

Function.....

Inline machines work according to the principle of a rotor-stator-system. A high shear gradient is produced by the narrow gap between rotor and stator and the high peripheral speed of the rotor. The product passes through the slots of the rotor teeth into the shearing zone and leaves it through the slots of the stator. In low and medium viscosity products the machine performs the pumping action itself. The multi-tool system of the rotor and stator apply other mechanical forces to the product to increase the rate of particle size reduction.

Principle.....

The product is forced through the rotor-stator-system. The inner rotor ring accelerates the product to maximum speed. The stator reduces the speed of the product to zero and then it is again accelerated by the next rotor ring. This results in very effective particle size reduction and an homogenous distribution of the particles in the liquid product.

Application.....

Two possible forms of operation are possible. Batch dispersing in a recirculating system or an inline system in single pass between two processing vessels. In a batch operation the product is circulated through the machine until the required particle size is achieved. When pumping the product through the inline machine to the next processing step, an additional dispersing process is applied. A multiple stage machine can improve this process. All machines may be operated in horizontal or vertical position.

Technology.....

The dispersing head is connected to the motor via a coupling. The rotor-stator-system may, depending on the treated product, be equipped with up to six dispersing rings for each stage. The size of the slots are determined by the process and may vary from stage to stage. If necessary, the mixing chamber can be equipped with a cooling or heating mantle.

Sealing.....

Depending on the application, different types of sealing may be installed. Single seals or tandem double seals, cooled and lubricated by the product itself or by a separate cooling or thermo-siphon system, may be used according to the specific application.

Advantages.....

Easy installation and integration into existing plants and piping systems. Interchangeable rotor-stator systems with different slots and diameters allow adaptation to any possible change in a process. A closed dispersing system offers air free dispersion. The use of a frequency converter increases the range of application by using variable speed. The machine is easy to disassemble and to clean.

DISPERSER INLINE

TECHNICAL INFORMATION

Separate bearing system for motor and dispersing shaft
Fixed speed or stepless adjustment by a frequency converter
Modular system allows individual customising to dispersing tasks
High reliability for continuous operation

Power	2.4 - 55 kW
Voltage	230/400, 50 Hz, special voltages upon request
Speed	Pole switchable 1.500/3.000 rpm, stepless up to 3.600 by a frequency controller 6.000/12.000 rpm for Z66
Flange	Aluminium, coated aluminium, coated steel, stainless steel 1.4541 / 1.4571
Mixing bead	Stainless steel 1.4571 / 1.4539 / special material upon request
Sealing	Mechanical seal, single acting or double acting depending on application
Diameter of rotor	50 to 300 mm
Flow rate	200 to 25.000 l/h
Peripheral speed	10 - 54 m/sec

Ystral



The ystral delivery program

- Jetstream mixers
- Dispersmix mixers
- Batch dispersers
- Inline dispersers
- Powder wetting machines
- Lab dispersing equipment
- Design of processing plant
- Supply of processing plant

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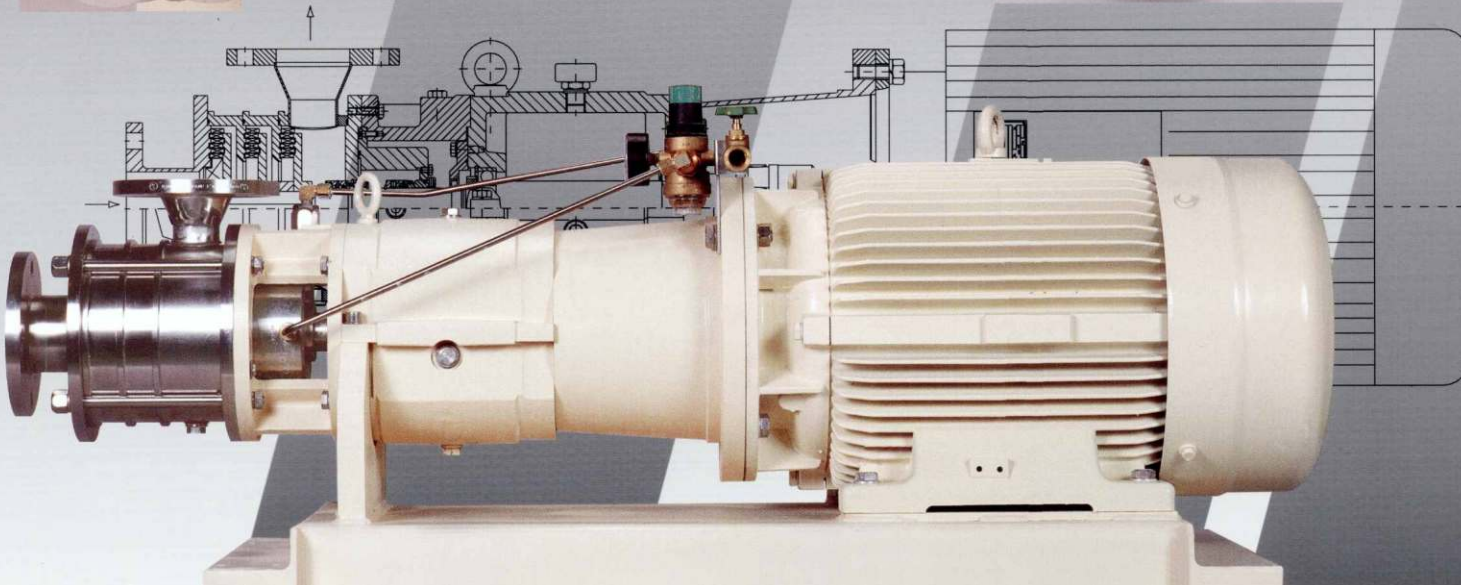
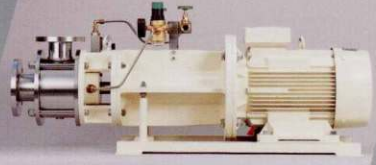
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INLINE DISPERSER

