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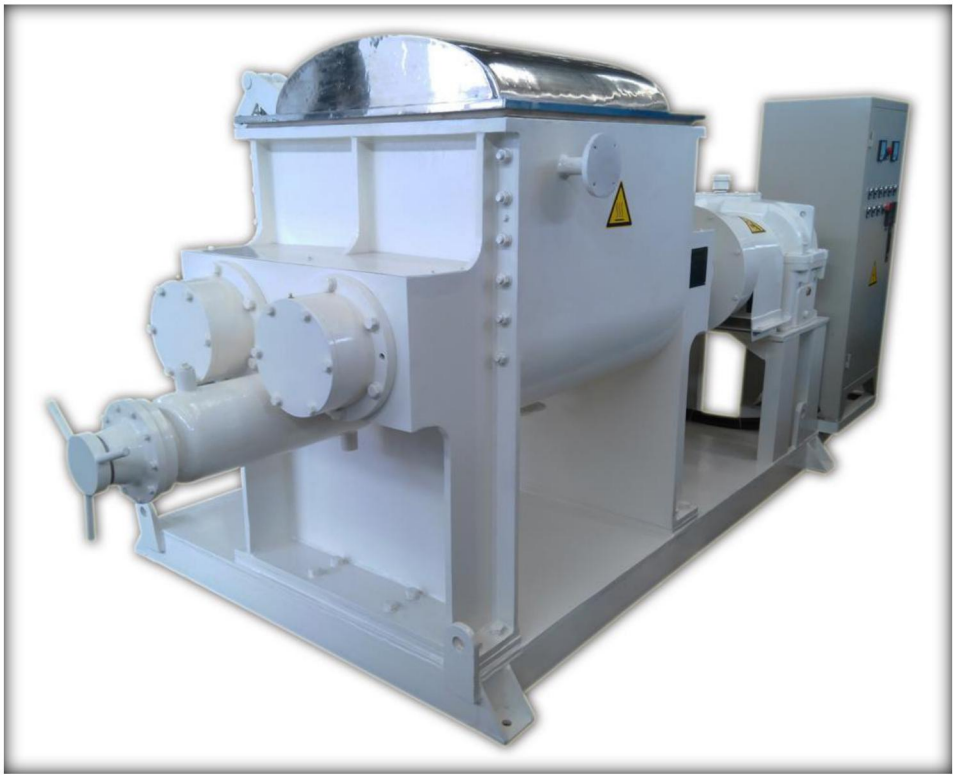
PSG - Sigma Mixer

Introduction:



The PerMix PSG series Sigma Mixer, which is also known as the Double 'Z' Arm Kneader, is used for the mixing-kneading of materials with very high viscosity (over 500,000 cps).

With its unique design of Z-shaped mixing tools installed in two semi-cylinders, the PerMix PSG series Sigma Mixer is able to provide a combined functions of compressing, stretching, folding, kneading & mixing, which makes it widely used in the chemical, food, sealing compound and paint industries, among others.

How It Works:

In the PerMix PSG series Sigma Mixer, there are two special designed Z-shaped rotating elements installed in a W-shaped chamber, the intersection of which forms a saddle piece and meeting tangentially just above the saddle. They rotate at different speeds (usually in the ratio of 3:2) and in opposite direction.

The mixing action is a combination of bulk movement, smearing, stretching, folding, dividing, and recombining as the material is pulled and squeezed against blades, saddle, and side walls. Continually new layers of material are compressed and folded over one another and are subjected to shearing

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forces. New surfaces are formed and the components can penetrate.

The blades, which are ground and polished, successively sweep all points of the trough surface during each revolution, at the same time dividing the batch continuously across the saddle piece and thereby rapidly affecting a perfectly homogeneous mix.

Discharging Arrangement:

1) Tilting tank

For small machines tilt can be of a mechanical type (handlever or handwheel). For greater machines electro-mechanically or hydraulically powered.

