



KINEMATICA

Homogenizing perfected.



MEGATRON®

PILOT PLANT LINE

MEGATRON® MT-SHS 1-50

Inline disperser with super high shear forces



*«Homogenizing
perfected for a
healthier, tastier
and cleaner world.»*

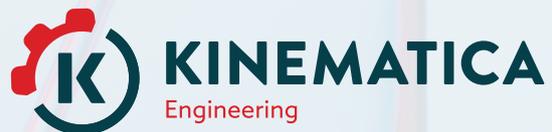
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This is our purpose and promise to you!

Kinematica - Machine manufacturer?

We are more than that!

Kinematica is not only a producer of industry-leading machinery, we maximize your success by offering expertise in **SCIENCE - ENGINEERING - EQUIPMENT**.



Ideation, Prototyping and Scientific Consultancy – this is what we offer with Kinematica Science & Development since 2020. The main focus lies on connecting our huge experience in the homogenizing technology with science for **more innovation and creation** for our customers together with us.

For over 60 years Kinematica has built process equipment for the most challenging dispersing and mixing tasks. The requirements of customers have evolved and the need for more integrated complete and efficient mixing skid solutions is constantly increasing. Unique challenges need to be met and that is exactly what our engineering team specializes on. **One solution, out of one hand.**



MEGATRON® MT-SHS 1-50

Six times higher shear rates than a conventional disperser.

Our unique MEGATRON® MT-SHS Pilot Plant unit is able to produce rotor tip speeds of 65 m/s and shear rates of 300'000 s⁻¹. This novelty provides six times the shear rates than other standard units. Due to the very high energy input it is possible to achieve particle or droplet sizes down to nano ranges depending on the material to be processed.

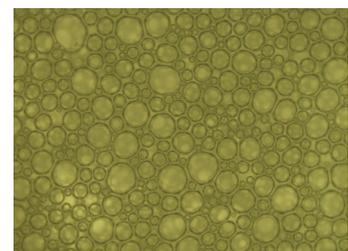
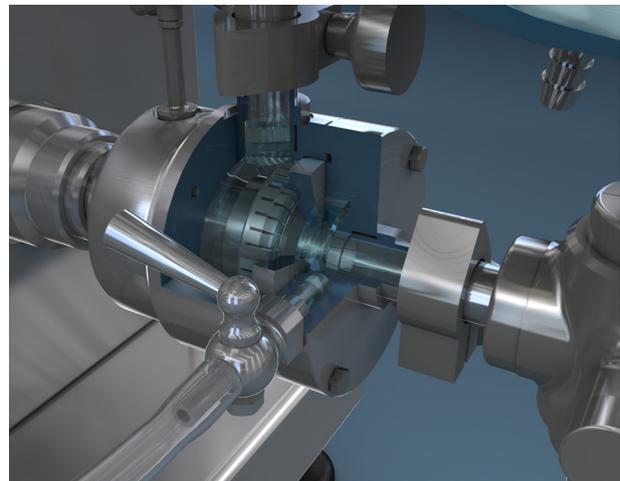
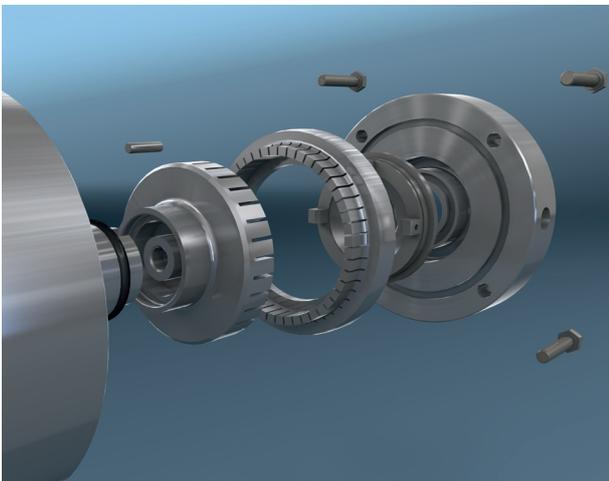
For quite some time, rotor / stator technology has been used for various applications in the field of emulsion and suspension production.

