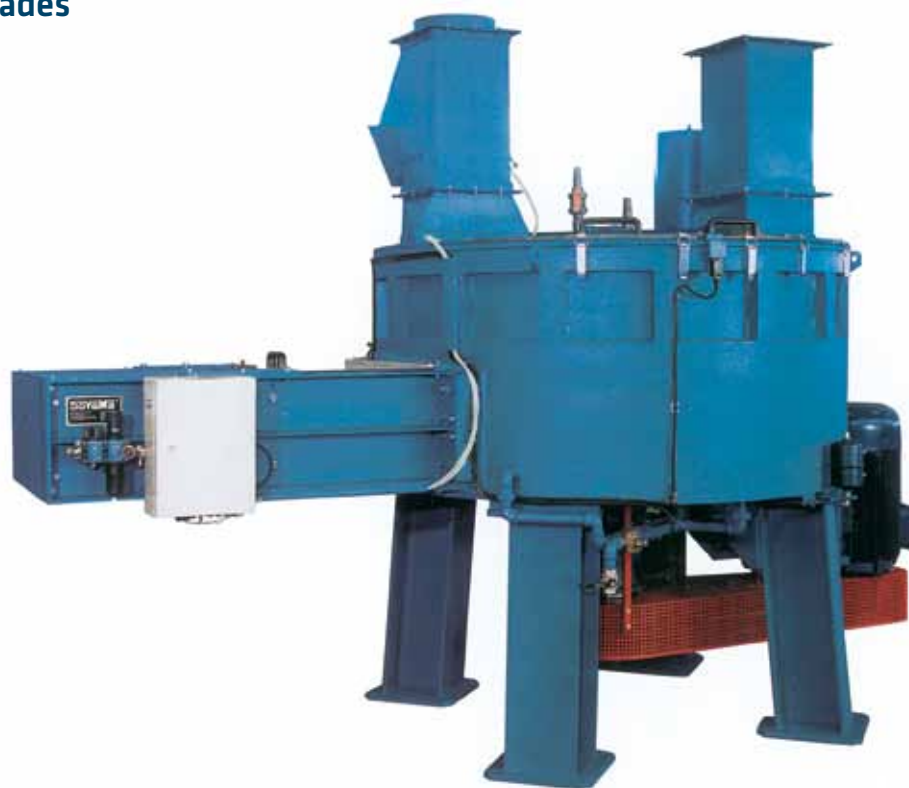


## PASTE MIXERS

» A wide range of solutions, within two different kinds of technology:

- mixer with mullers
- mixer with blades



**SOVEMA**<sup>®</sup>  
EQUIPMENT FOR ENERGY STORAGE ■ ■

## Blade type - Muller type Mixers



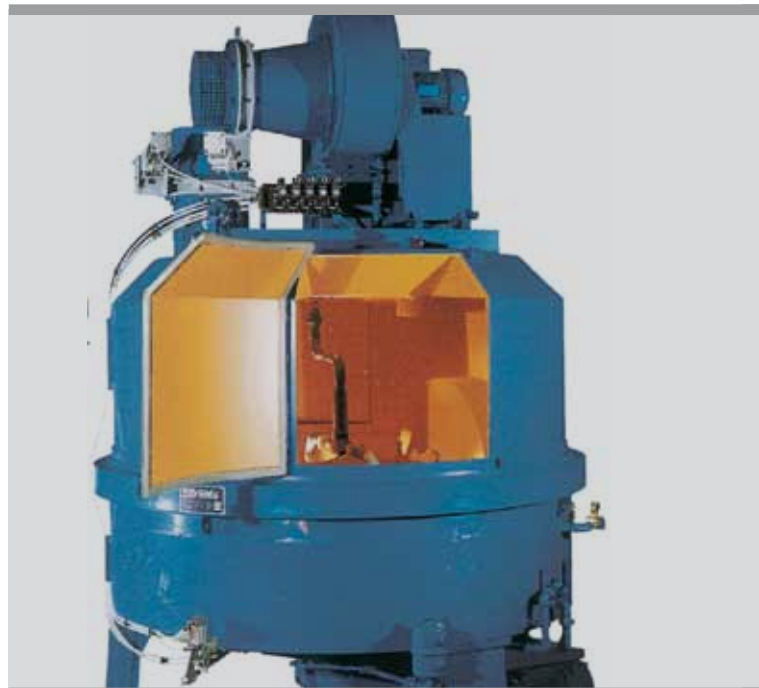
*Blade type mixer - 1000 kg*

The mixer is designed to ensure complete and perfect mixing of active ingredients and can be adapted to meet the specific needs of all different kind of paste existing on the market. The machine comprises a storage tank which is maintained at controlled temperatures so that the thermal reaction which takes place inside can be managed correctly. A three-blade rotary system in which each blade has a slightly different shape thoroughly mixes the material to ensure complete integration and the right degree of homogeneity of the final mass.

