

## PJ - Jet Mixer & Dispenser

### Introduction:



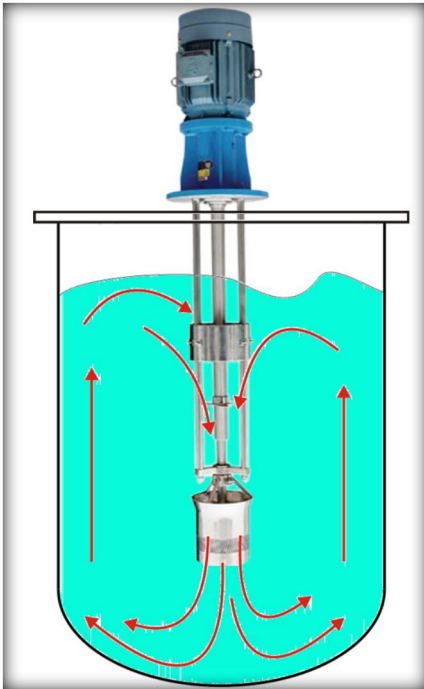
A jet mixer is used where homogenizing, dispersing, suspending, emulsifying, dissolving are required. Its advantages compared with a conventional agitator are free of aeration, no floating powder, no sedimentation, no additional baffles, no flow dead zones, and very high efficient that a small motor can keep large volumes in motion.

It is distinguished over ordinary blenders due to its very innovative Stator & Rotor assembly. Stator is a streamlined deflector tube fixed around the three-blade rotor. This design draws the liquid & solid into the tube and generates great turbulence there to mix and disperse those “Difficult-To-Disperse” powders into liquids, more cost-effective, and cutting process time up to 90%.

### How It Works?

A jet mixer functions with its special designed stator/rotor system. The rotor is usually a turbine impeller, and the stator is a curved guide tube surrounding the rotor. When it works, the rotor generates a strong axial flow from the surface of the liquid, going through the stator tube and towards the bottom. In this manner, floating powder is drawn into the liquid, and sedimentation is lifted up. With many circulations, the total tank can be mixed and homogenized without dead zones.

There are four steps to describe the working principle:



Step 1. When the rotor runs at high speed (up to 3,000rpm @ 50Hz), strong vacuum is generated at its center. Liquid & solid above are drawn into the tube with the guidance of the deflector (stator).

Step 2. Centrifugal force leads the materials to the periphery. Liquids and solids are subject to intensive squeezing and milling at the precision-machined clearance between stator and rotor.

Step 3. For N agitator, materials are expelled out from the bottom of the tube back to the liquid body. For O agitator, a part of them will stand another intense hydraulic shear as they pass through the openings in the stator.

Step 4. Fresh materials are continually drawn into the stator and rotor to maintain the mixing cycle in the tank.

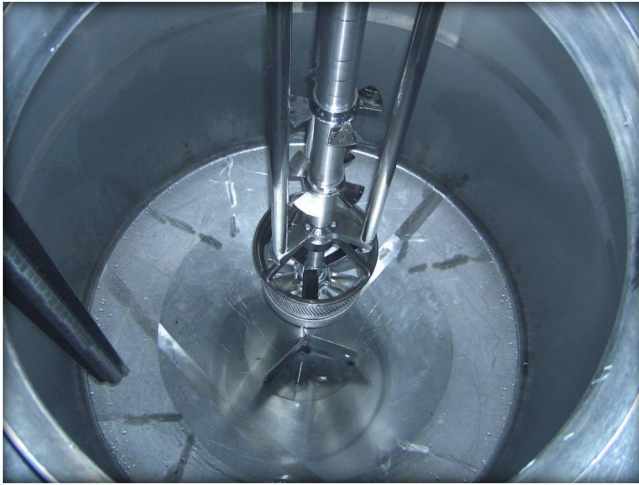
## Two Types of Jet Mixer:



There are two types of jet mixer available, and the difference lies in the stator (as shown in the picture). The stator can be either with or without openings.

A jet mixer with a stator without openings has a stronger axial flow, because all the materials will go through the tube from the top to the bottom. But for the jet mixer with a stator with openings, some of the materials will go out of the tube through the openings. This makes it have some homogenizing ability.

## **Installation:**



Jet Mixers work in batch operation. Similar to High Shear Mixers, its installation is flexible enough for it to be fitted into any existing system:

- Top entry (open or closed vessel)
- Side entry
- Bottom entry

## **Applications:**



Jet mixers can be used in almost all branches of processing in the chemical industry, pharmaceutical productions, food industry and cosmetic products.

### **- Food & Beverage**

Milk powder dissolving, Salad dressing, Mayonnaise, Premix for ice cream, Cheese, Yogurt, Fruit juice

**- Cosmetics & Daily Care**

Detergent, Body gel, Shampoo, Cream, Lotion, Tooth paste, Soap

**- Pharmaceuticals & Biology**

Drug synthesis, Vaccine, Fat emulsion, Injectable suspension, Veterinary medicine

**Specifications:**

**N type, Jet Agitator:**

Model	Watts, kW	RPM, @50Hz	Max. Capacity, L		Shaft Length, mm
			@1 cPs	@3,000 cPs	
PJ-C/090-N	1.1-1.5	3,000	1,500	500	400-1,000
PJ-C/110-N	2.2-3		3,000	1,000	750-1,500
PJ-C/145-N	4-5.5		5,000	1,700	900-1,700
PJ-C/215-N	7.5-11	1,500	10,000	3,300	1,200-2,300
PJ-C/245-N	15-18.5		18,000	6,000	1,200-2,300
PJ-C/275-N	22-30		30,000	10,000	1,400-2,500
PJ-C/345-N	37-55	1,000	50,000	17,000	1,500-2,700

**O type, Jet Dispenser:**

Model	Watts, kW	RPM, @50Hz	Max. Capacity, L		Shaft Length, mm
			@1 cPs	@3,000 cPs	
PJ-C/090-O	1.5-3	3,000	100	50	350
PJ-C/100-O	2.2-4		300	150	600
PJ-C/120-O	4-7.5		800	400	700
PJ-C/140-O	7.5-15		2,000	1,000	800
PJ-C/160-O	11-18.5		3,000	1,500	820
PJ-C/180-O	18.5-30		4,000	2,000	1,100
PJ-C/200-O	22-37	1,500 / 1,000	5,000	2,500	1,150
PJ-C/220-O	30-45		7,000	3,500	1,200
PJ-C/240-O	37-55		12,000	6,000	1,300

- 1) Actual liquid capacity will vary depending on the liquid type and viscosity.
- 2) PerMix offers customized capacity according to customer requests.
- 3) PerMix reserves the right to modify the design without notice.



**Gallery:**



Standard PJ Mixer



PJ Mixer on Electric Lifting Stand



PJ Stator without Opening



PJ Stator with Slot Opening