



KINEMATICA

Homogenizing perfected.



POLYTRON®

LABORATORY LINE

POLYTRON® PT 2500 E

Stand Dispersing Device (Ecoline), dispersing devices for budget-conscious labs

POLYTRON® PT 2500 E

Efficient and Economical.

The sleek, sound-insulated casing conceals enough power to safely and quickly handle a variety of applications. Our broad range of dispersing aggregates cover the range from preparing samples to testing product formulas and recipes.

THE EXPERT FOR YOUR LABORATORY

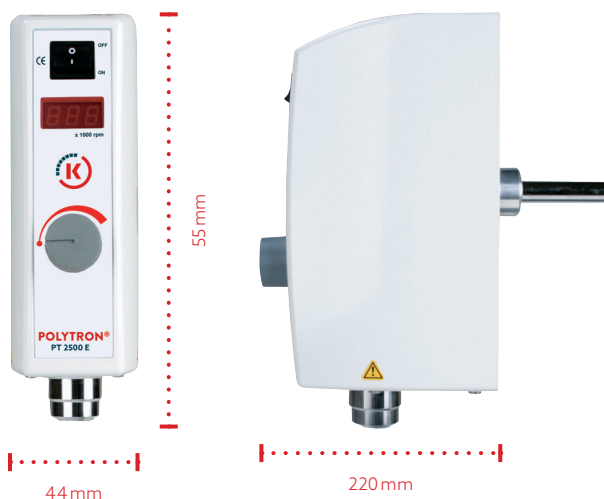
Since more than 60 years we are perfecting the rotor/stator technology, working in close cooperation with users and universities. When using our technology, your test samples will be dispersed into homogeneous systems. Depending on the type of samples you will get homogeneous emulsions, dispersions or suspensions. This is the best foundation for all subsequent analyses or formulations.

ERGONOMICS

- Easy operation with an on-off switch and speed control
- Intelligent variable speed control for long equipment life
- Speed stability even with changes in viscosity
- Easy adjust of motor height (depending on the stand)
- 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: perfected for and in cooperation with the users
- Cleaning and disassembly: EasyClean Design makes it very simple
- Quick coupling 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





TECHNICAL INFORMATION

Processing volume (water)	0.05 up to 2500 ml
Tip speed	Up to max. 26 m/s
Applicable aggregates	ø 3 mm to ø 25 mm
Speed range	500 to 30000 rpm
Drive coupling	Aggregates with E coupling
Noise level (drive without aggregate)	66 dB(A) at 25000 rpm 72 dB(A) at 30000 rpm
Motor	Universal with carbon brushes
Drive power	500W
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 (LxWxH)	Drive: 157x76x234 mm
Weight	Drive: 1800 g
EMC standards	IEC / EN 61000-6-2 / EN 61000-6-3
Safety standard	IEC / EN 61010-2-51



USERS / APPLICATION RANGES

- General homogenizer applications
- Dispersions, suspensions, and emulsions
- Dispersion of resins and pigments
- Dispersion of plant, animal and human tissue samples in various liquids and volumes
- Dissolving solids
- Preparation of samples for quality assurance / control

- Breakdown of animal and plant cells
- Formulation of lotions, creams and foodstuffs
- Extraction of active pharmaceutical ingredients (API) in pills and tablets

This list provides a small selection of possible applications.

Kinematic dispersion.

Using the rotor / stator system.

Who is the inventor 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.

