

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



Headquarters
KINEMATICA AG
Dispensing and Mixing Technology

Luzernerstrasse 147a
6014 Luzern
Switzerland

Tel. +41 41 259 65 65
Fax +41 41 259 65 75
E-Mail info@kinematica.ch

Subsidiaries
KINEMATICA, INC.
Dispensing and Mixing Technology

155 Keyland Court
Bohemia, NY 11716
USA

Tel. +1 631 750 66 53
Fax +1 631 750 66 57
E-Mail info@kinematica-inc.com

KINEMATICA AG
Dispensing and Mixing Technology

Office Eastern Europe
Prosp. Akad. Palladina 44
UA - Kyiv 03680

Tel./Fax +38 044 422 61 27
E-Mail info@kinematica.com.ua
web www.kinematica.com.ua

KINEMATICA GMBH
Dispensing and Mixing Technology

Münstertäler Str. 12
79427 Eschbach
Germany

E-Mail info@kinematica.de
web www.kinematica.de

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



POLYTRON® PT 1200 E



Hand Disperser (Ecoline)

DISPERSING DEVICES FOR BUDGET-CONSCIOUS LABS

Handy and efficient sample preparation

« Process volumes from 0.05 to 2,500 ml »

PT_1200E_deu 03/2013; Technische Änderungen und Irrtümer vorbehalten



KINEMATICA
DISPERSING AND MIXING TECHNOLOGY

POLYTRON® - Efficient and Economical

Users / Application ranges

This ergonomic hand disperser is light weight and therefore ideal for rapid turn-around of smaller sample volumes. The extensive range of dispersing aggregates covers a wide range of sample preparation applications.

TECHNICAL INFORMATION

Processing volume (water)
0.05 up to 250 ml

Tip speed
Up to max. 14 m/s
Up to max. 21 m/s (X-Aggregate)

Applicable aggregates
ø 3, 5, 7, 12 mm
ø 20 mm X-Design

Speed range
0 to 25,000 rpm

Drive coupling
Aggregates with E coupling

Noise level (drive without aggregate)
≤ 65 dB(A) at 20,000 rpm
≤ 76 dB(A) at 25,000 rpm

Motor
Universal with carbon brushes

Drive power
100W

Connection voltage
90 - 230 V ± 10%, 50Hz / 60Hz

Relative humidity (max.)
80% during storage
80% during operation

Operating temperature
0 - 40 °C

Protection class acc. to DIN
IP 20

Dimensions (L x W x H)
Drive: 220 x 44 x 55 mm
Power supply: 132 x 58 x 30 mm

Weight
Drive: 440 g
Power supply: 310 g

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

Safety standard
IEC/EN 61010-2-51

THE EXPERT FOR YOUR LABORATORY

For more than 60 years, we have been perfecting the rotor/stator technology, working in close cooperation with users and universities. When using our technology, your test samples will be dispersed into homogeneous, chemical systems. Depending on the type of sample, they link with liquids, forming the smallest homogeneous emulsions, dispersions or suspensions.

This is the best foundation for all subsequent analyses or the implementation of formulation your laboratory can provide to your R&D centre or production facility.

ERGONOMICS:

- Easy operation with an on-off switch and speed control
- Lightweight
- Intelligent variable speed control for long equipment life
- Low noise
- Height adjustable stand (available as an optional)
- Switch aggregate quickly with Click & Go coupling
- Easy aggregate clean-up with EasyClean Design



RESULTS ARE CONVINCING

SMALLEST SIZES OF PARTICLES/DROPLETS
because precise analysis require homogeneous samples

EFFICIENT SAMPLE PREPARATION
because fast dispersion saves time

STANDARD OR CUSTOM-MADE AGGREGATES
Perfect for a in cooperation with the users

CLEANING AND DISASSEMBLY
EasyClean Design makes it very simple

QUICK ENGAGEMENT OF THE AGGREGATES by using Click & Go

BEST MATERIALS AVAILABLE
because without them, we could not call it Swiss Made

DURABILITY is a Swiss virtue



General homogenizing applications

Dispersions, suspensions, and emulsions

Comminution of animal and human tissue samples in various liquids and volumes

Extraction of active pharmaceutical ingredients (API) in pills and tablets

Sample preparation for medical diagnostics and RNA/DNA analysis

Breakdown of animal and plant cells

Emulsions and suspensions in tiny volumes

Cell breakdowns for enzyme studies

Preparation of samples for genetic studies

Deagglomeration of cell complexes

This list provides a small selection of possible applications.



