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PNA CONICAL SCREW MIXER

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PerMix PNA series Conical Screw Mixer is a batch mixing equipment used widely in mixing applications that require gentle mixing with minimal product distortion, minimal heat generation, and very accurate mixing homogeneity. Since it was first developed more than 60 years ago, it has been recognized as a good solution for the products which is delicate, heat sensitive or tending to segregate.

Due to the reason that PerMix Conical Screw Mixer uses the gravity to generate the significant downward massflow, it saves energy compared with a horizontal mixer.

These Conical Screw Mixers are also featured with no contamination to the product during the mixing, due to the fact that the shaft sealing & bearing is above the working area, thus no contact with the product.

FEATURES & ADVANTAGES

- Low minimum volume required
- Complete discharge of materials
- Easy cleaning of the machine
- Gentle mixing for fragile and friction sensitive materials
- Free of cross contamination with shaft sealing above the product

HOW IT WORKS

Inside of the PerMix Conical Screw Mixer, there is a cantilevered rotating screw (or two, three screws according to specified application) rotating by its own axle which is in parallel to / near the wall of the cone vessel.

During the operation, the mixing screw lifts the product around it from bottom to the top, and then the powder falls down due to the gravity, causing a convective mixing. At the same time, the screw is supported by an orbital arm and is rotating around the center of the cone like a planetary, so that the powders in every corner of the cone can be mixed by the screw, and a 3-dimentional mixing performance occurs within the whole cone.



APPLICATIONS

PerMix PNA Conical Screw Mixers are suitable for a wide variety of processing applications in industries of food, pharmaceuticals, chemical, plastics, pigments and coatings, metals & minerals:

- Gentle mixing of free-flowing powders, pastes and slurry
- Coating of solid mass, powdery product
- Moistening of powders
- Granulating of fine powders
- Drying of wet powders, pastes and slurry with vacuum and liquid recovery



OPTIONS

• Laboratory size for R&D purpose

PerMix designs the PNA mixer in lab size with a working volume of ~8L, skid-mounted on casters, with the mixing vessel to be manually dismantled.

• Screw type

We offer single screw, double screw and triple screw to give different mixing intensity.

• Spray nozzle

Liquid can be added into the powder by a spray nozzle from the top.

• Heating/Cooling jacket

Jacketed vessel for heating/cooling operation by steam, thermal oil, or water. ASME/PED certificate can be optional for high pressure operation.

• Vacuum drying & deaerating

PNA Conical Screw Mixers can be designed to a vacuum mixer dryer for vacuum drying & deaerating or for inner pressure working for special applications.

• Lifting/Lowering of top assembly

PerMix designs the PNA mixers with the possibility to lift and lower the top assemblies together with the mixing screw(s) which eases the cleaning and maintenance.

• Sampling unit

A flush-fitting sampling unit can be supplied for the PNA mixers for easy manual sampling.

• Construction material

We are able to offer mixers with contact part to be built by Carbon steel, SS304, SS316/316L, Titanium, Duplex stainless steel, Hastelloy, etc. For abrasive materials we offer hardened steel as the contact part, or the mixing elements to be coated with materials such as Tungsten Carbide or equivalent.

SPECIFICATIONS

Model	Total volume (liter)	Working volume (liter)	kW (*) (Screw)	RPM (*) (Screw)	kW (*) (Orbit)	RPM (*) (Orbit)	Dia. (mm)	H (mm)	Weight (kg)
PNA-50	50	30	1.1	130	0.18	2	655	1,340	150
PNA-100	100	60	1.5	120	0.25	2	720	1,500	300
PNA-200	200	120	2.2	120	0.37	2	875	1,940	400
PNA-300	300	180	2.2	120	0.37	2	980	2,110	450
PNA-500	500	300	3	120	0.55	2	1,160	2,370	550
PNA-750	750	450	4	95	0.55	2	1,500	2,500	950
PNA-1000	1,000	600	4	95	0.55	2	1,525	2,835	1,100
PNA-1500	1,500	900	5.5	95	0.55	2	1,680	3,125	1,300
PNA-2000	2,000	1,200	5.5	95	0.55	2	1,860	3,415	1,450
PNA-2500	2,500	1,500	7.5	95	0.75	2	2,000	3,600	1,500
PNA-3000	3,000	1,800	7.5	95	0.75	2	2,080	3,810	1,600
PNA-4000	4,000	2,400	11	75	1.1	1.5	2,300	4,005	2,550
PNA-5000	5,000	3,000	15	75	1.5	1.5	2,440	4,210	2,800
PNA-6000	6,000	3,600	15	75	2.2	1.5	2,590	4,455	3,000
PNA-8000	8,000	4,800	18.5	75	2.2	1.5	2,865	4,853	4,350
PNA-10000	10,000	6,000	22	75	3	1	3,070	5,290	5,600

- kW/rpm are product dependent and might vary.
- All specifications and illustrations are as accurate as is reasonably possible, but they are not binding.
- PerMix reserves the right to modify the design without notice.



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Besides, PerMix have been building a network of agents located in Europe (Germany, Denmark, UK, Belgium, France, Spain, Poland, etc), Asia (South Korea, Indonesia, Thailand, Malaysia, Singapore), and several other countries.

