



Mixing & Coating



Ribbon Type Mixer

MH



The ribbon type mixer is dedicated to batch mixing of powdery materials such as meals for animal feed, mineral compounds and premix, straw, insecticides, etc... with or without liquid addition.

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.

The external turns should be visible to obtain the best mix.



Ribbon Type Mixer

Range and features

The range of STOLZ ribbon mixers includes 3 types :

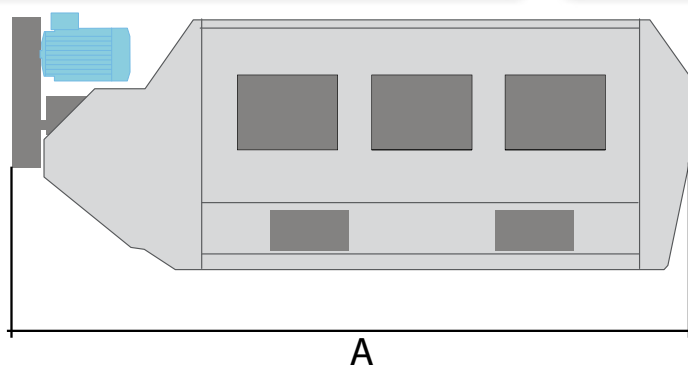
- **MH Type** : (100 liters to 12000 liters), with tub shaped tank and a rotor with a single or double rotation direction, with draining through one or several gates, or the standard slide bottom.
- **MHR Type** : with lyre-shaped tank design and double rotation direction rotor (option), with discharge through the large slide bottom.
- **MHC Type** : with lyre-shaped tank ended with conical parts in order to provide a full discharge. Rotor with dual rotation direction (option) and emptying with 2 wide opening bottoms.



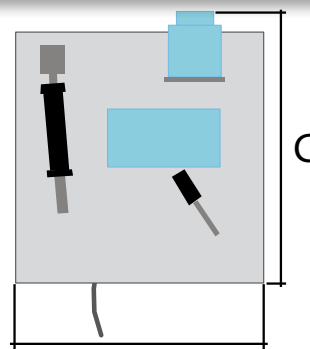
Ribbon type mixer



Opening bottom



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 shaft paddle mixer

ST



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,

All kinds of steel finishing

Internal finish

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

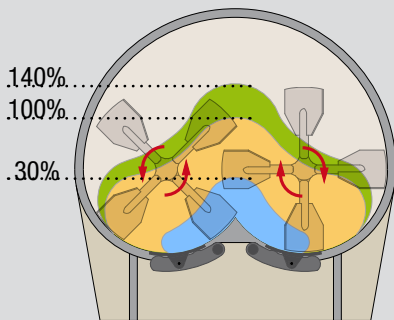
External finish :

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



Twin shaft paddle mixer

The mixing



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.

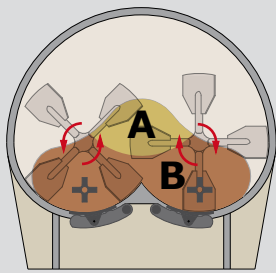
Flexible unit batch size

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	Nominal volume	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	1.8	4.8	9	7.2	500	700	915	160	0.37
ST20	20	6	16	28	24	650	890	660	250	1.1
ST60	60	18	48	84	72	960	1035	810	280	3
ST120	120	36	96	168	144	1250	1155	930	450	4
ST200	200	60	160	280	240	1800	1500	1150	800	4/5.5
ST350	350	105	280	490	420	1850	1600	1350	1250	5.5/7.5
ST500	500	150	400	700	600	2100	1650	1450	1500	7.5/11
ST750	750	225	600	1050	900	2500	1850	1700	2500	11 to 22
ST1000	1000	300	800	1400	1200	2600	1950	1750	3500	15 to 30
ST1500	1500	450	1200	2100	1800	3050	2400	2100	5000	22 to 37
ST2000	2000	600	1600	2800	2400	3250	2500	2350	6000	30 to 45
ST2500	2500	750	2000	3500	3000	3400	2600	2400	7000	30 to 45
ST3600	3600	1080	2880	5040	4320	3600	3000	2500	8000	37 to 55
ST5000	5000	1500	4000	7000	6000	3900	3200	2800	10500	45 to 110
ST6000	6000	1800	4800	8400	7200	4150	3350	2600	13000	55 to 110
ST8000	8000	2400	6400	11000	9600	4800	3600	2600	17000	75 to 160
ST10000	10000	3000	8000	13750	12000	5600	3600	2600	22000	110 to 200

Cryogenic mixer

ST 500 and 700 Litres



Use of the cryogenic range

Our range of cryogenic mixers is dedicated to frozen products manufacturers (vegetables and fruit). The principle of the STOLZ double rotor with paddles provides the mixing of several products in a very short time, from 45 to 60 seconds without adding sauce (when the product is not coated). A possible alteration of the product is very small because 70% of the mass in the mixer is in suspension.

