NETZSCH

Proven Excellence.

PMD-VC Intensive Mixers

Stationary Mixers for the Processing of Large Batches

CHEMICAL INDUSTRY | a Business Field of NETZSCH Grinding & Dispersing

PMD-VC Intensive Mixers

Don't just mix

PMD-VC 5000

The PMD-VC intensive mixers are large-volume stationary mixing and dispersing units for processing medium- to high-viscosity product batches. They are successfully employed primarily in the coatings, printing inks, wall paints, pigments and construction industries. (VC – Variable Capacity – variable effective volume).

The special conical geometry of the mixing tank allows the processing of partial batches from approx. 25% of the stated effective volume, and thus guarantees great flexibility.

The compact design with the proven drive concept facilitates the mounting of a Big Bag discharger and additional feeding system directly on the machine. It is therefore ideal for integration into automated production processes.

Standard Design

- Product-wetted parts in 1.4301 stainless steel
- Conical tank design
- Dissolver drive from above
- Hydraulic lifting and lowering device for the dissolver drive
- Anchor drive from below
- Dissolver shaft made of high-strength stainless steel.
- Bellows at the shaft and lifting column

Options

- Special steels and surface treatment of product-wetted parts
- Can be heated/cooled
- Temperature monitor
- Various Ex models
- Vacuum model
- Charging systems for solids and liquids
- Automatic Dispersion System (ADS)
- Weighing system with formula monitor
- Integration into higher-level process control systems
- Camera system for process visualization
- Cleaning systems up to 200 bar

Advantages

- Reduced power requirement due to the functional separation of mixing, with the multi-arm anchor agitator, and dispersing, with the toothed disk
- Minimal increase in the product temperature
- Variable height adjustment of the toothed disk by means of the hydraulic lifting column
- Scraper blades on the anchor agitator guarantee complete product exchange on the tank walls as well as residue-free emptying
- Intensive product cooling due to complete product exchange on the tank walls
- Machine suitable for installation on platform or floor
- Very easy to clean
- Closed design
- Partial batch processing from approx. 25% effective volume
- Fast, efficient feeding of solids with ADS sound system.
- Variable speed for dispersion disk

PMD-VC Intensive Mixers

Principle of Operation & Loadin

Principle of Operation

The product is processed in the mixing tank by the two mixing and dispersing tools, the anchor agitator and the dispersion disk.

The multi-arm anchor agitator with scrapers moves, mixes and feeds the product to the rapidly rotating dispersion disk.

During the dispersion phase, the toothed disk is moved up and down in the tank. The interaction of the two mixing tools creates an intensive vortex, allows a fast product intake and guarantees a homogeneous product. Separation of the functions mixing and dispersing results in an extremely energy-efficient process.

The scraper blades mounted on the anchor agitator provide for a residue-free emptying of the tank.

Interior view of an intensive mixer with anchor agitator and dispersion disk

Filling with liquid

Addition of solids

Mixing and Dispersion

Emptying

Cleaning

g Options

Loading Options

Solids are added via either a sack feed station, a BigBag station or silos. The NETZSCH ADS (Automatic Dispersion System) offers a great advantage when feeding solids via a silo facility. Charging by means of ADS facilitates optimum, fast and agglomerate-free dispersion in conjunction with a defined addition of solids and automatic adjustment of the dispersion disk position.

ADS – Auto Dispersion System

The ADS is preferably used with automatic solids processing. Through the acquisition of various machine parameters, the height of the toothed disk is automatically adjusted during solids addition such that an optimum vortex is generated. This achieves immediate wetting of the solids, prevents agglomerates and produces a homogeneous product within the shortest dispersion and mixing time. The ADS consists of the following features:

AUTOLOAD
(automatic loading)

With the Autoload mode, automatic solids dosing is only possible in the mixing tank, if an optimally-formed vortex is present there.

Dosing systems that can be controlled by AUTOLOAD are, for example:

- Big-Bag Discharger, mounted directly on the cover
- Screw conveyors
- Rotary valves
- Pneumatic conveying systems
- etc.

AUTORAISE
(automatically raises and lowers the toothed disk in the product)

During loading, the Autoraise System automatically adjusts the toothed disk to the height at which the ideal vortex forms.

AUTOCYCLE
(automatic dispersion mode)

After the solids have been processed, the Autocycle mode automatically controls the dispersion time and the optimum vertical position of the toothed disk. Here, the toothed disk can travel through the product from the lowest to the highest-possible position. The toothed disk can be stopped at any position for a period of time that can be preset.

Advantages

With the ADS, fast, controllable and reproducible solids processing is possible (> 1 t / min). It thus ensures a consistent product quality with the shortest dispersion time. „Overfilling" of solids, which generally leads to agglomeration and/or sedimentation, is precluded.

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Batch Control

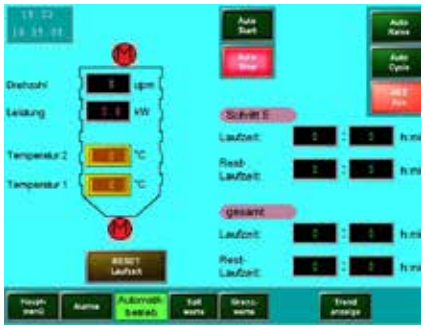
Prerequisite for automatic batch systems are weighing and dosing systems that record the quantities of individual components fed. The dosing of the individual components takes place in a preset order and quantity according to the specification of stored formulation parameters. Likewise, the dispersion times, filling and cleaning cycles run according to preset parameters. The process sequence with the batch controller also allows small manual additions, which must be confirmed on the user interface. After completion of the production process, a log can be generated automatically for each batch.

