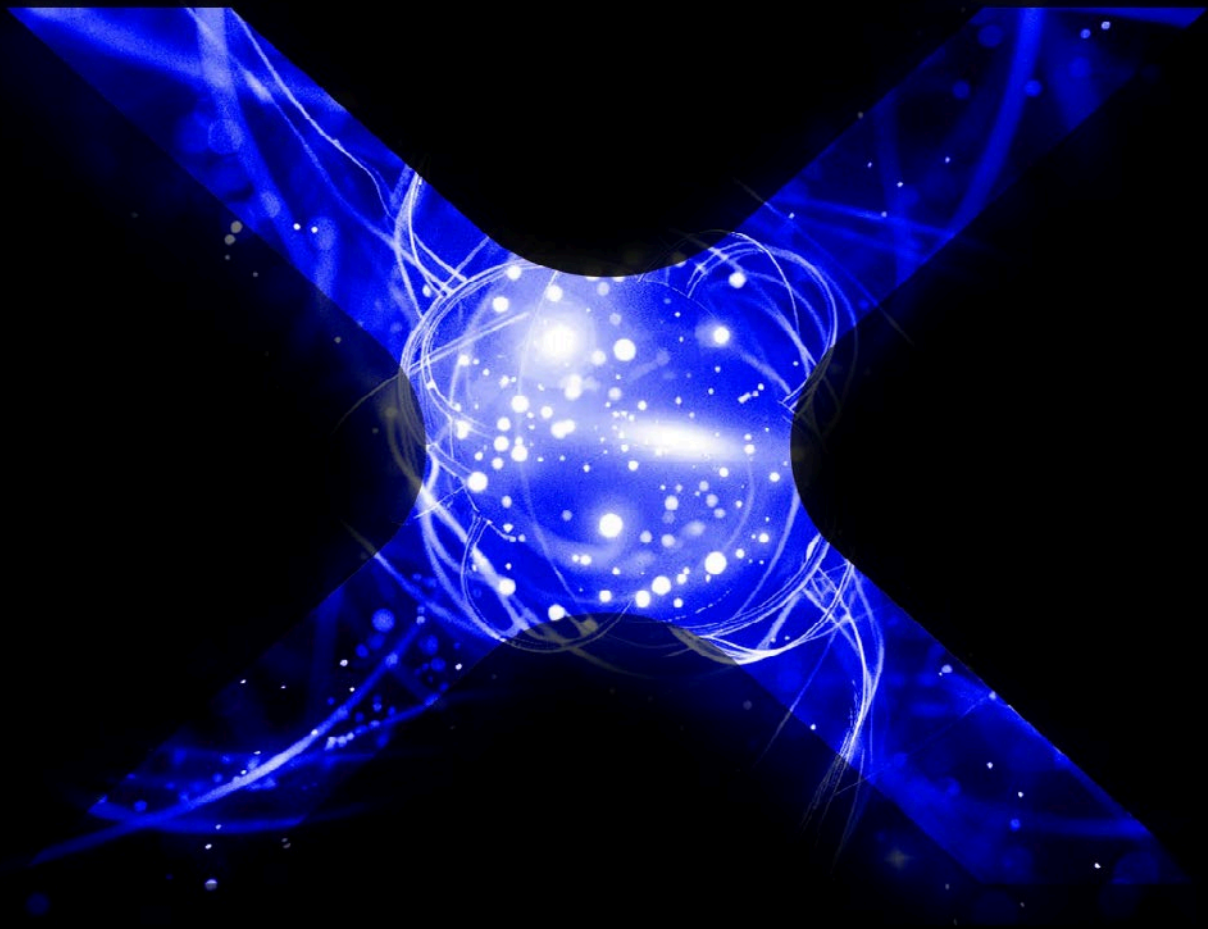


*Quantum***X**



**FLUIDIZED ZONE
MIXERS**

QuantumX Fluidized Zone Mixers

Redefining Powder Mixing Efficiency

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QuantumX Fluidized Zone Mixers (PFB Series) are designed to deliver the highest efficiency in powder, granule, and paste mixing. Unlike conventional ribbon or paddle mixers, they create a fluidized mixing zone — a dynamic, low-shear, high-intensity environment where materials are lifted and suspended in a three-dimensional flow pattern.

The result is rapid, homogenous mixing across all particle sizes and densities, reduced mixing times, and lower energy consumption

— making the PFB series the next evolution in mixing technology.

QuantumX offers both Single Shaft (PFBS) and Dual Shaft (PFB) configurations, with optional Vacuum Mixer & Dryer combinations (PFBSD & PFBD) for complete mixing, drying, and solvent recovery in one system.



