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!



BRAND NAMES WITH HISTORY

POLYTRON® – Batch dispersing/homogenizing units

BIOTRONA® – High turbulent mixing

MEGATRON® – Inline dispersing/homogenizing units

REACTRON® – Dispersing/homogenizing Reactors

POLYMIX® – Stirrers and dry Mills

MICROTRON® – Mixer/Blender

POLYVISC® – Viscometers

PT_1300D_eng 03/2013, Technical changes and mistakes reserve

KINEMATICA
DISPERSING AND MIXING TECHNOLOGY

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POLYTRON®
DISPERSING AND MIXING TECHNOLOGY BY KINEMATICA

POLYTRON® PT 1300 D



High-end handheld disperser

STATE-OF-THE-ART DIGITAL TECHNOLOGY

Easy and efficient sample preparation

« Processing volumes 0.05 to 250 ml »

KINEMATICA
DISPERSING AND MIXING TECHNOLOGY

POLYTRON® - Efficient sample preparation

Research, development or quality control, all work towards a common goal: Sample analysis. The basic requirements for an impending sample preparation is the efficient disruption of systems, reproducibility of the results, and simple procedures.

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
2,000 to 30,000 rpm

Drive coupling
Aggregates with E coupling

Noise level (drive without aggregate)
65 dB(A) at 30,000 rpm

Motor
Brushless, maintenance-free

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

PC interfaces
RS-232 (D SUB 9)
USB socket B

Protection class acc. to DIN
IP 20

Dimensions (L x W x H)
Drive: 210 x 40 x 45 mm
Control module: 230 x 205 x 95 mm

Weight
Drive: 620 g
Control module: 1040 g

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

Safety standard
IEC/EN 61010-2-51

THE EXPERT FOR YOUR LABORATORY

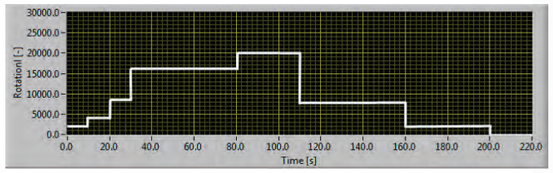
For more than 60 years, we have been perfecting the rotor/stator technology, working in close cooperation with users and universities. When using our technology, your test samples will be dispersed into homogeneous, chemical systems. Depending on the type of sample, they link with liquids, forming the smallest homogeneous emulsions, dispersions or suspensions. This is the best foundation for all subsequent analyses or the implementation of formulation your laboratory can provided to your R&D centre or production facility.

ERGONOMICS: IT IS RIGHT AT YOUR FINGERTIPS

– Simple ON & OFF procedure and speed control by simply pressing a button
– The drive rests comfortably in the palm of your hand
– The membrane keyboard is easy to operate and to clean
– Changing the aggregate is easy with the Click & Go quick release
– The EasyClean Design makes cleaning the aggregates simple
– Low noise level

INTELELGENT CONTROL SYSTEM

– Intelligent speed controls ensure a long service life
– Stable motor speeds even during changes of viscosity
– Using the MEMO button lets you save engine speeds and provides you with the option to recall and reproduce the setting later in order to process larger numbers of samples.
– The supplied PC software offers a remote control option or the recording of specific application parameters



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
Perfected 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



Users / Application ranges



General homogenizer applications, dispersions, suspensions, and emulsions

Homogenizastion of animal and human tissue samples in a variety of fluids and volumes

Extractions of active pharmaceutical ingredients (APIs) contained in pills and tablets

Sample preparation for medical diagnostic procedures as well as RNA/DNA analysis

Disruption of animal and human cells

Emulsions and suspensions in the smallest volumes

Cell disruption for enzyme studies

Sample preparation for gene technological research

Deagglomeration of united cell structures

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.

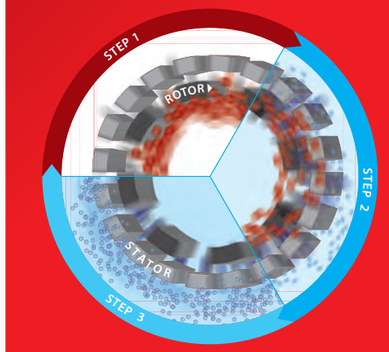
THE PRINCIPLE:

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 AGGREGATS (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 1300 D 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 1300 D

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 taskes
- 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 rotor›s 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 Aggregat with knifes*

SYN «SYNTHETICS»



Design
Disposable aggregates for thepro-cessing 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

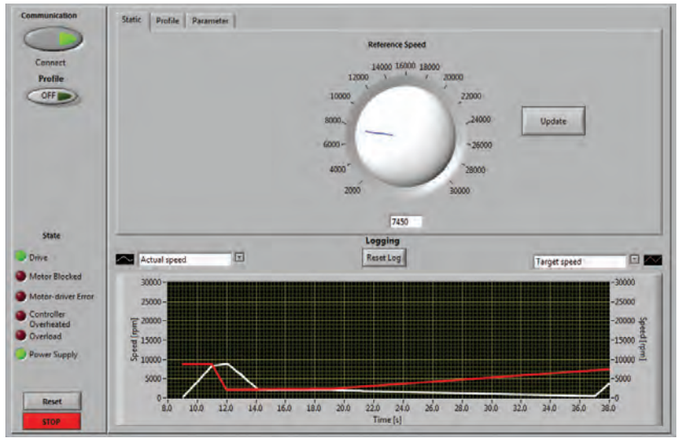


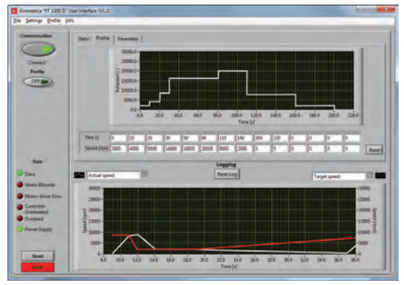
Sales No.:	Description	ø/length mm	Volume ml*	max. Tip speed m/s
11030255	PT-DA 20/2XEC-E116	20 / 116	min. 10	21

