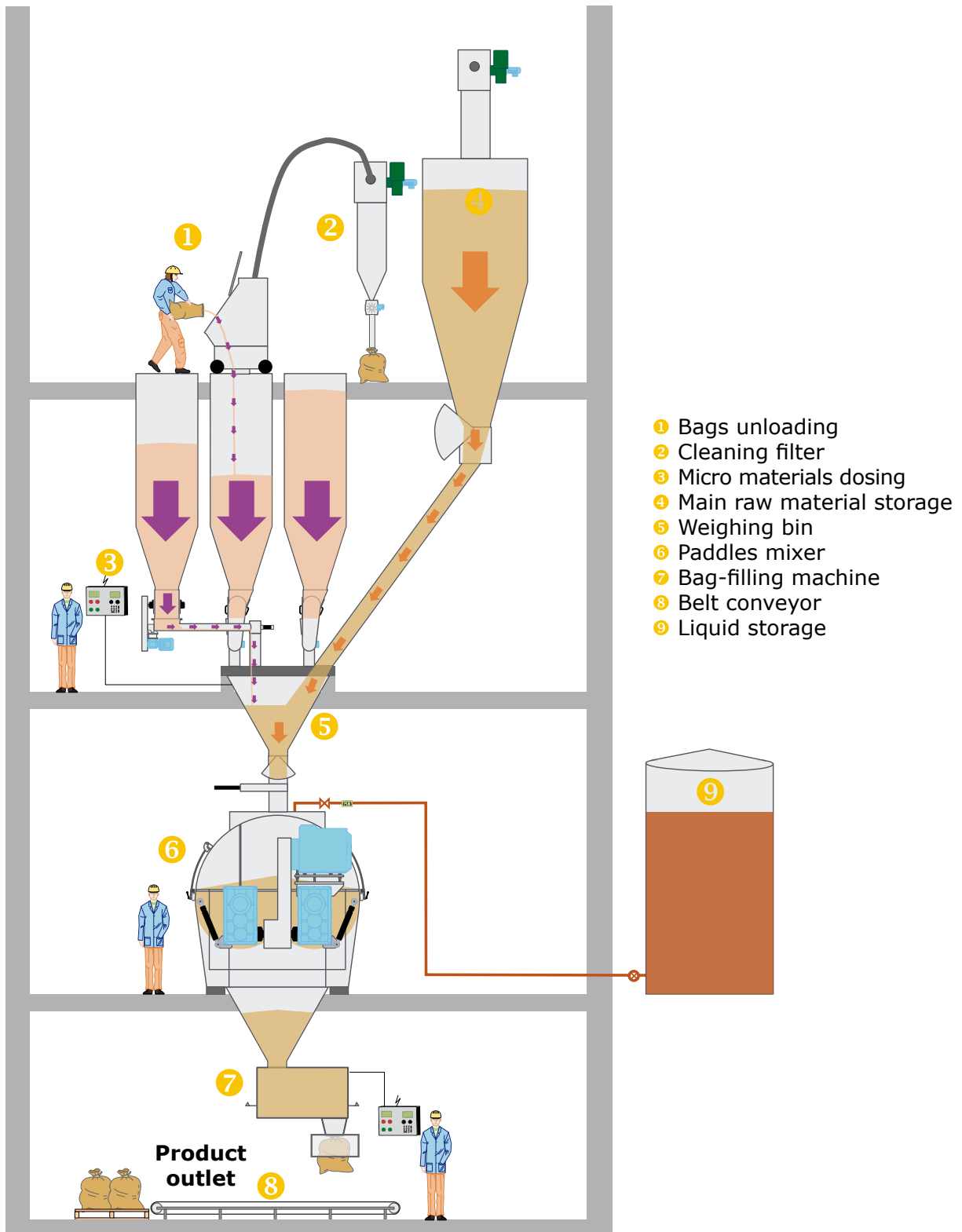
Beyond the supply of mechanical parts, STOLZ brings you a computer assisted management of your installation, allowing :

- 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.