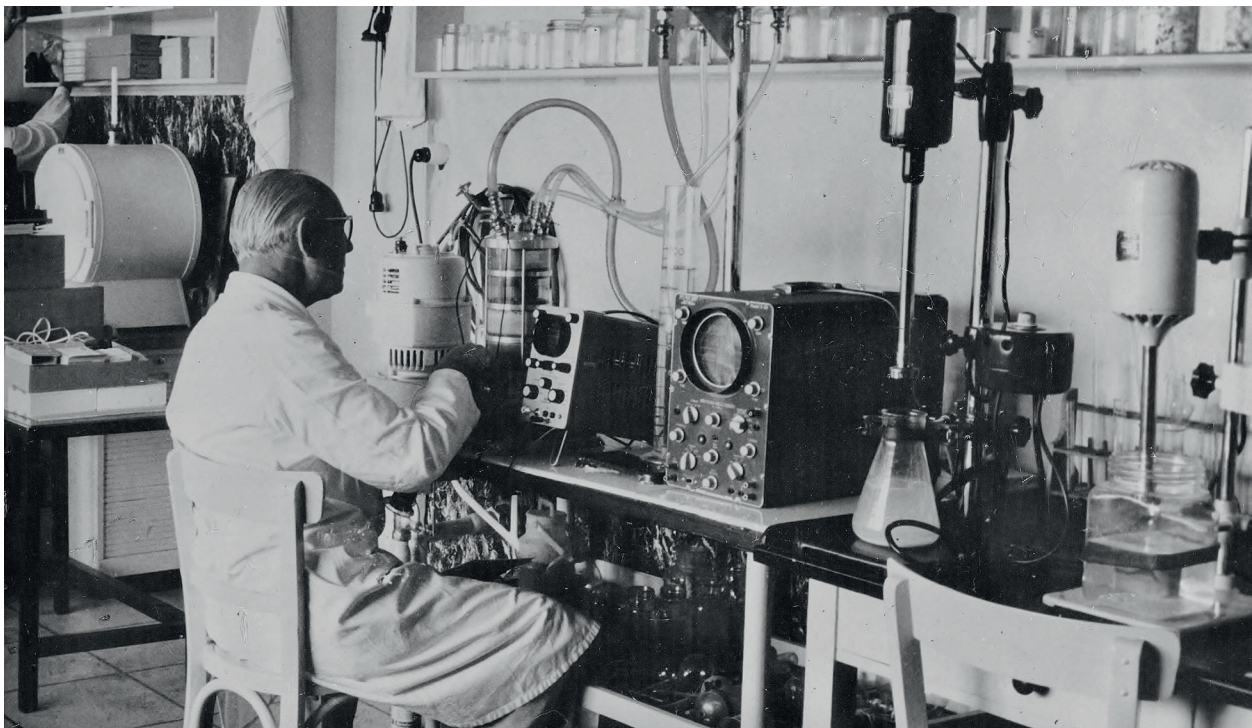
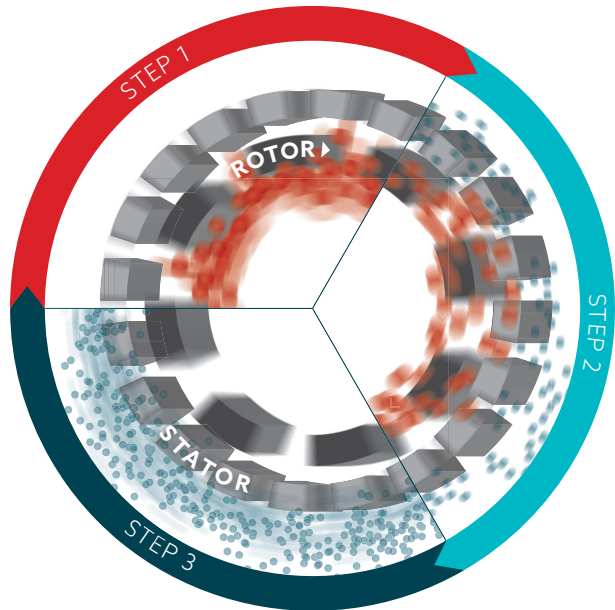
THE PRINCIPLE

The spinning rotor generates a vacuum. The 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 to several micrometers in size through additional cutting and crashing effects.

THE RESULT

Microscopic 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 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 & X DESIGN)

Specializations in the chemical, pharmaceutical, cosmetic, and food industry, as well as the life sciences, 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 further development that involves close cooperation with our customers and universities. Thus, it is continuously perfected for specific applications.

