

## PDI - Mixer Granulator

### Introduction:



The PerMix PDI series High Speed Mixer, also called Mixer Granulator, Wet Granulator, or High Shear Mixer Granulator, is an efficient and versatile blending machine for mixing of dry powders, or granulating with the addition of liquid binder, within a very short time and with excellent cleaning abilities. It is able to give perfect result for mixing due to the innovative design of a central **Impeller** type mixer with a side vertical **Chopper**.

The proven mixing action of the PerMix PDI series High Speed Mixer ensures effective mixing in many applications. Optimal performance is assured with dedicated designs of optional feeding, discharging and installation.

## **Basic Construction:**



The PerMix PDI series High Speed Mixer consists of two electrical motors, one reduction gear, coupling, and shafts with the two agitators. The shaft is sealed with special sealing, sometimes with air purge, in a way that there is limited contact between the material and the seal.

Materials are loaded from top side, and the discharge is located at the bottom side. Due to the consistent modular design, the system can be configured individually and easily adapted to the constructional circumstances and specific requirements.

## **How It Works:**



In a PerMix PDI series High Speed Mixer, the powders are set in a multidimensional shear flow state and it needs only short mixing time until they are thoroughly mixed.

In case that granulation is required, the spraying system sprays the binder solution into the bowl to agglutinate with the materials and under the combined action of the impeller and chopper, uniform and porous granules are produced. After finishing the mixing or granulation process, powders/granules are discharged through the side discharge with no "dead zone" valve.

## **Features & Options:**

### **- Impellers Design**

Y-shaped rotor blade with special aerodynamic profile - this key element with the various product-optimized chopper designs are the result of many years of successful development.

### **- Construction Material & Finish**

We are able to offer our PDI Mixers with contact part to be built in SS304, S316/316L, Titanium, Duplex stainless steel, Hastelloy, etc. Standard of internal and external finish can be adapted to the customer's needs. For abrasive materials we offer hardened Stainless Steel as the contact part.



### **- Feeding & Discharging**

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

### **- Drive System**

Drive system by geared motor, cycloidal reducer, worm reducer, belt or chain transmission, etc.

### **- Heating/Cooling Jacket**

Jacketed trough for heating/cooling operation

### **- Vacuum Drying & Deaerating**

The PDI mixer can be designed for vacuum drying & deaerating or for inner pressure working for special applications.

### **- Spray Nozzle**

Liquid can be added into the powder by spray nozzles on the top.

**- Mixer Lid with Counter-weight or Pneumatic operated**

Standard PerMix PDI Mixer is equipped with a cover with counter-weight, manually operated; however pneumatic opening is an option for easy opening and closing to save labors.

**Applications:**

Some typical applications of a PerMix PDI series High Speed Mixer includes but not limited to:

**- Food industry**

Batters, Doughs for pastries, Flavours, Instant meals, Spice and herb mixtures, Sugar based confectionery tablets

**- Chemical industry**

Coloring of plastics, Master batches, Powder mixing with liquid addition, Powder paints

**- Pharmaceutical industry**

Granulate mixtures, Powder mixtures, Wet granulations

**- Cosmetics industry**

Ceramic dental mixtures, Eye shadows, Face powders

**Specifications:**

Model	Total Volume, [Liter]	Operation Volume, [Liter]	Impeller Power, [kW]	Impeller Speed, [rpm]	Chopper Power, [kW]	Chopper Speed, [rpm]
PDI-10	10	6	2.2	300	1.1	1,500
PDI-50	50	30	4	250	1.1	1,500
PDI-100	100	60	5.5	250	1.5	1,500
PDI-200	200	120	7.5	220	3	1,500
PDI-300	300	180	11	220	4	1,500
PDI-400	400	240	18.5	200	5.5	1,500
PDI-600	600	360	22	200	5.5	1,500

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.

**Gallery:**



PDI-600 Mixer Built in All Stainless Steel



PDI-600 with Special "Half Lid"



PDI-600 Mixer Built in All Stainless Steel



Lab-size PDI Mixer Granulator





[www.permix-mixing.com](http://www.permix-mixing.com)

Internal View of Lab-size PDI Mixer



[www.permix-mixing.com](http://www.permix-mixing.com)

Standard PDI Mixer Granulator



[www.permix-mixing.com](http://www.permix-mixing.com)

PDI-600 Cover Opened with Counterweight



[www.permix-mixing.com](http://www.permix-mixing.com)

PDI-600 Cover Closed with Counterweight