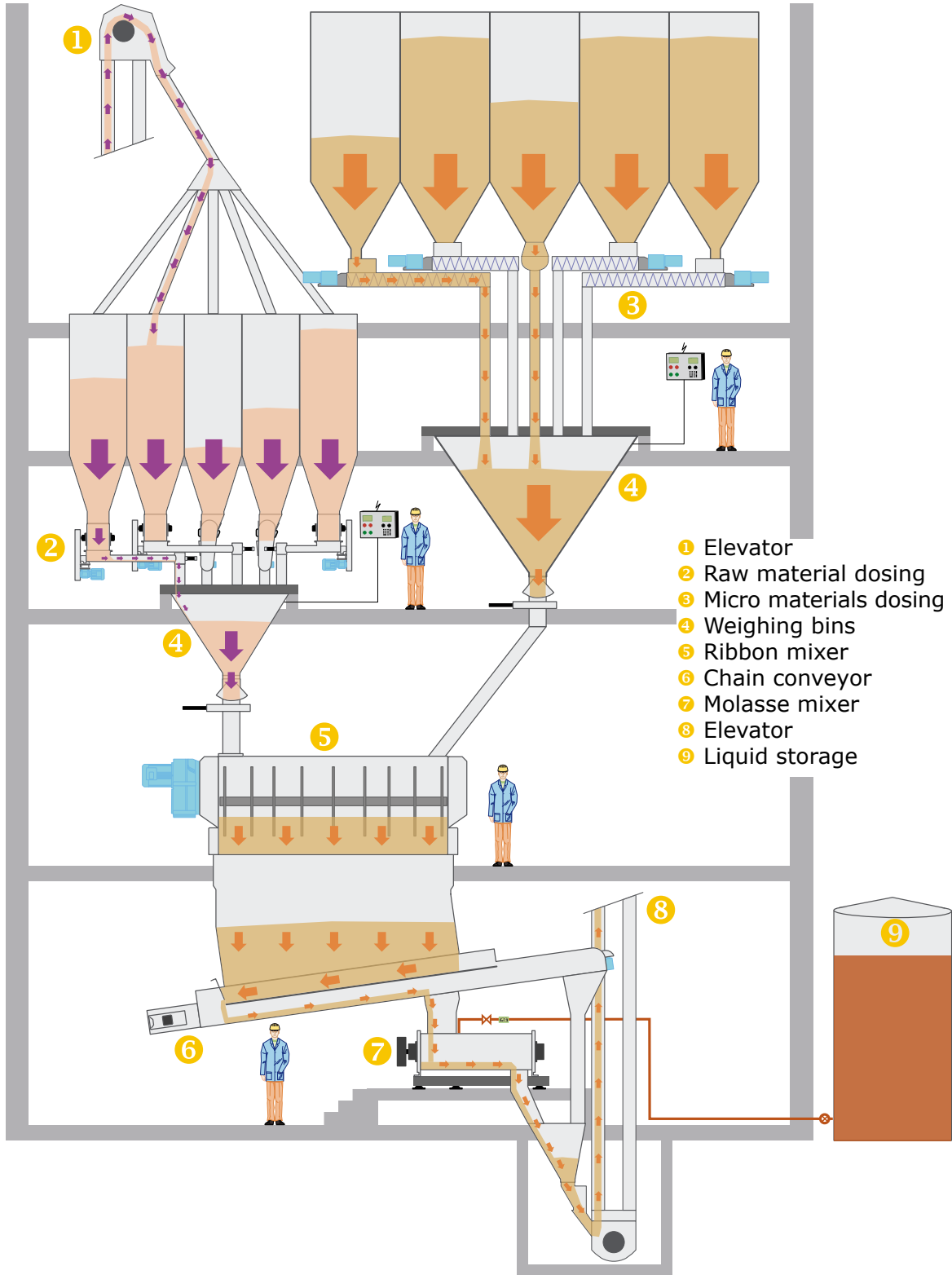


Non-contractual drawings and pictures

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.