Coating : the particles to be coated flow several times and from every angle under the sauce spray providing a regular coating all over the product. For a coating with spices the same principle applies, a curtain of spices is used inside the mixer with a feeding ensured by an electromagnetic vibrating device. Nitrogen injection solidifies the liquid coating and maintains the product at the required temperature.



Cryogenic mixer ST 500 and 700 litres

Features and options

Advantages

- Fast mixing
- Very good homogenization
- High quality coating
- Reduced energy consumption
- Low maintenance costs
- Hygienic design

Coating

The product coating percentage can range from 1% up to 25% of the mass inside the mixer.

For 1% to 5% coating a single injection followed by a nitrogen injection is sufficient to solidify the sauce around the particles on a permanent basis. Beyond 5% the coating must be done by alternating sauce and nitrogen injections.

Control of sauce injection :

- 1st case : injection is controlled by a high precision balance.
- 2nd case : sauce is weighed, injected, and the weightloss is monitored until the setpoint is reached.

In both cases, injection pressure is between 4 from 5 bars. STOLZ can supply the pumping unit.

Spices

Spices percentage may vary from 0.5% to 2% of the mass inside the mixer.

The electromagnetic vibrating device conveying spices is weighed. Spices are injected and weight loss is monitored until the setpoint is reached.

Nitrogen

A PT 100 probe is provided to regulate the temperature inside the mixer. Such probe controls the opening or closing of a floating valve.

A gas extractor is included in our supply. It has to be set up outside the building in vertical alignment of the mixer.

In order to ensure a safe control and use of nitrogen, our design is validated by an internationally-known nitrogen producer.

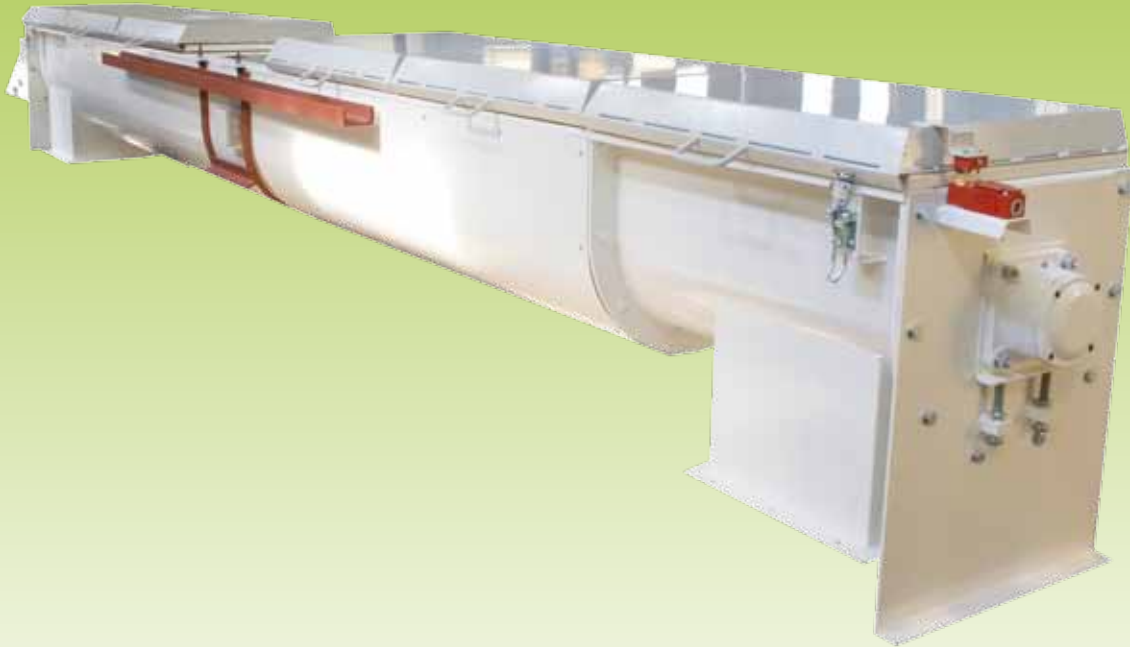
Type	Nominal capacity	Maximum capacity
ST 500	500 Litres	700 Litres
ST 700	700 Litres	980 Litres

Recipes (with nitrogen injection before discharge)	ST 500	ST 700
Simple mix without sauce and spices coating	from 45 to 60 seconds	
Mix with 0.5% to 2% spices coating, without sauce	from 105 to 120 s	from 120 to 135 s