Kinematic dispersion using the rotor/stator system

Who is the founder of it?

The roots of today's KINEMATICA began in the former chemical/physical research institute of Prof. P. Willems in Lucerne, Switzerland. The inventor of the modern rotor/stator dispersion technology.

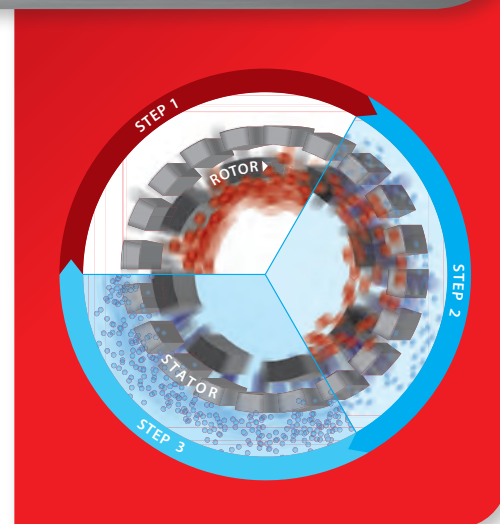
THE PRINCIPLE:

The spinning rotor generates a vacuum. The dispersing sample is drawn in and discharged to the outside through the stator's slots. Between the rotor/stator (shear gap), the product is subject to high deceleration-tangential and radial acceleration forces. The individual particles/droplets are torn apart and thus reduced in size; they are reduced several micrometers in size through additional cutting and crashing effects.

THE RESULT:

Microscopic homogenized dispersions, emulsions, suspensions, and foams are generated. Droplets, particles, and gas bubbles are reduced to several micrometers or smaller. Small and large substances are dispersed more economically, faster, and better than make with any other system.

Your samples are efficiently «POLYTRONIZED».



Aggregate Technology

Unrivaled!

The high efficiency and the uniqueness of our POLYTRON® dispersing aggregate can only be achieved through superior manufacturing precision and the sophisticated KINEMATICA design method. This is 100% Swiss Made.

STANDARD AGGREGATES (EC DESIGN WITH TWO GEAR RINGS)

This is all you need for popular applications in the preparation of samples and formulation development. The cutting teeth embedded in the head of the tool optimize the pre-crushing of the sample. An enclosed ring design provides optimum protection for those teeth and prevents them from bending.

SPECIAL AGGREGATES (W, M, B, SYN, Z & X DESIGN)

Specializations in the chemical, pharmaceutical, cosmetic, and food industry, as well as the life science branch, makes new designs inevitable. These aggregates are based on state-of-the-art technology and only available from KINEMATICA.

The highly specialized tool is subject to constant further development that involves close cooperation with our customers and universities. Thus, it is continuously perfected for daily application.

MATERIALS

Whether you need a tool with standard or special geometry, all aggregates are manufactured from high-alloy stainless steel 316L, electrolytically polished and made in Switzerland. Our synthetic aggregates (SYN) are manufactured from the highest quality materials available. This guarantees their application at a motor speed up to 30,000 rpm.

BEARINGS

All dispersing aggregates for the PT 1200 E are equipped with high-quality synthetic plain bearings. They exhibit excellent mechanical properties and chemical resistance. They are all FDA approved.

CLEANING AND DISASSEMBLY

EasyClean: Our technology ensures the simplest removal and fast cleaning, either by hand, dishwasher, or autoclave. Disassembling the precisely fitting components is simple and fast.