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

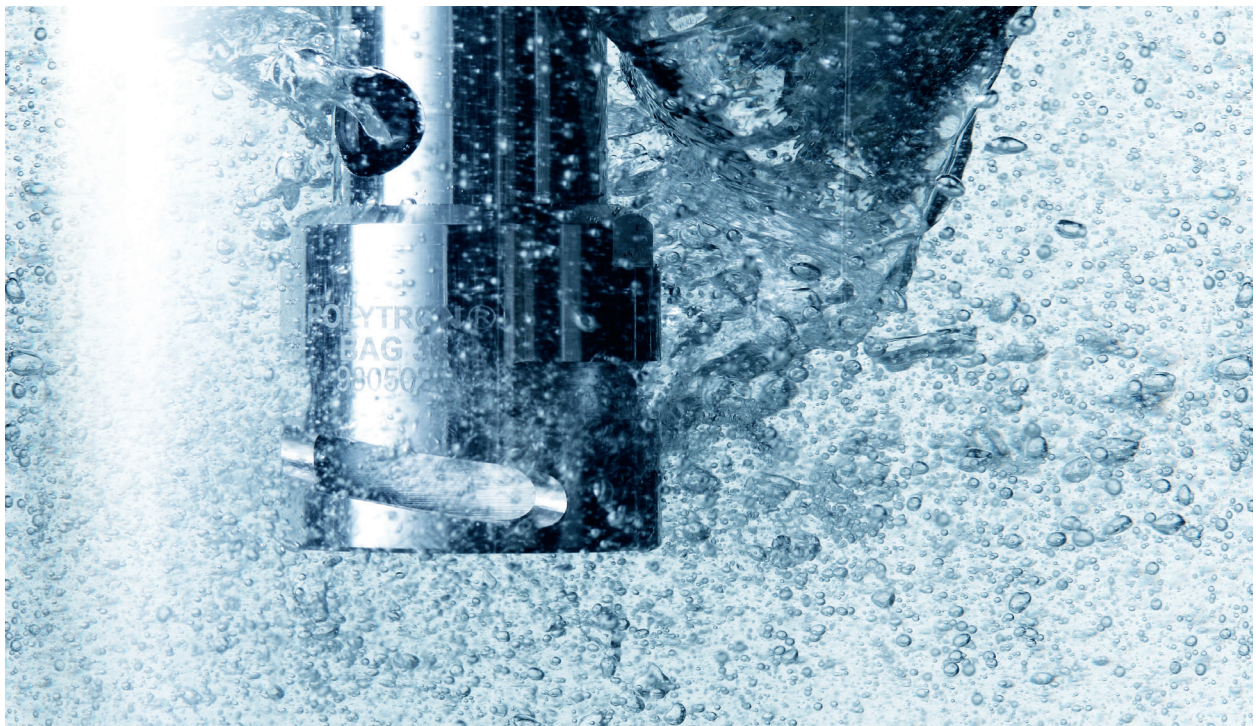
All dispersing aggregates for the PT 2500 E are equipped with high-quality synthetic bearings. They exhibit excellent mechanical properties and chemical resistance. They are all FDA approved.

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 2500 E.

Your applications, our solution.

Kinematica aggregates solve all problems you are faced with every day in 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



G «GAS TIGHT»

Design

Integrated mechanical seals.

Selection and applications

- Under pressure or vacuum
- Preventing air from being added to emulsions
- Aggressive acid mixtures



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.

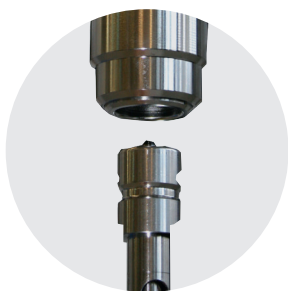
Sterile packaging in packet sizes of 25 units each (ø 7 mm) and 10 units per packet (ø 12 mm) each.

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
EC «STANDARD DISPERSING AGGREGATE»				
11030004	PT-DA 03 / 2EC-E050	3 / 50	0.05 - 2	3
11030012	PT-DA 05 / 2EC-E085	5 / 85	0.1 - 5	5
11030031	PT-DA 07 / 2EC-E107	7 / 107	0.3 - 10	7
11030062	PT-DA 12 / 2EC-E123	12 / 123	2 - 250	12
11030042	PT-DA 12 / 2EC-E157	12 / 157	2 - 250	12
11030069	PT-DA 20 / 2EC-E192	20 / 192	100 - 2000	21
11030264	PT-DA 25 / 2EC-E192	25 / 192	100 - 2500	26
11030265	PT-DA 25 / 2FEC-E192*	25 / 192	100 - 2500	26
	*F Model: For medium to fine particle / droplet sizes			
G «GAS TIGHT»				
11030273	PT-DA 20 / 2G-E210	20 / 210	100 - 2000	21
SYN «SYNTHETICS»				
11030030	25 x PT-DA 07 / 2SYN-E082*	7 / 82	0.3 - 10	7
11030037	25 x PT-DA 07 / 2SYN-E082**	7 / 82	0.3 - 10	7
11030038	12 x PT-DA 07 / 2SYN-E082**	7 / 82	0.3 - 10	7
11030035	10 x PT-DA 12 / 2SYN-E126*	12 / 126	2 - 250	12
11030036	10 x PT-DA 12 / 2SYN-E126**	12 / 126	2 - 250	12
	*Sterile pack / **Non-sterile pack			

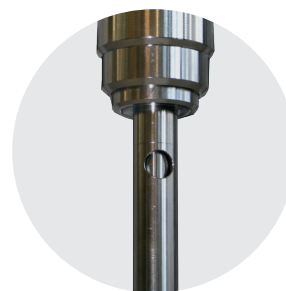




Step 1



Step 2



Step 3



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



W «W-DESIGN»

Design

The W-design prevents fibrous, stringy or solid samples from clogging the rotor / stator.

