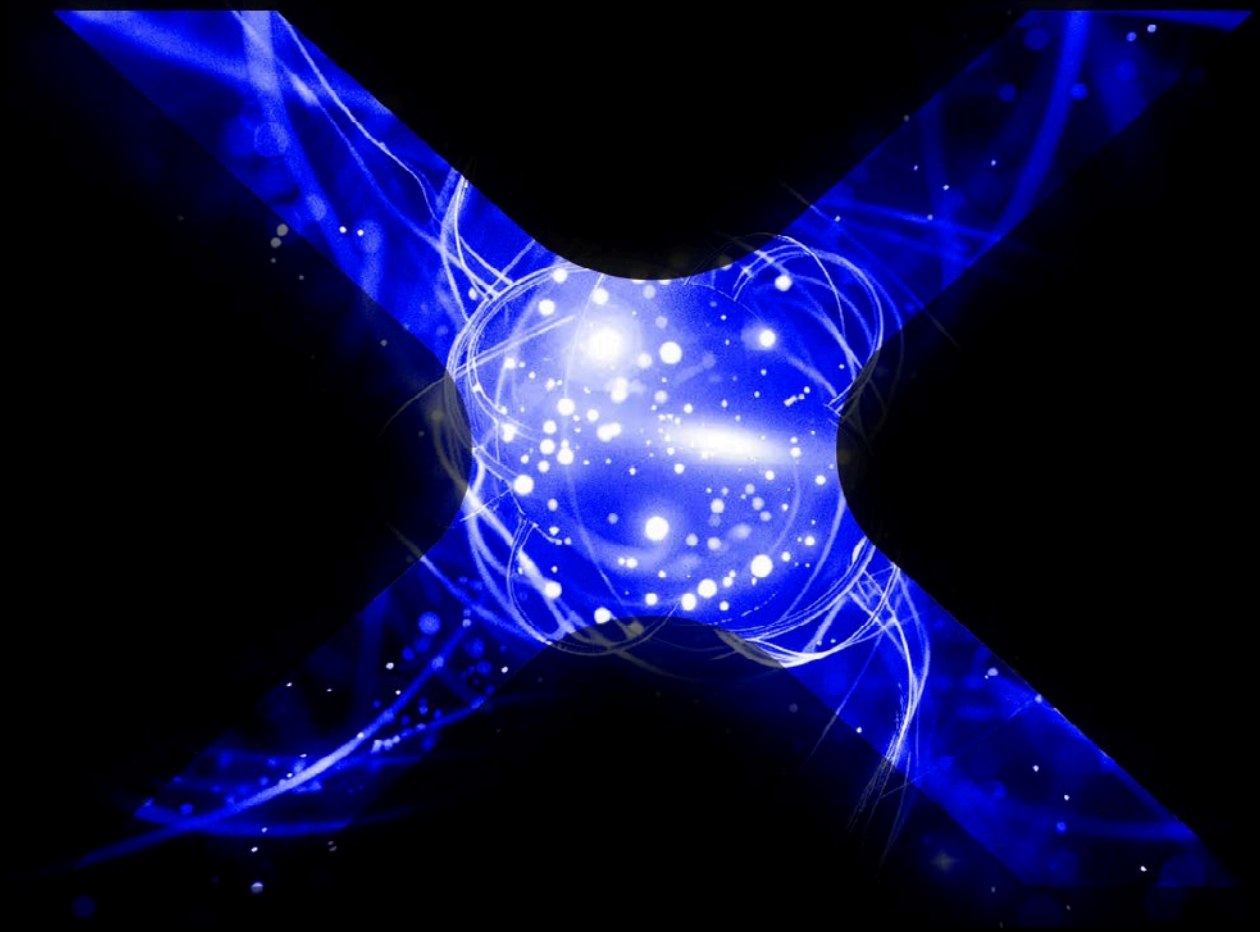
QuantumX



RIBBON MIXERS

QuantumX Ribbon Mixers

Precision Mixing for Every Industry

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WHAT IS A RIBBON MIXER?

