KINEMATICA
Homogenizing perfected.

REACTRON®

REACTRON® System RT 1

Operating Instructions

CONTENTS

1 INTRODUCTION

This chapter gives information on the the structure of this document. It will assist you in making use of it and show how to find the required information quickly.

1.1 OPERATING INSTRUCTIONS

Please read through these operating instructions before switching on or attempting to use the equipment. They describe the use of the REACTRON® RT 1, its installation and maintenance and the appropriate replacement parts and accessories.
They will help you avoid erroneous use and consequent damage. Although REACTRON® machines are designed for ease of service, this does not release you from the obligation to inspect your equipment carefully and to clean it thoroughly.

KINEMATICA AG is a specialist manufacturer of machines and equipment for dispersing and mixing technology.

An important objective of these operating instructions is to fully inform you, the user, about the correct and safe use of our equipment.

In order to achieve this, it is essential that you should carefully study chapter 2, "Safety", and follow the instructions in this book.

1.1.1 RANGE OF VALIDITY

The data mentioned in this document refer to the machine(s)/ unit(s) with the following identification:

Manufacturer: KINEMATICA AG, CH-6014 Luzern
Brand name: REACTRON®
Product name: REACTRON® System RT 1

	Order-Code	Identification
Base Systems	14090010	REACTRON® RT 1 standard configuration, 230V (with EU-plug)
	14090011	REACTRON® RT 1 standard configuration, 230V (with CH-plug)
	14090012	REACTRON® RT 1 standard configuration, 115V
	14095010	POLYMIX® PX-SR 90 D with digital display, instead of PX-SR 50 E
	14095070	Funnel 1 ½" Tri-Clamp
Dispersing-Systems	14095020	PT-MR 2100, 230 V with dispersing aggregate PT-DA 2120/2G (mechanical seal version) and clamp for the lead-in hole on the cover, suitable for the RT 1
	14095021	PT-MR 2100, 115 V with dispersing aggregate PT-DA 2120/2G (mechanical seal version) and clamp for the lead-in hole on the cover, suitable for the RT 1
Temperature Controlling	14095040	Heating thermostat 230V, temp. Range 35°C-300°C, heating power 3.5 kW, max. 0.7 bar, max. 25 l/min
	14095041	Heating thermostat 115V, temp. Range 35°C-300°C, heating power 3.5 kW, max. 0.7 bar, max. 25 l/min
	14095042	Bath fluid, 10 liters, destilled water for temperatures between 5 - 90°C
	14095043	Complete tubings made from VITON
	14095044	Temperature measuring device with Pt 100 sensor and LC display box, 230V/EU
	14095045	Temperature measuring device with Pt 100 sensor and LC display box, 230V/CH
	14095046	Temperature measuring device with Pt 100 sensor and LC display box, 115V

	Order-Code	Identification
Vacuum Controlling	**14095050**	Single step vacuum system for vacuum down to 100 mbar with single-step chemical diaphragm pump with tubings and digital vacuum controller with key pad and LED-display, 230V / EU
	14095051	Single step vacuum system for vacuum down to 100 mbar with single-step chemical diaphragm pump with tubings and digital vacuum controller with key pad and LED-display, 230V / CH
	14095052	Single step vacuum system for vacuum down to 100 mbar with single-step chemical diaphragm pump with tubings and digital vacuum controller with key pad and LED-display, 115V
	14095053	Double step vacuum system for vacuum down to 25 mbar with double-step chemical diaphragm pump with tubings and digital vacuum controller with key pad and LED-display, 230V / EU
	14095054	Double step vacuum system for vacuum down to 25 mbar with double-step chemical diaphragm pump with tubings and digital vacuum controller with key pad and LED-display, 230V / CH
	14095055	Double step vacuum system for vacuum down to 25 mbar with double-step chemical diaphragm pump with tubings and digital vacuum controller with key pad and LED-display, 115V
	14095056	LVS Laboratory vacuum system 2-step, 230V (EU)
	14095057	LVS Laboratory vacuum system 2-step, 230V (CH), details see above
	14095058	LVS Laboratory vacuum system 2-step, 115V, details see above
	14095060	Vacuum hose connection for Clamp 1 1/2" fittings suitable for RT 1 / RT 1 E – Systems, made of stainless steel 316 L, electropolished
	14095061	Steam trap with vessel 500 ml at suction side

1.1.2 TARGET AUDIENCE

These operating instructions are intended for all authorised users of our machines/equipment. We distinguish different user roles, taking account of the different demands placed on the user by the activity to be carried out.

You will find the definitions of user roles with the demands on the user in chapter 2, "Safety". You can fulfil one or more of these roles, provided that you meet the corresponding demands.

1.2 ORGANISATIONAL MATTERS

If you are unable to find the answer to any question in the operating instructions, please contact the equipment manufacturer directly.

1.2.1 LOCATION OF THE OPERATING INSTRUCTIONS

The operating instructions can only be of use to you if you always have them to hand. They should, therefore, always be kept at the place where the equipment is used.

1.1.1 MANUFACTURER AND CONTACT ADDRESS

KINEMATICA AG
Luzernerstrasse 147a
CH-6014 Luzern
Switzerland

Tel.: +41-41-259 65 65
Fax: +41-41-259 65 75
e-mail: info@kinematica.ch

1.3 CONTENTS

If you are unable to find the answer to any question in the operating instructions, please contact the equipment manufacturer directly.
This should act as part of a quick-reference. The information is classified according to its application and topic and is divided into the following parts:

Chapter 1 **INTRODUCTION**
This chapter describes the structure of this document

Chapter 2 **SAFETY**
This chapter describes the safe use and optimum gain of the machine

Chapter 3 **DESCRIPTION OF COMPONENTS**
This chapter describes the components of the machine

Chapter 4 **INSTALLATION AND START-UP**
This chapter presents all information important for a safe installation and start-up of the machine.

Chapter 5 **SERVICE AND MAINTENANCE**
This chapter informs about service and maintenance.

Chapter 6 **ORDERING OF SPARE PARTS**
This chapter points out how to order spare parts and what kind of spares you should have in stock.

Chapter 7 **FAULTS AND REMEDIES**
In this chapter you will find indications about break down, possible cause and repair.

Chapter 8 **WARRANTY**
In this chapter the warranty limit is defined

Appendix **DIMENSIONAL DRAWINGS**

1.4 WARNING NOTICES

Please be aware of the meaning of the following warning signs:

SAFETY INSTRUCTIONS MUST BE OBSERVED TO ENSURE SAFE OPERATION .

THIS SYMBOL INDICATES HIGH VOLTAGE, WITH RISK TO HEALTH AND ENVIRONMENT.

**CAUTION!
BEWARE OF HOT SURFACE.**

**CAUTION!
DEVICE NOT DESIGNED FOR USE IN EXPLOSION DANGER ENVIRONMENT.**

2 SAFETY

This chapter is directed at all users of KINEMATICA laboratory equipment. It includes information on safe and optimum use.

2.1 SUMMARY

Any incorrect use of the installed equipment can be dangerous. Inadequately trained users can cause material damage and personal injury. This chapter informs you of the safety concept and the requirements for safe and optimum use of the equipment.