High speed dispersing

INLINE DISPERSER

Inline machines work according to the rotor-stator principle using high peripheral speed. The combination of different particle size reduction systems results in a product with extremely finely distributed solids (suspensions) or droplets (emulsion) in a basic liquid medium. Continuous particle size reduction is effected with a high shear gradient in a rotor-stator system that may be adapted to a variety of different applications and dispersing tasks. Robust construction, high precision dispersing tools and a very high efficiency guarantee a cost-effective system.



APPLICATION

- Emulsion** *Narrow droplet size spectrum and short operation time for vegetable and animal components type O/W and W/O.....*
- Pigment suspension** *Good wetting and disagglomeration of pigments result in the maximum solids concentration.....*
- Dilution of SLES** *Controlled dosing of each component produces a lump-free mixture.....*
- Homogenising** *Pastes, gels, pectin, CMC powder and similar products are completely homogenous and lump-free.....*
- Dissolving** *Colloidal and real solutions may be produced in a very short time. The energy put into the solution accelerates the dissolving process. Other applications are: extracting, maceration and release of products.....*

ADVANTAGES

- Processing advantages
- * short, reproducible processing time.....
 - * constant product quality without fish-eyes and lumps.
 - * narrow droplet spectrum for emulsions and homogenous distribution of the shear energy in the mixing chamber.....
 - * reduction of the quantity of emulsifiers and powders due to better dispersing and, therefore, better utilisation.....
 - * complete disagglomeration and suspension.....
 - * high pumping capacity reduces local heating especially with high viscosity products....
 - * easily changeable dispersing tools for different applications.
 - * easy cleaning - CIP.....

TYPE	DRIVE	SPEED	PUMPING RATE (Water)	SHEAR SPEED
Z 66	2,4 to 3 kW	12000 min ⁻¹	500 to 3000 l/b	21/42 m/sec
Z 130	5 to 7,5 kW	2800/5600 min ⁻¹	1200 to 6000 l/b	21/42 m/sec
Z 120 Z 120 GI	3 to 5 kW	1500/3000 min ⁻¹	3000 to 15000 l/b	16 m/sec
Z 150 Z 150/3	11 to 15 kW	1500/3000 min ⁻¹	3000 to 15000 l/b 4000 to 30000 l/b	20 m/sec
Z 180 Z 180/3	22 to 37 kW	1500/3000 min ⁻¹	1000 to 4000 l/b 5000 to 40000 l/b 2000 to 8000 l/b	25 m/sec
Z 300 Z 200 Z 225	11 to 22 kW 22 to 55 kW 30 to 55 kW	3000 min ⁻¹ 3000 min ⁻¹ 3000 min ⁻¹	3000 to 9000 l/b 10000 to 80000 l/b 15000 to 100000 l/b	21/42 m/sec 28 m/sec 32 m/sec
Z 180 HCP	16 kW	5600 min ⁻¹	800 to 3000 l/b	54 m/sec
X 120 X 150 X 180	3 to 5 kW 11 kW 22 kW	1500/3000 min ⁻¹ 1500/3000 min ⁻¹ 1500/3000 min ⁻¹		16 m/sec 20 m/sec 25 m/sec
X 120 TFB X 150 TFB X 180 TFB X 220 TFB X 240 TFB	5 to 15 kW 11 to 15 kW 15 to 18 kW 11 to 18 kW 18 to 22 kW	1500/3000 min ⁻¹ 1500/3000 min ⁻¹ 1500/3000 min ⁻¹ 1500 min ⁻¹ 1500 min ⁻¹		16 to 25 m/sec 20 m/sec 25 m/sec 17 m/sec 19 m/sec