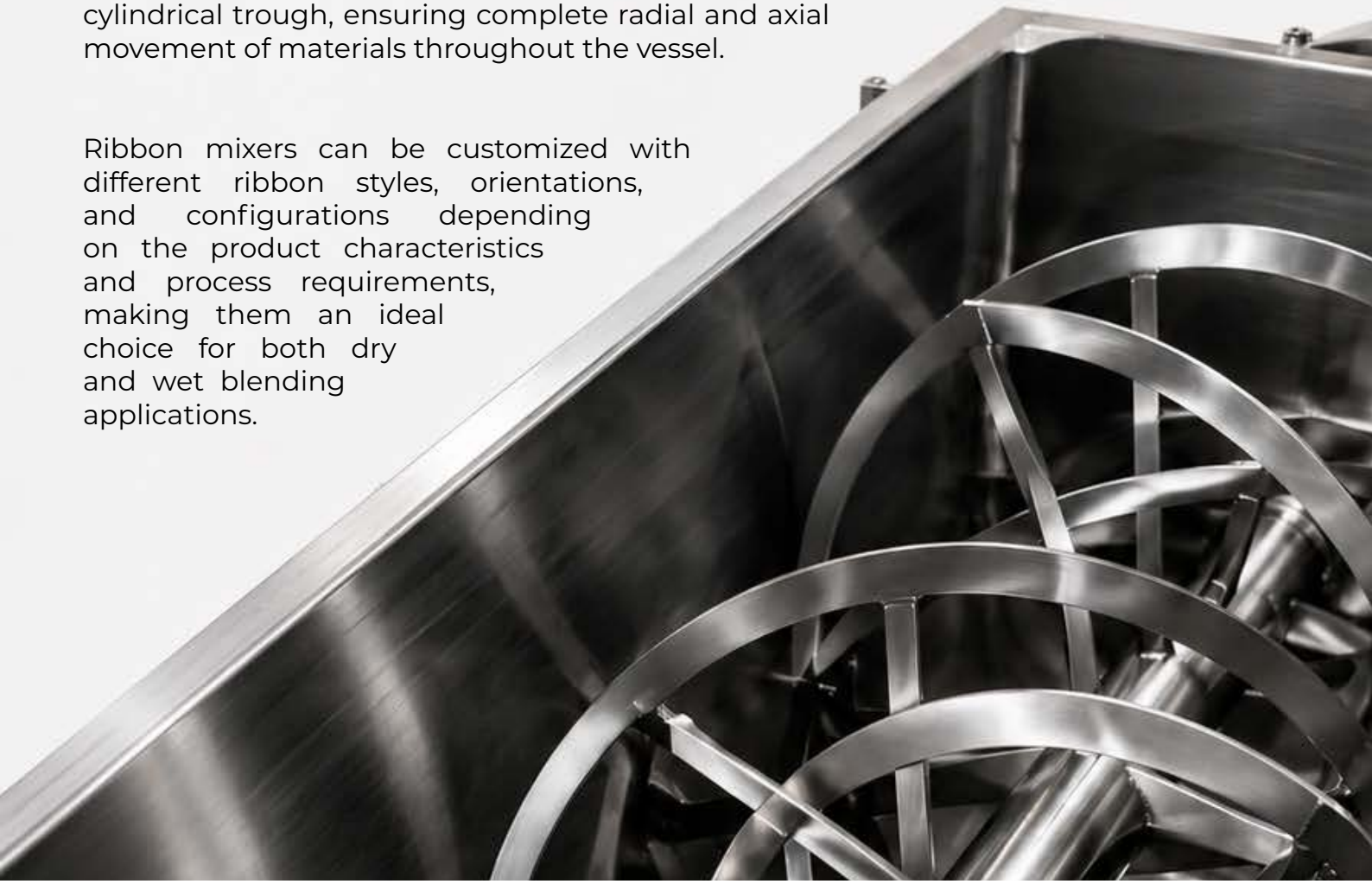
01

QuantumX Ribbon Mixers are engineered for excellence—offering a versatile and efficient solution for blending powders, granules, and pastes. Whether your needs are industrial-scale food processing, pharmaceutical production, or specialty chemical mixing, QuantumX delivers unmatched mixing performance and value.

