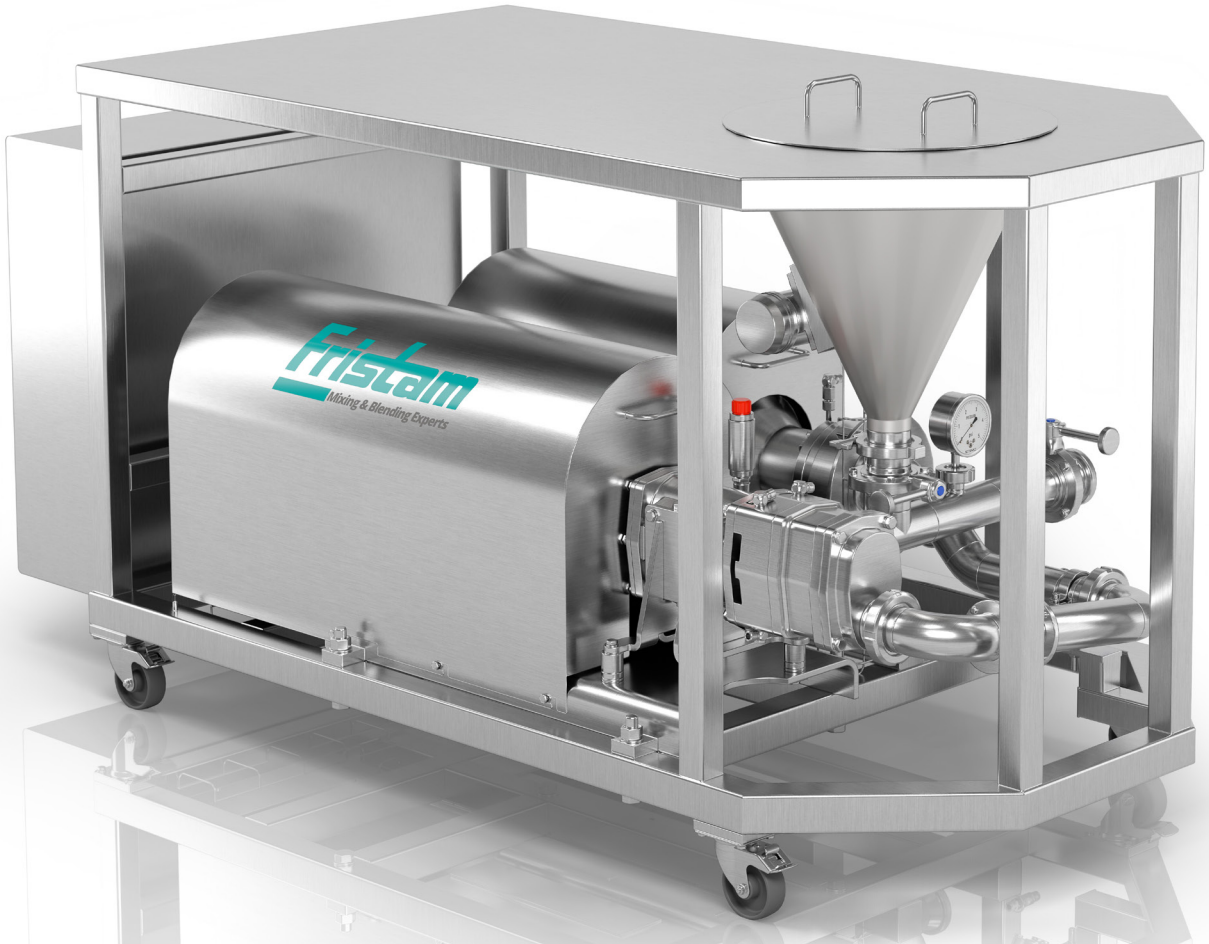
Fristam Powder Mixer - PM-D



Fristam
Mixing & Blending Experts

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Fristam Powder Mixer - PM-D

The solution for efficiently mixing powders and liquids to achieve a perfectly smooth consistency in highly viscous products. Hygienic, powerful, efficient and easy to operate, Fristam's PM-D Powder Mixer provides a highly economical solution for dispersing, dissolving and homogenizing wet and dry ingredients in liquids and formulations where viscosity rises dramatically during mixing.

SPECIFIC CONSTRUCTION

Fristam's PM-D Powder Mixer is designed as a robust powder feeding and mixing station specifically suited for high-viscosity liquids and formulations where product thickness increases during mixing.

It combines the Fristam Double-Screw Pump (FDS) with the FS Shear Blender. Powder is drawn from the hopper directly into the liquid product stream, where the premix is conveyed through the shear mixer and efficiently dispersed and homogenized – even in processes where viscosity rises beyond the limits of conventional centrifugal systems.

