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**PAM** VERTICAL MIXER

## PAM VERTICAL MIXER

PerMix PAM series Vertical Mixer is a super innovation that combines all the advantages of precise mixing homogeneity, highly hygienic design, complete discharge with minimum residue, wide range of loading volume, robust design with long duty life and many others.

PAM Vertical Mixers are efficient and versatile blending machines for batch mixing of free-flowing powders, granules and pellets. They have been used widely in food, enzyme, cosmetics, fine chemicals, pharma, etc. Besides, the material particles are mixed with minimal mechanical and thermal stress, which makes this type of mixer a good solution for fragile and heat sensitive product.

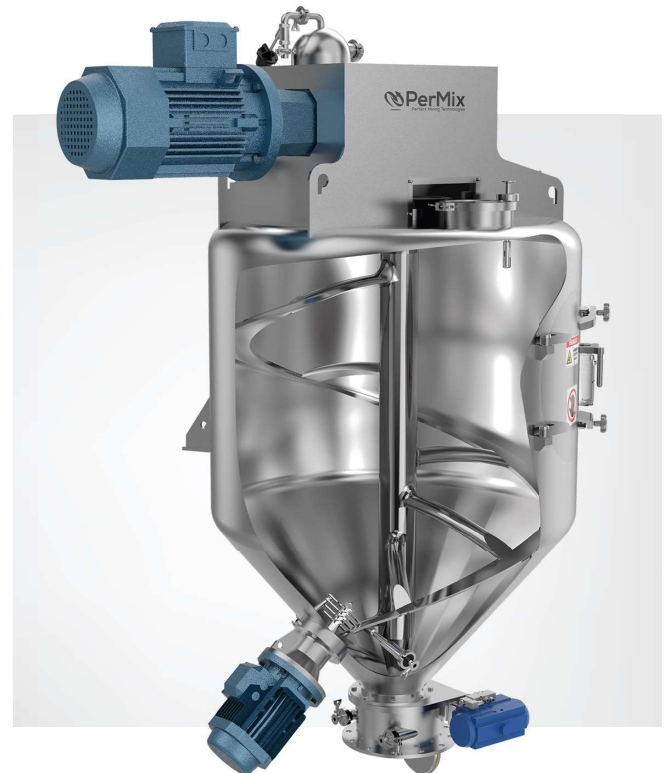
## HOW IT WORKS

PerMix PAM Vertical Mixers are designed with a single shaft with only one ribbon, but is able to provide a multi-dimensional movement of the materials. The ribbon inside the mixing vessel moves the materials upward from the bottom to the top, where the materials then drop by gravity into the center. This generates a good counter flow of the product particles.

The ribbon design ensures that the linear speed of the particles are different from here to there, which results in a turbulence flow field. During this continuous operation, material particles and heat are exchanged quickly which leads to a homogeneous product.

A high speed chopper can be mounted to provide intensive mixing and / or lump breaking. This is very useful when liquid is added to the powdery materials and generate lumps.

The PAM mixers have a cylindrical body with conical bottom, but sometimes can be with flat bottom and scrapers to assist the discharge.



A side mounted access door is included for most of the models for inspection and cleaning purpose, and it is designed to be flush-fitting without creating blind areas for mixing and cleaning. At the bottom of the cone, there is a flush-fitting plug valve (manually or pneumatically operated) for product discharge.



## ADVANTAGES

- High level of accuracy with minor component ratio to be 1:1,000,000
- Gentle mixing for sensitive materials without generation of heat
- Chopper to be installed for intensive mixing and lump breaking
- Low minimal feeding volume required
- Full discharge with minimal residue
- Easy to clean in either dry or wet way
- High heat transfer rate, ideal for heating or cooling process of the powders

## FEATURES & OPTIONS

### • CIP spraying balls

PerMix PAM mixers can be designed for CIP (Clean-in-Place) with spraying balls for both the mixing vessel and the discharge area.

### • 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

PeMix PAM mixers can be designed for vacuum drying & deaerating or for inner pressure working for special applications.

### • Spray nozzle for liquid addition

Liquid can be added into the powder by spray nozzles which is installed on the top of the mixing vessel. The necessary pump and tank can also be provided by PerMix.

