



KINEMATICA

Homogenizing perfected.



MEGATRON®

INDUSTRIAL & PILOT PLANT LINE

MEGATRON® MT-FM

Foam Induction Technology for Production, efficient Foam Induction System



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

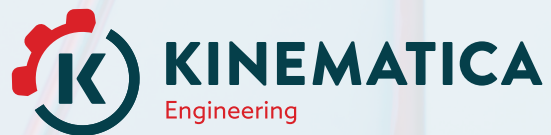
-

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-FM

Efficient Foam Induction System.

Aerated systems are of great interest for various applications in pharmacy, cosmetic, construction and food industries. Foams can serve to adapt density, texturize, gives a natural whiteness and improved release kinetics. In all the applications, a finest bubbly microstructure is desired that can be provided using MEGATRON® MT-FM.

HIGHEST GAS FRACTIONS

Gas fractions up to 90% is reachable with highest accuracy. For creamy and fluffy product quality.

SMALLEST GAS BUBBLES

Gas bubbles down to 5µm are possible. The efficient reduction of the bubble size allows a continuous foaming.

MODULAR SETUP

The modular model allows the perfect adaption of the process to your product.

SCALED AND STERILE VERSION

Throughputs from 10 to 200'000 L/h in sterile version is possible.

EFFICIENT BUBBLE BREAKUP

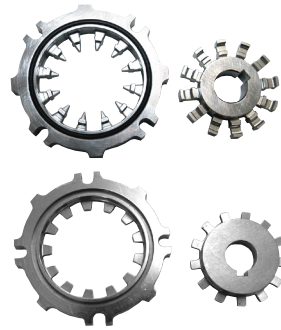
Elongational forces allow a efficient bubble breakup, even in very complex material, which is difficult to handle. The amount of elongational forces is maximized in this setup.

CONTROLLED FLOW

Compared to competitors, the shearing teeth are short and the gap is constructed with highest precision, which allows a controlled flow field and bubble breakup.

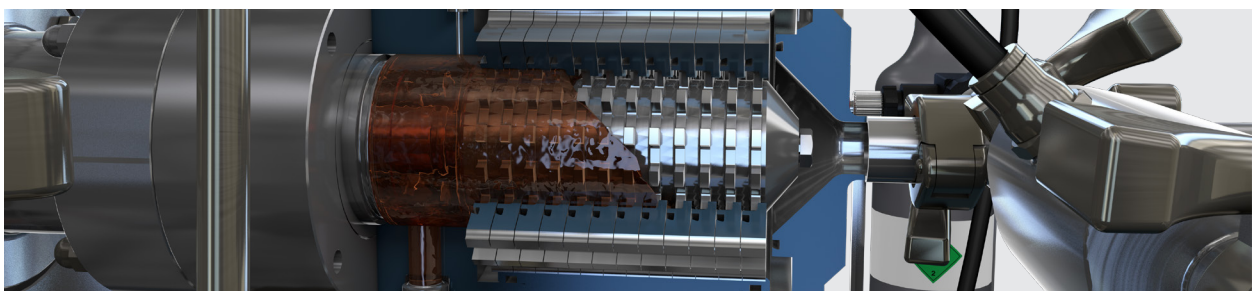
MODULAR MODEL

For the perfect adaption to the material with various shear zones.