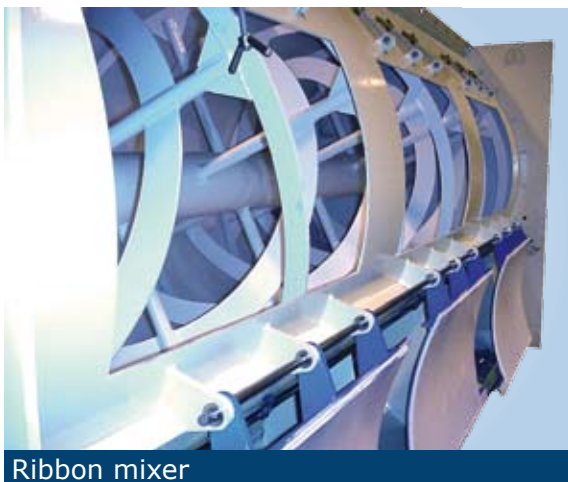
The rotor is made of 2 concentric double-spires with inverted step projecting the raw materials while crossing each other. To obtain the best mix, the external spires must be visible.

The range of STOLZ ribbon mixers includes 3 types :

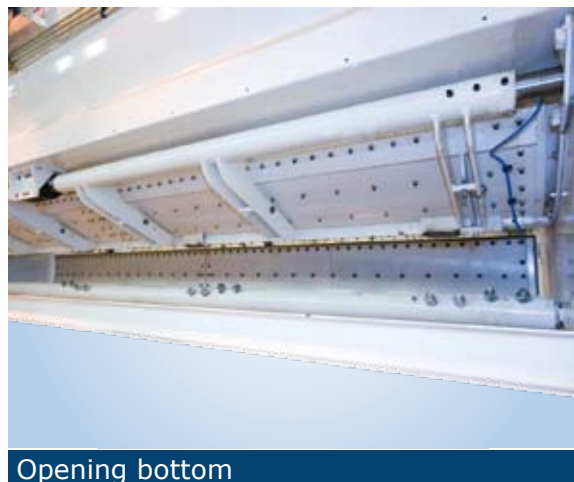
- Type MH (100 liters to 12000 liters), with tough tank and a rotor with a single or dual rotation direction, with

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



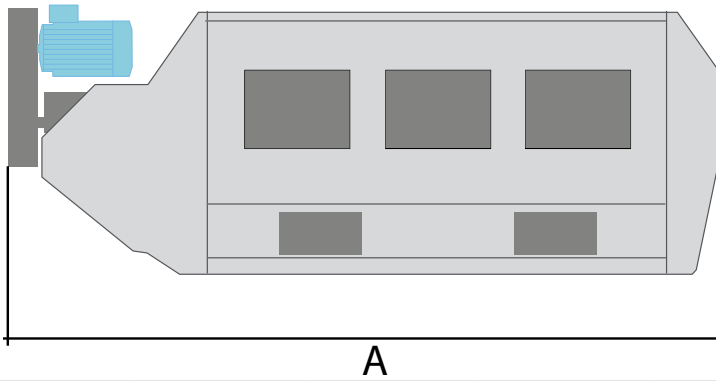
Opening bottom



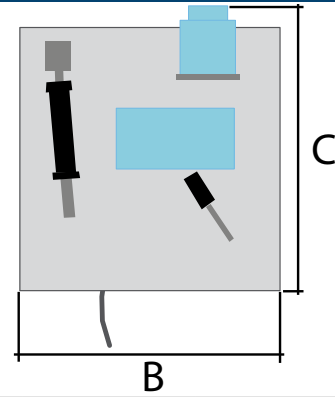
Ribbon mixer



Ribbon mixer



A



B

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

* Power indicated for a specific weight of 0.5 without liquid

Twin shafts paddle mixer

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.



