

MEGATRON® MT 3100 S



Homogenizer and Mixing Technology for the Laboratory

INLINE DISPERSING SYSTEM

for a variety of applications

« through-put of up to 12 l/min »



KINEMATICA
DISPERSING AND MIXING TECHNOLOGY

MEGATRON® - Inline Dispersing System

When testing and optimizing formulas, high process safety is paramount. This system enables processing of complex material systems with absolutely minimal loss of mass and minimal energy. This miniature format production system delivers efficient, replicable results like those of our in-line machines used in large volume production.

HIGHLIGHTS

Volume flow
up to approx. 12 l/min

Generators
Three different rotor/stator variants,
single-stage

Product inlet
Single-phase (standard version)
Multi-phase (with optional injector)

Processing system
in-line product processing
primarily used in recirculating operations

Working chamber
Horizontal, single-stage arrangement
Working pressure up to 6 bar
Working temperature up to 90°C
Quick coupling for easy disassembly
Single-acting mechanical seal with pres-
sureless quench system
Viton, EPDM or Kalrez seals
Hose nipple connectors G1/8"

Materials
High-quality 316L stainless steel
Product contact parts electropolished,
Ra ≤ 0.8

Accessories
Large selection of recirculation systems

Coupling / compatibility
Type F quick coupling

Motor
1200 W wear-free high-frequency AC motor
Gearless direct drive
Continuous speed control
Completely enclosed in stainless steel

Speed range
up to 30,000 rpm

Sound level
< 62 dB(A) at 30'000 rpm

Supply voltage
100 - 230 V ± 10%, 50Hz / 60Hz

Maximum relative humidity
80% in storage
80% during operation

Operating temperature
0 – 40 °C

Protection class according to DIN
IP 20

Drive dimensions
270 x 195 x 281 mm (L x W x H)

Weight (drive only)
10 kg

EMC Standards
IEC/EN 61000-6-2 / EN 61000-6-3

Safety norm
IEC/EN 61010-2-51

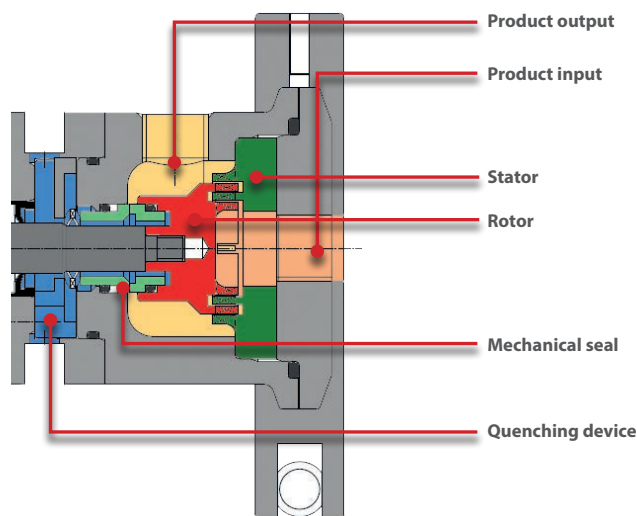
YOUR LABORATORY EXPERT

This system was developed to help you realize your ideas under as realistic conditions as possible in small economic quantities. During subsequent scale-up, the results can be replicated with our large machines. Applications are mainly in recirculation mode.

Depending on the materials system, the components bind into the finest emulsions or suspensions with droplet or particle sizes down to a few microns. These results are achieved by the machine's high speed and the resulting peripheral tip speeds as well as precise rotor/stator geometry. Depending on the materials system being processed, the desired fineness is achieved after a certain period of recirculations and/or using other rotor / stator geometries.

OVERVIEW

Mechanical rotor / stator system for homogenizing, dispersing, emulsifying and suspending. Depending on the dispersing generator, speed, and product features, flow rates of up to 12 l/min are possible. Optional injectors can be used for additional phases of product into the working chamber. Integrating a thermostat to cool the system is recommended for temperature-sensitive products.