LOCKING SYSTEM

All our POLYTRON® aggregates are fitted with a high-precision quick-release system: The Click & Go

Dispersing aggregates for PT 1200 E

Your applications, our response

KINEMATICA aggregates solve all problems you are faced with during every day at the laboratory. Using our Click & Go quick release makes the changing of aggregates very easy.



EC «STANDARD DISPERSING AGGREGATE»



Design

The universal geometry uses two rows of teeth, is suitable for a large spectrum of laboratory applications, and it is reliable and efficient

Selection and applications

- All standard dispersing tasks
- Grinding of animal and human tissue samples in a variety of fluids and volumes
- Sample preparation for the extraction and dissolution of organic materials

- Sample preparation for medical diagnostic procedures as well as DNA analysis
- Extractions of systems/substances from vegetable-derived samples
- Disruption of animal and human cells
- Deagglomeration of united cell structures
- Intensive mixing

Sales No.:	Description	ø/length mm	Volume ml	max. Tip speed m/s
11030004	PT-DA 03/2EC-E050	3 / 50	0.05 - 2	2
11030012	PT-DA 05/2EC-E085	5 / 85	0.1 - 5	5
11030031	PT-DA 07/2EC-E107	7 / 107	0.3 - 10	8
11030062	PT-DA 12/2EC-E123	12 / 123	2 - 250	14
11030042	PT-DA 12/2EC-E157	12 / 157	2 - 250	14

M «OUTSIDE CUTTING BLADES»

Design

Outside blades pre-crush samples that are larger than the rotors diameter. Subsequently, they are just dispersed inside the generator

Selection and applications

- Dispersing of large samples made simple
- All standard dispersing applications similar to EC aggregate



Sales No.:	Description	ø/length mm	Volume ml	max. Tip speed m/s
11030266	PT-DA 12/2MEC-E157	12 / 157	2 - 250	14

Z «Z-DESIGN»

Design

Breaking up of hard probes, with integrated V-notch technology. Additional, integrated holes for cleaning.

Selection and applications

- Hard and brittle material
- Sweet corn and grain
- Breaking, open and dispersing of pills
- Breaking, hard grains



Sales No.:	Description	ø/length mm	Volume ml	max. Tip speed m/s
11030067	PT-DA 12/2ZMEC-E157*	12 / 157	2 - 250	12

* Z-Design Aggregate with knives

SYN «SYNTHETICS»



Design

Disposable aggregates for the processing of multiple samples per day, where the required sterilization of stainless steel aggregates represents a significant time limitation. Available in PES / Special POM. Sterile packaging in packet sizes of 25 units each (ø7 mm) and 10 units per packet (ø12 mm) each

Selection and applications

- Prevention of X contamination
- All standard dispersing applications similar to EC aggregate

Sales No.:	Description	ø/length mm	Volume ml	max. Tip speed m/s
11030030	25x PT-DA 07/2SYN-E082	7 / 82	0.3 - 10	8
11030287	10x PT-DA 12/2SYN-E123	12 / 123	2 - 250	14

W «W-DESIGN»

Design

The W design prevents fibrous, stringy or solid samples from clogging the aggregate

Selection and applications

- Dispersing fibrous, stringy or solid samples (e.g., pieces of meat)
- All standard dispersing applications similar to EC aggregate



Sales No.:	Description	ø/length mm	Volume ml	max. Tip speed m/s
11030060	PT-DA 12/2WEC-E157	12 / 157	2 - 250	14

B «BIOTRONA® HIGH-TURBULENCE MIXER»



Design

High-turbulence mixing head with the least possible shear forces and energy inputs

Selection and applications

- Quick removal and suspension of solid particles; also suitable for high viscosity applications

Sales No.:	Description	ø/length mm	Volume ml	max. Tip speed m/s
11030034	PT-DA 07/BEC-E107	7 / 107	10 - 100	8
11030086	PT-DA 12/BEC-E157	12 / 157	50 - 500	14

X «X-DESIGN»

Design

A special geometry designed for dispersing tablets and pills or for preventing suppositories from clogging or agglutinating

Selection and applications

- Ultrafast crushing of tablets, coated pills, and suppositories.
- Basis for the analysis of active pharmaceutical ingredients (APIs)
- Used in the substance analysis or for the quality control during the production of tablets



Sales No.:	Description	ø/length mm	Volume ml*	max. Tip speed m/s
11030255	PT-DA 20/2XEC-E116	20 / 116	min. 10	21

* When using a vessel ø 22 mm/volume is always dependent on the diameter of the vessel

Dispersing vessels

Choosing the right dispersing aggregate is crucial for good results. The right vessel also helps contribute to achieving the desired results.