Batch mixer
Capacity 750 L - Option Nitrogen addition

Wide opening side inspection doors :

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

All kinds of steel finishing

Internal finishing :

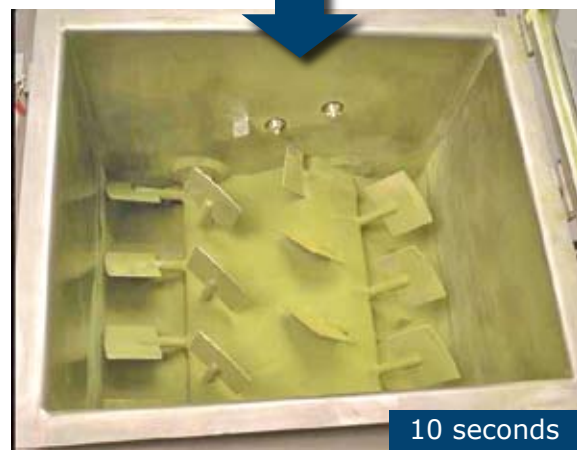
- Stainless steel : all types of grains polishing, electropolishing, seamless welding
- Mild steel : 1 protective coating layer, high wear resistance coating on option.

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 :

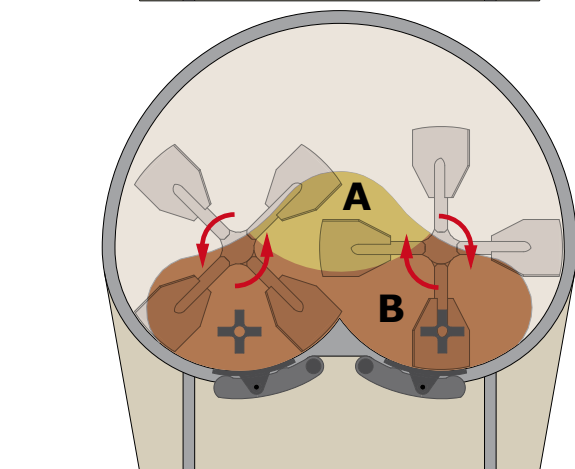
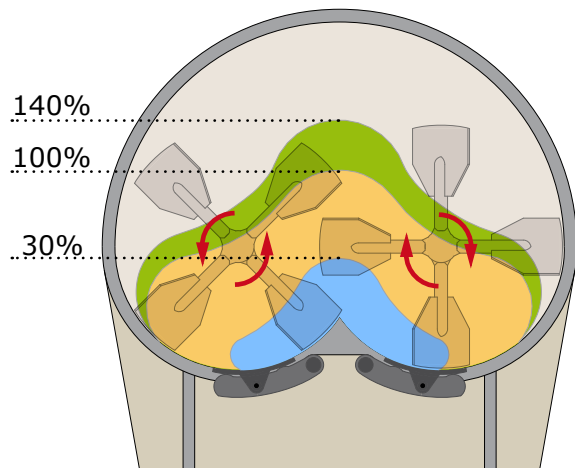
- The different particles are moved up into the central area of interpenetrating paddles by synchronized rotors.

Area A : Mechanical fluidization area :

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

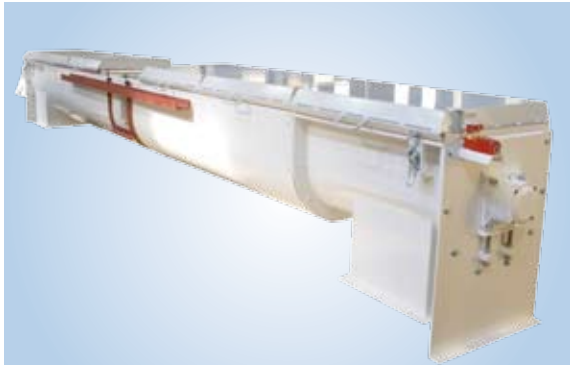
Area B : Circular movement of particles :