How a Ribbon Mixer Works

A ribbon mixer uses a helical ribbon agitator that moves material in two directions simultaneously: the outer ribbon moves product in one direction, while the inner ribbon moves it in the opposite direction. This counter-current motion achieves uniform blending quickly and effectively. The mixing occurs within a U-shaped or cylindrical trough, ensuring complete radial and axial movement of materials throughout the vessel.

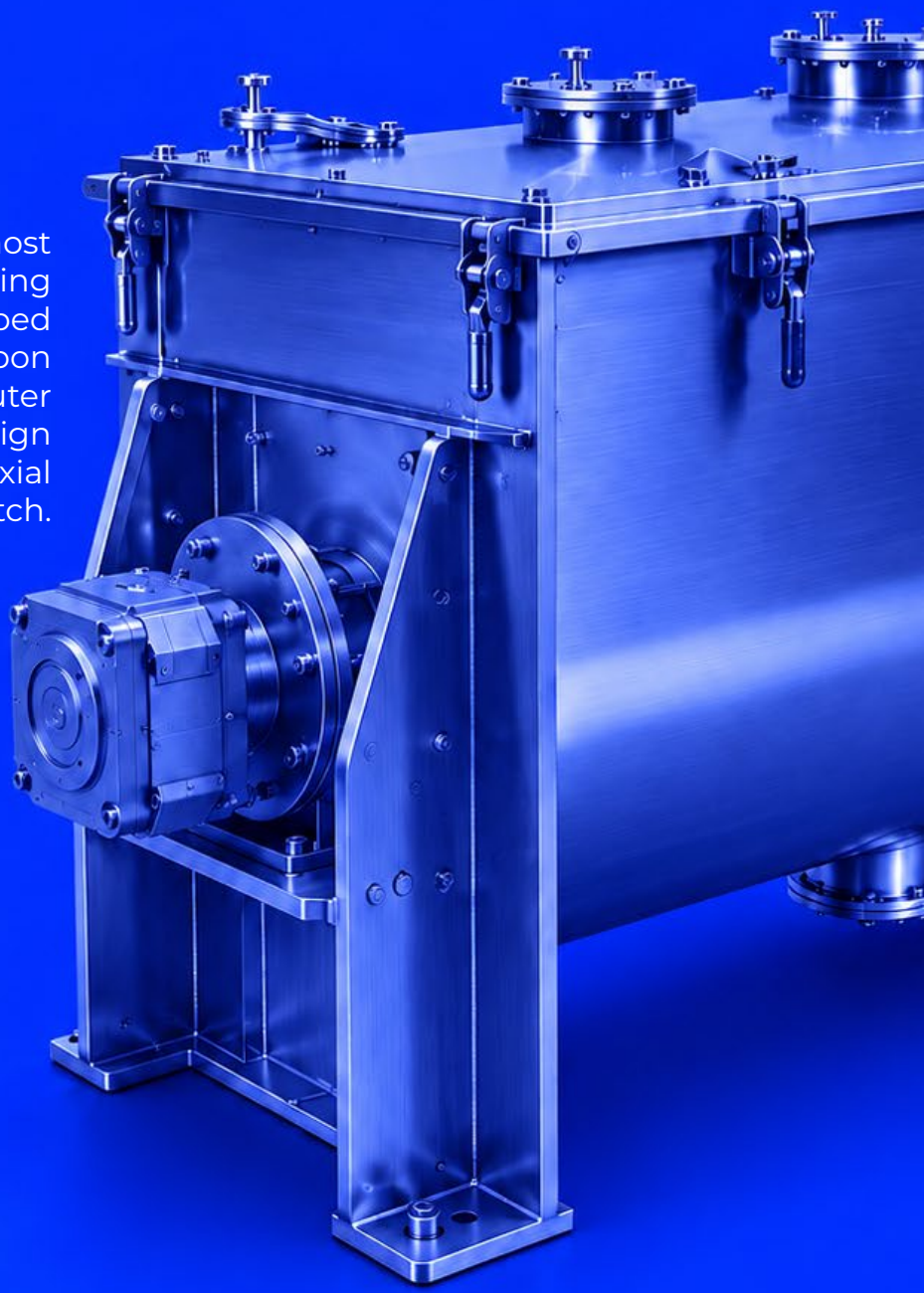
Ribbon mixers can be customized with different ribbon styles, orientations, and configurations depending on the product characteristics and process requirements, making them an ideal choice for both dry and wet blending applications.



