REACTRON®

DISPERSING AND MIXING TECHNOLOGY BY KINEMATICA

# REACTRON® RT 1 and RT 2


## Reaction and mixing processes at a laboratory level

## MODULAR DESIGN LABORATORY REACTORS

**For a wide range of applications**

*« Working volumes 1'000 ml and 2'000 ml »*

KINEMATICA

DISPERSING AND MIXING TECHNOLOGY

# REACTRON® - Efficient and economic

REACTRON® laboratory systems consist of process vessels (single and multiple wall, standard and customer-specific designs), stirring systems for macro-mixing (e.g. with anchor stirrer),POLYTRON® / MEGATRON® homogenisers and mixing systems for crushing and micro-mixing, pipework, process controls and accessories, in alignment with the customer, product and process.

## TECHNICAL INFORMATION

**Working volume (vessel)**
1'000 ml and 2'000 ml

**Usable aggregates**
ø 20 mm to ø 25 mm for RT 1
ø 30 mm to ø 36 mm for RT 2
With/without mechanical seal

**Vacuum**
Up to 25 mbar (a) without homogenizer
Up to 250 mbar (a) with homogenizer

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

**Maximum relative density**
80 % storage
80 % operation

**Max. temperature**
Standard max. 90°C
On request >120°C

**Protection class as per DIN**
IP 20

**Standard's EMV**
IEC/EN 61000-6-2 / EN 61000-6-3

**Safety norm**
IEC/EN 61010-2-51

## THE EXPERTS FOR YOUR LABORATORY

We have perfected rotor/stator technology over 60 years, in close collaboration with users and universities. With our technology, your samples are dispersed efficiently into homogeneous materials systems. Depending on the type of experiment, e.g. Solids with liquids can be processed into the finest possible emulsions, dispersions or suspensions. This is the ideal basis for all subsequent analysis or implementation of formulae. From your laboratory into production or the technical centre.

## IN SUMMARY

The REACTRON® RT 1 and RT 2 systems are modular Laboratory reactors for the optimisation and reproduction of chemical reaction, mixing, dispersion and homogenisation processes at the laboratory level.

REACTRON® systems are available for batch and semi-batch processes, with a working volume of 1 litre to several hundred litres. CIP/SIP, clean room and ATEX versions are available on request.

## ALL PROCESS PERFECTLY ALIGNED WITH EACH OTHER

By integrating our POLYTRON® PT homogeniser and the stirring elements, you can create the perfect unit. For further dispersion processes, you can also connect our MEGATRON® laboratory in-line disperser in addition to the batch disperser.


## MODULAR CONSTRUCTION

**MIXING VESSELS, SINGLE WALL OR DOUBLE WALL**
for the optimum application temperature

**MIXING VESSELS IN BOROSILICATE, GLASS OR STEEL**
when the vacuum is critical

**RANGE OF DISPERSERS DRIVES AND GENERATORS**
give you the flexibility you want

**CLEANING AND DISMANTLING**
Is child's play with the integrated (electro-) telescopic stand

**SIMPLE CHANGE OF AGGREGATE** with Click & Go

**BEST POSSIBLE MATERIALS**, otherwise it's not Swiss Made

**DURABILITY** is a Swiss virtue

# Applications / areas of use

Manufacture of creams, lotions, emulsions, chemical raw materials and fine chemicals

Pharmaceutical or cosmetic products

Dispersions of fine solids in liquids or molten phases

Suspensions of solids in liquids (e.g. liquid polymers)

Production of dairy products and diet foodstuffs

Suspension of additives and solid polymers in mineral oils

Cell disruption of animal and plant cells / polymerisation

Wet grinding and dispersion of solids, fibres, sinewy materials, tissue, cells in liquids

Extraction of enzymes from bio-mass

*This list is just a selection of possible applications.*

# Stirrers for RT systems

In REACTRON® systems, the stirrer guarantee macro-mixing of the product in the reactor vessel. In laboratories, we use a digital laboratory stirrer with a high revolution speed, permanent torque. LCD revolution indicator, plus overload and overheating protection.

Design with two special dispersing aggregates

tri clamp connectors and dosage funnel on the lid

Dispersing aggregates, PTFE anchor stirrer and temperature probe

# POLYTRON® homogeniser for RT systems

POLYTRON® dispersing aggregates are powered using POLYTRON® dispersing units from our standard laboratory range. This means your existing KINEMATICA dispersing devices can be easily incorporated into REACTRON® systems. The POLYTRON® drive systems are universal and can be used for tasks from a few millimetres up to 2'000 ml. They deliver convincing performance, with simple operation, powerful motors and revolution speeds up to 30,000 rpm.

In our REACTRON® RT 1 and RT 2 laboratory reactors, we generally use POLYTRON® disperser aggregates type G (with mechanical seal), which allow a hermetic seal of the reactor vessel, or vacuum operation. Along with the POLYTRON® disperser aggregates, which can be coupled to the drive quickly and without any tools, the product in the reactor vessel can be processed very finely in the micro range.