Design of the MT 3100 S Inline Dispersing Machine:

in-line working chamber

working chamber removable through quick coupling

injector for additional phase (optional)

different standard R/S generator variants

parts coming in contact with the product in electro-polished, rust-free 316 L stainless steel

single mechanical seal with quench holder

digital speed control with soft start

wear-free motor with direct drive

stable speeds as viscosity changes

standard connections with NW8 hose nipples (clamp version available upon request)

complete recirculation systems upon request

Applications / Uses



preparing emulsions

pharmaceutical or cosmetics products

suspending solids in liquids (such as liquid polymers)

dispersing fine solids in liquids or molten phases

suspending additives and solid polymers in mineral oils

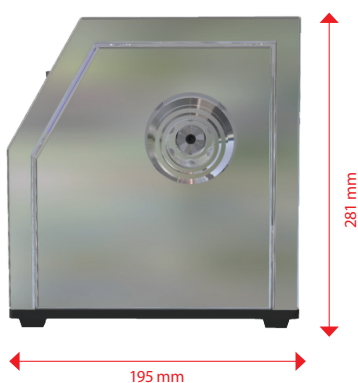
extracting enzymes from biomass

extracting active ingredients and substances from plants, for example (when used with REACTRON®)

grinding and shredding of solids and fibers in liquids or polymers

This list represents just a selection of the potential applications.

MEGATRON® MT 3100 S



Order information and accessories

Our MT 3100 S drive can be expanded with functional accessories according to your wishes and requirements. Our experts will gladly assist you if you have any application-related questions or other concerns.

DRIVES

Order no.	Designation
13010050	MEGATRON® MT 3100 S, 230 V , consisting of: drive with control, CH device cable
13010051	MEGATRON® MT 3100 S, 230 V , consisting of: drive with control, EU device cable
13010052	MEGATRON® MT 3100 S, 230 V , consisting of: drive with control, UK device cable
13010003	MEGATRON® MT 3100 S, 100-120 V , consisting of: drive with control, transformer, US device cable



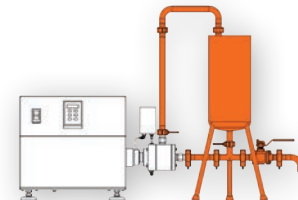
WORKING CHAMBERS WITH QUENCH HOLDERS

Order no.	Designation
13032051	MEGATRON® MTO 3100 Q , consisting of: working chamber with single mechanical seal and pressureless quench holder for cooling and lubricating the mechanical seal. input/output of working chamber is equipped with standard NW8 hose nipple connectors. Other connectors upon request
13032052	MEGATRON® MTO 3100 Q as above, but also autoclavable



RECIRCULATING SYSTEMS

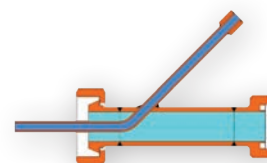
Complete recirculation systems according to customer specifications can also be delivered. Process containers (single- or double-walled, steel or borosilicate glass), system tubing, valves, thermostat for double-walled process container, vacuum pump for closed process container, temperature sensor



INJECTORS

Certain applications, such as chemical reactions, first require a controlled mixing process in the generator chamber.

- controlled mixing
- gas, oil or other phase inputs
- prevents uncontrolled reactions



COMPLETE SOLUTIONS TO MEET YOUR NEEDS

Research needs modular, adaptable systems. We offer solutions that are easy to handle and flexible enough not to restrict your creativity. Our MEGATRON® is available to order as a ready-to-use mini-system with all of the devices you wish. Your own devices can be integrated into our systems depending on their design.

- processing container (single or double-walled steel or borosilicate glass)
- system tubing (fixed or variable)
- thermostat for double-walled processing container
- vacuum pump for closed processing container
- temperature sensor
- injector with input pump
- REACTRON® laboratory reaction chamber with double-walled processing container with POLYMIX® anchor mixer and integrated batch disperser POLYTRON® for pre-crushing



Kinematic dispersion with the rotor/stator system

Who invented it?