HORIZONTAL RIBBON MIXERS: THE INDUSTRY STANDARD

02

horizontal



OVERVIEW

Horizontal ribbon mixers are the most commonly used design in bulk mixing applications. They feature a U-shaped horizontal trough with a ribbon agitator consisting of inner and outer helical ribbons. This dual-ribbon design ensures thorough radial and axial mixing for uniformity across the batch.

ADVANTAGES

- Fast and consistent mixing
- Ideal for large batch processing
- Easy to load and discharge
- Lower profile makes integration easier in existing production lines
- Well-suited for powders, granules, and pastes

DISADVANTAGES

- Requires more floor space
- Can be harder to fully clean compared to vertical models without CIP options

VERTICAL RIBBON MIXERS: SPACE-SAVING AND GENTLE

03

vertical



OVERVIEW

Vertical ribbon mixers feature a cylindrical tank with a vertical ribbon agitator. Material flows upward in the center and downward along the wall, enabling a gentle but thorough mixing action.

ADVANTAGES

- Compact footprint—ideal for limited floor space
- Gravity-assisted discharge
- Gentle mixing—ideal for fragile or segregative materials
- Excellent for small to mid-size batches

DISADVANTAGES

- Mixing time may be longer than horizontal models
- Not optimal for very high-viscosity pastes

VACUUM RIBBON MIXERS & DRYERS: MIXING & DRYING IN ONE

04



QuantumX Vacuum Ribbon Mixers/Dryers are designed for simultaneous mixing and drying under vacuum. The integrated heating jacket allows controlled heating, while the vacuum system reduces drying temperature —ideal for heat-sensitive products.

KEY FEATURES

- Vacuum system for rapid, low-temperature drying
- Heating & cooling jacket for precise thermal control
- Integrated condensing system for vapor recovery
- Available in both horizontal and vertical configurations

APPLICATIONS

- Pharmaceutical powders & APIs - Nutraceutical ingredients
- Protein powders & functional food additives
- Chemical intermediates

• mixing & drying

TILTING RIBBON MIXERS: CLEANOUT MADE SIMPLE

05

QuantumX Tilting Ribbon Mixers combine the performance of a horizontal ribbon mixer with the added benefit of tilt-based discharge.

THE ENTIRE MIXING CHAMBER CAN BE HYDRAULICALLY TILTED FOR:

- Complete discharge of materials
- Easy cleanout during product changeover
- Better hygiene in food & pharmaceutical applications



IDEAL FOR

- Short run, multi-batch production
- Washdown/CIP environments
- Cook & chill processes (with jacketed options)

HEATING & COOLING JACKETS: PRECISION THERMAL CONTROL

06

QuantumX Ribbon Mixers can be equipped with ASME-certified heating & cooling jackets for precise temperature regulation.

THESE JACKETS ALLOW:

- Indirect heating or cooling via steam, thermal oil, glycol, or chilled water
- Cook & chill capabilities for ready-to-eat meals, soups, sauces, and pet foods
- Drying and moisture control in powders and granules

JACKET RATINGS:

- Rated up to 6 bar (90 PSI)
- Uniform heat distribution
- Optional thermal insulation and cladding

cooling

STUB-SHAFT DESIGN: SIMPLIFIED MAINTENANCE AND SANITATION

07

QuantumX Ribbon Mixers can be built with a stub-shaft agitator design.