- 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 | | | | | |
| ST6 | 6 | 0.6 | 4.8 | 9 | 7.2 | 900 | 600 | 600 | 160 | 0.37 |
| ST20 | 20 | 2 | 16 | 28 | 24 | 1000 | 650 | 700 | 250 | 1.1 |
| ST60 | 60 | 6 | 48 | 84 | 72 | 1000 | 1350 | 850 | 280 | 3 |
| ST120 | 120 | 12 | 96 | 168 | 144 | 1500 | 1100 | 1000 | 450 | 4 |
| ST200 | 200 | 20 | 160 | 280 | 240 | 1850 | 1400 | 1150 | 800 | 4/5.5 |
| ST350 | 350 | 35 | 280 | 490 | 420 | 1850 | 1600 | 1350 | 1200 | 5.5/7.5 |
| ST500 | 500 | 50 | 400 | 700 | 600 | 2100 | 1650 | 1450 | 1500 | 7.5/11 |
| ST750 | 750 | 75 | 600 | 1050 | 900 | 2400 | 1850 | 1600 | 2500 | 11/15/22 |
| ST1000 | 1000 | 100 | 800 | 1400 | 1200 | 2700 | 1950 | 1700 | 4000 | 15/22/30 |
| ST1500 | 1500 | 150 | 1200 | 2100 | 1800 | 2900 | 2200 | 2150 | 4500 | 22 to 37 |
| ST2000 | 2000 | 200 | 1600 | 2800 | 2400 | 3100 | 2550 | 2300 | 5500 | 30 to 45 |
| ST2500 | 2500 | 250 | 2000 | 3500 | 3000 | 3300 | 2600 | 2400 | 7000 | 30 to 45 |
| ST3600 | 3600 | 360 | 2880 | 5040 | 4320 | 3500 | 2950 | 2600 | 8000 | 37 to 55 |
| ST5000 | 5000 | 500 | 4000 | 7000 | 6000 | 3900 | 3250 | 2600 | 9500 | 45 to 110 |
| ST6000 | 6000 | 600 | 4800 | 8400 | 7200 | 4150 | 3350 | 2600 | 13000 | 55 to 110 |
| ST8000 | 8000 | 800 | 6400 | 11000 | 9600 | 4800 | 3600 | 2600 | 17000 | 75 to 160 |
| ST10000 | 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 |
| 10 | 10 | 300 | 4950 | 500 | 1560 | 3 |
| 20 | 20 | 400 | 4950 | 550 | 1665 | 4 |
| 40 | 40 | 400 | 4950 | 550 | 1665 | 5.5 |
| 40 | 40 | 500 | 4950 | 655 | 1765 | 5.5 |
| 60-400 | 60 | 400 | 5060 | 755 | 1930 | 7.5 |
| 60-600 | 60 | 600 | 5060 | 755 | 1930 | 7.5 |

Conical vertical mixer

A wide range of vertical conical mixer :

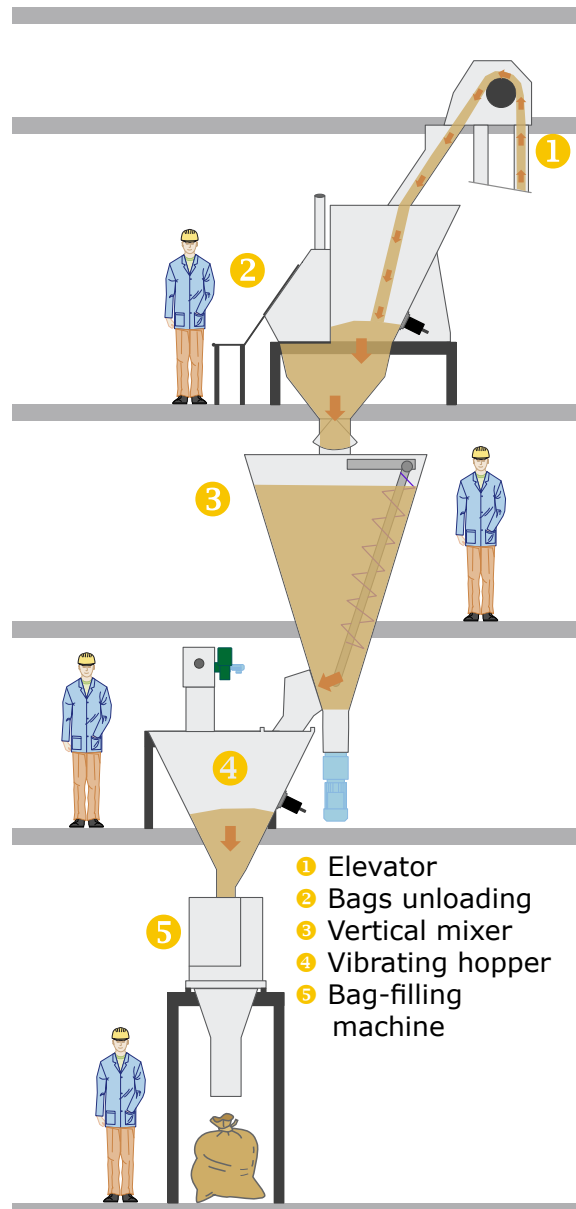
- Suitable to gravitary process
- Possibility of bagging line directly connected to the product outlet
- Small footprint
- Low installed power