THE PROBLEM

For normal cylindrical dispersing jars, the flow creates a vortex. The mixing and dispersing efficiency decreases considerably since the product is no longer being optimally processed through the dispersing generator head. This lengthens processing times and thus requiring more energy input. Depending on the shape of the vortex, this may also lead to additional air being introduced.

THE SOLUTION

Our specially designed GS jars have a cloverleaf-like shape. This effectively interrupts the flow in the radial direction and generates additional counteracting forces. These high turbulences maximize the mixing and dispersion efficiency, thus minimizing processing time and requiring less energy.

THE SELECTION

Our GS-glasses are available in chemical- and temperature-resistant borosilicate glass or in stainless steel. Dimensions from a few milliliters to several liters are available, with or without lid, with or without sealed feedthrough.



GS vessel principle (viewed from above)



THE RIGHT DISPERSING VESSEL



Designation	Sales no.:	Ø / H (mm)	Process volume	Model
GS 15	11050010	30 / 150	35 ml	without lid
GS 25	11050011	55 / 150	150 ml	
GS 15 K	11050020	30 / 150	35 ml	with screw cover, glass inlet: GS 15K Ø 9 mm GS 25K Ø 25 mm
GS 25 K	11050021	55 / 150	150 ml	
GS 15 KL 7.5	11050030	30 / 150	35 ml	with screw cover and sealed feedthrough 7.5, 12, 20 mm glass inlet (as above)
GS 25 KL 12	11050031	55 / 150	150 ml	
GS 25 KL 20	11050032	55 / 150	150 ml	

Order information and accessories

Depending on your specific requirements, it is possible to expand the PT 1200 E drive with our functional accessories. Our expert personnel will be happy to assist you and answer all the questions you might have.

ADAPTER

Adapter for use with dispersing aggregate with C coupling.

Sales No.:	Designation
11035002	Adapter PT-DA / PT-DA (E/C)

Description

This adapter connects older C-coupling dispersing aggregates such as PT 1200 C/CL/B with this PT 1200 E motor (with E-coupling).



MOTORS

Sales No.:	Designation
11010025	POLYTRON® PT 1200 E, 230 V / EU-power cable and tabletop power supply (1.8 m)
11010027	POLYTRON® PT 1200 E, 230 V / CH-power cable and tabletop power supply (1.8 m)
11010028	POLYTRON® PT 1200 E, 230 V / UK-power cable and tabletop power supply (1.8 m)
11010026	POLYTRON® PT 1200 E, 100-120 V / Power cable and tabletop power supply (1.8 m)



HOLDER SYSTEM AND STAND

Sales no.:	Designation	Description
11040006	HS 1200 E	Stainless steel holder for motor, tabletop power supply, four dispersing aggregates and two tools. Weight: 0.68 kg (Figure 1)
11040007	ST-P 13/320	Stainless steel plate stand with anti-slip mat made of silicone, with height-adjustable holder for the drive and for fastening the base station. Weight: 1.00 kg (Figure 2)



CARRYING CASE

For mobile applications or on-site analysis, we offer a snug carrying case for the POLYTRON® PT 1200 E hand disperse, which protects your drive and the dispersing aggregates from humidity, dust and vibration.

Sales no.:	Description
11040004	Carrying case made of polypropylene (anthracite), with feet, continuous hinge, sturdy clip closures and openings for motor, tabletop power supply, cables, and two aggregates. Dimensions: 350 x 245 x 100 mm / Weight (empty): 1.10 kg