SINGLE SHAFT FLUIDIZED ZONE MIXER



WHAT IT IS + HOW IT WORKS

The QuantumX PFBS Single Shaft Fluidized Zone Mixer uses a single, high-speed horizontal shaft equipped with plow or paddle-shaped agitators. These generate a fluidized motion that throws particles upward and outward in a random, intermeshing pattern. This movement eliminates dead zones and achieves uniform mixing in a fraction of the time of conventional mixers.

Optional high-speed choppers can be integrated to disperse agglomerates or assist in adding liquids evenly during the process.

WHO USES IT

The PFBS is widely used in the food, nutraceutical, pharmaceutical, chemical, and plastics industries. It's ideal for dry powder blending, powder-liquid mixing, coating, coloring, flavoring, and micro-granulation applications.

ADVANTAGES

Perfect upgrade from a ribbon mixer — same footprint, exponentially higher efficiency.

Mixes materials of varying bulk densities with ease.

Ultra-short mixing times (up to 5x faster than ribbon mixers).

Energy-efficient design reduces power consumption.

Easy-to-clean and adaptable for frequent product changeovers.

DISADVANTAGES

Not ideal for very fragile or heat-sensitive materials that require low agitation.

Slightly higher initial cost compared to ribbon mixers, offset by lower operating cost and faster ROI.

5X
faster



WHAT IT IS + HOW IT WORKS

The QuantumX PFB Dual Shaft Fluidized Zone Mixer features two counter-rotating shafts, each with plow or paddle agitators. Together they create overlapping fluidized zones that move material in a multi-directional pattern — lifting, folding, and distributing ingredients quickly and evenly.

This design provides greater torque, enhanced mixing power, and the ability to process more challenging formulations, including higher-moisture or viscous products.

WHO USES IT

The PFB is favored by industries that require extreme consistency and batch uniformity — such as pharmaceuticals, advanced materials, ceramics, food processing, and specialty chemicals.

ADVANTAGES

- Superior homogeneity and faster batch cycles.
- Handles high-viscosity, high-moisture, or sticky materials.
- Dual drive system provides increased torque and control.
- Adaptable for batch or continuous operation.
- Excellent dispersion of liquids and additives.

DISADVANTAGES

- Requires slightly more headroom and mechanical complexity.
- Higher cost due to dual drive assemblies, but justified by productivity gains.



VACUUM MIXER + DRYER COMBINATIONS

04

Both the Single Shaft (PFBSD) and Dual Shaft (PFBD) Fluidized Zone Mixers are available with integrated Vacuum & Drying systems.

This combination allows manufacturers to mix, dry, and recover solvents or moisture in a single sealed system.

The vacuum lowers the boiling point of liquids, enabling gentle yet efficient drying at lower temperatures — ideal for heat-sensitive or volatile materials. Heating and cooling jackets provide precise temperature control, while optional condensers and recovery tanks allow for solvent reclamation.

APPLICATIONS INCLUDE

- Drying of wet granules or powders after granulation
- Solvent removal in pharmaceutical & chemical production
- Vacuum coating & crystallization
- Food & nutraceutical drying operations



● mixing &
drying

QuantumX Fluidized Zone Mixers are available in a wide range of materials to meet process and regulatory needs:

304 STAINLESS STEEL

General food-grade applications

316 / 316L STAINLESS STEEL

Pharmaceutical & sanitary processing

CARBON / MILD STEEL

General industrial or non-corrosive use

HARDOX STEEL

Abrasive and heavy-duty applications

HASTELLOY

Corrosive or high-purity chemical processes

TITANIUM

High corrosion resistance and low contamination risk

All models can be finished to industrial, sanitary, or pharmaceutical-grade polish levels.

OPTIONAL FEATURES + CONFIGURATIONS

06

Heating & Cooling Jackets >
for temperature-controlled processes

Liquid Addition Ports >
and high-speed choppers

**Vacuum or Pressure
Operation** >
for drying or pressurized mixing

CIP / WIP Systems >
for automated cleaning

Load Cells >
for accurate batch control and recipe
scaling

Gas Purge Systems >
for inert gas or nitrogen blanketing

PLC/HMI Automation >
with recipe storage

**ATEX / ExP Explosion-Proof
Versions** >
for flammable or hazardous
environments



engineered

From batch testing to full-scale production, every QuantumX Fluidized Zone Mixer is

**engineered with precision,
durability, and innovation in
mind.**

Whether it's upgrading a ribbon mixer to a PFB, scaling up with a PFBD, or adding vacuum drying with a PFBSD/PFBD—QuantumX ensures the most efficient, safe, and reliable solution on the market.