Recipes (with sauce coating, without spices, with nitrogen injection)	ST 500	ST 700
Sauce coating from 1 to 5%	from 105 to 165 seconds	
Sauce coating from 5 to 10%	from 225 to 285 seconds	
Sauce coating from 10 to 15%	from 345 to 405 seconds	
Sauce coating from 15 to 20%	from 465 to 525 seconds	
Sauce coating from 20 to 25%	from 615 to 675 seconds	

Recipes (with sauce and spices coating, with nitrogen injection)	ST 500	ST 700
Sauce coating from 1 to 5%	from 165 to 225 seconds	
Sauce coating from 5 to 10%	from 285 to 345 seconds	
Sauce coating from 10 to 15%	from 405 to 465 seconds	
Sauce coating from 15 to 20%	from 525 to 585 seconds	
Sauce coating from 20 to 25%	from 675 to 735 seconds	

Fat coaters and Enzymers



As the name shows, it is used to coat agglomerated products with a liquified material.

In the feed industry, for example it is used to coat pellets with fat or sugar material in order to improve the nutritive value and favour the appetite.

The grease incorporated into the mixture gives good results, but the percentage is limited according to formulas (3.5% on average, 8% on an Alfafa base ration), as it decreases the quality of pellets; consequently the excess must be coated.

Fat coaters and Enzymers

Features and options

Features

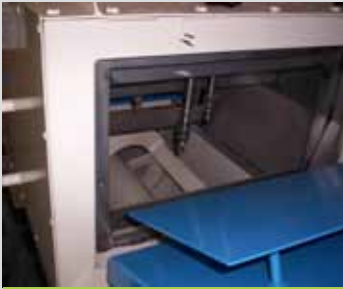
- Specific feeder for accurate and optimised product distribution.
- Solid material introduced under in the form of a curtain.
- Spraying nozzles according to different types of liquids for accurate flowrates.
- Mixing tools ensuring a perfect particles distribution and movements.

- Mixing ribbon ensuring a better coating.
- Trough or tubular design
- Heating and insulation of trough

Option

- 2 product outlets and dual-rotation direction

The spraying



Spraying chamber

The spraying is usually done on cold pellets (up to about 8%), the percentage varies according to the dimension of pellets and mixture ingredients.

The inconvenience of spraying on hot pellets ensuring a temperature uniformity is a limited penetration due to the moisture level in the product.

Spraying on cold pellets followed by heating and further cooling ensures a maximum penetration (the grease being solidified before being completely absorbed), but this technique is much more costly



Enzymer / fat coater



Enzymer / fat coater

Type	Capacity	Diameter	Overall sizing (mm)			Installed power
	t/h		mm	Length	Width	
10	10	300	4950	500	1560	3
20	20	400	4950	550	1665	4
40 - 400	40	400	4950	550	1665	5.5
40 - 500	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

Vacuum Coater

ST sv



With its vacuum coater, Stolz offers state of the art and improved coating.

Mainly intended for petfood, fishfeed and livestock feed to upgrade their nutritional value by incorporating large amounts of liquid penetrating at heart or bycoating the surface. That solution provides:

- specific incorporation and distribution
- upgrade use of additives
- addition of liquids and powders
- multilayer coating technology
- non-sticky surface state
- excellent uniformity while reducing the risk of breakage.



Vacuum Coater

Features and types of additions

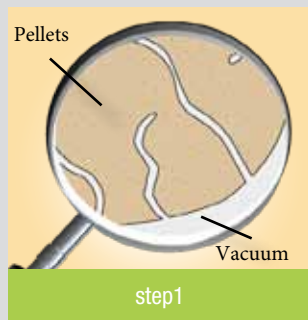
Features:

- Vacuum in the coater and the hopper downstream to optimize sealing
- Possible extreme low pressure
- New gradual atmospheric pressurisation
- Vacuum cycle diagram recovery for full traceability
- Variation of the speed of the rotors for carrying fluidification of supports to be coated
- AHigh accuracy in fluids injection and dosing
- All stainless steel equipment
- Room cleaning by clean-in-place

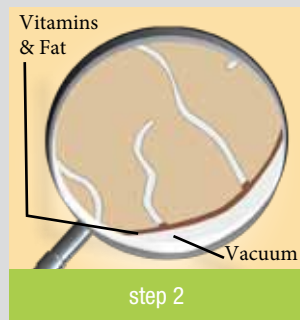
Types of liquids additions:

- Fat (+ possible 40%)
- Oils
- Omega 3
- Flavours
- Vitamins
- Antioxidants
- Pharmaceutical products
- Colourings (pellets)
- Pigments (fish feed)