In its standard configuration, the Powder Mixer has a compact design with a tubular frame mounted on feet or wheels, a hopper, a work table, manual disc valves and connecting pipework. The ergonomically positioned work surface allows for convenient manual feeding.

CONSULTING & TRIALS

To give you peace of mind, Fristam offers rental units for on-site trials and process testing before purchase – particularly useful for validating mixing performance in high-viscosity formulations.

Our specialists provide comprehensive process guidance to support the development of the optimal solution for your application. After purchase, our team will support you throughout the entire lifecycle of your mixer.

CORE BENEFITS

- Handles viscosities up to 1,000,000 cP
- Reliable powder induction into thick liquids – even as viscosity increases during mixing
- Uniform dispersion – producing consistent, lump-free high-viscosity products
- Repeatable formulation results
- CIP and SIP ready
- Waist-height working – improving site health and safety
- Operated by one person – simple and reliable operation

CUSTOMIZED OPERATION

Fristam PM-D Powder Mixers are available as both mobile and stationary units. With the appropriate control systems, they can also be easily integrated into fully automated production lines for the reliable processing of viscous formulations.

Fristam additionally offers adapters for fully or semi-automatic powder feeding, including systems using big bags, screw conveyors and other conveying technologies, enabling controlled ingredient addition even in demanding high-viscosity mixing processes.

PERFECT ADAPTABILITY

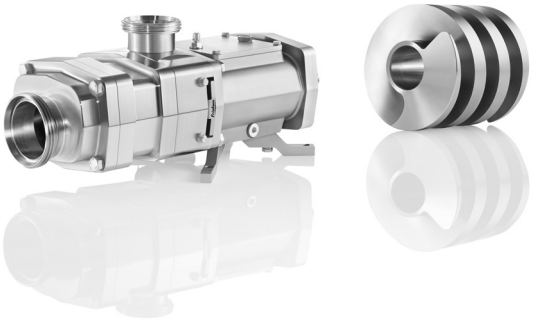
Fristam Powder Mixers are ideally suited for a wide range of applications and industries. Over 70% of our Powder Mixers are tailor-made to suit our customers' exact and unique requirements.

TECHNICAL DETAILS - FRISTAM PM-D POWDER MIXER

FRISTAM POWDER MIXER TYPE PM-D

The Fristam PM-D comprises of an induction pump - the Fristam FDS Double Screw Pump (which draws liquid into the system and creates a vacuum under the powder hopper, drawing powder in) and a FS Shear Blender, which homogenizes the powder and liquid mix. Designed for viscosities between 2,500 cP and 1,000,000 cP.

SIZE	FDS Double Screw Pump (Powder Induction)		FS Shear Blender (Homogenization)	
	Type	Motor [kW]	Type	Motor [kW]
PM-D 01	FDS1	1.1-5.5	FS712	2.2-7.5
PM-D 02	FDS1/FDS2	3.0-7.5	FS3522	4.0-11.0
PM-D 03	FDS2/FDS3	5.5-15.0	FS3532	11.0-30.0
PM-D 04	FDS3/FDS4	11.0-37.0	FS3542	15.0-30.0



Double-screw pump series FDS

SIZE	Dimensions approx. L x W x H [mm]	Connections DIN 11851	Weight approx. [kg]
PM-D 01	1,500 × 900 × 900	DN50	Depends on type and size of motor
PM-D 02	2,000 × 1,000 × 1,000	DN65	
PM-D 03	2,200 × 1,200 × 1,150	DN80	
PM-D 04	2,200 × 1,200 × 1,150	DN100	



SIZE	Refined sugar or salt [kg/h]	Skim milk powder or protein powder [kg/h]	Thickening agents (e.g. pectin, guar gum) [kg/h]	Recommended minimum diameter of connected piping [mm]
PM-D 01	500	450	100 – 200	40
PM-D 02	1,800	1,600	300 – 500	50
PM-D 03	3,500	3,200	600 – 1,200	50 – 65
PM-D 04	5,000	4,500	1,200 – 2,000	65 – 80

Powder mixer comparison table
Which mixer do you need?






	PM	PM-D	PL	PE
Maximum viscosity	2,500 cP	up to 1,000,000 cP	500 cP	2,000 cP
Soluble powder (e.g. as sugar & salt)	Yes	Yes	Yes	Yes
Thickening agents (e.g. xanthan Gum, carbomers, etc.)	Yes	Yes	No	No
Waist-height table top	Yes	Yes	Optional	Optional
Maximum shear rate	125,000 1/s	125,000 1/s	125,000 1/s	NA
Configuration	FZ induction pump FS Shear Blender Hopper, table top and control panel	FDS induction pump FS Shear Blender, Hopper, table top and control panel	FSI Shear Blender + Hopper and frame	FZ induction pump Hopper and frame



This table is intended as a helpful starting point for identifying a suitable mixer for your application. However, selecting the right system depends on a detailed understanding of your process. For a more precise recommendation, contact our Mixing & Blending engineers to review your requirements and advise on the most appropriate solution.