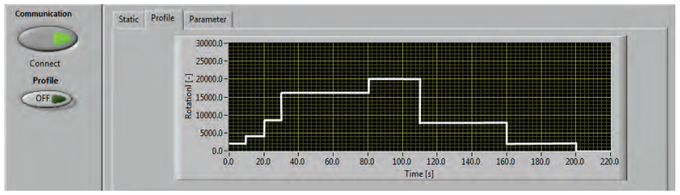
** When using a vessel ø 22 mm/volume is always dependent on the diameter of the vessel*

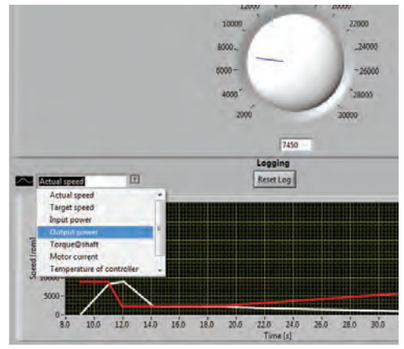
PC control software

The free-of-charge software «User Interface PT 1300 D» was developed for the operation and control of the laboratory dispersing system POLYTRON® PT 1300 D. A USB or RS232 interface provides the communication to the computer. The data transmission protocol complies with the Modbus specifications.









By using a virtual rotary knob, the motor speed can be varied manually (remote control)

Randomly programmable rotational speed/time profile

Graphic display of the parameter in the time diagram

Option to record data in MS Excel

Status information about the condition of the device



SYSTEM REQUIREMENTS:

Operating system: Windows® XP / 7 / 8
Required interfaces: 1 x USB or 1 x RS-232

Order information and accessories

Depending on your specific requirements, it is possible to expand the PT 1300D drive with our functional accessories. Our expert personnel will be happy to assist you and answer all the questions you might have.



DRIVES/COMPLETE SYSTEMS

Sales No.:	Description
	Drive and control module
11010030	POLYTRON® PT 1300 D, **230 V** / **EU**-equipment cable, PC software, USB connection cable and aggregate bracket
11010031	POLYTRON® PT 1300 D, **230 V** / **CH**-equipment cable, PC software, USB connection cable and aggregate bracket
11010039	POLYTRON® PT 1300 D, **230 V** / **UK**-equipment cable, PC software, USB connection cable and aggregate bracket
11010032	POLYTRON® PT 1300 D, **100-120 V** / equipment cable, PC software, USB connection cable and aggregate bracket
	Drive and control module as sales unit with support bracket and accessories
11090064	POLYTRON® System PT 1300 D, **230 V** / **EU**, complete with drive, network cable with EU plug, and aggregate bracket Stand with base ST-P 15/320 and PC software with USB connection cable
11090065	POLYTRON® System PT 1300 D, **230 V** / **CH**, complete with drive, network cable with EU plug, and aggregate bracket Stand with base ST-P 15/320 and PC software with USB connection cable
11090066	POLYTRON® System PT 1300 D, **230 V** / **UK**, complete with drive, network cable with EU plug, and aggregate bracket Stand with base ST-P 15/320 and PC software with USB connection cable
11090067	POLYTRON® System PT 1300 D, **100-120 V**, complete with drive, network cable, and aggregate bracket Stand with base ST-P 15/320 and PC software with USB connection cable
11090060	POLYTRON® System PT 1300 D, **230 V** / **EU**, complete with drive, network cable, and aggregate bracket Stand with base ST-P 01/200 and PC software with USB connection cable
11090061	POLYTRON® System PT 1300 D, **230 V** / **CH**, complete with drive, network cable, and aggregate bracket Stand with base ST-P 01/200 and PC software with USB connection cable
11090063	POLYTRON® System PT 1300 D, **230 V** / **UK**, complete with drive, network cable, and aggregate bracket Stand with base ST-P 01/200 and PC software with USB connection cable
11090062	POLYTRON® System PT 1300 D, **100-120 V**, complete with drive, network cable, and aggregate bracket Stand with base ST-P 01/200 and PC software with USB connection cable

STANDS

Sales no.:	Designation	Description
11040013	ST-P 15/320	Stainless steel **stand with base**, height-adjustable bracket for supporting the drive and base mounting. Weight: 1.00 kg (Figure 1)
11040012	ST-P 01/200	Stainless steel **swivel stand** (gas spring) and base mounting. The drive support can be rotated in any direction. It can be raised or lowered. Weight: 3.60 kg (Figure 2)
11040011	ST-P 12/600	Powder-coated **stand with base**, stainless steel rod and special retainer device for PT 1300 D; including vessel support with clamp and safety ring. Weight: 7.00 kg (Figure 3)



1



2



3

USING THE RIGHT DISPERSING VESSEL



The proper selection of the dispersing aggregate is crucial for the result of your application. Choosing the right process vessel makes all the difference how quickly and effective results can be produced. Our specially developed GD glasses in their typical cloverleaf shape break the flow of the product. This increases the turbulences inside the vessel, thus reducing the processing time significantly. You may select from a variety of vessels made of borosilicate glass; with or without lid, with sealed feedthrough or with different processing volumes.

Our borosilicate glass dispersing vessels are made of highly chemical- and temperature-resistant and resilient glass. It is mainly used in laboratories and where ever chemical processes are applied.

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