All those authorised to operate, service and repair the equipment are required to study chapter 2, "Safety".

2.2 SAFETY CONCEPT

The safety concept sets down the entitlement to use the equipment and the responsibilities of the individual users.

The machines and equipment are designed and constructed according to the state of the art and the recognised safety rules.

2.2.1 INTENDED USE OF THE EQUIPMENT

The equipment is designed and constructed for the following use:

- Dispersion and homogenisation of pumpable fluid products in accordance with the technical specifications (see point 3.5) and compatibility with the materials coming into contact with the products.

If you use the equipment for any purpose other than those listed, the manufacturer cannot be held liable for any resulting damage.

2.2.2 IMPROPER USE

Any use other than the "proper use" without the written approval of the manufacturer or operation outside the technical limits of use is improper use.

2.2.3 USER ROLES

To guarantee safety, we place requirements on the users of the equipment that must be met without fail. Only persons meeting the requirements are authorised to work with the equipment.

We describe all those who work with the equipment as users. Since the requirements of these users are very much dependent on their activity, we distinguish the following user roles.

Contract partner:
The manufacturer can impose legal obligations on the contract partner when the equipment is purchased. The contract partner is obliged to ensure that the equipment is properly used.

Operating company:
The operating company ensures that the equipment is properly used and authorises persons who are entitled to work with the equipment in any one of the defined user roles. He is under the obligation to instruct the users.

Note:
Contract partner and operating company can be the same person.

Service technician:
The service technician is an employee of the operating company and looks after the equipment in special operating mode(s). He is a specialist with mechanical, electrical and electronic professional training. The service technician undertakes commissioning, decommissioning service and repair of the equipment. He must be appropriately trained to be able to carry out the service work required.

Operator:
The operator turns the equipment on and off. In the event of an alarm signal he informs the service technician.

2.2.4 DANGER AREA

System/equipment
The system danger area includes the whole system/equipment including the connecting lead and controls.

Proximity danger area
This refers to all areas within a defined distance of the equipment.

User danger area
This danger area includes all persons working with the equipment.

2.2.5 AREAS OF RESPONSIBILITY

In order that the system/equipment can be used safely and without risk, the users in various roles bear the responsibility for particular danger areas.

Contract partner:
The contract partner bears the responsibility for the "proximity danger area".

Operating company:
The operating company bears the responsibility for the "user danger area". Only those users may be authorised to operate the system/equipment who fulfil all requirements of the user roles concerned. In so doing, attention must be paid to the following points:

- It is to be ensured that all users of the system/equipment have fully read and understood chapter 2, "Safety" and act accordingly in a safety-conscious manner.
- It is to be ensured that no unauthorised person carries out work with the system/equipment.
- It is to be ensured that users are informed of the possible risks and dangers connected with the system/equipment.
- It is to be ensured that those being trained or engaged in general training are under the permanent supervision of a trained and authorised person.

Service technician:
The service technician bears the responsibility for the "system/equipment danger area". He ensures that the system/equipment is at all times free from technical faults, safe and functions correctly.

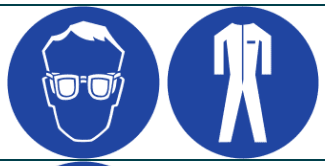
2.2.6 GENERAL SAFETY RULES

Observe the following general safety rules:

- follow these operating instructions,
- in addition, observe the legal obligations and requirements for accident prevention and environmental protection of the country in which you operate the equipment,
- do not make any modifications to the equipment without the written authorisation of the manufacturer,
- only original replacement parts may be used for repairs,
- before any service work on the equipment, it must be ensured that the electrical supply is switched off,
- after any service, maintenance or repair work has been carried out on the system/equipment, it must be given a test run by the service technician.
- depending on the place at which it is installed, circumstances may require that hearing protection is worn when remaining in the vicinity of the equipment for long periods.

2.3 RESIDUAL DANGERS

When the system/equipment is used in accordance with rules and regulations, residual dangers are minimal.

Residual danger	Countermeasures
Tripping over feed or return lines	These should be laid appropriately.
Breakage of glass containers	Wear protective clothing (goggles etc.). 
Spitting of the product	
Hearing loss due to loud noise.	According to the application ear protection must be used. 
Tilting of the device	Use stable, non-slip base and the safety stands from KINEMATICA

2.4 WARNINGS

THE MACHINE IS NOT ALLOWED TO BE OPERATED IN AN EXPLOSION-DANGERED ZONE!

DRY-RUN OF THE MECHANICAL SEAL AND/OR THE SLIDE BEARING MUST BE AVOIDED!

THE ELECTRICAL INSTALLATION MUST BE DONE BY A LOCALLY LICENSED SPECIALIST !

IN THE EVENT THAT HAZARDOUS CHEMICALS OR MATERIALS THAT ENDANGER HEALTH CAN INFLUENCE THE SURROUNDINGS OR USE OF THE EQUIPMENT, APPROPRIATE COUNTERMEASURES MUST BE TAKEN.

3 DESCRIPTION OF COMPONENTS

- The POLYTRON® PT 2100 (optional) is a batch mixing dispersion and homogenizing machine.
- The REACTRON® RT 1 needs a surface area of approx.. 440 x 400 mm and a height of approx. 1'200 mm
- The REACTRON® RT 1 has a weight of approx 37 kg
- The product to be processed must be flowable and pumpable.
- The dispersing generator has been selected for the contracted process, product and procedure and shall therefore not be used for a different application without the permission of the manufacturer.
- The steel parts in contact with the product are made of high-grade steel 1.4435 (ANSI 316 L)

3.1 PROCESS CONDITIONS

■ max. working pressure	Process vessel	:	pressureless
	Double jacket	:	max. 0.5 bar (g) (19 PSIA)
■ working temperature			max. 100°C (212°F)
■ Speed max.	PT 2100	:	30'000 RPM
	Stirrer PX-SR 90 D	:	400 RPM
	Stirrer PX-SR 50 E	:	300 RPM

DO NOT RUN THE STIRRING-UNIT WITH MORE THEN 500 RPM.

The REACTRON RT 1 - System consists of:

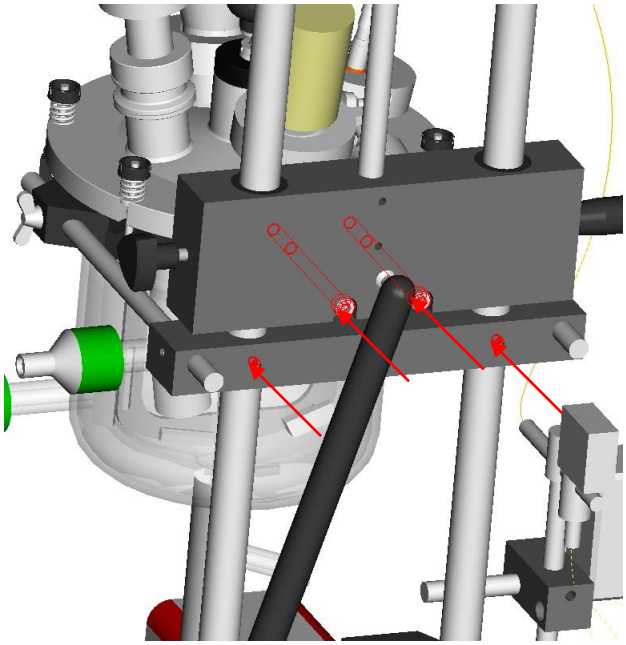
- Process vessel with double jacket (3.2)
- POLYTRON® PT 2100 (3.3)
- Stirrer (3.4)
- Stand with pneumatic spring (3.5)

3.2 PROCESS VESSEL WITH DOUBLE JACKET

Description:

- Process vessel DN 120 with useable capacity of 1000 ml
- With Heating- / Cooling Jacket
- Mounted on a socket with vessel-holder and fixed with two hexagon socket set screws.