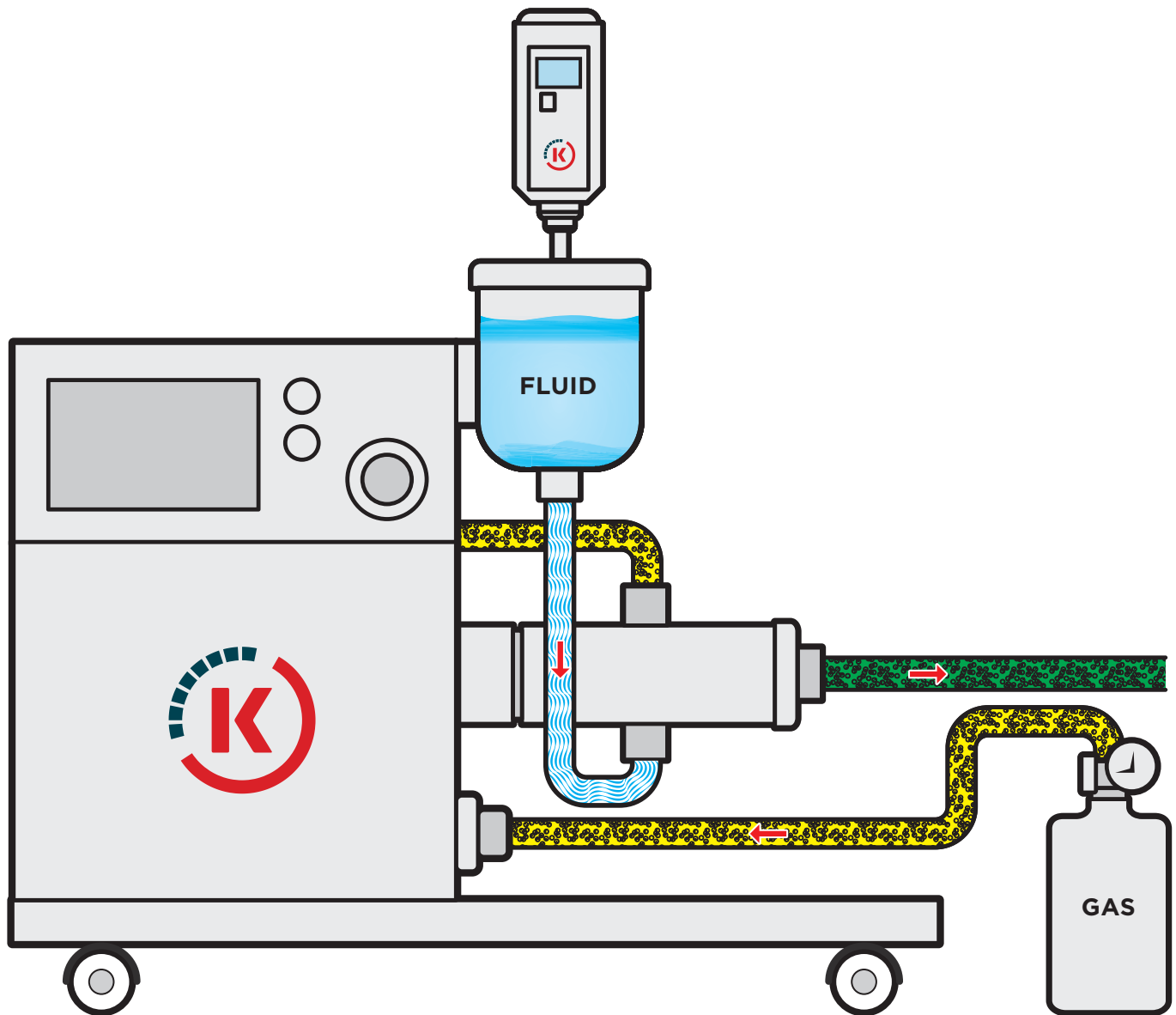
MONOBLOCK MODEL

For a sterile and easily cleanable version.



Most effective foaming

For producing micro bubbles down to 5 μm .



PRINCIPAL OF PROCESS

The rotor/stator blades in the MEGATRON® MT-FM provide an efficient shear zone and in combination with an optimized continuous gas feed section, leads to high elongational forces, thus a perfect bubble reduction can be reached. The residence time of the gas bubbles along the shear zone is essential for a good result and at the same time highly material-dependent. A modular design and the various configurations allow adaptation to the desired product for an optimum result.

MEGATRON® MT-FM

Efficient Foam Induction System.