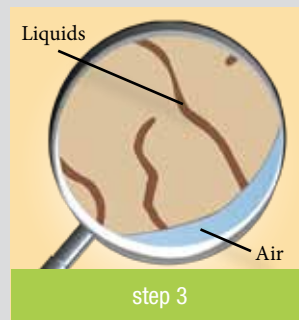
Principle of working



The vacuum is caused by pressurisation



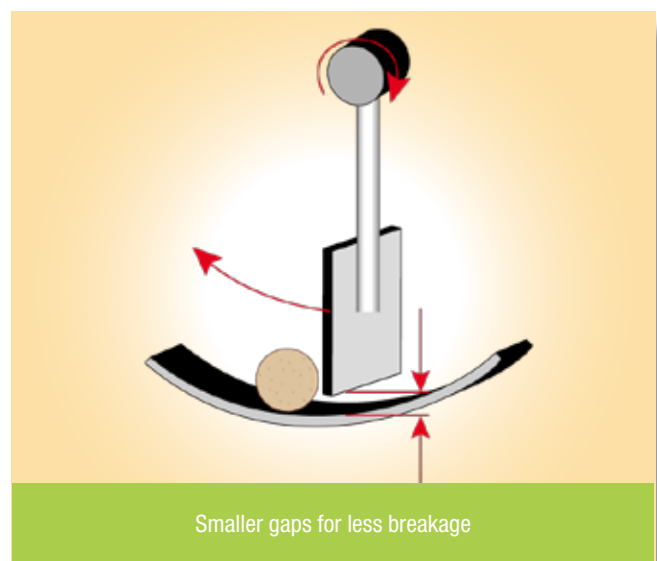
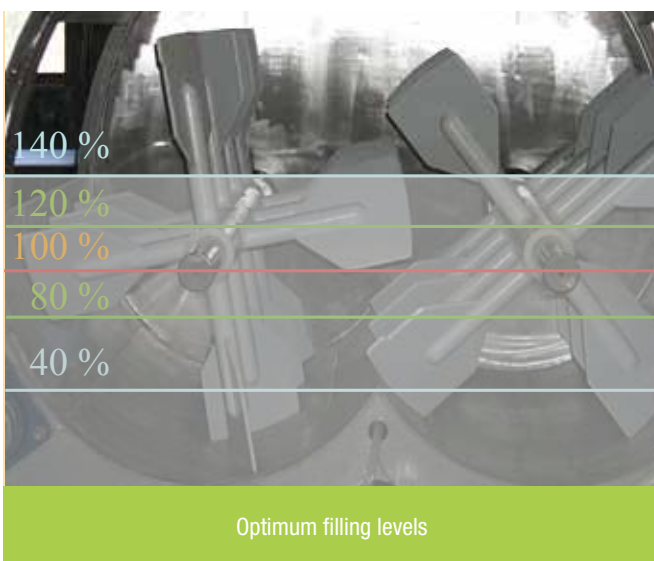
Incorporation of liquid