NEVER DETACH THESE SCREWS MARKED BY ARROWS. THEY ARE ESSENTIAL FOR FIXING THE COVER AND VESSEL SOCKET.



PAY ATTENTION THAT THE VESSEL WILL NOT BE SUBJECTED TO THERMAL SHOCKS STRONGER THAN Δ100 °C (212°F). IF NOT, THE VESSEL MAY COLLAPSE.

Technical data:

Process vessel

- Total Volume 1400 ml
- Working volume 1000 ml
- Operating pressure pressureless
- Working temperature max. 212 °F (100°C)

Dimensions

- Inside diameter 120 mm
- Outside diameter 155 mm
- Cyl. height 175 mm

Heating- / Cooling Jacket

- Heating/cooling volume approx. 1.1 liters
- Operating pressure max. 19 PSIA (0.5 bar)
- Working temperature max. 212 °F (100 °C)

Material

- Process vessel Borosilicate glass
- Heating- / Cooling Jacket Borosilicate glass
- Cover stainless steel 1.4435

Equipment:

- The cover is flanged to the vessel and tighten by a VITON-O-Ring
- The cover is equipped with two lifting lugs

Connections on the cover:

- Through-bore for anchor-stirrer (pre-mounted) with sealing
- 4 pc. NS29/32 conical connections

Connections in the Heating- / Cooling Jacket:

- Hose nipple DN 8 inlet of heating / cooling liquid
- Hose nipple DN 8 outlet of heating / cooling liquid

Connections at the bottom:

- none

3.3 POLYTRON® PT 2100 with dispersing unit pt-Da 2120/2G (optional)

See referring manual for drive

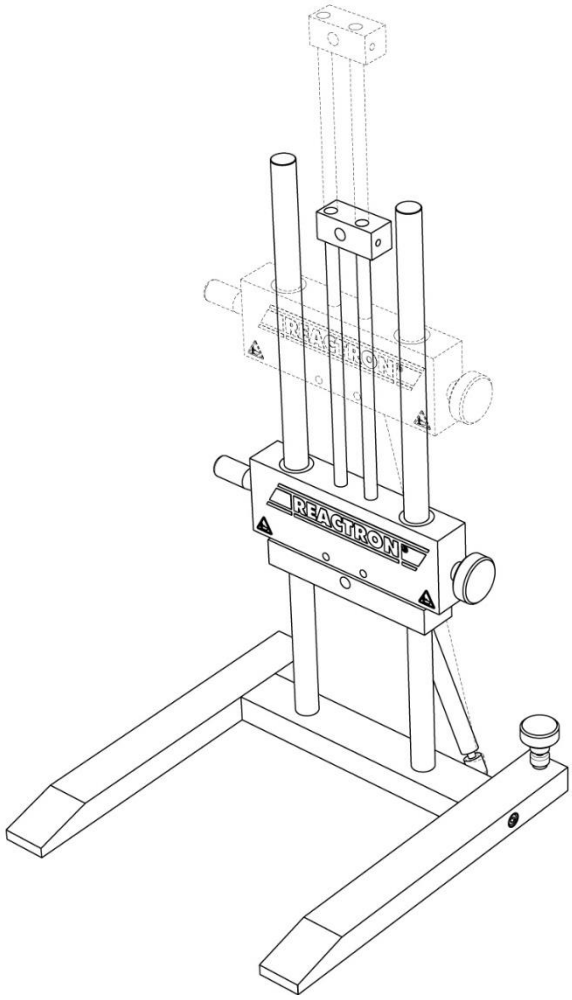
3.4 stirrer

See referring manual for "PX-SR 50 E" or "PX-SR 90 D"

3.5 STAND RT 1

STAND:

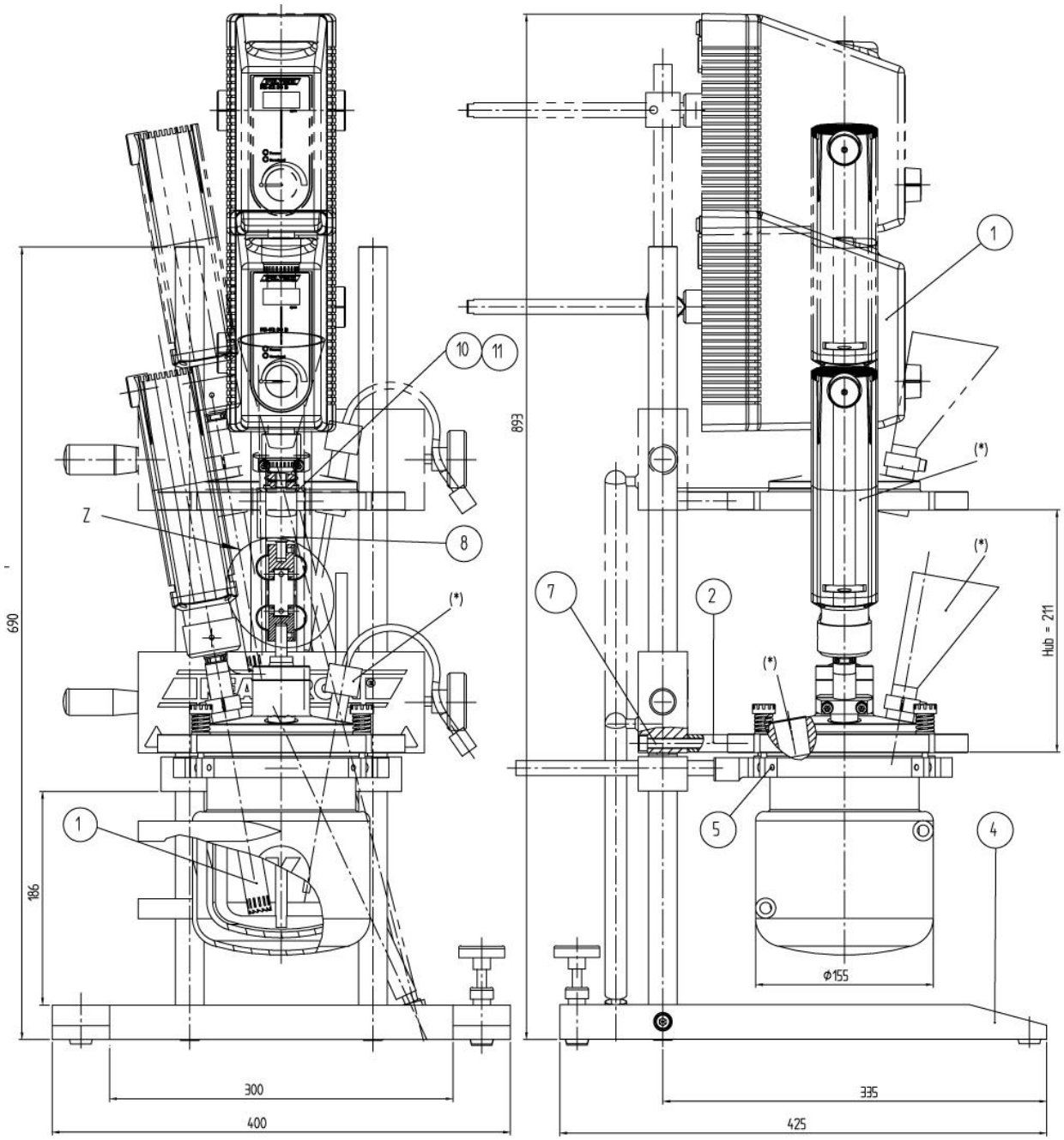
- H-shape base
- Two columns
- The maximum height is approx 1100 mm.
- The base space required is 425 x 400mm