The goals have always been to produce the most homogeneous products with the smallest possible particle or droplet sizes.

Kinematica has responded to our customers demands for even smaller particle or droplet sizes and is now offering with the MT-SHS a newly designed rotor / stator combination which will enable the production of particles or droplets in the nano range as a norm.

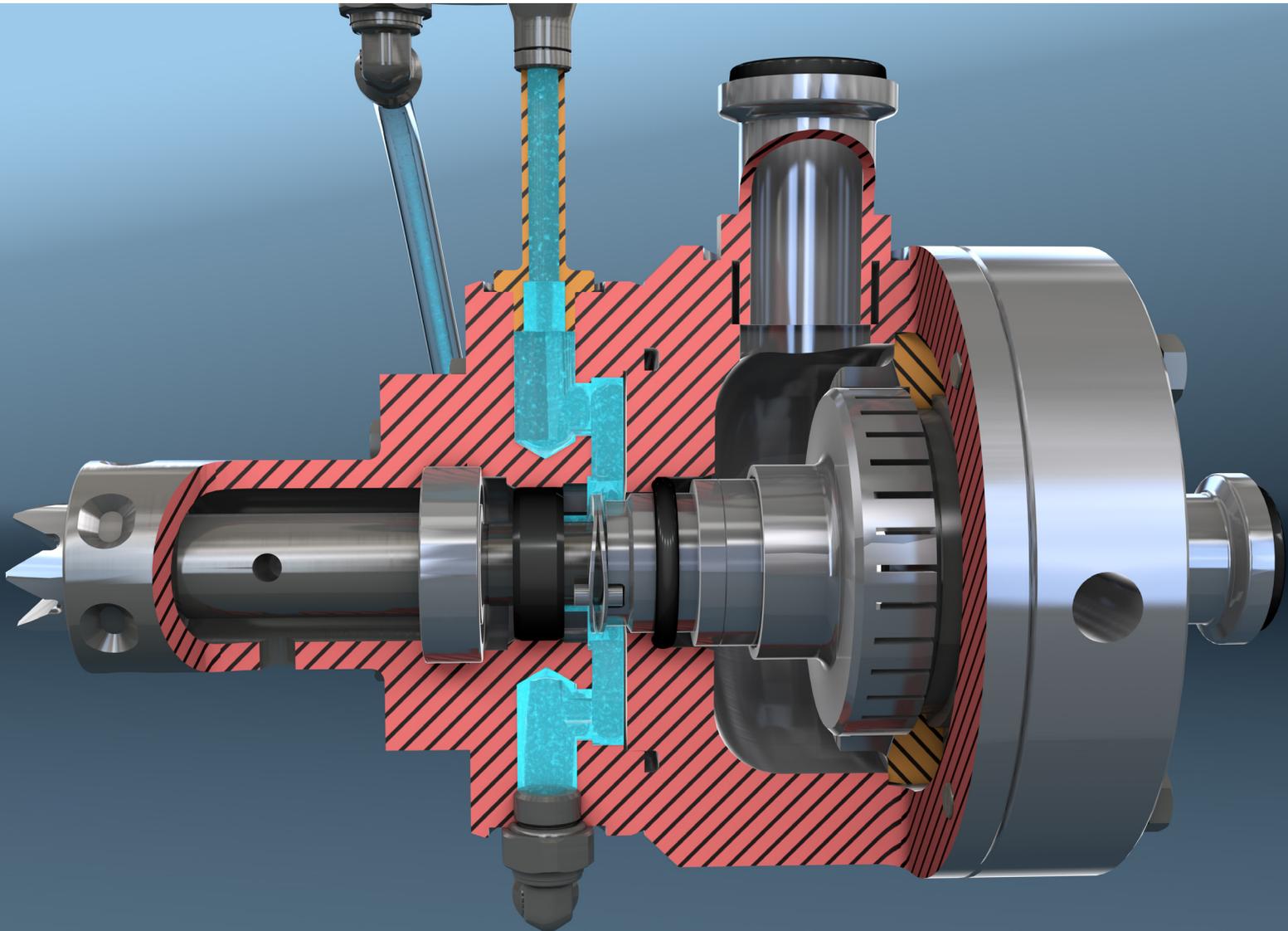
SUMMARY

- Newly developed concept in rotor / stator technology provides the smallest possible particle sizes with the highest efficiency
- Rotor tip speeds up to 65 m/s possible
- Shear rates up to 300 000 s⁻¹ possible
- High specific energy input resulting in nano sized particles or droplets (product dependent)
- Different rotor / stator geometries are available
- Scale-up is possible by factor 5