This design eliminates the need for the shaft to pass through the entire length of the mixer, minimizing potential contamination points and easing maintenance.

It enables front or back-end drive configurations, improves access to internal components, and allows for quicker and more sanitary cleanouts—especially beneficial in food, dairy, and pharmaceutical applications.



CIP SYSTEMS & SPRAY NOZZLES: AUTOMATED SANITATION

08



sanitation

QuantumX offers Clean-In-Place (CIP) systems to simplify washdown and improve sanitation.

Integrated CIP spray balls or rotary spray nozzles can be installed throughout the mixer to deliver high-pressure water, cleaning solutions, or sanitizers to all internal surfaces.

Options Include:

Static or rotary spray balls

Programmable rinse, wash, and sanitize cycles

Stainless steel plumbing and quick-disconnect ports

Drainage and slope design to minimize pooling

LIQUID ADDITIVE PORTS & STEAM INJECTION

09



For processes requiring liquid incorporation, QuantumX ribbon mixers can include dedicated liquid additive ports.

These ports can be connected to precision dosing pumps or tanks for injecting oils, binders, flavors, or other liquids directly into the mix.

Optional Features:

Spray nozzles for uniform distribution of liquids

Chopper attachments for emulsifying liquids into powders

Steam injection ports for cook & chill or sterilization processes

RIBBON TYPES: CUSTOM AGITATION FOR EVERY PRODUCT

10

QuantumX designs multiple ribbon configurations to match your product characteristics:

STANDARD DOUBLE RIBBON

For general-purpose blending

SINGLE RIBBON WITH RODS

For lower shear, fragile ingredients

INTERMESHING RIBBON

For high-precision mixing of fine powders

PADDLE-RIBBON COMBO

For pastes or viscous materials requiring folding action

Ribbon agitators can be customized in pitch, diameter, and orientation depending on material flow, mixing intensity, and batch size.

WHY CHOOSE QUANTUMX RIBBON MIXERS?

11

Sanitary Construction
Available in 304/316L stainless steel, Hastelloy, and other corrosion-resistant alloys

Custom Options
Vacuum, jacketed, tilting, stub-shaft, and vertical configurations

Smart Controls
Optional PLC/HMI with recipe programming and batch logging

CIP Ready
Integrated cleaning systems and sanitary features for hassle-free compliance

Warranty
Industry-best warranty coverage

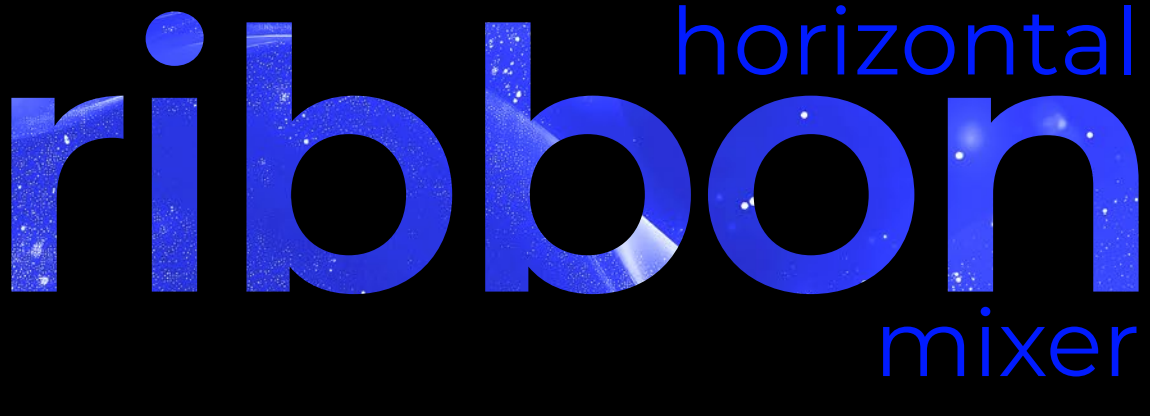
Made in USA
Integrated cleaning systems and sanitary features for hassle-free compliance