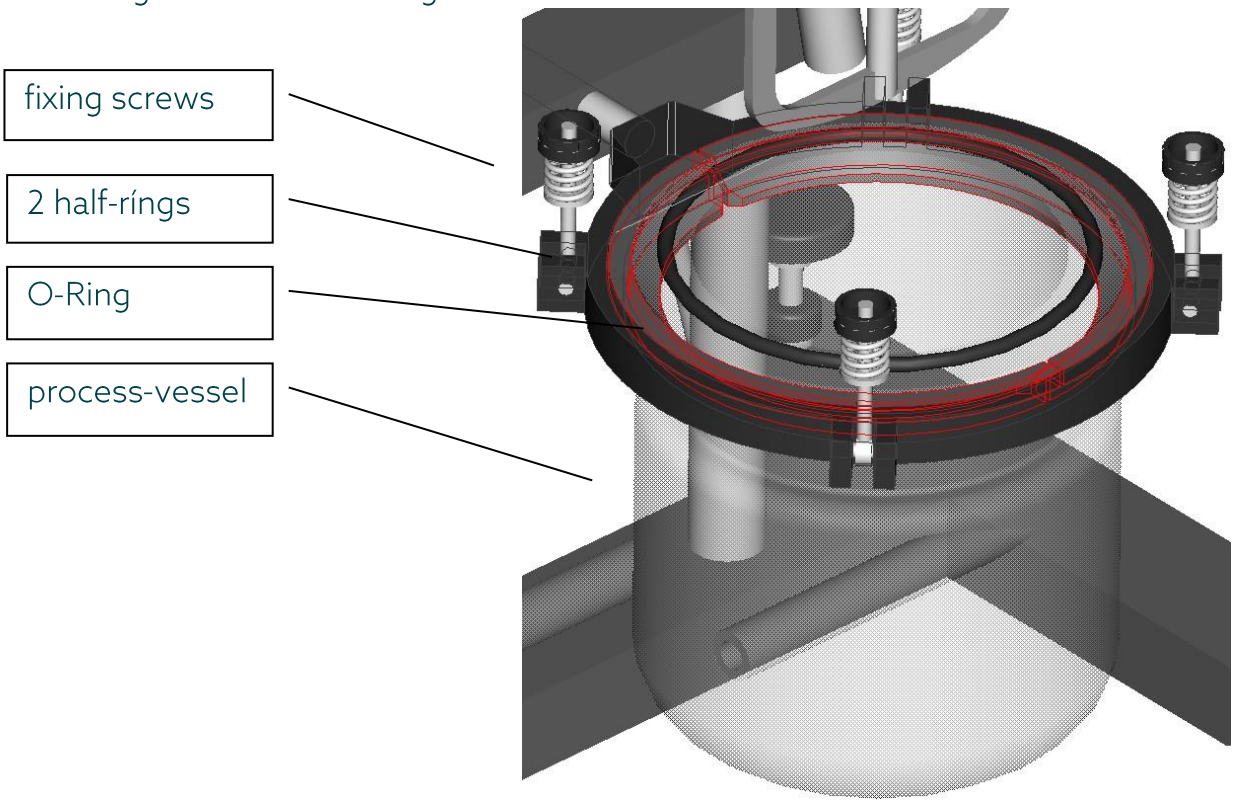
4 INSTALLATION AND OPERATING INSTRUCTIONS

The REACTRON® RT 1 system arrives completely assembled for 230V or 115V outlets. Plug the power cable from the PT 2100 (optional) and plug the power cable from the stirrer in a suitable outlet.

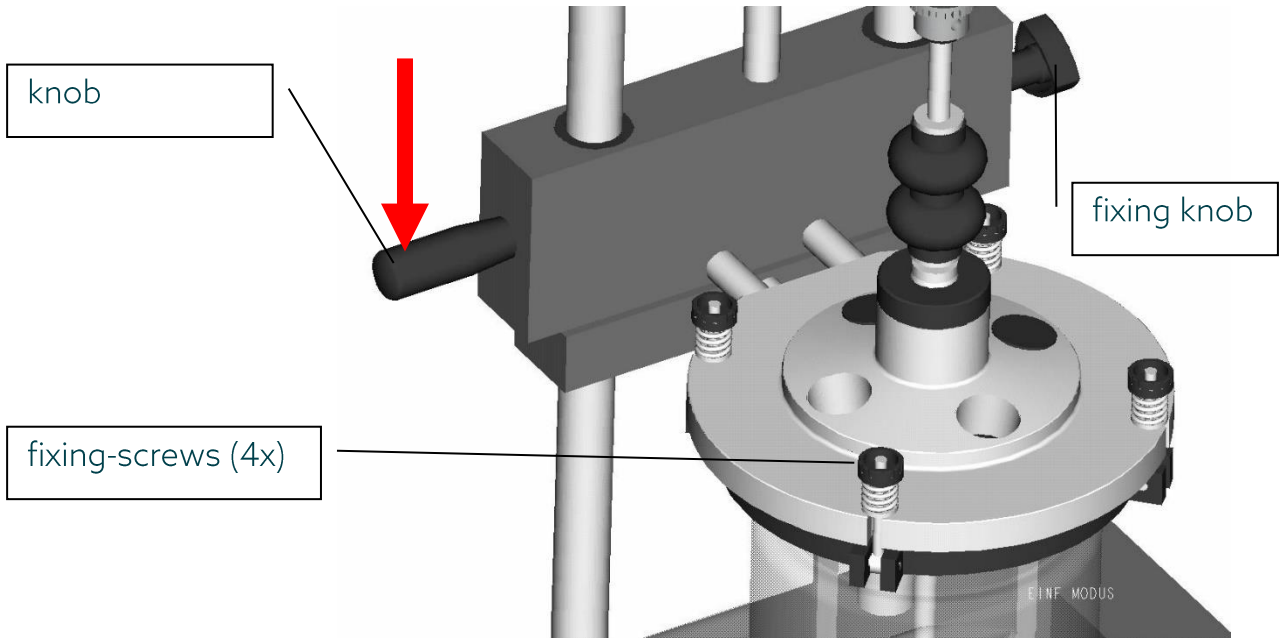
4.1 INSTALLATION



- Place the process-vessel into the vessel-holder using the two half-rings(red). Place the O-Ring on the vessel-flange.