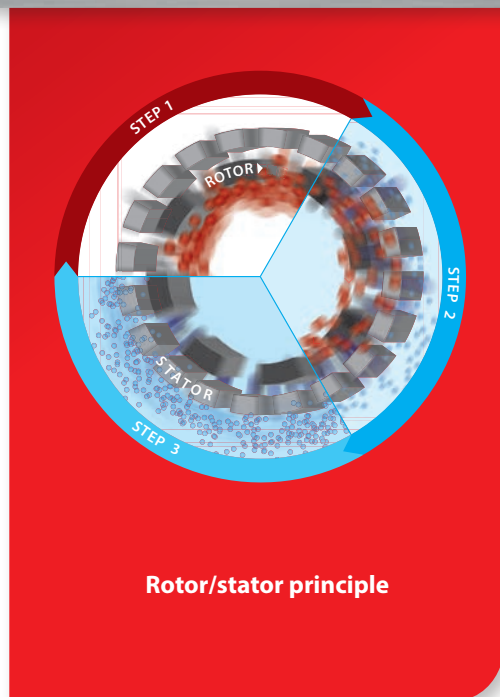
The roots of KINEMATICA go back to the 1950s at the former chemistry and physical sciences research center of Prof. P. Willems in Lucerne. He is the inventor of modern rotor/stator dispersion technology.

THE PRINCIPLE

The rotor creates a vacuum which sucks in the sample to be dispersed. Between the rotor/stator (shear gap), the sample is subjected to high braking and acceleration forces which tear apart the individual particles and crush them to just a few micrometers in size.

THE RESULT

This process results in very fine homogeneous dispersions, emulsions, suspensions and foams. Droplets, particles and gas bubbles are reduced to a few micrometers or less. Products are dispersed in a more economical, faster and better way than with any other system.



Rotor/stator principle

Model	MTG 20/2 FFV – Standard Model – Rotor/Stator, each with one row of teeth	MTG 30/2 M – Standard Model – Rotor/Stator, each with one row of teeth	MTG 30/4 F – standard model – Rotor / Stator with two rows of teeth each	MTG 30/4 FFV – standard model – Rotor / Stator with two rows of teeth each
Order no.	13031520	13031530	13031531	13031532
Stator/Rotor Ø	20 / 15.5 mm	30 / 24 mm	30 / 26 mm	30 / 26.5 mm
Peripheral speed	max. 24 m/s	max. 38 m/s	max. 41 m/s	max. 42 m/s
Throughput (depending on the medium being processed)	5 l/min	11 l/min	7 l/min	6 l/min
Applications	<ul style="list-style-type: none"> – dispersing, mixing and dissolving of solids in liquids – suspending, deagglomeration, extraction – pre-crushing of organic materials in liquids – intensive mixing 	<ul style="list-style-type: none"> – dispersing, mixing and dissolving of solids in liquids – suspending, deagglomeration, extraction – crushing of organic materials in liquids – intensive mixing – producing of emulsions (coarse to medium droplet sizes) 	<ul style="list-style-type: none"> – producing of fine suspensions and emulsions – intensive dissolving of solids – gassing of liquids – crushing of fibers, tissue and cell materials in liquids – producing of microspheres – acceleration of reactions and chemical precipitations 	<ul style="list-style-type: none"> – producing of super fine suspensions and emulsions (very small droplet sizes) – gassing of liquids – crushing of fibers and tissue materials in liquids – producing of microspheres – acceleration of reactions and chemical precipitations – in general for applications which requires high shear rates
Figure				

YOUR APPLICATION IS OUR FOCUS!

KINEMATICA is a leading manufacturer of dispersing and mixing technology for standard and customized applications in the lab, pilot plant and production areas of pharmaceutical, chemical, food, cosmetic and biotech or life science companies worldwide.

Our POLYTRON® batch and MEGATRON® In-line Homogenizers are suitable for many applications:

- Dispersing of non-soluble liquids or solids into liquids to finest emulsions/multiple emulsions or suspensions
- Induction and dispersion of powders into liquids
- Foaming by gas induction into liquids
- Disintegration of tissue samples for preparation in further analysis
- Dispersing of various samples for quality control

We also deliver POLYMIX® Micro Dry Grinding Mills and a variety of POLYMIX® and MICROTRON® Overhead Stirrers and Mixers.

Whatever your application, we are confident that our team of specialists, with over 60 years of experience, will provide the best solution for you.

YOUR SATISFACTION IS OUR GOAL!



KINEMATICA
DISPERSING AND MIXING TECHNOLOGY



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BRAND NAMES WITH HISTORY



Batch dispersing/homogenizing units



High turbulent mixing



Inline dispersing/homogenizing units



Dispersing/homogenizing Reactors



Stirrers and dry Mills



Mixer/Blender



Viscometers