**QuantumX —
Mixing Made Better.**

Model	Total Volume (liter)	Working Volume (liter)	Power for Arms (kW)	Arm Speed (RPM)	L (mm)	W (mm)	H (mm)	Weight (kg)
PFBS-10L	10	6	1.1	365	1,050	400	610	120
PFBS-20L	20	12	1.1	280	1,250	500	670	160
PFBS-50	50	30	2.2	138	1,000	900	1,250	400
PFBS-100	100	60	4	130	1,455	600	1,650	660
PFBS-150	150	90	4	120	1,510	650	1,680	700
PFBS-200	200	120	5.5	95	1,615	660	1,710	750
PFBS-250	250	150	5.5	90	1,680	700	1,750	800
PFBS-300	300	180	7.5	90	1,725	715	1,750	880
PFBS-400	400	240	7.5	80	1,850	800	1,900	950
PFBS-500	500	300	11	80	2,020	870	1,900	1,000
PFBS-600	600	360	11	75	2,100	900	2,090	1,200
PFBS-700	700	420	15	75	2,200	920	2,100	1,400
PFBS-750	750	450	15	75	2,255	960	2,075	1,600
PFBS-800	800	480	18.5	75	2,350	1,000	1,765	1,800
PFBS-1000	1000	600	18.5	72	2,410	1,050	1,765	1,900
PFBS-1200	1200	720	22	72	2,600	1,100	1,800	2,100
PFBS-1500	1500	900	22	68	2,715	1,150	1,800	2,200
PFBS-2000	2000	1200	30	64	2,910	1,250	1,930	2,700
PFBS-2500	2500	1500	37	64	3,200	1,350	2,100	3,000
PFBS-3000	3000	1800	37	60	3,370	1,400	2,100	3,500
PFBS-4000	4000	2400	45	57	3,710	1,520	2,285	4,400

* Mixers Can be made to have a total volume of 30,000 L.

single shaft
fluidized
zone mixer

double shaft fluidized zone mixer

Model	Total Volume (liter)	Working Volume (liter)	Power for Arms (kW)	Arm Speed (RPM)	L (mm)	W (mm)	H (mm)	Weight (kg)
PFB-10L	10	6	1.1	365	800	500	900	140
PFB-20L	20	12	1.1	280	850	550	950	180
PFB-50	50	30	2.2	125	950	850	950	400
PFB-100	100	60	3	105	1,000	890	1,100	660
PFB-150	150	90	3	95	1,050	920	1,200	750
PFB-B-200	200	120	3	60	1,235	930	1,005	800
PFB-B-250	250	150	4	60	1,300	1,000	1,100	880
PFB-B-300	300	180	5.5	60	1,420	1,100	1,190	950
PFB-B-400	400	240	7.5	60	1,550	1,200	1,250	1,100
PFB-B-500	500	300	11	50	1,630	1,260	1,285	1,200
PFB-B-600	600	360	11	50	1,680	1,320	1,330	1,350
PFB-B-700	700	420	11	50	1,730	1,380	1,380	1,500
PFB-B-750	750	450	11	50	1,780	1,420	1,430	1,650
PFB-B-800	800	480	11	45	1,830	1,480	1,480	1,800
PFB-B-1000	1000	600	11	45	1,870	1,575	1,505	1,900
PFB-B-1200	1200	720	15	45	1,950	1,600	1,680	2,150
PFB-B-1500	1500	900	15	45	2,030	1,675	1,730	2,300
PFB-B-2000	2000	1,200	22	45	2,280	1,635	1,945	2,800
PFB-B-2500	2500	1,500	22	45	2,380	1,700	2,050	3,000
PFB-B-3000	3000	1,800	22	40	2,420	1,785	2,165	3,300
PFB-B-4000	4000	2,400	30	30	2,740	2,100	2,255	4,800

* Mixers Can be made to have a total volume of 20,000 L.

Model	Total Volume (liter)	Working Volume (liter)	Power for Arms (kW)	Arm Speed (RPM)	L (mm)	W (mm)	H (mm)	Weight (kg)
PFBSD-10L	10	6	1.1	256	1,050	900	610	180
PFBSD-20L	20	12	2.2	196	1,250	1,050	670	230
PFBSD-50	50	30	4	88	1,050	940	1,050	500
PFBSD-100	100	60	5.5	74	1,100	980	1,210	830
PFBSD-150	150	90	5.5	67	1,160	1,060	1,320	940
PFBSD-200	200	120	7.5	56	1,200	1,140	900	630
PFBSD-250	250	150	7.5	49	1,270	1,270	1,050	850
PFBSD-300	300	180	11	49	1,380	1,400	1,090	1,000
PFBSD-400	400	240	11	42	1,490	1,490	1,210	1,200
PFBSD-500	500	300	15	42	1,570	1,640	1,230	1,410
PFBSD-600	600	360	15	35	1,630	1,710	1,270	1,560
PFBSD-700	700	420	15	35	1,650	1,740	1,300	1,750
PFBSD-750	750	450	18.5	35	1,650	1,760	1,300	1,880
PFBSD-800	800	480	18.5	32	1,710	1,820	1,320	2,060
PFBSD-1000	1000	600	18.5	32	1,740	1,930	1,320	2,190
PFBSD-1200	1200	720	22	32	1,930	2,070	1,410	2,380
PFBSD-1500	1500	900	22	32	2,100	2,190	1,490	2,630
PFBSD-2000	2000	1,200	30	32	2,520	2,290	1,760	3,500
PFBSD-2500	2500	1,500	37	32	2,620	2,400	1,870	4,380
PFBSD-3000	3000	1,800	37	28	2,650	2,510	1,940	5,250
PFBSD-4000	4000	2,400	45	28	3,050	2,890	2,040	5,630