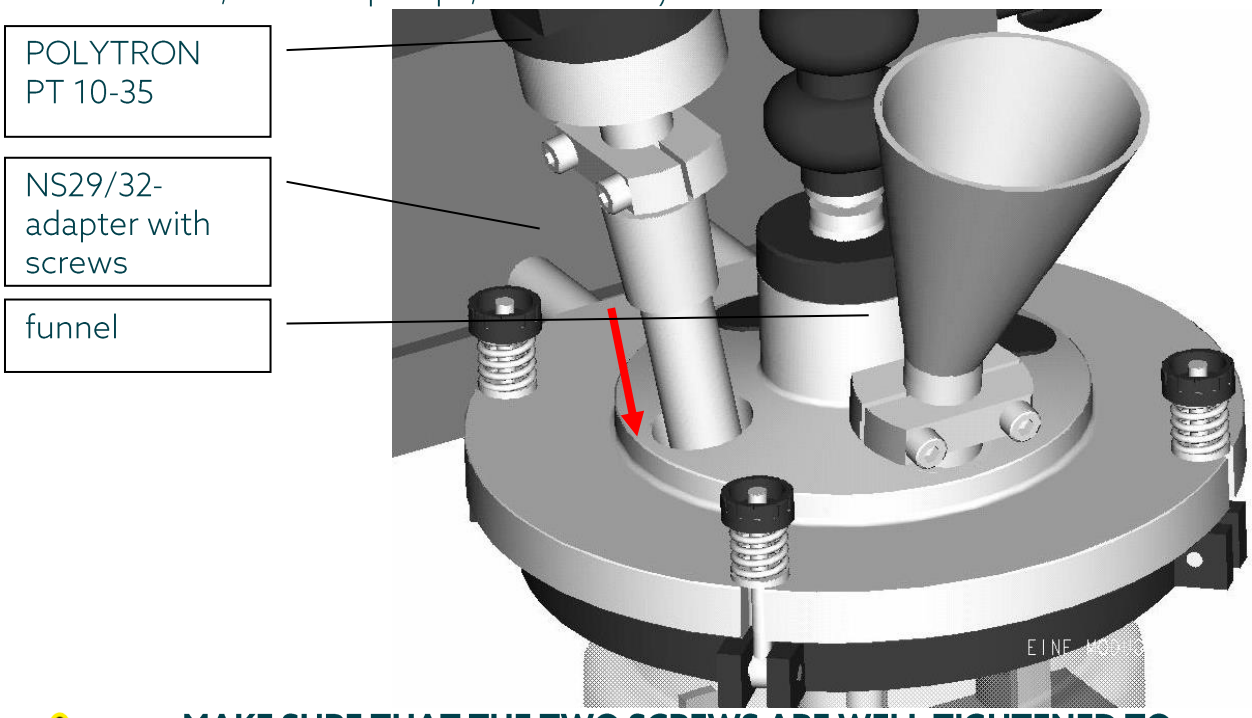
- Pull down the cover-unit using the knob. When the cover is touching the O-Ring-SEAL use the fixing-knob to fix the cover-unit, then use the four fixing-screws of the vessel-holder to fix the cover to the vessel.



PAY ATTENTION THAT NO HAND OR FINGER ARE BETWEEN THE COVER-UNIT AND THE VESSEL-HOLDER-UNIT, WHILE PULLING DOWN THE COVER-UNIT DANGER OF CRUSHING.

NEVER PULL THE COVER AND THE VESSEL TOGETHER WITHOUT THE O-RING. THE METAL-COVER CAN DO DAMAGE TO THE GLAS-VESSEL. THE O-RING IST NOT JUST TO SEAL THE VESSEL BUT ALSO TO PROTECT THE GLAS-VESSEL AGAINST SHOCKS.

- The POLYTRON® can now be positioned in one of the four NS29/32-bores on the cover using the NS29/32-Adapter. Same procedure for the funnel. Any other NS29/32-bore can be equipped with any suitable NS29/32-device, such as Thermometer, vacuum-pumps, buckler etc.)



MAKE SURE THAT THE TWO SCREWS ARE WELL TIGHTENED TO PREVENT THE DISPERSING-UNIT FALLING DOWN AND DESTROYING THE GLAS-VESSEL.

MAKE SURE THAT THE DISPERING-UNIT DOES NOT TOUCH THE ANCHOR-STIRRER.

PAY ATTENTION THAT NO HANDS OR FINGERS ARE BETWEEN THE COVER-UNIT AND THE VESSEL-HOLDER-UNIT, WHILE PULLING DOWN THE COVER-UNIT. DANGER OF CRUSHING!

NEVER PULL THE COVER AND THE VESSEL TOGETHER WITHOUT THE O-RING. THE METAL-COVER CAN DO DAMAGE TO THE GLASS VESSEL. THE O-RING IS NOT JUST TO SEAL THE VESSEL BUT ALSO TO PROTECT THE GLASS VESSEL AGAINST SHOCKS.

- Pull the vacuum tube over the vacuum connection on the vessel and link it with the provided vacuum system. For mounting the vacuum system, please see the referring manuals.

MAKE SURE THAT THE SCREW OF THE ADAPTER IS WELL TIGHTENED TO PREVENT THE DISPERSING-UNIT FALLING DOWN AND DESTROYING THE GLASS-VESSEL

MAKE SURE THAT THE DISPERSING-UNIT DOES NOT TOUCH THE ANCHOR-STIRRER.

- The generator should be immersed in the product. This guarantees the proper cooling and lubrication of the slide bearing.
- The force of suction of material into the generator is best between 1/3 and 2/3 of the vessel height.
- Before connecting the electrical power supply, check the data sheet of the POLYTRON and the stirring-unit
- To raise the cover-unit, first detach any vacuum-tubes on the cover, unfast the six fixing-screws and then the fixing-knob at the cover-socket and the cover will raise automatically.

WHEN RAISING THE COVER, MAKE SURE THAT VACUUM-TUBES ON THE COVER ARE DETACHED AND ENSURE THAT CABLE OF THE THERMOMETER IS PLACED IN A WAY THAT IT WILL NOT TEAR UP THE TEMPERATURE DISPLAY. IF NOT, THE RAISING COVER MAY DAMAGE THE VACUUM-SYSTEM AND TEMPERATURE DISPLAY.

ALL ELECTRICAL WORK MUST BE PERFORMED BY A LICENSED ELECTRICIAN

4.2 START UP OF THE SYSTEM

BEFORE STARTING THE UNIT MAKE SURE THE PROCESS VESSEL IS FILLED WITH THE PRODUCT TO BE PROCESSED

- Check that the vessel cover and the POLYTRON® are mounted tight and correct
- Check that the anchor-stirrer does not interfere with the dispersing-unit.