SPECIFICATIONS

12

Model	Total Volume (liter)	Working Volume (liter)	Power for Arms (kW)	Arm Speed (RPM)	L (mm)	W (mm)	H (mm)	Weight (kg)
PRB-10L	5	3	1.1	365	950	400	610	110
PRB-20L	10	6	1.1	365	1,050	400	610	120
PRB-30	15	9	1.1	280	1,150	450	640	140
PRB-50	20	12	1.1	280	1,250	500	670	160
PRB-60	30	18	1.5	123	940	800	1,130	250
PRB-70	50	30	2.2	110	1,000	900	1,200	350
PRB-100	60	36	2.2	110	1,000	950	1,200	450
PRB-150	70	42	2.2	85	1,150	980	1,250	550
PRB-200	100	60	2.2	85	1,410	600	1,650	600
PRB-250	150	90	3	80	1,450	650	1,680	620
PRB-300	200	120	3	70	1,570	660	1,710	650
PRB-400	250	150	4	65	1,680	700	1,750	700
PRB-500	300	180	4	65	1,700	715	1,760	750
PRB-600	400	240	5.5	60	1,850	800	1,900	850
PRB-700	500	300	5.5	60	1,980	870	2,020	950
PRB-750	600	360	7.5	60	2,100	900	2,090	1,050
PRB-800	700	420	7.5	60	2,200	920	2,100	1,150
PRB-1000	750	450	7.5	60	2,210	960	2,150	1,250
PRB-1200	800	480	11	52	2,350	1,000	1,765	1,350
PRB-1500	1000	600	11	40	2,400	1,050	1,765	1,450
PRB-2000	1200	720	15	40	2,600	1,100	1,800	1,600

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



vertical ribbon mixer

Model	Total Volume (liter)	Working Volume (liter)	Power for Arms (kW)	Arm Speed (RPM)	Diameter (mm)	H (mm)	Weight (kg)
PVR-20	20	14	0.75	90	550	1800	200
PVR-30	30	21	1.1	90	550	1800	280
PVR-50	50	35	1.1	80	655	1900	400
PVR-60	60	42	1.1	78	720	1900	450
PVR-70	70	49	1.5	77	720	1900	550
PVR-100	100	70	1.5	69	720	1900	600
PVR-150	150	105	2.2	62	875	2200	700
PVR-200	200	140	2.2	57	875	2200	800
PVR-250	250	175	3	53	980	1900	420
PVR-300	300	210	3	51	980	1900	450
PVR-400	400	280	4	44	1160	2100	500
PVR-500	500	350	4	43	1160	2100	550
PVR-600	600	420	4	40	1500	2300	700
PVR-700	700	490	5.5	39	1500	2300	820
PVR-750	750	525	5.5	39	1500	2300	950
PVR-800	800	560	5.5	35	1500	2300	1100
PVR-1000	1000	700	7.5	33	1525	2600	1350
PVR-1200	1200	840	7.5	31	1680	2800	1600
PVR-1500	1500	1050	11	29	1680	2800	1800
PVR-2000	2000	1400	15	29	1860	3100	2000
PVR-2500	2500	1750	15	24	2000	3200	2150

* Mixers Can be made to have a total volume of 15,000 L.