Weighing System

The intensive mixers can be equipped with load cell systems for floor or platform installation.

Cleaning System

The PMD-VC can be equipped with a fully-automatic cleaning system (CIP – Cleaning In Place), for which no disassembly of machine parts is necessary. The cleaning is made by cleaning heads in the tank lid, along with integrated cleaning nozzles in the tank wall and base.



Individual user interface of the operator terminal

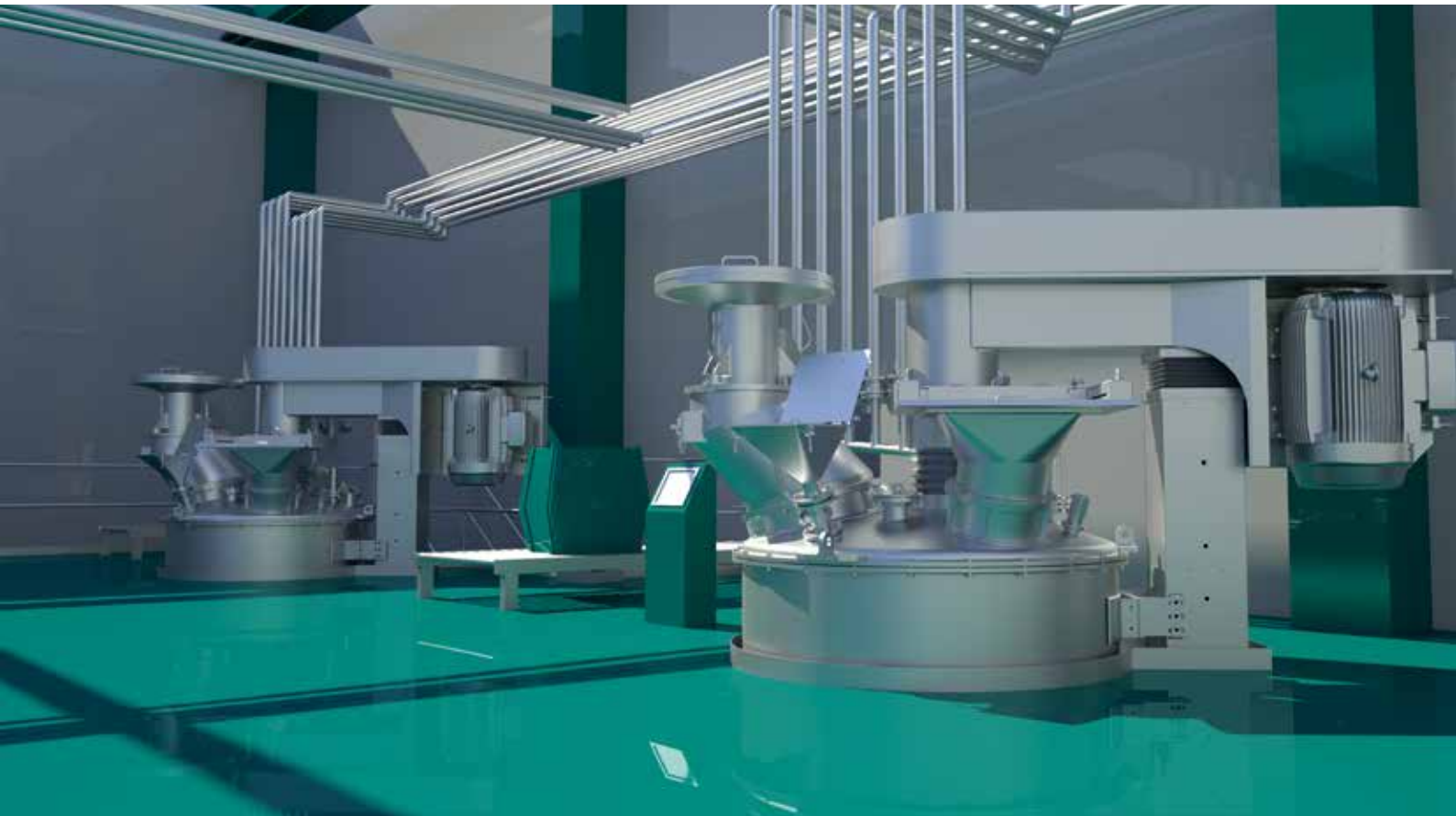
Machine on load cell system

Cleaning nozzles in the outer wall of the tank

Sizes

Type PMD-VC	Working capacity [l]	Minimum liquid load [l]	Disperser drive [kW]	Mixer drive [kW]
PMD 2500 VC	2,500	~600	90 / 110	5.5
PMD 5000 VC	5,000	~1,200	110 / 132	7.5
PMD 7500 VC	7,500	~1,800	132 / 160	11
PMD 10000 VC	10,000	~2,500	160 / 200	11
PMD 15000 VC	15,000	~3,750	200 / 250	15
PMD 20000 VC	20,000	~5,000	300 / 360	22

Intermediate sizes on request



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