

POLYTRON[®]

DISPERSING AND MIXING TECHNOLOGY BY KINEMATICA

Dispersing Technology for Laboratory and Pilot Plant Systems POLYTRON[®] PT-K and PT-G



KINEMATICA AG
Dispersing and Mixing Technology

POLYTRON[®] Systems PT-K and PT-G – Enough Power for Dispersing

Power with System

With powerful drive units, continuous speed control, high tip speeds and a lot of different and exchangeable POLYTRON[®] dispersing aggregates, the low cost systems PT-K and PT-G offer its user solutions for a wide range of dispersing and mixing applications. Smallest volumes like 0.1 ml and also small production volumes up to about 30 l can be treated at an optimum in shortest time. User friendly stands ease working by holding the drive unit, the dispersing vessel and control unit. Both systems are controlled as standard via a Triac speed variator or can be equipped with an electronic RECO[®] speed controller and stabilizer.

System POLYTRON[®] PT-K

- ▶ powerful 750 Watt universal motor
- ▶ velocity up to approx. 27 000 min⁻¹
- ▶ tip speeds up to approx. 34 m/s
- ▶ working volume up to approx. 3000 ml (related to water)
- ▶ Triac speed variator with speed scale
- ▶ soft start, overload protection
- ▶ coupling with chrome lock nut for the dispersing aggregates
- ▶ more than 20 different and exchangeable dispersing aggregates
- ▶ can be adapted to an electronic RECO[®] speed regulator and stabilizer

System POLYTRON[®] PT-G

- ▶ powerful 1600 Watt universal motor
- ▶ velocity up to approx. 22 000 min⁻¹
- ▶ tip speeds up to approx. 50 m/s
- ▶ working volume up to approx. 30 000 ml (related to water)
- ▶ Triac speed variator with speed scale
- ▶ soft start, overload protection
- ▶ coupling with chrome lock nut for the dispersing aggregates
- ▶ more than 40 different and exchangeable dispersing aggregates
- ▶ can be adapted to an electronic RECO[®] speed regulator and stabilizer

The solution for your homogenizing, dispersing, emulsifying, suspending, size reduction and wet milling application is offered by KINEMATICA. Our staff will be glad to assist you.








POLYTRON[®] system PT-K with drive unit PT 10-35, stand ST 1, PCU-Triac speed variator, dispersing aggregate PTA 20 TM and dispersing vessel



POLYTRON[®] system PT-G with drive unit PT 45-80, stand ST 4, RECO[®] speed regulator, dispersing aggregate PTA 45/2M and dispersing vessel

POLYTRON[®] Dispersing Aggregates

Selected dispersing aggregates for POLYTRON[®] Systems PT-K and PT-G

Designations					
EC = EasyClean-Version G = with mechanical seal M = rotor with knives T = foam inhibiting version W = W-generator Z = Z-generator /2 rotor/stator with 1 tooth row each /4 rotor/stator with 2 teeth rows each /6 rotor/stator with 3 teeth rows each	5 mm	7 mm	12 mm	20 mm	36 mm
Model	PTA 5 EC	PTA 7 EC	PTA 10 EC	PTA 20 TM	PTA 36/2
Useful capacity (ml)	0.1–5	0.3–10	3–250	20–2000	500–3000
Recommended dispersing vessels	KINEMATICA dispersing vessels from GS 15 upwards or a vessel with min. 6 mm inside diameter	KINEMATICA dispersing vessels from GS 15 upwards or a vessel with min. 8 mm inside diameter	KINEMATICA dispersing vessels from GS 15 upwards or a vessel with min. 15 mm inside diameter	KINEMATICA dispersing vessels from GS 25 upwards or a vessel with min. 25 mm inside diameter	KINEMATICA dispersing vessels from GS 40 upwards or a vessel with min. 40 mm inside diameter
If you do not use a KINEMATICA dispersing vessel, it is recommended to use a square or rectangular vessel in order to avoid causing a vortex or spout. Round vessels can also be fitted with breakwaters.					
Applications	<ul style="list-style-type: none"> Dispersing of smallest plant, human or animal pieces Dissolving of solids Extractions 	<ul style="list-style-type: none"> Dispersing of cells and tissues in a small amount of liquid Dissolving of solids Extractions 	<ul style="list-style-type: none"> Dispersing of plant, human or animal tissues, resins and pigments Extractions Producing of suspensions and emulsions 	<ul style="list-style-type: none"> Dispersing of plant, human or animal tissues, resins and pigments Extractions Producing of suspensions and emulsions Prevents additional inclusion of air into the medium Rotor with knives facilitate the processing of larger cell tissue samples or particles 	<ul style="list-style-type: none"> Dispersing and mixing of particles up to 15mm in size Preparing of samples for extraction and decomposition of organic material Intensive mixing