The main motor (45 kW) is managed by electronic soft-start ensuring extremely smooth starting and running even under full load conditions.

Adequate protection for all moving parts in mixer. Easy inspection, cleaning and maintenance through dust-proof doors on top of the drum. Quick, complete and automatic discharge of paste through a high sealing door at the side of the mixer, pneumatically opened and closed (the machine is available with a second door as option).

The machine is able to handle batches varying between 800 and 1000 kg of product and is equipped with a special software control program which automatically regulates the amount of water and acid added in relation to the oxide present.



*Muller type mixer - 1000 kg*

The mixer is specially designed for an efficient and complete mixing of battery grade lead oxides. The machine incorporates two robust mullers and two groups of blades which sweep sides and bottom of the drum: the system combines the mixing action with the kneading effect by the mullers, which assure homogeneous characteristics of the paste. The capacity is from 600 up to 1000 kg of dry powder, during a batch cycle of about 25-35'.

Once the cycle is started, a PLC starts in sequence the feeding of powder, acid and water, controls intervention of the cooling system according to the measured temperature, and finally ends the cycle when the desired dump temperature is reached. Additives must be inserted directly. The cooling of the paste is obtained by the combination of water circulation in the jacket and forced air circulation. 22 kW main motor transmits torque through hydraulic coupling ensuring extremely smooth starting and running even under full load conditions.

Adequate protection for all moving parts in mixer. Easy inspection and maintenance through dust-proof doors on sides. Quick, complete and automatic discharge of paste through a sliding door at the bottom of the mixer, pneumatically opened and closed. A complete unit ready for installation and requiring the minimum of foundation preparation. Electric control board, PLC controlled, included.

## Optional equipment



*Example of a mixing plant supply: fully pre-piped and pre-wired structure, with movable paste cone feeders, complete with air cooling unit, wet filter and automatic centralized management of acid/water metering.*

### 1) PLATFORM

The support structure comprises an overhead supported by 4 columns which also acts as wiring harness for all components, as well as for correct positioning of the system above the pastina unit.

### 2) AUTOMATIC LIQUIDS (ACID/WATER) METERING SYSTEM

The system consists of two transparent tanks for sulphuric acid, and water respectively. Each tank is provided with load cells or two level switches (one for negative and one for positive paste), which automatically stop the filling at the desired level. The water and acid flow into the mixer is started by means of two solenoid valves, operated by the PLC control system of the machine. The flow rate is adjusted by means of ball valves positioned below each tank. Both water and acid are introduced into the central part of the mixer, and are distributed by means of a system consisting of a central tunnel and two lead pipes, that rotate together with the mullers. In this way the pouring of the liquids is done on the whole mass of the paste, and not on a concentrated area. The electric controls are included in the control board of the mixer.

### 3) OXIDE BATCHING & DOSING SYSTEM

Oxide batching and dosing system by means of a small dosing silo (1100 kg) equipped with electronic load cell (accuracy  $\pm 1,5\%$ ). Oxide feeding, from oxide mill or storage silos to the batching silo at top of mixer, is at Customer' charge. Oxide discharge by means of a butterfly valve and vibrator. The dosing silo is refilled during the paste mixing cycle time. The electronic control board is enclosed in the main board of the mixer.

### 4) AUTOMATIC ADDITIVE DOSING SYSTEM

This system provides for automatic dosing of 4 different additives (carbon black, barium sulphate, flock, vanisperse) and related dry transfer to the mixer. The system comprises: 4 storage hoppers for additives (these hoppers are filled manually) - 4 feed screws for weighed delivery of additives to the main tank. The feed screws, 45 mm in diameter, ensure accurate dosage of the additives. - 1 weighing hopper. The four additives are delivered singly to the hopper and dosed in accordance with the recipe. This hopper is provided with a special door which opens automatically for automatic transfer of the additives during the mixing cycle.