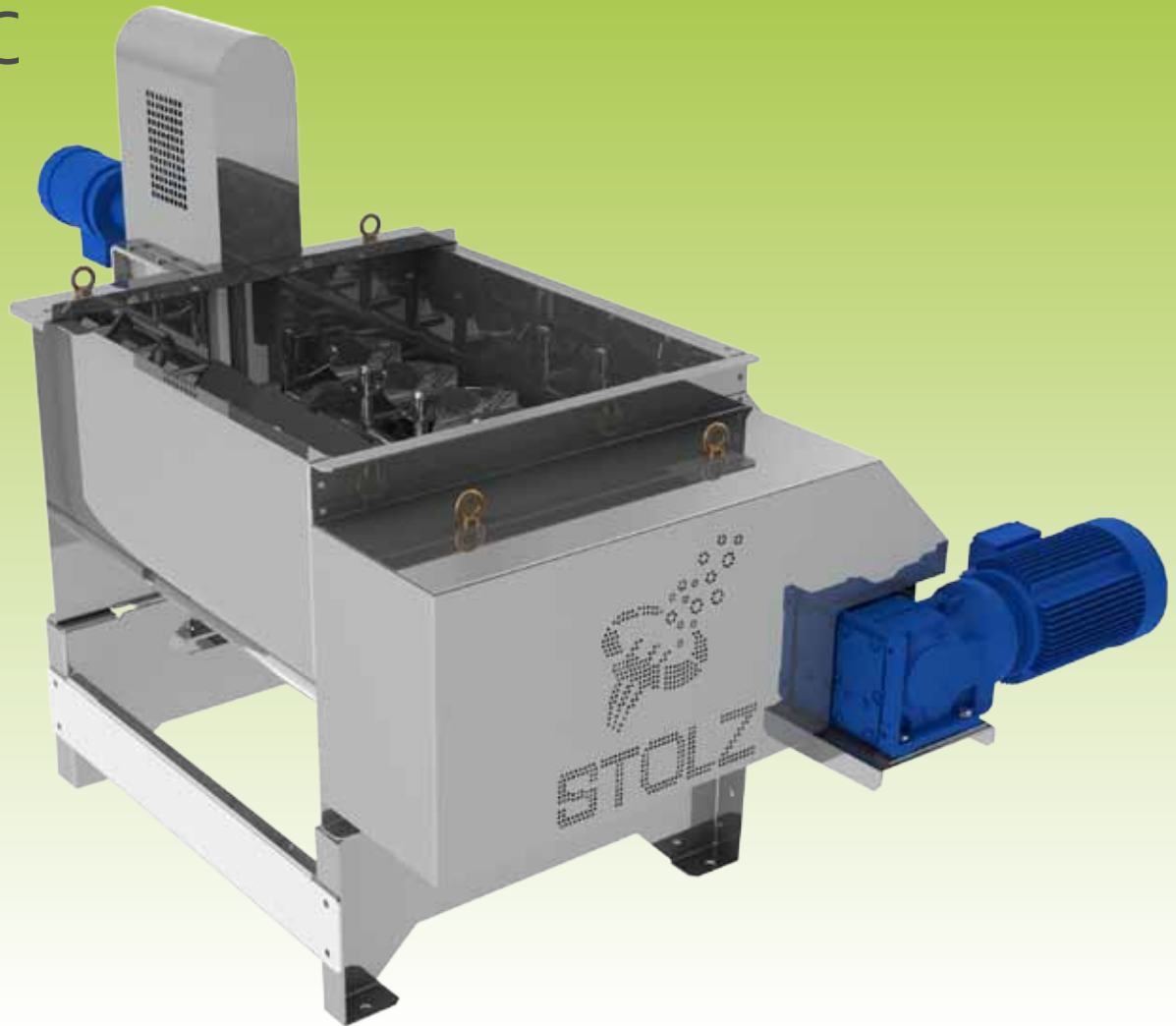
New gradual atmospheric pressurisation



Final coating with atmospheric pressure and / or powder coating



Continuous mixer STC



STOLZ continuous mixer is similar to our ST range of mixers, its specific feature is the capacity to perform a continuous mixing.

This mixer will provide the advantages of an accurate mixing such as:

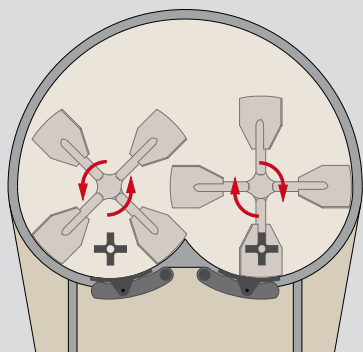
- Limited dosing variations with mechanical fluidization
- No beginning and queue of production not perfectly mixed and adjustable discharging opening,
- Adjustable average residence time,
- Control the speed of mixing shafts, filling level, liquid spraying.



Continuous mixer

Features and options

Operating principle



Rotors rotate in reverse direction so that blades located at the bottom of the casing are moving towards the centre of the machine.

Blades spacing and angle are calculated to ensure that the material to be mixed, in addition to the movement to the centre of the mixer, move counter-clockwise and horizontally in periphery of the mixer (when looking from top of the mixer).

While the blades are interlacing the 2 rotors relative positions must be synchronized properly and a relative angular spacing of 45 degrees of the blades axles has to be maintained.



Continuous mixer



Continuous mixer

Type	Capacity	Used volume	Overall sizing (mm)			Weight	Installed power	Rotation speed
	m ³ /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

Molasse Mixer

RM-CP



STOLZ Molasse mixer is 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.

It may be :

- Used as a conditioner before a pellet mill or a maturing vessel with a liquid incorporation greater than 3%. Such machine is built with both stainless and mild steel (stainless steel body).
- Used as a mixer and crusher.
- Used as a continuous mixer.
- The specific type MM630 may be used with minerals. The body consists of a double jacket for a cooled air flow in a closed loop circuit on each half shell of the body and including a stainless steel wearing plate instead of lining.



Molasse mixer

Features

- 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.
- Possible spraying of 1 to 3 different liquid simultaneously.
- Support frame including elastic bump contacts.

Liquids incorporation

Liquids incorporation is done using a rack made from hollow pipes including screwed branch pipes, limiting partly the gravitary flow and including a «Flatjet» nozzle or a welded baffle at the ending.

The streams are the streams are isolated, 3 capacity levels of the 2 liquids to be incorporated are possible (small, medium or large). They include a flexible device at each ending (length 1m to 1,5 m according to type) which must be connected to the set of incorporation equipment avoiding gravitary flows.

A pneumatic draining at the end of batch to stop instantaneously the liquids flows must be provided.