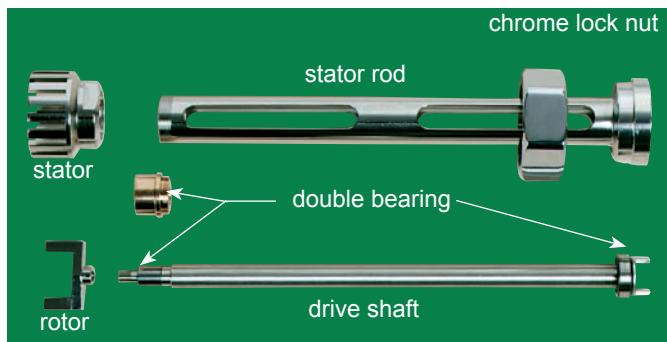
POLYTRON[®] Dispersing Aggregates – unrivalled

Up to the present the efficiency of POLYTRON[®] dispersing aggregates remains unequalled. Thanks to the optimized shear forces and bounce effects the processed medium will be treated at finest level in shortest time.

The optimal aggregate for the dispersing application can be chosen from over 40 different, interchangeable POLYTRON[®] dispersing aggregates.

POLYTRON[®] dispersing aggregates have shafts with double bearings as standard equipment and are made of high quality stainless steel (V4A,316L). Dispersing aggregates up to a diameter of 20 mm have additional saw teeth and a safety ring to protect the teeth from bending also at highest load like hard sample.

For specific applications KINEMATICA offers customer tailored work. Elaborated rotor/stator geometries are a speciality of KINEMATICA.










Standard aggregate PTA 45/2 – disassembled

Overview dispersing aggregates for the systems PT-K and PT-G (standard stator rod length PTA 30 upwards = 250 mm, special length on request)

Basic model	Tip Speed maximum	Equipable with									Useable with	
		/2	/4	/6	EC	T	G	M	W	Z	PT-K	PT-G
PTA 5	6 m/s	x			x						x	x
PTA 7	8 m/s	x			x						x	x
PTA 10	13 m/s	x			x	x		x			x	x
PTA 20	21 m/s	x			x	x		x	x		x	x
PTA 30/..	32 m/s	x			x	x				x	x	x
PTA 36/..	34 m/s	x	x		x	x	x		x		x	x
PTA 45/..	40 m/s	x	x		x	x	x	x	x		x	x
PTA 50/..	44 m/s	x	x		x	x	x	x	x		x	x
BAA 36	34 m/s				BIOTRONA	x	x	x			x	x
BAA 45	40 m/s				BIOTRONA	x	x	x				x
DAA 58	47 m/s				Dissolver	x	x					x

Please call or fax us to receive extensive information about our dispersing aggregates.