AVOID DRY-RUN OF DISPERING-UNIT, THE MECHANICAL SEAL MAY BE DAMAGED

4.3 SHUT-DOWN OF THE SYSTEM

IF THE PROCESSED MEDIA TENDS TO HARDEN OR STICK IN THE PROCESS VESSEL THE PRODUCT HAS TO BE REMOVED COMPLETELY FROM THE PROCESS VESSEL.

4.4 CLEANING THE REACTRON®

- If the processed media tends to harden or stick, the product has to be removed completely from process vessel after every use .The dispersing-unit, the anchor-stirrer and the cover have to be cleaned.
- If the machine was not operated for a longer time, the POLYTRON®-aggregate has to be cleaned (see Manual "PT 2100")
- Before any maintenance work is carried out, the POLYTRON®-aggregate has to be cleaned

PAY ATTENTION THAT THE TEMPERATURE DIFFERENCE BETWEEN ACTUAL TEMPERATURE OF THE AGGREGATE AND CLEANING TEMPERATURE IS KEPT TO A MINIMUM.

A THERMAL SHOCK CAN DAMAGE STRUCTURAL COMPONENTS.

THE CLEANING LIQUID SHOULD BE COMPATIBLE WITH ALL PARTS WETTED BY THE PRODUCT.

5 MAINTENANCE WORK

ALL MAINTENANCE WORK HAS TO BE DONE BY SPECIALISTS OR ENGINEERS.

ALL PARTS HAVE TO BE INSPECTED FOR SIGNS OF WEAR AND DAMAGE. IF NECESSARY, THEY HAVE TO BE REPLACED.

BEFORE STARTING THE DISASSEMBLY, ALL ELECTRICAL PARTS HAVE TO BE DISCONNECTED.

- The POLYTRON® has to be taken out of the process vessel

WHEN HANDLING DANGEROUS PRODUCTS, TAKE CARE THAT THE LOCAL SAFETY REGULATIONS ARE RESPECTED.

BEFORE CLEANING WITH SOLVENTS, CHECK THE COMPATIBILITY BETWEEN THE SOLVENT AND THE MATERIAL OF THE O-RINGS.

DAILY INSPECTION WORK

If one of the following irregularities is found during inspection, the machine / unit has to be stopped immediately and repaired:

- Leakage of the whole system
- noise level too high or unusual noises from drives or dispersing aggregates

We strongly recommend that service work and repairs should be carried out only by authorised KINEMATICA service centres or by KINEMATICA directly, where original replacement parts are available.

Any unauthorised modification or manipulation of the unit or its equipment leads to immediate annulment of the warranty.

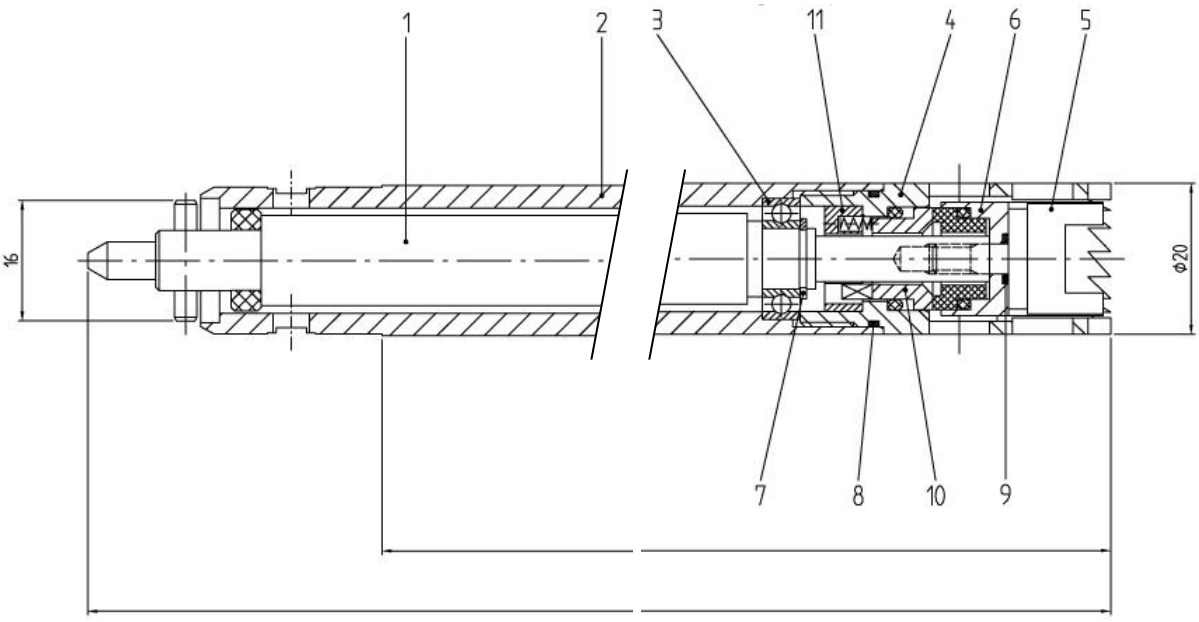
5.1 MAINTENANCE OF THE POLYTRON DISPERSING DRIVE

See corresponding manual

5.2 MAINTENANCE OF THE STIRRER

See corresponding manual

5.3 MAINTENANCE OF THE DISPERSING AGGREGATE PT-DA 3030/4G



CLEANING

- For easy cleaning you can run the aggregate in any suitable cleaning fluid.

If further cleaning of the generator is needed, the dispersing aggregate and its components it has to be disassembled as follows:

- Unfasten the rotor (5) by blocking the coupling. Assure that the spring does not hop away.
- Remove the mechanical seal (10)
- Remove the Stator (4) (left-hand thread) and the o-ring (8)
- Clean the removed components separately.
- Proceed in reverse order for reassembling.

REPLACING PARTS BY SPARE PARTS

- Ball Bearing
  - To replace the ball bearing (3) do the de-assembling as shown above and remove the retaining ring (7) at the shaft. Push out the shaft (1) and demount the ball bearing (3). Replace the ball bearing and reassemble the aggregate.
- O-rings: as shown above
- Mechanical Seal: as shown above

6 ORDERING OF SPARE PARTS

Only original KINEMATICA spare parts will guarantee a trouble free operation of the machine

when ordering spare parts, please indicate:

1. **Type of machine**
2. **Serial No.**
3. **Description and Id.-No. according to parts list**

Please refer to the bill of material in the APPENDIX to identify the required spare part.

7 TROUBLE SHOOTING

When troubles with the POLYTRON and the dispersing-unit or the Stirrer occur, see corresponding manuals.

PROBLEM	CAUSE	CORRECTIVE MEASURES
The cover-unit does not raise automatically.	The pneumatic-spring may be damaged.	Change the pneumatic-spring of the stand
Leakage of liquid between cover and vessel.	O-Ring is damaged.	Replace the O-Ring
	O-Ring, vessel and cover are not centered well	Recenter these components (O-Ring has to be in the flute of the bottom side of the cover)
Rattle noise	Foreign body in the vessel touching anchor-stirrer and dispersing-unit	Remove foreign body

8 WARRANTY

KINEMATICA AG guarantees that the equipment that it produces will run free of any fault related to materials or manufacturing faults for **12 months**.