Molasse mixer

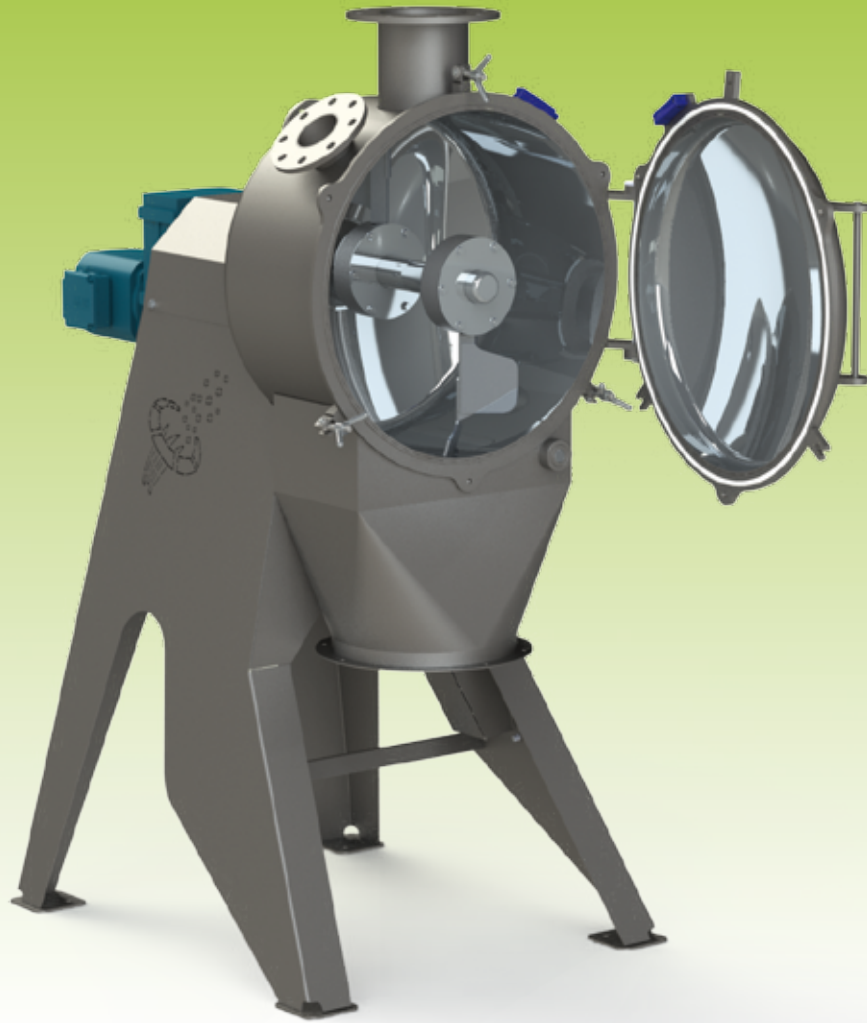


Molasse mixer

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

Mixing Rotosphere

MRS



Use of the Mixing Rotosphere

The Mixing Rotosphere will appeal to every user searching for a mixing of small bulk batches and requiring frequent changes of formula thanks to an extremely high flexibility

The product can be injected directly into the mixer by pneumatic transfer.

Its small size design provides an easy integration into an existing production unit.

The Mixing Rotosphere range is available into capacities from 100 to 1 000 litres.



Mixing rotosphere MRS

Features and options

Advantages

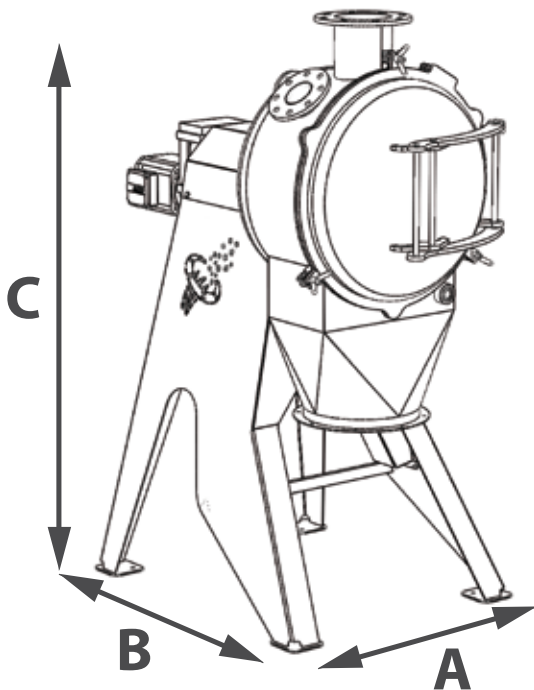
- Stainless steel tank
- Easy to clean
- Mixing quality
- Complete draining
- Limited overall dimensions
- Ability to transfer material via pneumatic transfer by dense phase of mixer

Hygienic design

Mostly dedicated to human food, the Mixing Rotosphere has been designed with a permanent concern of hygiene.