Selection and applications

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



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



M «OUTSIDE CUTTING BLADES»

Design

Outside blades pre-cut samples that are larger than the rotors diameter. Subsequently, they can be 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
X «X-DESIGN»				
11030255	PT-DA 20 / 2XEC-E116	20 / 116	min. 10*	21
11030277	PT-DA 20 / 2XEC-E157	20 / 157	min. 10*	21
*When using a vessel ø 22mm / volume is always dependent on the diameter of the vessel				
B «BIOTRONA® HIGH-TURBULENCE MIXER»				
11030034	PT-DA 07 / BEC-E107	7 / 107	10 – 100	7
11030286	PT-DA 12 / BEC-E157	12 / 157	50 – 500	12
11030288	PT-DA 20 / BEC-E192	20 / 192	100 – 2000	21
11030289	PT-DA 20 / BG-E210*	20 / 210	100 – 2000	21
11030291	PT-DA 25 / BEC-E192	25 / 192	200 – 2500	26
11030292	PT-DA 25 / BG-E210*	25 / 210	200 – 2500	26
*BIOTRONA® aggregate in gas-tight model				

Sales No.	Description	ø / length mm	Volume ml	max. Tip speed m/s
W «W-DESIGN»				
11030060	PT-DA 12 / 2WEC-E157	12 / 157	2 – 250	14
11030258	PT-DA 20 / 2WEC-E192	20 / 192	100 – 2000	21
11030290	PT-DA 20 / 2WG-E210*	20 / 210	100 – 2000	21
11030276	PT-DA 20 / 2WMEC-E192**	20 / 192	100 – 2500	21
11030260	PT-DA 25 / 2WEC-E192	25 / 192	100 – 2500	26
11030205	PT-DA 25 / 2MWEC-E192*	25 / 192	100 – 2500	26
* W-design aggregate in gas-tight mode				
** W-design aggregate with knives				
M «OUTSIDE CUTTING BLADES»				
11030266	PT-DA 12 / 2MEC-E157	12 / 157	2 – 250	14
11030263	PT-DA 20 / 2MEC-E192	20 / 192	100 – 2000	21
11030293	PT-DA 25 / 2MEC-E192	25 / 192	100 – 2500	26

Dispersing vessels.

For best results.

Choosing the right dispersing aggregate is crucial for good results. The right vessel also contributes to achieve the desired result.

THE PROBLEM

For normal cylindrical beakers, 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, 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, with working volumes from a few milliliters to several liters, with or without lid and with or without sealed feedthrough.

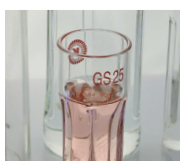


GS vessel principle (viewed from top)



CLOVERLEAF-LIKE SHAPED BOROSILICATE VESSEL

Sales No.	Product	Ø / H (mm)	Process volume	Thickness	Thread	Description
Open on top						
11051010	GS 15	30 / 100	35ml	2.8 mm	-	-
11051011	GS 25	54 / 150	150ml	3.5 mm	-	-
11051012	GS 40	80 / 200	500 ml	3.5 mm	-	-
11051013	GS 50	90 / 250	1000ml	3.5 mm	-	-
11051014	GS 60	100 / 300	1300ml	3.5 mm	-	-
With screw cap and sealing						
11051020	GS 15K	30 / 100	35ml	2.8 mm	GL25	-
11051021	GS 25K	54 / 150	150ml	3.5 mm	GL45	-
11051022	GS 40K	80 / 200	500ml	3.5 mm	GL45	-
11051023	GS 50K	90 / 250	1000ml	3.5 mm	GLS80	-
11051024	GS 60K	100 / 300	1300ml	3.5 mm	GLS80	-
Incl. cover with sealing and hole						
11051030	GS 15KL08	30 / 100	35ml	2.8 mm	GL25	8 mm hole
11051031	GS 15KL12	30 / 100	35ml	2.8 mm	GL25	12 mm hole
11051040	GS 25KL12	54 / 150	150ml	3.5 mm	GL45	12 mm hole
11051041	GS 25KL20	54 / 150	150ml	3.5 mm	GL45	20 mm hole
11051050	GS 40KL20	80 / 200	500 ml	3.5 mm	GL45	20 mm hole
11051051	GS 40KL26	80 / 200	500 ml	3.5 mm	GL45	26 mm hole
11051060	GS 50KL20	90 / 250	1000ml	3.5 mm	GLS80	20 mm hole
11051061	GS 50KL26	90 / 250	1000ml	3.5 mm	GLS80	26 mm hole
11051070	GS 60KL20	100 / 300	1300ml	3.5 mm	GLS80	20 mm hole
11051071	GS 60KL26	100 / 300	1300ml	3.5 mm	GLS80	26 mm hole



