

PMS CONE MIXER®



PMS CONE MIXER® is a fully closed mixing system, suitable for powder mixing in large quantity up to 3,000 liter. Batch size could be varied from 40% to full working capacity. Laboratory model is available for development purpose and applicable for production scale-up.

PMS CONE Mixer® generates a three-dimensional flow of materials inside the vessel, achieving a combination of convective and shear mixing mechanisms. This results in its ability to disperse minor ingredients uniformly into base material much faster than conventional mixers using considerably less power consumption.

Theory of Operation

Raw material feeding to PMS CONE MIXER® can be manual through the port on the lid, or completely automatic through vacuum suction system. Conical mixing vessel structure helps preventing an adhesion of raw material and providing a smoother flow of materials inside the vessel. All parts in contact with product are stainless steel SUS 304, mirror polished. Capsule shape cover is securely fixed on the cone mouth to ensure dust-tight operation.

Main driving system of PMS CONE MIXER® is composed of cantilevered mixing screw and orbital arm. The mixing screw is fully supported by orbital arm without additional support at vessel bottom. Driving components are completely encapsulated, assuring oil and grease free in the operating chamber.

Mixing screw performs its mixing with twin rotating actions. Mixing screw rotates about its own axis, thus, achieving bottom to top circulation. Meanwhile, the orbital arm revolves the mixing screw about the centerline of the cone, distributed the mixing all over the cone periphery. The outcome of these simultaneous actions is a fast and intensive mixing with low power consumption and high standard of mixing accuracy. The downward mass flow particle speed, re-circulated by gravity, increases as the vessel diameter increases.

Finished product is discharged by centrifugal force through pneumatic discharge valve, located either at the bottommost of the vessel or on the side of vessel bottom, into product container.

CIP/WIP and hot air drying system could be supplied with the unit for ease of cleaning and maintenance purpose.

Application

- Pharmaceuticals : Powder, Granules, Herbal Medicine
- Cosmetics: Face powder, Body powder
- Food: Seasoning, Health food, Flavor, Candy, Additives, Confectionery, Spices, Dairy Powder
- Agricultural: Animal Feed, Premix
- Chemical: PVC/PE/PP compounds, Pigments and Color concentrates, Dyes, Resins
- Other: Metal Powders, Paints, Detergents



Benefit

- ✓ cGMP Compliance
- ✓ Uniform Mixing in Short Processing Time
- ✓ Efficient Power Consumption
- ✓ Variable Batch Size
- ✓ No Heat Generation
- ✓ No Segregation
- ✓ Easy to operate and maintenance



Standard Features

- Mixing vessel and all contact parts made of stainless steel SUS 304
- Single Speed Mixing screw and Orbital arm drive
- Non-explosion proof motors and non-explosion proof control
- Electric control panel with semi-automatic control system
- Pneumatically operated Discharge Valve
- Hanging lugs support above the floor or stainless steel legs directly on the floor

Option (upon request)

- Mixing vessel and all contact parts made of stainless steel SUS 316
- Heating and Cooling Jacket with Temperature Controller (applicable for Thermal-sensitive product)
- Special design for loading system, i.e. Vacuum transfer unit
- Discharge height and Feature to suite specific discharge requirements, i.e. Screw conveyor.
- Special design platform
- Programmable Logic Controller (PLC)
- Washing In Place (WIP)/ Cleaning In Place (CIP) system
- Hot Air Drying System
- Validation Document: Installation Qualification (IQ)/ Operational Qualification (OQ)

Specification

	PCM 100	PCM 1000	PCM 1500	PCM 2000	PCM 2500	PCM 3000
Total Volume (L)	230	2,200	3,000	4,000	4,500	5,000
Max Working Volume (L)	115	1,100	1,500	2,000	2,500	3,000
Cone Mouth Diameter (mm)	650	1,730	1,900	2,050	2,100	2,200
Cone Height (mm)	830	2,250	2,505	2,680	2,845	2,900
Total Height (mm)	1,600	3,635	3,890	3,990	4,235	4,340
Mixing Screw Driving Unit (KW)	0.37	5.5	5.5	7.5	7.5	11
Orbital Arm Driving Unit (KW)	0.18	0.75	0.75	1.5	1.5	1.5

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