TECHNICAL INFORMATION

End Product	<ul style="list-style-type: none"> - Gas bubble size < 5 µm - Gas fraction up to 90% (depending on the product) - Smallest gas bubble/drop sizes with narrow normal distribution - Viscosity, from water to paste like - Throughput rate of 10 to 4000 l/h (water)
Processing Chamber, Rotor/Stator	<ul style="list-style-type: none"> - High-frequency AC motor - Variable number of rotors/stators - Different rotor/stator dimensions - Monoblock or modular design - Integrated cooling jacket - CIP/SIP possible (only with monoblock)
Motor	<ul style="list-style-type: none"> - No-wear, high-frequency AC motor - Gearless direct drive - Speed control
Seals	<ul style="list-style-type: none"> - Single or double slip ring seals - Shape conforming materials
Materials	<ul style="list-style-type: none"> - Parts touching product in stainless steel - Clamp connection fittings (other connections available on request)
Scaleup/Service	<ul style="list-style-type: none"> - Scaling of formulas up to production volumes possible - Customer-specific designs and complete turn-key solutions

CE

Upscaling

For larger and more complex applications.

Product	Ø Rotor	Throughput max.	Axial Stages max.	Peripheral speed	Max. speed	Motor power
MT-FM 30	30 mm	10 l/h	8/5	19 m/s	12000 rpm	1.5 kW
MT-FM 50	50 mm	40 l/h	12/8	16 m/s	6000 rpm	up to 5.5 kW
MT-FM 100	100 mm	250 l/h	20/13	15 m/s	2800 rpm	up to 15.0 kW
MT-FM 150	150 mm	700 l/h	24/16	14 m/s	1800 rpm	up to 30.0 kW
MT-FM 220	220 mm	1800 l/h	30/20	14 m/s	1200 rpm	up to 55.0 kW
MT-FM 300	300 mm	4000 l/h	36/24	14 m/s	900 rpm	up to 90.0 kW



A solution for every need

Application overview.



FOOD

- Coffee extract foam
- Chocolate foams
- Caramel emulsions or foams
- Flavour/Colour encapsulation
- Ice cream foams
- Dysphagia food
- Foamed crème gentile
- Butter spread
- Praliné fillings
- Mousse products
- Marshmallows
- Ravioli fillings



PHARMA

- Drug encapsulation
- Vaccines
- Foamed patches
- Dragée coatings
- Liposome encapsulation
- Suppositories
- Foamed drug blisters
- Probiotic solutions
- Ointments and creams
- Fat particles
- PLGA capsules



COSMETICS

- Deodorant
- Soaps
- Toothpaste
- Natural cosmetics
- Creams
- Balm
- Paraffin wax emulsions
- Probiotic cosmetics

Insulation material

For highest insulation capacity.

The efficiency of insulation materials is expressed by their thermal conductivity. The lower this value, the less quickly the heat spreads within the material and can be lost to the outside, for example polyurethane (PUR). PUR also has a high heat storage capacity, which also has a positive effect on insulation. Smallest gas bubbles can be dispersed in PUR, which further improves the insulating properties of the material. Kinematica has experience in this area and offers solutions in the field of micro-foams.



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



HEADQUARTERS

Kinematica AG

Werkstrasse 7 c-d
6102 Malters
Switzerland

Phone +41 41 259 65 65
Fax +41 41 259 65 75

info@kinematica.ch
kinematica.ch

EUROPE

Kinematica GmbH / Germany / Phone +49 7634 504 800 0 / info@kinematica.de

-

NORTH AND SOUTH AMERICA

Kinematica, Inc. / USA / Phone +1 631 750 6653 / info@kinematicausa.com

-

RUSSIA AND CIS

Kinematica AG / Switzerland / Phone +41 41 259 65 65 / info@kinematica.ch

-

GREATER CHINA

Kinematica Asia Limited / Hong Kong / Phone +852 249 769 65 / info@kinematica.ch