Fristam PL

The Powder Dissolver that's a problem solver.



Fristam
Mixing & Blending Experts

Scan here with your device to see the PL in 3D, and in your own space.

Fristam Powder Dissolver - PL

Dissolves and homogenizes powders into liquid in a single run. The Fristam PL is designed for consistent mixing of wet and dry ingredients to produce a uniform end product - within a compact, ergonomic, and efficient system.

DESIGN PRINCIPLE

The Fristam PL Powder Dissolver is a hygienic inline dissolving system built around a Fristam FS Shear Blender mounted on a mobile frame with an integrated powder hopper.

Liquid is circulated through the system and powder is introduced via the hopper. The immediate dispersion of dry ingredients prevents agglomerates forming.

EXCEPTIONAL HOMOGENEITY

With shearing clearances of just 0.5 mm and tip speeds of up to 38 m/s, it is designed to produce consistent, uniform results.

REPEATABLE RESULTS

The PL's closed mixing system ensures that all ingredients are fully incorporated into the product flow, with no bypassing or loss of material. This helps maintain consistent recipes and repeatable results from batch to batch.

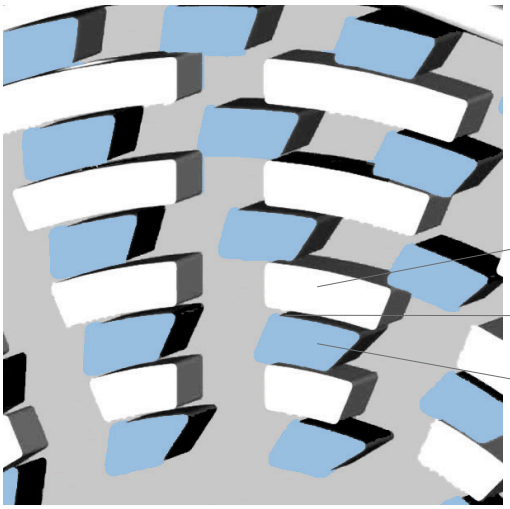
IDEAL APPLICATIONS

The Fristam PL can be utilized best for the following applications:

- Food & Beverage: blending sugars, salts and functional ingredients for beverages, syrups, sauces and liquid bases.
- Dairy: Milk powders, whey, proteins, and stabilizing systems for yogurt, desserts, and ice-cream mixes.
- Pharmaceutical: Active ingredients and excipients for syrups, suspensions, and liquid formulations.
- Cosmetics & Personal Care: Powder incorporation into creams, lotions, gels, and shampoos.
- Chemical Processing: Polymers, additives, and soluble powders requiring controlled dispersion and dissolution.

CORE BENEFITS OF THE PL

- Thorough homogenization of wet and dry ingredients
- Rapid processing
- Low operating costs
- Fits into your existing process
- Waist-height operation - reducing worker strain

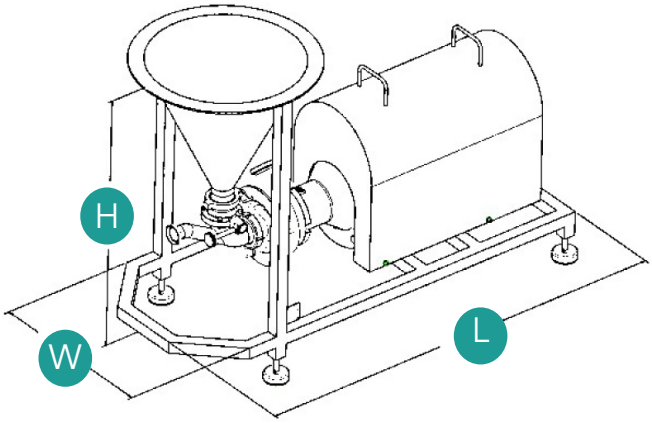


CONSULTING & TRIALS

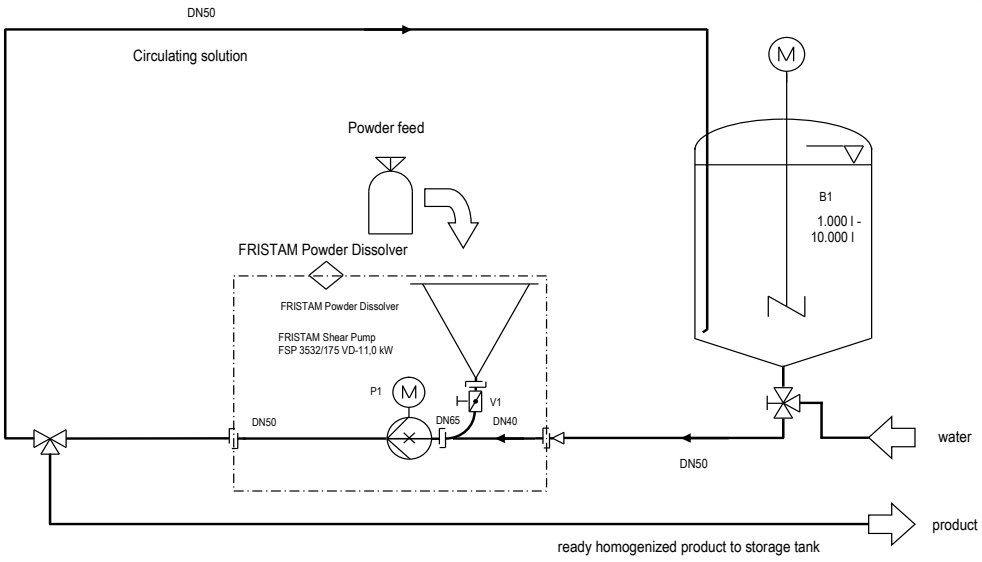
Fristam offers the PL for no-risk on-site trials, allowing you to evaluate its performance in your own process before making an investment. As part of the arrangement, Fristam will help your engineers with the initial set-up and training and be available to you throughout the entire lifecycle of the PL.

TECHNICAL DETAILS - FRISTAM PL POWDER INTAKE SOLUTION

SIZE	Fristam FS Shear Blender 2,900 min–1 – 50 Hz		Max. powder intake capacity [kg/h]		Recommended min. Ø of system pipe [mm]	Dimensions L x W x H [mm]
	Blender model	Output [kW]	Granulated sugar	Milk or protein powder		
PL 02	FS 3522	5.5 – 7.5	1,000	800	50	1,200 x 600 x 1,000
PL 03	FS 3532	11 – 15	2,500	2,000	65	1,400 x 600 x 1,050
PL 04	FS 3542	18.5 – 30	3,300	2,800	80	1,750 x 600 x 1,100
PL 05	FS 3552	30 – 55	5,500	4,000	125	1,900 x 600 x 1,150







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



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