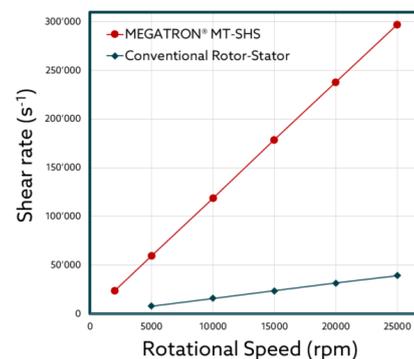
For smallest droplet and particle sizes

The perfect solution for finest emulsions and suspensions.



PRINCIPAL OF PROCESS

The principle of the MEGATRON® MT-SHS is based on a simple rotor-stator, where the gap between rotor and stator is minimized to 200 micron in size. This leads to extremely high shear rates and tip speeds.



MEGATRON® MT-SHS 1-50

Dispersing, homogenizing and emulsifying.



TECHNICAL INFORMATION

Throughput	2'000 L/h (with water)
High-speed drive	5.5 kW three-phase motor with frequency converter
Speed adjustment	Stepless with integrated controller and digital display
Speed control	Stepless with digital display and control unit
Dispersing generator	SHS special rotor / stator geometry with finest tooth system
Recirculation vessel	5.0 liter stainless steel vessel for the continuous phase, double-walled design with thermostat connections
Tip speed	max. approx. 65 m/s
Pipe installation	Complete piping with the recirculation vessel
Piping	All components connected with proper piping
Shear rates	up to 300 000 s ⁻¹
Dimensions (LxWxH)	715x300x1020 mm



9757154 / Stator MTG 50/2 Standard



9757816 / Stator MTG 50/2 Ultra-Fine



9757155 / Stator MTG 50/2 Ultra-High-Shear



Upscaling

For more complex applications.

We can offer a scaled version MEGATRON® MT-SHS 1-130 (picture on the right) to achieve larger throughputs up to 10'000 L/h with tip speeds of 65 m/s.



A solution for every need

Application overview.



FOOD

- Pectin dispersion
- Cannabis drinks
- Vitamin encapsulation
- Vegan milk drink



PHARMA

- Drug encapsulation
- Vaccines
- Wet-milling of API
- Liposome encapsulation
- Cannabis emulsion
- PLGA capsules
- O/W emulsion



COSMETICS

- Cosmetic additives
- Wet-milling of additives
- Encapsulation
- Extraction of protein
- Extraction of collagen



CHEMICAL

- Peat suspension
- Titanium dioxide suspension
- Paraffin oil emulsion
- Acrylic resin dispersion
- Matting additives
- Nano vegetable oil emulsion
- Nano corn oil emulsion
- Carbo nano tubes

and many more...





Our mission. Your solution.

Homogenizing perfected: for every industry.

Kinematica's broad portfolio of solutions can address almost every dispersing application for the pharmaceutical, cosmetic, chemical, food and life science industry. Innovative powder-induction systems, solutions for completely sterile environments, or fully-compliant ATEX architecture are just some examples of the broad portfolio that Kinematica can offer with true scalability from pilot plant to large plant configurations.

Our state-of-the-art technology, in addition to a professional consulting and engineering suite of services, can address a variety of processes such as blending / mixing / stirring, emulsifying, deagglomerating, foaming, crushing and homogenizing with particle size reduction from a few micrometers down to nanometers in size. The proprietary design and innovative geometry of our aggregates / generators can downsize and provide perfect statistical particle distribution for the finest emulsions / suspensions and foam dispersions.



PHARMA



CHEMICAL



COSMETICS



FOOD



LIFE SCIENCE



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