Only the best mixers for the best products: ideal solutions for even the most challenging applications

Around the globe, Fristam Shear Blenders, Powder Mixers and Colloid Mixers are used by leading companies in food, beverage, pharmaceutical and chemical industries. The exceptional quality of construction and manufacturing makes our rotational homogenizers ideal for blending and dispersing in any industrial process.

PRODUCT GROUPS

- Alcoholic beverages: liqueurs, wine, champagne, distiller's wash, spirits, alcoholic solutions
- Biotechnology: cell suspensions, nutritive solutions, enzymes
- Brewing: mash, yeast, beer, hot and cold wort, waste beer
- Chemicals: inks, dyes, detergents, cleaning agents, photographic emulsions, wastewater
- Dairy products: butter, yogurt, cream, skimmed milk, milk concentrate, set milk, flavoured milk, whey, whey concentrate, raw milk, cream cheese
- Foods: sauces, soups, flavorings, broth, vinegar, fruit and vegetable juices and purees, mayonnaise, oils and fats, whole egg, brine, dough
- Non-alcoholic beverages: syrup, concentrates, fruit juices, mineral water, sodas and mixed drinks containing CO2, concentrates with fruit pulp
- Paper and cellulose: glues, starch, resin and kaolin solutions
- Pharmaceuticals: infusion solutions, lotions, ointments, plant extracts, perfumes, suspensions, toothpaste, ethanol, enzymes, culture mediums, toxic and alcoholic solutions, special pastes
- Sugar and confectionery: chocolate, liquid sugar, molasses as well as starch solutions



Examples of Fristam Mixing & Blending in action, across a range of different industries

Fristam mixing and blending solutions enable manufacturers to achieve consistently homogenized products of superior quality in a single processing step. They can also be integrated downstream to refine products from earlier production stages, delivering precise consistency and a high quality finished product.

DAIRY INDUSTRY

- Dissolving and homogenizing stabilizers such as gelatin, pectin, carrageen, xanthan gum, guar flour, carob gum etc. in fermented milk products
- Dissolving sugar, milk-, whey-, yogurt-, cream- or protein powder
- Recombining milk with skim-milk powder, water, butterfat or vegetable oil
- Producing shakes with whey, soy milk or milk, ice cream, etc.
- Dissolving concentrated milk protein, oil or fat in milk, in order to raise protein or fat levels in the production of cheese

FOOD INDUSTRY

- Dissolving yeast extract for health products
- Dissolving protein powder, thickeners and stabilizers
- Dissolving starch, salt, sugar, etc. (in the production of additives, eg. for tomato ketchup and sauces)
- Dissolving aspartame and other sugar substitutes
- Producing toffee cream from sugar, glucose, carrageen and fat
- Dissolving aromas and citric acid
- Dissolving spray-dried protein powder in the production of baked goods
- Dissolving wheat and rye flour or shred in the production of sourdough, breakfast cereals or baking mixes
- Dissolving pectin, carboxymethyl cellulose (CMC), Carbopol, arabic gum and other thickeners such as carob gum, guar flour, and xanthan gum

BEVERAGE INDUSTRY

- Dissolving sugar, minerals, pectin, xanthan, aromas, citric acid, bentonite etc.
- Dissolving dry yeast in the production of beer
- Dissolving sugar in alcohol

CHEMICAL INDUSTRY

- Dissolving powders in liquids such as Polytetrafluoroethylene (PTFE), and additives in lubricants
- Dissolving minerals such as calcium carbonate, carboxymethyl cellulose
- (CMC), bentonite, layered silicate when producing drilling emulsions
- Dissolving micro-capsule powders and fillers such as zeolite and aluminum hydroxide in the production of polyurethane sheets

PHARMACEUTICAL AND BEAUTY CARE INDUSTRIES

- Dissolving saline eg. for isotonic solutions suitable for injection
- Dissolving phosphate and iodine powder in the production of disinfectant ointments
- Dissolving emulsifiers and additives in the production of creams and lotions
- Dispersing carbopol in the production of hand sanitizer



Fristam Pumpen KG (GmbH & Co.)
Kurt-A.-Körber-Chaussee 55
21033, Hamburg, Germany

Tel. +49 (0)40 725 560
Email info@fristam.de

www.fristam-mixing-blending.com

For international contact information,
please visit https://www.fristam.de

Fristam
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