2) Extrusion screw

The extrusion-discharge screw is located in the saddle section and runs in a cylindrical trough tangential to, and below the 2 mixing blades. During the mixing cycle the screw moves the material

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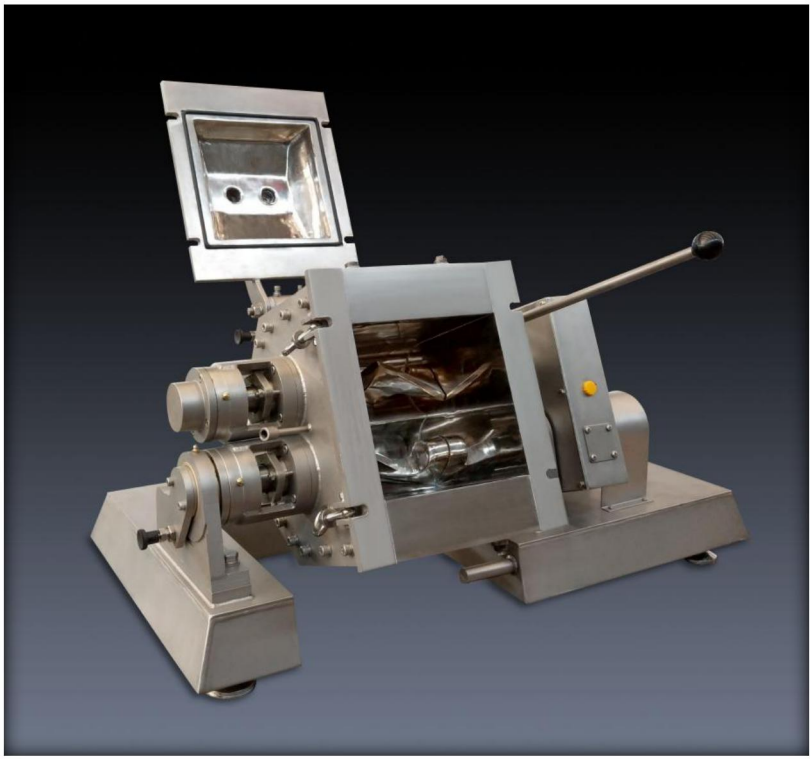
within the reach of the mixing blades, thus assuring a thorough blending of all the ingredients, and, at the same time, accelerating the mixing process. At discharge time, the direction of rotation of the screw is reversed and the mixed material is extruded through suitable die openings in the side of the machine. The extrusion screw has its own separate drive so that blades and screw operate independently.

Options:



The large number of options available for the PerMix PSG series Sigma Mixer enable it to perform particular functions or operate as a general kneader:

- Lab-size for R&D applications (Full volume of 1, 3, 5, 15L)
- Tiltable tank
- Bottom extruder discharge
- Variable speed drive
- Hydraulic drive
- Special 'Duplex' kneading arms for intensive kneading
- Vacuum execution
- Double jacket
- Overlapping arms
- Double jacket and heated arms

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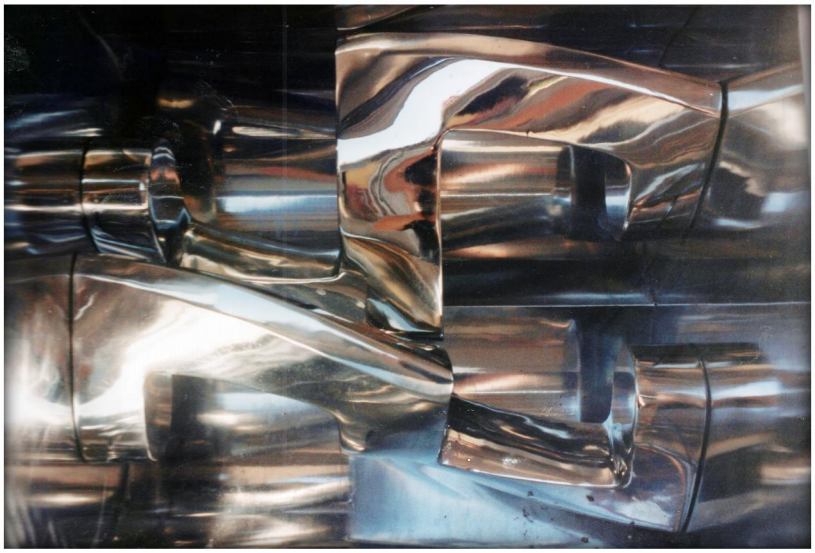
Special 'Duplex' Kneading Arms