horizontal ribbon mixer + vacuum

Model	Total Volume (liter)	Working Volume (liter)	Power for Arms (kW)	Arm Speed (RPM)	L (mm)	W (mm)	H (mm)	Weight (kg)
PRBD-10L	10	6	1.1	256	1,050	900	610	160
PRBD-20L	20	12	2.2	196	1,250	1,050	670	210
PRBD-30	30	18	3	86	940	950	1,130	330
PRBD-45	45	27	3	86	940	1,000	1,160	340
PRBD-50	50	30	4	77	1,000	1,050	1,200	460
PRBD-60	60	36	4	77	1,000	1,100	1,200	590
PRBD-70	70	42	4	60	1,150	1,130	1,250	720
PRBD-100	100	60	4	60	1,410	750	1,650	780
PRBD-150	150	90	5.5	56	1,450	800	1,680	810
PRBD-200	200	120	5.5	49	1,590	810	1,710	850
PRBD-250	250	150	7.5	46	1,750	850	1,750	910
PRBD-300	300	180	7.5	46	1,825	865	1,760	980
PRBD-400	400	240	11	42	1,900	950	1,900	1,110
PRBD-500	500	300	11	42	2,010	1,020	2,020	1,240
PRBD-600	600	360	15	42	2,200	1,050	2,090	1,370
PRBD-700	700	420	15	42	2,300	1,070	2,100	1,500
PRBD-750	750	450	15	42	2,355	1,110	2,150	1,630
PRBD-800	800	480	18.5	36	2,400	1,150	1,765	1,760
PRBD-1000	1000	600	18.5	28	2,500	1,200	1,765	1,890
PRBD-1200	1200	720	22	28	2,650	1,250	1,800	2,080
PRBD-1500	1500	900	22	28	2,850	1,300	1,870	2,210

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

vertical ribbon mixer + vacuum

Model	Total Volume (liter)	Working Volume (liter)	Power for Arms (kW)	Arm Speed (RPM)	Diameter (mm)	H (mm)	Weight (kg)
PVRD-20	20	14	1.5	77	550	2100	240
PVRD-30	30	21	2.2	77	550	2100	340
PVRD-45	45	32	2.2	68	655	2200	420
PVRD-50	50	35	2.2	68	655	2200	480
PVRD-60	60	42	2.2	66	720	2200	540
PVRD-70	70	49	3	65	720	2200	660
PVRD-100	100	70	3	59	720	2200	720
PVRD-150	150	105	4	53	875	2500	840
PVRD-200	200	140	4	48	875	2500	960
PVRD-250	250	175	5.5	45	980	2200	550
PVRD-300	300	210	5.5	43	980	2200	590
PVRD-400	400	280	7.5	37	1160	2400	650
PVRD-500	500	350	7.5	37	1160	2400	720
PVRD-600	600	420	7.5	34	1500	2600	910
PVRD-700	700	490	11	33	1500	2600	1070
PVRD-750	750	525	11	33	1500	2600	1240
PVRD-800	800	560	11	30	1500	2600	1370
PVRD-1000	1000	700	15	28	1525	3000	1430
PVRD-1200	1200	840	15	26	1680	3200	1560
PVRD-1500	1500	1050	18.5	25	1680	3200	1690
PVRD-2000	2000	1400	22	25	1860	3600	1890

* Mixers Can be made to have a total volume of 15,000 L.

tilting ribbon mixer

Model	Total Volume (liter)	Working Volume (liter)	Power for Arms (kW)	Arm Speed (RPM)	L (mm)	W (mm)	H (mm)	Weight (kg)
PRB-Tilt-45	45	27	1.5	123	1200	1000	1400	350
PRB-Tilt-50	50	30	2.2	110	1200	1000	1450	370
PRB-Tilt-60	60	36	2.2	110	1280	1050	1480	400
PRB-Tilt-70	70	42	2.2	85	1350	1080	1520	420
PRB-Tilt-100	100	60	2.2	85	1410	1100	1550	450
PRB-Tilt-150	150	90	3	80	1550	1180	1580	480
PRB-Tilt-200	200	120	3	70	1600	1280	1600	500
PRB-Tilt-250	250	150	4	65	1650	1320	1650	560
PRB-Tilt-300	300	180	4	65	1700	1350	1700	600
PRB-Tilt-400	400	240	5.5	60	1880	1450	1820	720
PRB-Tilt-500	500	300	5.5	60	1980	1500	1900	800
PRB-Tilt-600	600	360	7.5	60	2150	1550	1950	900
PRB-Tilt-700	700	420	7.5	60	2180	1580	1980	1050
PRB-Tilt-750	750	450	7.5	60	2210	1600	2000	1100
PRB-Tilt-800	800	480	11	52	2300	1620	2050	1200
PRB-Tilt-1000	1000	600	11	40	2400	1650	2100	1300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