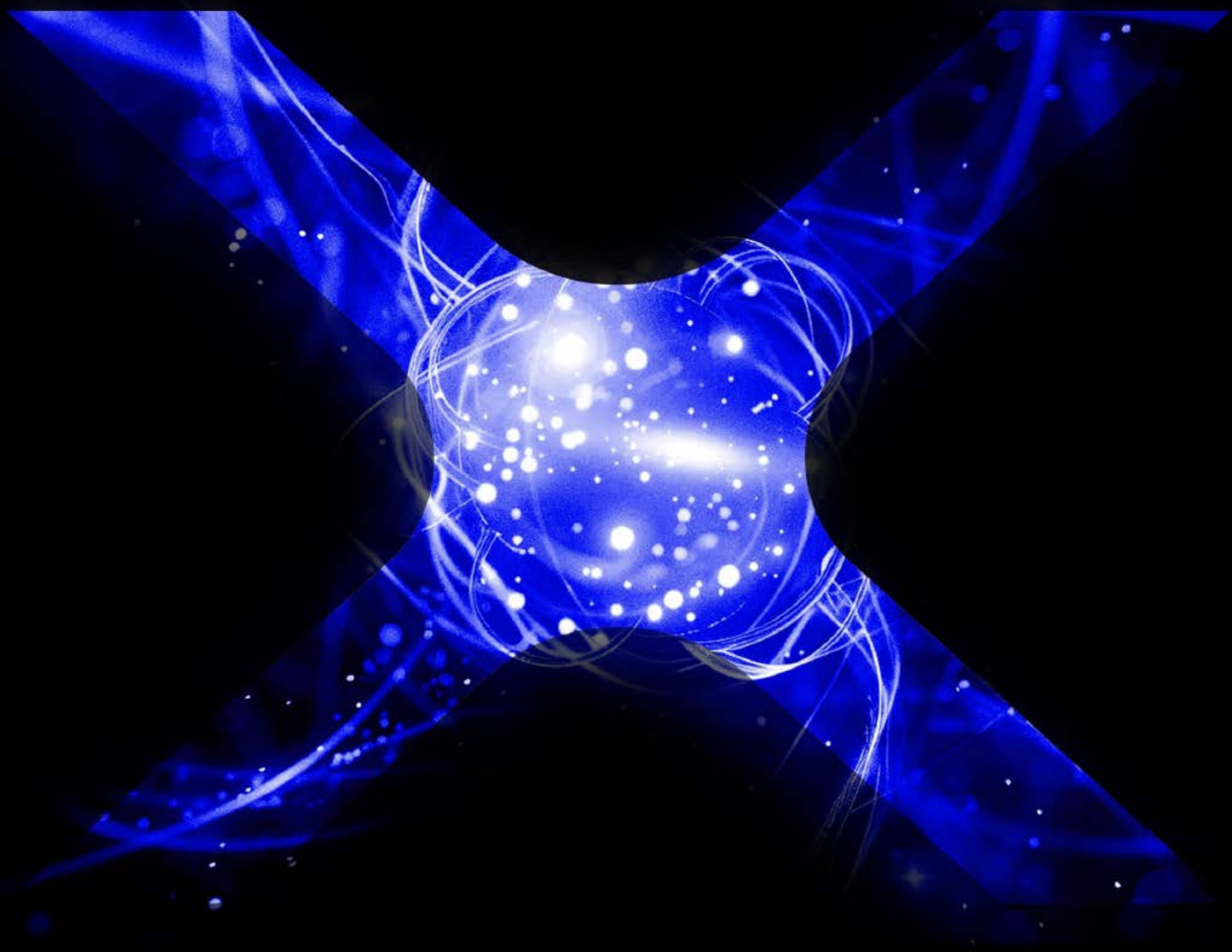
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single shaft fluidized zone vacuum mixer + dryer

double shaft fluidized zone vacuum mixer + dryer

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PFBD-4000	4000	2,400	45	28	3,050	2,890	2,040	5,630

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