### 5) CHILLER & AIR COOLING UNIT

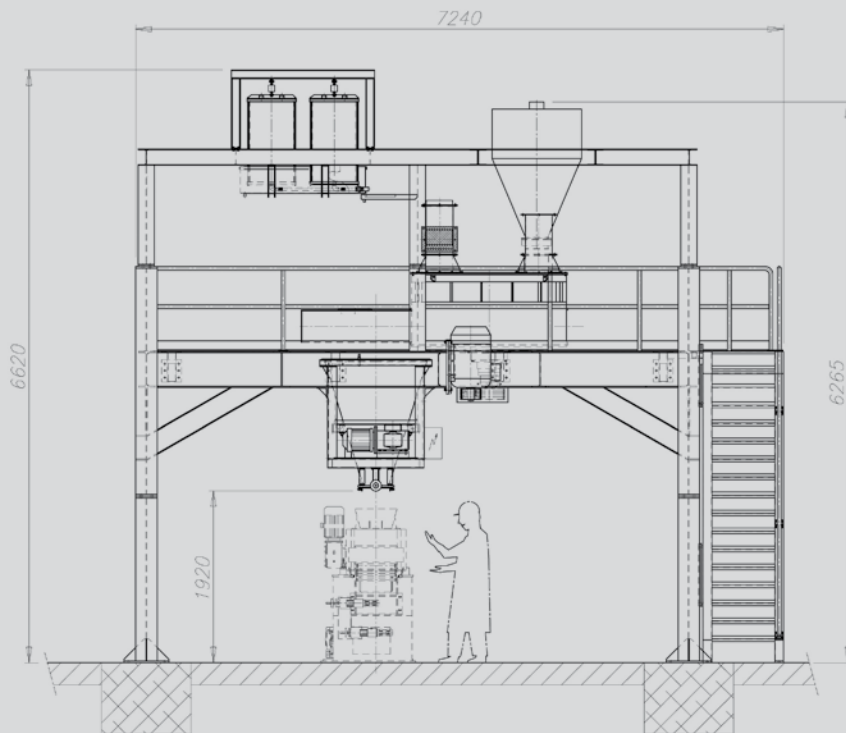
SOVEMA supplies also the necessary refrigerating unit (close recirculation type) for the cooling of the mixer tank jacket, as well as for the cooling of the air process.

### 6) ROTARY PASTE FEEDER

The feeder consists of a rotary cone, with a fixed scraper blade, and is designed to assure a regular and continuous feeding of pasting machine hopper. The flow of paste is mechanically adjusted by means of a shutter mounted at the outlet mouth of the cone, operated by means of a handwheel. The feeder is normally mounted below the mixer and receives the paste at the end of each cycle: the door at the bottom of the mixer is opened by an air cylinder, and the discharge takes place automatically with the rotation of the mullers/blades. The paste coming out first is also utilized first, so that the machine is always fed with fresh paste. Capacity: 1400 kg of paste maximum.

## OVERALL DIMENSIONS

Standard installation



## TECHNICAL DATA

	<b>BLADE type - 1000 kg</b>	<b>MULLER type - 1000 kg</b>
Production	up to 1200 kg of paste/cycle	up to 1200 kg of paste/cycle
Cycle speed	20÷25 minutes	25÷35 minutes
Operators	one, to oversight operation	one, to oversight operation
<b>ELECTRIC FEATURES</b>		
Voltage	220/380 V (or as required)	220/380 V (or as required)
Frequency	50 Hz (or as required)	50 Hz (or as required)
Main motor	45 kW (electronic soft-start)	22 kW (electronic soft-start)
Fan motor	-	1.5 kW
<b>REQUIREMENTS</b>		
Cooling water	5 l/min. at 20°C	5 l/min. at 20°C
Compressed air	0.6 MPa (6 bar)	0.6 MPa (6 bar)
Components included	Electric control board PLC Tank (stainless steel) Pneumatic board Water cooling jacket	Electric control board PLC Tank (stainless steel) Pneumatic board Water cooling jacket

[www.sovema.it](http://www.sovema.it)
**SOVEMA Spa**

Via Spagna 13

37069 Villafranca di Verona VR - ITALY

Tel. +39 045 6335711 - Fax +39 045 6303911

info@sovema.it