If thorough testing shows a fault to be due to either of the above causes, KINEMATICA AG guarantees that the equipment will be repaired or replaced free of charge.

The guarantee does not cover parts that are subject to normal wear. It is void if any person other than an employee of KINEMATICA AG or their appointed representative has made modifications to the equipment or if the damage is due to failure to comply with the operating instructions, to carelessness, accident, incorrect use or incorrect supply voltage.

KINEMATICA AG reserves the right to make technical changes to the equipment without modifying equipment delivered earlier in the same way.

In the event of technical problems, for spare parts requirements or for advice, contact our regional appointed agent, your preferred dealer or us directly at:

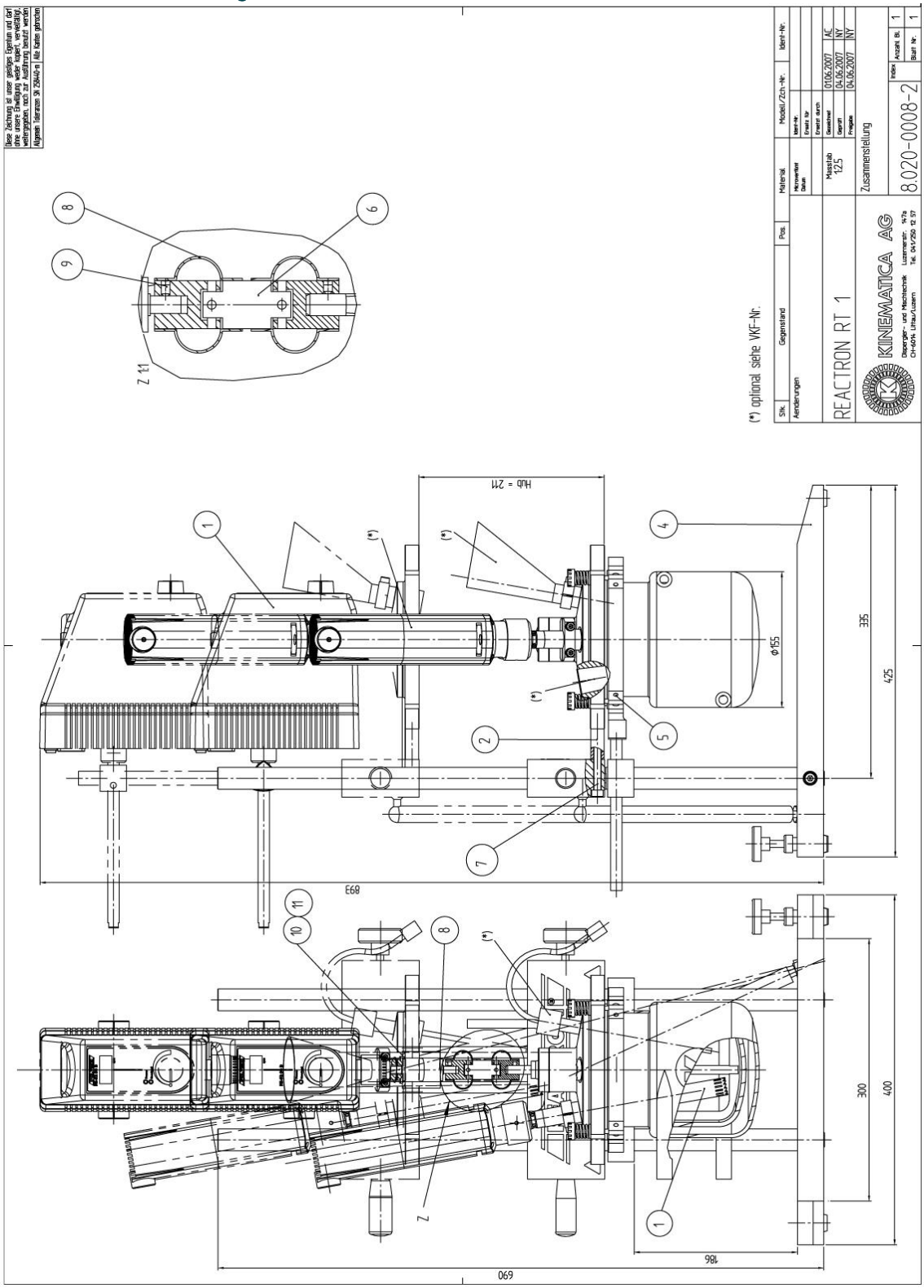
KINEMATICA AG

Werkstrasse 7, C_D
CH-6102 Malters
Switzerland

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

APPENDIX: DIMENSIONAL DRAWINGS & BILL OF MATERIAL

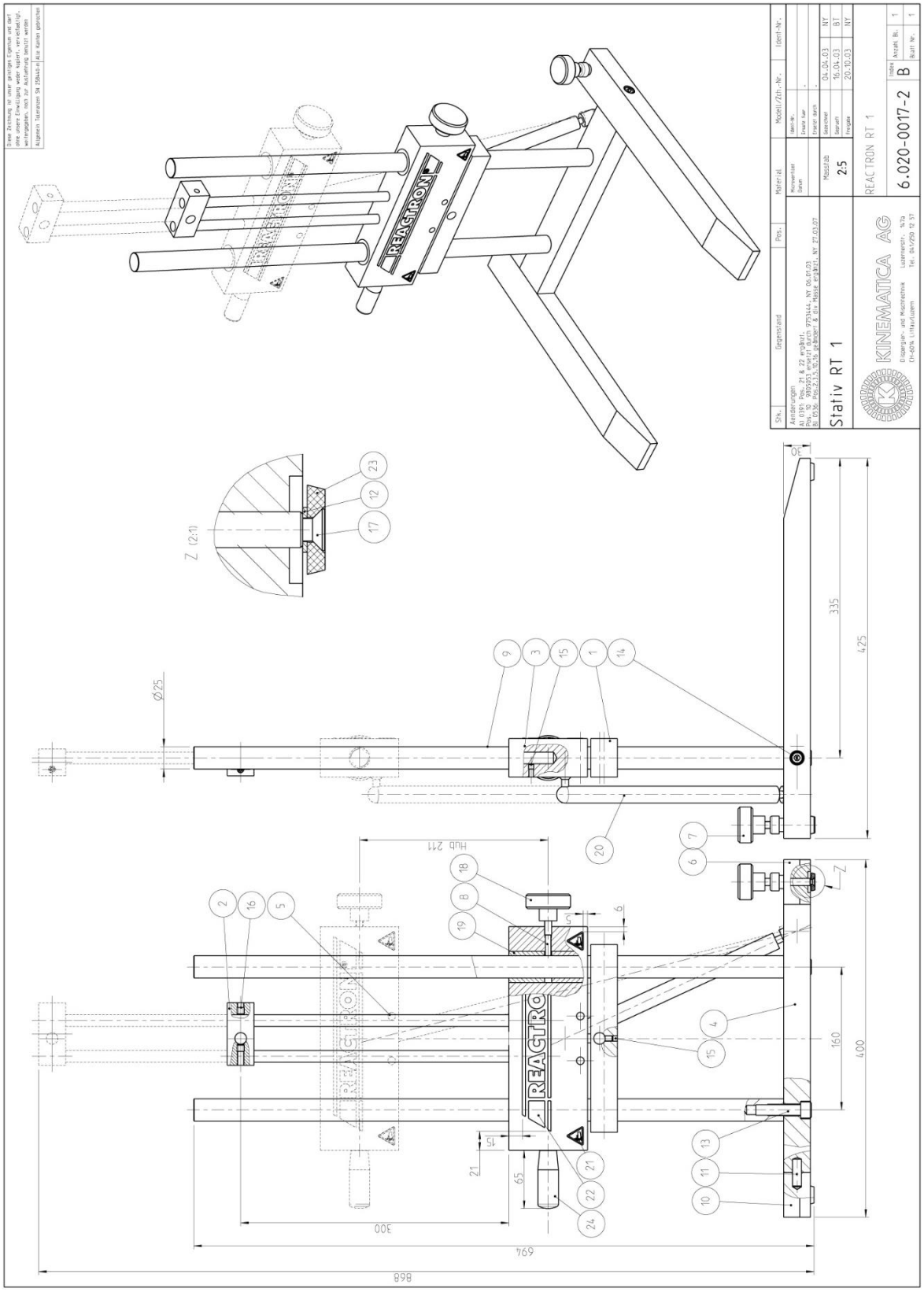
REACTRON RT 1: drawing-no. *8.020-0008-2*