Conical vertical mixer



Mixing screw



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

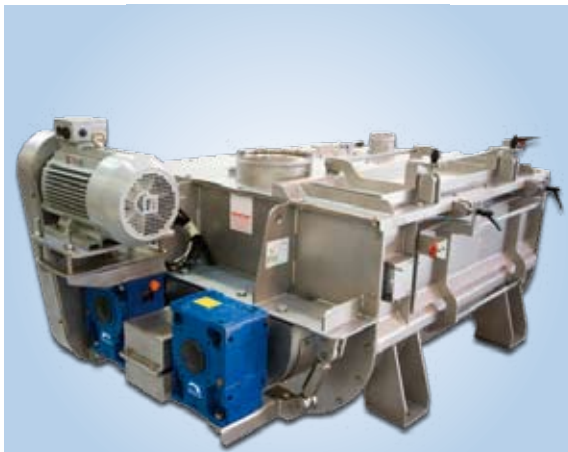
Continuous mixer

Continuous mixing quality and flexibility

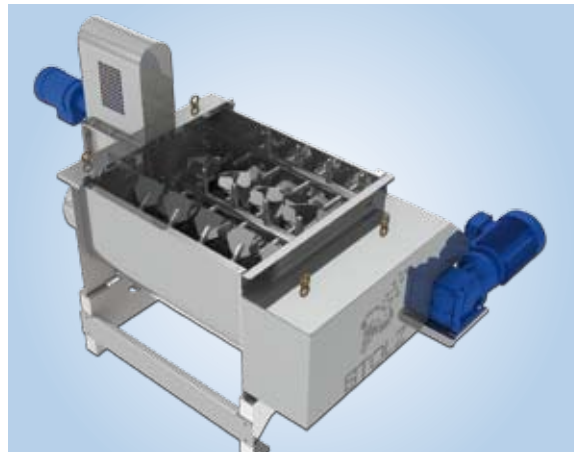
- Mechanical fluidisation cut down the front dosing variations,
- No beginning and queue of production not perfectly mixed and adjustable discharging opening,
- Adjustable average residence time,
- Control of rotors speed, refilling level, liquid spraying.



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 |
| STC60 | 10 | 84 | 1800 | 1350 | 950 | 350 | 3/4 | 74 |
| STC120 | 20 | 168 | 1500 | 1100 | 1100 | 550 | 5.5/7.5 | 60 |
| STC200 | 30 | 280 | 2200 | 1200 | 1300 | 960 | 7.5 | 50 |
| STC350 | 60 | 490 | 2400 | 1400 | 1600 | 1380 | 11 | 41 |
| STC500 | 85 | 700 | 2900 | 1700 | 2300 | 1900 | 15 | 36 |
| STC750 | 125 | 1050 | 3300 | 1900 | 2350 | 3400 | 22 | 35 |
| STC1000 | 170 | 1400 | 3360 | 1810 | 1760 | 5000 | 30 | 32 |
| STC1500 | 250 | 2100 | 3540 | 2070 | 2150 | 5400 | 37 | 32 |
| STC2000 | 340 | 2800 | 4200 | 2295 | 2300 | 7200 | 45 | 30 |
| STC2500 | 420 | 3500 | 4690 | 2430 | 2420 | 8400 | 45 | 30 |
| STC3600 | 600 | 5000 | 5360 | 2810 | 2500 | 9600 | 55 | 30 |
| STC5000 | 850 | 7000 | 5730 | 2110 | 2500 | 12600 | 75 | 32 |
| STC6000 | 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 |
| STR6 SV | 2.5-9 | 1185 | 700 | 1340 | 0.37 | 0,37 |
| STR60 SV | 25-90 | 2950 | 2300 | 2400 | 1.5 | 2x1.5 |
| STR120 SV | 50-170 | 3060 | 2430 | 2670 | 1.5 | 2x1.5 |
| STR500 SV | 200-700 | 3400 | 2500 | 2050 | 11 | 2x4 |
| STR1000 SV | 500-1400 | 3750 | 2750 | 2450 | 18.5 | 2x7.5 |
| STR1500 SV | 750-1200 | 4200 | 3110 | 2670 | 2x18.5 | 2x11 |
| STR2000 SV | 1000-2800 | 4500 | 3500 | 3050 | 2x18.5 | 2x15 |
| STR2500 SV | 1250-3500 | 4900 | 4000 | 3350 | 2x18.5 | 2x18.5 |
| STR3600 SV | 1500-5000 | 5500 | 4950 | 4430 | 2x18.5 | 2x22 |
| STR5000 SV | 2000-7000 | 5800 | 5200 | 4500 | 3x22 | 2x30 |