The polishing treatment of the tank provides a minimal adhesion (RA 0.8), limiting material residues deposits, while reducing the required power for mixing.

With its full opening tank and single bearing shaft the Mixing Rotosphere can be easily cleaned: 100% of the components in contact with the product are reachable.



The blasted stainless steel external part of the device is also tight to hose.

Designed for small units

STOLZ is well known for its high capacity mixers (up to 15 000 litres). With the Mixing Rotosphere range we wanted to provide the laboratories, test units, small production units or cooperatives with our technological know-how.

The Mixing Rotosphere ensures the mixing of small size batches and from one batch to the other without contamination.

The mechanical part is designed to limit maintenance, save energy and offer reliable STOLZ equipment.

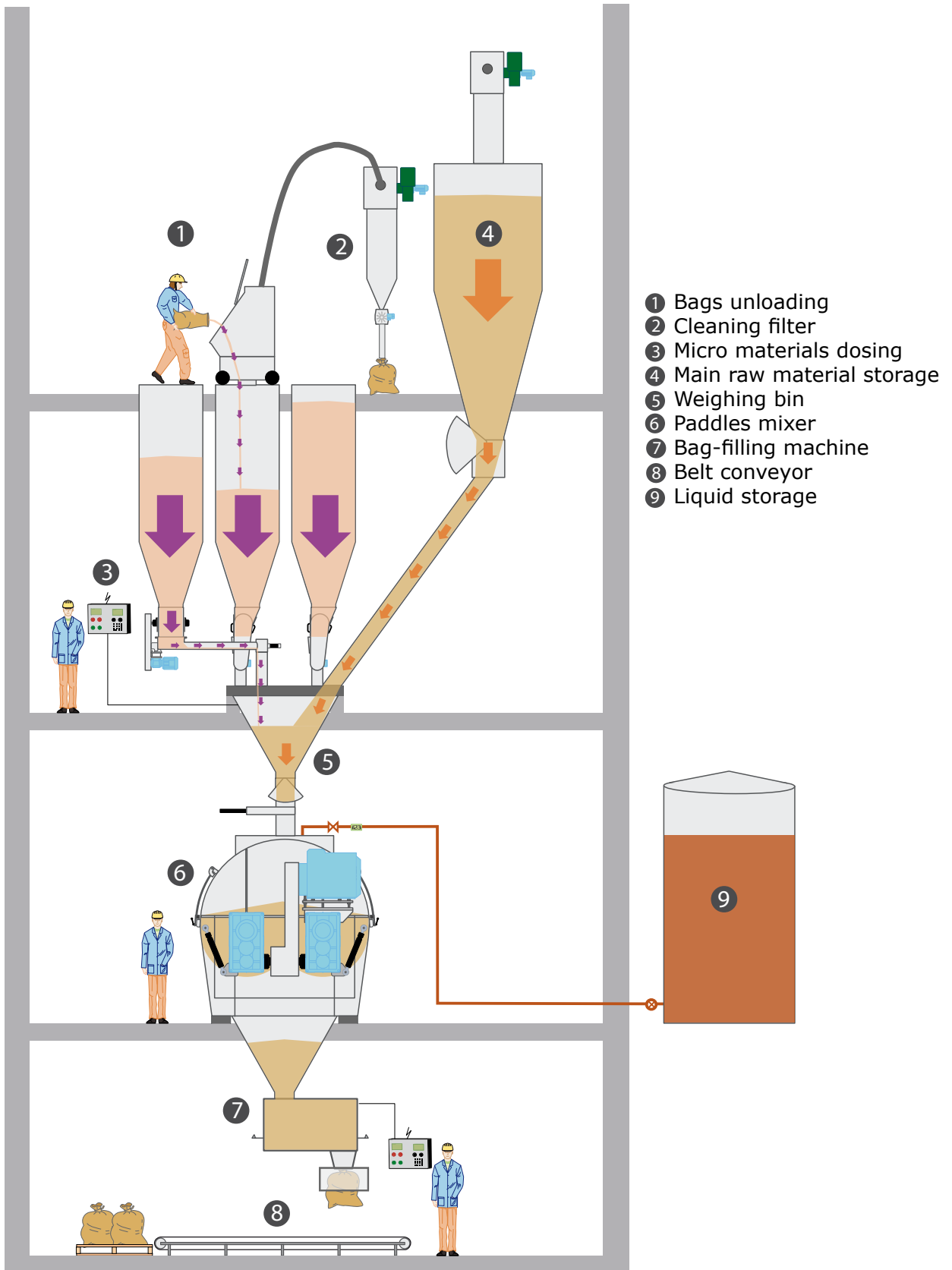


Full opening of the tank providing a perfect Clean-In-Place

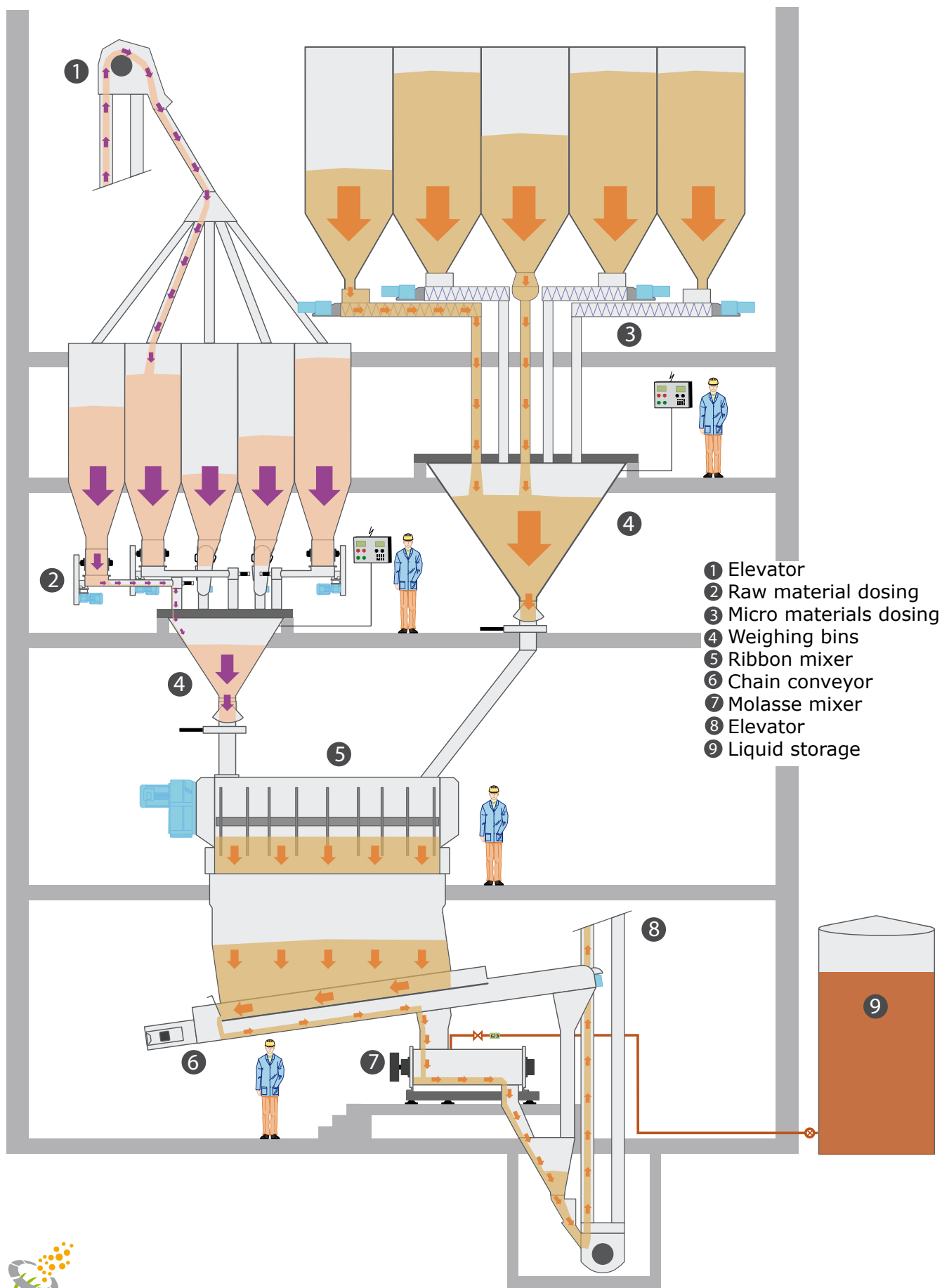
Type*	Nominal capacity	Usage capacity	Overall sizing (mm)			Weight	Installed power
	L	L	A	B	C	kg	kW
MRS 100	140	100	900	1100	1800	400	1,5

*Complete range from 100 to 1 000 litres

Mixing line : premix



Mixing line : Feedmill



- ① Elevator
- ② Raw material dosing
- ③ Micro materials dosing
- ④ Weighing bins
- ⑤ Ribbon mixer
- ⑥ Chain conveyor
- ⑦ Molasse mixer
- ⑧ Elevator
- ⑨ Liquid storage

Photos et schémas non contractuels / Non contractual drawings and pictures



STOLZ

Du végétal à la vie

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