The suitable solution for all dispersing processes

						
36 mm	36 mm	36 mm	45 mm	45 mm	50 mm	50 mm
PTA 36/4T	PTA 36/2W	BAA 36	PTA 45/2M	PTA 45/6	PTA 50/2	PTA 50/6G
100–2500	200–4000	2000–15 000	200–5000	200–4000	300–10 000	300–4000
KINEMATICA dispersing vessels from GS 40 upwards or a vessel with min. 40 mm inside diameter	KINEMATICA dispersing vessels from GS 40 upwards or a vessel with min. 40 mm inside diameter	KINEMATICA dispersing vessels from GS 50 upwards or a vessel with min. 45 mm inside diameter	KINEMATICA dispersing vessels from GS 50 upwards or a vessel with min. 50 mm inside diameter	KINEMATICA dispersing vessels from GS 60 upwards or a vessel with min. 55 mm inside diameter	KINEMATICA dispersing vessels from GS 60 upwards or a vessel with min. 55 mm inside diameter	KINEMATICA dispersing vessels from GS 60 upwards or a vessel with min. 55 mm inside diameter
If you do not use a KINEMATICA dispersing vessel, it is recommended to use a square or rectangular vessel in order to avoid causing a vortex or spout. Round vessels can also be fitted with breakwaters.						
<ul style="list-style-type: none"> Producing of emulsions and suspensions Accelerate the dissolving of solids Gassing Extractions Prevents additional inclusion of air into the medium 	<ul style="list-style-type: none"> Dispersing of fibrous, stringy and brittle samples 	<ul style="list-style-type: none"> High turbulent mixing with low shear forces Fast dissolving and suspending of solids also at higher viscosity 	<ul style="list-style-type: none"> Dispersing and mixing of particles up to 20 mm in size Preparing of samples for extraction and decomposition of organic material Intensive mixing Rotor with knives facilitate the processing of larger cell tissue samples or particles 	<ul style="list-style-type: none"> Making finest emulsions and suspensions Mixes and reduces highly intensive, e.g. ashes, into fluids Gasses solutions Separates fibers and cellular material into very small particles Extractions 	<ul style="list-style-type: none"> Dispersing and mixing of particles up to 25 mm in size Preparing of samples for extraction and decomposition of organic material Intensive mixing 	<ul style="list-style-type: none"> Working under pressure and vacuum Making finest emulsions and suspensions Mixes and reduces highly intensive, e.g. ashes, into fluids Gasses solutions Separates fibers and cellular material into very small particles Extractions Prevents foam buildup thanks to the built-in mechanical seal

Simple and safe cleaning

POLYTRON® dispersing aggregates are also available as EC (Easy Clean) aggregates. In this design, slide bearings made of high quality plastic are used because of their excellent mechanical properties and best chemical resistance. Aggregates with a diameter of 30 mm upwards have a special ball bearing in the upper position. POLYTRON® dispersing aggregates in the EC version are disassembled in a few steps, cleaned easily and can be sterilized and autoclaved by any standard method.

Reactions in the REACTRON®

The REACTRON® systems combine the advantages of dispersing devices and stirrers. These are processing units. The working vessel is heatable/coolable, useable under pressure/vacuum and can be equipped with stirrers, dispersing devices, measuring devices and further equipment on product and customer specifications. Gentle mixing and efficient dispersing is possible at the same time without the need of having to transfer the product into another vessel. REACTRON® systems are available for laboratory, pilot plant and production with working volumes of 100 ml up to industrial volumes of up to several tons.

W-Generators – for fibrous and stringy material

The preparation of hard and brittle, partially tough and fibrous samples for analysis is often tedious and time consuming work, creating high demands for the user and the equipment. Frozen kernels of grain for example, or field beans, are extremely hard and abrasive; the connective tissue of meat, on the other hand, is very fibrous and tough. The new geometry of the W-generators has solved these problems.

Z-generators – for hard and brittle material

Pills, capsules and hard large grains are broken open and dispersed by the Z-generators in a short time. The special effect is caused by the unique geometry of the generator teeth.