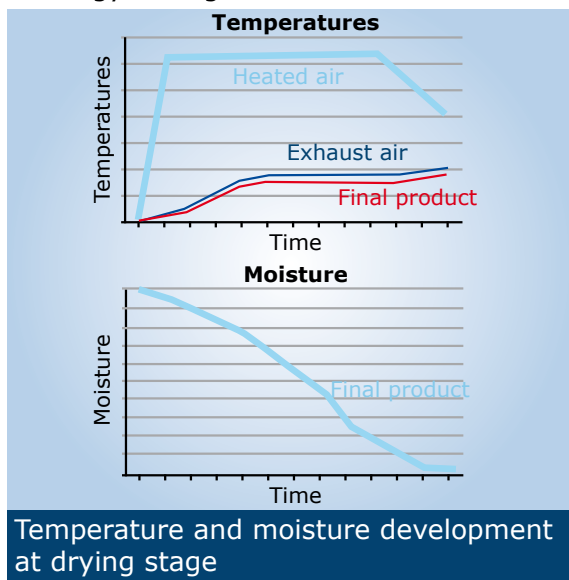
Drying system

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 | m3/h | kW | m ² | kW | kg |
| STC20 | 2000 | 700 | 1.1 | 250 | 0.25 | 3 | 11 | 2400 |
| STC60 | 2900 | 2500 | 2.2 | 500 | 1,1 | 6 | 22 | 3000 |
| STC120 | 3400 | 2400 | 3 | 850 | 2,2 | 11 | 38 | 3300 |
| STC200 | 3600 | 3900 | 4 | 1400 | 3 | 18 | 62 | 3500 |
| STC350 | 3600 | 4200 | 7.5 | 2400 | 4 | 30 | 106 | 3900 |
| STC500 | 3800 | 4300 | 11 | 3300 | 5.5 | 41 | 146 | 4200 |
| STC750 | 4000 | 4400 | 15 | 4800 | 7.5 | 60 | 212 | 4800 |
| STC1000 | 5800 | 4500 | 22 | 6300 | 11 | 79 | 278 | 5300 |
| STC1500 | 8900 | 6100 | 37 | 9300 | 11 | 116 | 411 | 6000 |
| STC2000 | 9600 | 6800 | 45 | 12400 | 15 | 155 | 548 | 6900 |
| STC2500 | 11000 | 7200 | 55 | 15500 | 22 | 194 | 685 | 7500 |
| STC3600 | 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 |
| RMCP 2E | 20 | 456 | 2615 | 1365 | 800 | 1200 | 22 |
| RMCP 3E | 30 | 620 | 2655 | 1635 | 1285 | 1600 | 45 |
| RMCP 4E | 40 | 620 | 3170 | 1635 | 1285 | 1770 | 45 |
| RMCP 6E | 60 | 740 | 3300 | 1970 | 1130 | 2700 | 75 |
| RMCP 8E | 80 | 850 | 3425 | 2330 | 1500 | 4100 | 90 |
| RMCP 10E | 100 | 850 | 3425 | 2330 | 1500 | 4100 | 110 |

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