## SPECIFICATIONS

| Model     | Total capacity (liter) | Working capacity (liter) | Power (kW) (*) | Speed (RPM) (*) | L (mm) | W (mm) | H (mm) | Weight (kg) |
|-----------|------------------------|--------------------------|----------------|-----------------|--------|--------|--------|-------------|
| PAM-30    | 30                     | 21                       | 1.1            | 150             | 1,200  | 720    | 1,580  | 500         |
| PAM-50    | 50                     | 35                       | 2.2            | 134             | 1,239  | 750    | 1,650  | 580         |
| PAM-100   | 100                    | 70                       | 3              | 129             | 1,500  | 800    | 1,700  | 850         |
| PAM-200   | 200                    | 140                      | 4              | 104             | 1,730  | 900    | 1,800  | 1,000       |
| PAM-300   | 300                    | 210                      | 5.5            | 89              | 1,270  | 880    | 1,560  | 600         |
| PAM-500   | 500                    | 350                      | 7.5            | 74              | 1,410  | 1,000  | 1,730  | 700         |
| PAM-750   | 750                    | 525                      | 11             | 67              | 1,840  | 1,190  | 2,030  | 1,100       |
| PAM-1000  | 1,000                  | 700                      | 11             | 58              | 1,920  | 1,320  | 2,070  | 1,200       |
| PAM-1500  | 1,500                  | 1,050                    | 15             | 51              | 2,050  | 1,490  | 2,390  | 1,700       |
| PAM-2000  | 2,000                  | 1,400                    | 18.5           | 49              | 2,185  | 1,560  | 2,675  | 2,050       |
| PAM-3000  | 3,000                  | 2,100                    | 22             | 43              | 2,320  | 1,730  | 2,985  | 2,700       |
| PAM-4000  | 4,000                  | 2,800                    | 30             | 38              | 2,535  | 1,950  | 3,105  | 3,400       |
| PAM-5000  | 5,000                  | 3,500                    | 37             | 36              | 2,740  | 2,070  | 3,355  | 4,100       |
| PAM-6000  | 6,000                  | 4,200                    | 37             | 33              | 2,800  | 2,180  | 3,515  | 4,400       |
| PAM-8000  | 8,000                  | 5,600                    | 45             | 30              | 3,120  | 2,420  | 3,790  | 5,650       |
| PAM-10000 | 10,000                 | 7,000                    | 55             | 28              | 3,320  | 2,660  | 4,050  | 6,900       |
| PAM-12000 | 12,000                 | 8,400                    | 75             | 26              | 3,480  | 2,700  | 4,255  | 8,300       |
| PAM-15000 | 15,000                 | 10,500                   | 90             | 24              | 3,750  | 2,890  | 4,500  | 9,800       |

- 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.

### • Feeding & Discharging

A variety of feeding & discharging methods can be selected by the customers.

### • Shorter version with flat bottom

PAM mixers can be designed with a flat bottom to reduce the total height, in order to fit in a limited ceiling height. A bottom scraper is mounted to improve the discharge speed and reduce the residues.

### • Construction material

PerMix can offer mixers with contact part built in Carbon steel, SS304, SS316/316L, Titanium, Duplex SS, Hastelloy, etc. For abrasive materials we offer hardened steel, or the mixing elements to be coated with materials such as Tungsten Carbide.

PerMix Tec Co., Ltd.  
Adi 17940, Israel

Contact: Mr. Arie Srugo  
Tel: +972-54-908-0144  
Email: [srugo@permixtec.com](mailto:srugo@permixtec.com)  
[www.permixtec.com](http://www.permixtec.com)

#### PerMix in China

Shanghai, 201821, China  
Contact: Mr. Aaron Huang  
Tel: +86 133 911 68218  
Email: [aaron.h@permixtec.com](mailto:aaron.h@permixtec.com)

#### PerMix North America

Chicago, Illinois,  
60601, USA  
Contact: Mr. John Paul  
Tel: +1 630-649-1357  
Email: [John.paul@permixtec.com](mailto:John.paul@permixtec.com)

#### South America office

Buenos Aires, Argentina  
Contact: Mr. Gonzalo Villagra  
Tel: +54-9-11-35374801  
Email: [gonzalo.villagra@permixtec.com](mailto:gonzalo.villagra@permixtec.com)

#### UK office

Scotland, UK  
Contact: Mr. James Ryder  
Tel: +44 (0) 7554139667  
Email: [james.ryder@permixtec.com](mailto:james.ryder@permixtec.com)

#### South Africa office

South Africa  
Email: [saf@permixtec.com](mailto:saf@permixtec.com)

#### Russia office

Russia  
Email: [ru@permixtec.com](mailto:ru@permixtec.com)

#### Ukraine office

Contact: Mr. Viacheslav Pishyi  
Tel: +38 067 45 44 694  
Email: [ua@permixtec.com](mailto:ua@permixtec.com)

#### India office

Plot No. 78 to 90,  
Sec 2A, Airoli, Navi  
Mumbai -400 708, India  
Contact: Mr. Anant Wagh  
Tel: +91 99304 69228  
Email: [india@permixtec.com](mailto:india@permixtec.com)

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.