High turbulence: BIOTRONA®

The BIOTRONA® flash blender is designed for special jobs. Thanks to the extremely high turbulence and low shear forces it is excellently suited for fast suspending and dispersing of solids also at higher viscosity.

Complete versatile

Constantly under control: RECO®

The systems POLYTRON® PT-K and PT-G can be equipped with an electronic RECO® speed controller and stabilizer for specific applications, reproducible analysis and so on.

Therewith the velocity of the rotor will be exactly controlled and kept constant also at changing viscosity. The speed is indicated on the LED display. When overloading the motor the electronic control automatically reduces and regulates the velocity up to the maximum possible motor load.



Electronic RECO® speed controller for the systems PT-K and PT-G

The suitable dispersing vessel

The following overview should help you to find the correct working vessel for your application.

We will be pleased to provide you with further information on other vessels and about special designs as well.

Description	Order Code	Dim. (mm) Ø / H	Working volume	Model											
GS 15	11050010	30 / 150	35 ml	Clover leaf shaped	top open without cover										
GS 25	11050011	55 / 150	150 ml												
GS 40	11050012	80 / 200	500 ml		Borosilicate glass	with screw cap glass inlet									
GS50	11050013	90 / 250	1000 ml												
GS60	11050014	100 / 300	1300 ml				GS 15 K Ø 9 mm								
GS 15 K	11050020	30 / 150	35 ml				GS 25 K Ø 25 mm								
GS 25 K	11050021	55 / 150	150 ml	GS 40 K	11050022	80 / 200	500 ml	GS 50 K	11050023	90 / 250	900 ml	GS 60 K	11050024	100 / 300	1300 ml
GS 15 KL7.5	11050030	30 / 150	35 ml	Clover leaf shaped	with screw cap with tapered fitting inlet										
GS 20 KL12	11050031	55 / 150	150 ml			7.5, 12,									
GS 20 KL20	11050032	55 / 150	150 ml		20, 25 mm										
GS 40 KL25	11050034	80 / 200	500 ml		glass inlet (as above)										
GS 50 KL25	11050036	90 / 250	900 ml												
GS 60 KL25	11050038	100 / 300	1300 ml												
GS 100	11050050	155 / 200	3000 ml	Cylindrical	V2A stainless steel	top open with cover									
GS 130	11050051	180 / 210	4000 ml												
GS 150	11050052	180 / 320	6000 ml												
GS 190	11050053	230 / 320	10000 ml												
GS 100 Z	11050060	100 / 150	900 ml	Cylindrical	V2A stainless steel	top open without cover									
GS 130 Z	11050061	130 / 180	2000 ml												
GS 155 Z	11050062	175 / 190	3500 ml												
GS 175 Z	11050063	175 / 230	4500 ml												
GS 200 Z	11050064	200 / 270	7000 ml												
GS 230 Z	11050065	230 / 285	9000 ml												



Selection of dispersing vessels

Order information for the systems PT-K und PT-G (suitable dispersing aggregates on request)

Description	Order Code	Description	Order Code
System PT-K Drive unit 230V/50Hz Drive unit 115V/60Hz Stand ST 1 (with ground plate, stand rod, vessel holder, 2 boss heads, and safety positioning ring)	11010070 11010071 11040085	System PT-G Drive unit 230V/50Hz Drive unit 115V/60Hz Stand ST 4 (with ground plate, stand rod, vessel holder, 2 boss heads, and safety positioning ring)	11010090 11010091 11040040
Speed variator for system PT-K and PT-G PCU 8S Triac speed variator (230V)	CH-11020010 EU-11020011	PCU 11 Triac speed variator (115 V)	11020013
RECO® – electronic speed controller for system PT-K RECO® 60 (230V) RECO® 61 (115V)	11020020 11020021	for system PT-G RECO® 80 (230V) RECO® 81 (115V)	11020022 11020023

Finest Solutions ... worldwide !

A wide range of products with the finest solution for every application, matched by the superior quality of all components make KINEMATICA a world leader for Dispersing and Mixing technology.