**STANDARD AGGREGATE (EC DESIGN, WITH TWO OR MULTIPLE SPROCKETS)**
These cover all common applications in formula development. The saw teeth fitted to the head mean that pre-crushing of the sample is optimised. An enclosed ring design protects these teeth perfectly from bending.

**SPECIAL AGGREGATES**
Specialisation in the chemical, pharmaceutical, cosmetic and food industries, as well as the life-science area, have meant that innovative, adapted designs have become indispensable. These aggregates are technically unique specialists, only available from us. This high level of specialisation is continually enhanced by close collaboration with our customers and universities, and has been perfected for daily application.

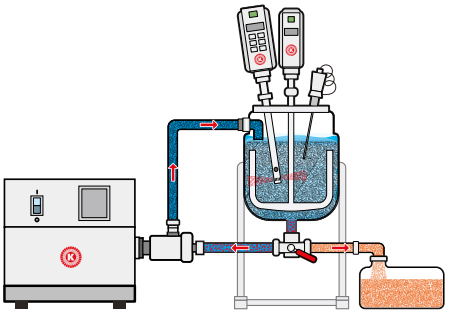
# Production and Pilot Plant systems / Scale-up

**Test results achieved using REACTRON® laboratory reactors can be used as a reliable source of data for scale-up to the larger REACTRON® pilot plant and production units.**


**COMPLETE SOLUTIONS AS YOU WISH**

Expandability is a key aspect of our REACTRON® systems. So, for example, we can also supply tempering units including thermostat/cryostat, temperature measurement and control and vacuum units, including vacuum pumps and vacuum controllers.

Research demands modular, adaptable systems. We can offer solutions which are easy to handle with flexible setup, so there is no limit to your creativity. Combined with our MEGATRON® Inline systems, you can design a turnkey "Mini Plant" facility with all the equipment you need. Client-side equipment can also be integrated into our systems, depending on the design.



# Order information and accessories

**Our REACTRON® systems can be put together completely in line with your wishes and requirements, because of our functional accessories. Our experts will be happy to help you with any application questions or oth-er concerns you may have.**

**STANDARD SYSTEM** (upgrade options and complete accessory range on request)

| Sales no. | Description |
|---|---|
| **REACTRON® RT 1** | |
| 14090010 | REACTRON® RT 1, 230V (with EU cable) including borosilicate vessel, telescopic stand, stirring-unit and anchor stirrer |
| 14090011 | REACTRON® RT 1, 230V (with CH cable) including borosilicate vessel, telescopic stand, stirring-unit and anchor stirrer |
| 14090012 | REACTRON® RT 1, 100-120V including borosilicate vessel, telescopic stand, stirring-unit and anchor stirrer |
| **REACTRON® RT 2** | |
| 14090020 | REACTRON® RT 2, 230V (with EU cable) including borosilicate vessel, telescopic stand, stirring-unit and anchor stirrer |
| 14090021 | REACTRON® RT 2, 230V (with CH cable) including borosilicate vessel, telescopic stand, stirring-unit and anchor stirrer |
| 14090022 | REACTRON® RT 2, 100-120V including borosilicate vessel, telescopic stand, stirring-unit and anchor stirrer |
| **REACTRON® RT 2E** | |
| 14090030 | REACTRON® RT 2E, 230V (with EU cable) including borosilicate vessel, telescopic stand, stirring-unit and anchor stirrer |
| 14090031 | REACTRON® RT 2E, 230V (with CH cable) including borosilicate vessel, telescopic stand, stirring-unit and anchor stirrer |
| 14090032 | REACTRON® RT 2E, 100-120V including borosilicate vessel, telescopic stand, stirring-unit and anchor stirrer |

## 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®** – DISPERSING AND MIXING TECHNOLOGY BY KINEMATICA
Batch dispersing/homogenizing units

**BIOTRONA®** – DISPERSING AND MIXING TECHNOLOGY BY KINEMATICA
High turbulent mixing

**MEGATRON®** – DISPERSING AND MIXING TECHNOLOGY BY KINEMATICA
Inline dispersing/homogenizing units

**REACTRON®** – DISPERSING AND MIXING TECHNOLOGY BY KINEMATICA
Dispersing/homogenizing Reactors

**POLYMIX®** – DISPERSING AND MIXING TECHNOLOGY BY KINEMATICA
Stirrers and dry Mills

**MICROTRON®** – DISPERSING AND MIXING TECHNOLOGY BY KINEMATICA
Mixer/Blender

**POLYVISC®** – DISPERSING AND MIXING TECHNOLOGY BY KINEMATICA
Viscometers

**KINEMATICA**
DISPERSING AND MIXING TECHNOLOGY

Certified Management System SQS ISO 9001

CERTIFIED IQNet MANAGEMENT SYSTEM

RT-1/2_eng 09/2016, Technical changes and mistakes reserve

*Headquarters*
**KINEMATICA AG**
Dispersing 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.**
Dispersing 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**
Dispersing 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**
Dispersing and Mixing Technology

Münstertäler Str. 12
79427 Eschbach
Germany

Tel. +49 7634 504 800 0
Fax +49 7634 504 800 22
E-Mail info@kinematica.de