CYLINDRICAL-SHAPED STAINLESS STEEL VESSEL

Sales No.	Product	Ø / H (mm)	Process volume	Thickness	Weight	Description
With hook grips						
11052001	GS100-1	105 / 150	1000 ml	1.0 mm	412 g	-
11052002	GS100-2	135 / 170	2000 ml	1.2 mm	580 g	-
11052003	GS100-3	165 / 180	3000 ml	1.2 mm	725 g	-
With hook grips and a cover with a drop handle						
11052101	GS100-1.C	105 / 150	1000 ml	1.0 mm	495 g	-
11052102	GS100-2.C	135 / 170	2000 ml	1.2 mm	720 g	-
11052103	GS100-3.C	165 / 180	3000 ml	1.2 mm	905 g	-
With hook grips, equipped with a baffles part inset and a cover with a drop handle						
11052201	GS100-1.C.B.	105 / 150	1000 ml	1.0 mm	-	-
11052202	GS100-2.C.B.	135 / 170	2000 ml	1.2 mm	-	-
11052203	GS100-3.C.B.	165 / 180	3000 ml	1.2 mm	-	-



Order information and accessories.

Authorized extension of your system.

Depending on your specific requirements, it is possible to expand the PT 2500 E drive with our functional accessories. Our expert personnel will be happy to assist you and answer all the questions you might have.

DRIVES

Sales No.	Product	Description
Drive Unit		
11010055	PT 2500 E, 230 V	Drive Unit with EU-power cable
11010056	PT 2500 E, 230 V	Drive Unit with CH-power cable
11010057	PT 2500 E, 230 V	Drive Unit with UK-power cable
11010058	PT 2500 E, 100 - 120 V	Drive Unit with power cable
Drive Unit is sold with stand and accessories		
11090105	PT 2500 E, 230 V, Package	EU-power cable, stand ST-P 20 / 600 with vessel holder and safety ring
11090106	PT 2500 E, 230 V, Package	CH-power cable, stand ST-P 20 / 600 with vessel holder and safety ring
11090107	PT 2500 E, 230 V, Package	UK-power cable, stand ST-P 20 / 600 with vessel holder and safety ring
11090108	PT 2500 E, 100 - 120 V, Package	power cable, stand ST-P 20 / 600 with vessel holder and safety ring



ADAPTER



Sales No.	Product	Description
11035003	Adapter PT-DA / PT-DA (E / D)	This adapter connects older D-coupling dispersing aggregates such as PT 2100 with E-coupling drive units.

STANDS

Sales No.	Product	Description
11040051	ST-P 20/600	Plate stand with two support rods. The drive unit's height can be adjusted. For more security, the drive unit cannot be adjusted horizontally. Weight: 4.00 kg

Electric plate stand

Electric plate stand with lifting telescopic bar for more ease of use. Incl. Incl. operating device and anti-slipping pad for vessel. The electronics are designed for ambient temperatures of +5°C to +40°C and were tested per EN 60335-1 and UL 962. Weight: 11 kg

11040033	ST-P 14/590+500, 230 V	With EU-power cable
11040036	ST-P 14/590+500, 230 V	With CH-power cable
11040037	ST-P 14/590+500, 230 V	With UK-power cable
11040034	ST-P 14/590+500, 100 - 120 V	With power cable



STAND ACCESSORIES

Vessel holder

Sales No.	Product	Description
11045011	Vessel holder	For fixing any dispersing vessels, with guide for ST-P 20 / 600
11036005	Vessel holder	For fixing any dispersing vessels, with guide for ST-P 14 / 590 + 500

Safety ring

11045031	Safety positioning ring	For ST-P 20 / 600. The safety ring prevents uncontrolled lowering of the drive unit. Can also be used to fixing the drive unit height.
----------	-------------------------	--

Boom rod

11036001	Shortened boom rod	For PT 2500 E required for use with ST-P 14 / 590 + 500
----------	--------------------	---



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

Luzernerstrasse 147a
CH-6014 Luzern
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@kinematica-inc.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