With Keen Eyes ...

Development knows no rest at KINEMATICA. Our systems are constantly upgraded to reflect the state-of-the-art technology and the needs of the market. KINEMATICA has always had a keen eye for major advances, as proved by various patents. The rotor/stator principle for dispersing technology was conceived and developed at KINEMATICA and has become the world standard.

... For Your Needs

Applications for Dispersing/Homogenizing Technology are always on the increase. KINEMATICA continually creates new areas of processing applications based on innovations. We do not neglect the human factor as it is exemplified by the noise reduction of our high-speed systems.

Please, get in touch with us, our local appointed agent or your preferred dealer. We will be pleased to supply more details or arrange for a personal demonstration of our POLYTRON® and MEGATRON® systems.

Feinste Lösungen ... weltweit !

Eine breite Produktpalette mit der optimalen Lösung für jede Applikation, sowie der hohe Qualitätsstandard aller Systemteile machen KINEMATICA zum weltweit führenden Unternehmen im Bereich der Rotor/Stator-Dispergier- und Mischtechnik.

Mit offenen Ohren...

KINEMATICA entwickelt die Systeme laufend weiter und bringt sie konzeptionell und konstruktiv auf den neuesten Stand der Technik. Denn KINEMATICA hat die Ohren noch nie vor dem verschlossen, was unerhörte Fortschritte bringt - davon zeugen auch verschiedene Patente.

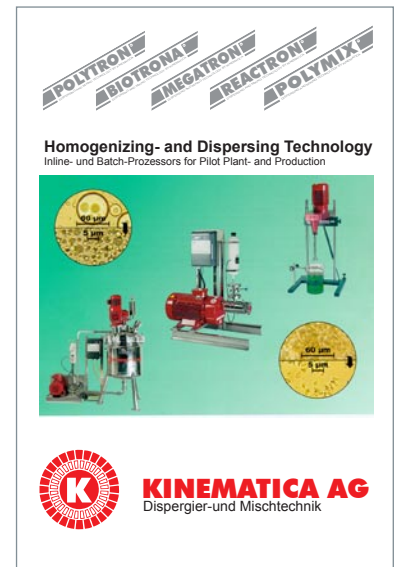
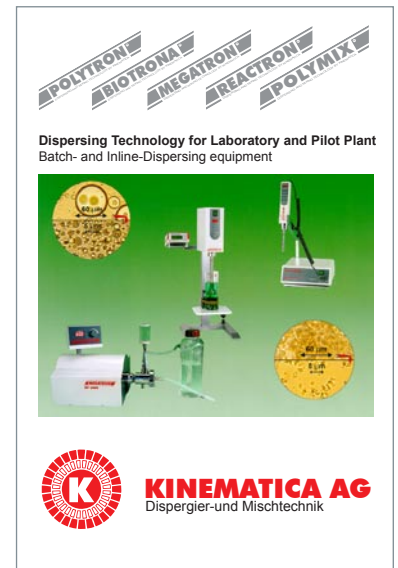
So hat sich das von KINEMATICA entwickelte Rotor/Stator-Dispergierprinzip weltweit durchgesetzt und bewährt.

... für Ihre Bedürfnisse

Die Einsatzbereiche der Rotor/Stator-Dispergiertechnik erweitern sich ständig. Das nicht zuletzt deshalb, weil KINEMATICA durch Innovationen, wie erhöhte Umfangsgeschwindigkeiten, neue Arbeitsgebiete und neue Applikationen erschliesst - ohne dabei menschliche Aspekte zu vernachlässigen. Erinnerung sei an das Bemühen um die Geräuschminderung am Arbeitsplatz.

Wenden Sie sich an uns. Gerne senden wir Ihnen weitere Unterlagen oder führen Ihnen unsere POLYTRON®- und MEGATRON®-Systeme vor.

Represented by / Vertreten durch:



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