PerMix offers PSG-D series 'Duplex' Sigma Mixer which is specially designed for even more intensive kneading applications. They are twin basin kneading machines with two horizontally arranged kneading blades, which are deeply geared into one another and strip themselves reciprocally. The kneading blades are turning acc. to a ratio 1:2. Because of their different speeds, the blade sides approach and withdraw alternately. This causes high pressure tensile and shearing rates and therefore heavy friction in the kneading medium, which creates excellent dispersing and homogeneity. The shape of the kneading blades enables a steady flow of material from the side walls of the kneading trough to the middle of the kneading trough.

Specifications:

Model	Total Capacity (liters)	Working Capacity (liters)	Power (kW)	Length (mm)	Width (mm)	Height (mm)
PSG-1	1	0.5	1.1	400	400	1000
PSG-3	3	2	1.1	800	550	650
PSG-5	5	3	1.1	900	580	690
PSG-15	15	10	2.2	1053	620	860
PSG-50	50	30	4-5.5	1260	1050	1300
PSG-100	100	70	7.5	1600	1300	1660
PSG-300	300	200	18.5-37	2430	830	1520
PSG-500	500	300	22-45	2670	920	1670
PSG-750	750	450	37-55	3070	1050	1950
PSG-1000	1000	700	37-90	3400	1460	1800
PSG-2000	2000	1400	55-110	4300	1850	2250

1) All specifications are as accurate as is reasonably possible, but they are not binding.
2) Customized sizes are available against request.
3) PerMix reserves the right to modify the design without notice.

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Gallery:

PSG-5 Lab Mixer by Manual Tilting

PSG Lab Mixer with Screw Discharge

PSG Sigma Mixer at Work

PSG-300 Mixer with Screw Extruder

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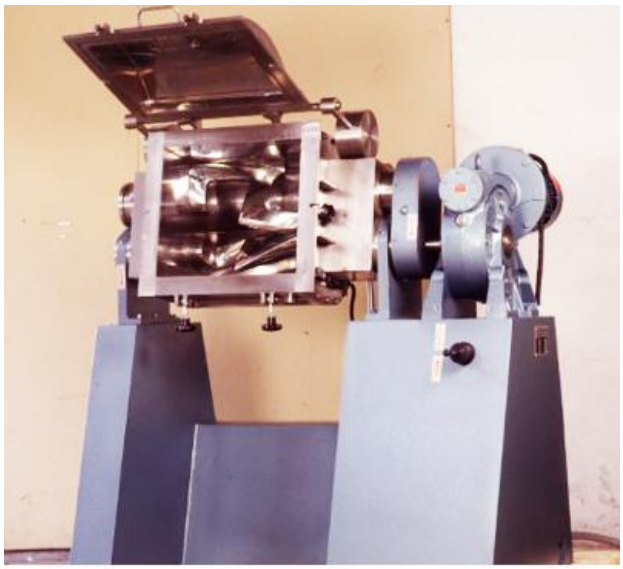
PSG-1 Lab Sigma Mixer

PSG Lab Mixer with Electric Control Panel



PSG Mixer with Duplex Blades

PSG-300 Industrial Sigma Mixer