bill of materials to drawing-no. *8.020-0008-3*

IDENTIFIER	ID.-NO.	POSITION	QTY	MATERIAL
Stirrer POLYMIX PX-SR 50 E	9158024	1	1	
Extension tube RT 1	9753182	2	2	316 L
Gear i=5:1	9340962	3	1	
Stand RT 1	9754097	4	1	
Reactor RT 1 complete	9753207	5	1	
Cardan joint DN8/10	9340971	6	1	Stainless steel
Zyl.-Schr. M8x110 A2	9918110	7	2	Stainless steel
Clamp sealing Tri-Clamp 1 1/2"	9324042	8	4	VITON
Clamp Tri-Clamp 1 1/2 "	9324043	9	4	316 L
Bellows Ø20&22	9340552	10	2	Rubber
Setcrew M4x5 DIN 916	9951059	11	2	Stainless steel
Momentunsupport RT	9753996	12	1	Stainless steel
Screw. M4x10 A2 I	9951107	13	4	Stainless steel

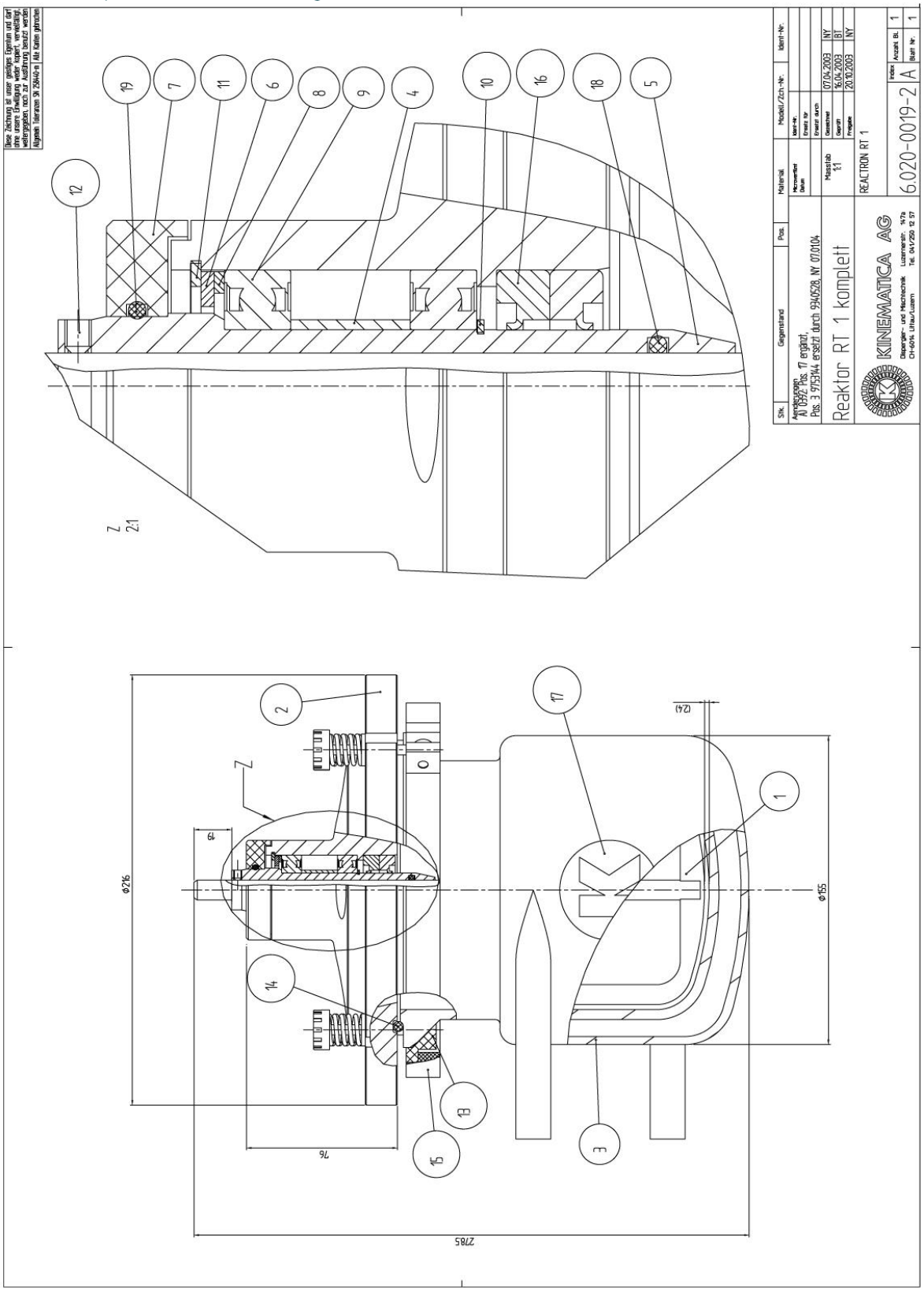
Stand RT 1: drawing-no. *6.030-0067-3*



Bill of materials to drawing-no *6.020-0017-2 B*

IDENTIFIER	ID.-NO.	POSITION	QTY	MATERIAL
Socket	9753157	1	1	AlMgSi1
Boss head ST 2103	9750875	2	1	AlMgSi1
Cover socket	9754098	3	1	AlMgSi1
Cross beam	9753173	4	1	AlMgSi1
Pillar for stirrer	9754088	5	2	Stainless steel
Base right	9805052	6	1	AlMgSi1
Adjusting foot	9750856	7	1	
Bolt	9751410	8	1	AlMgSi1
Pillar to stand	9751859	9	2	Stainless steel
Base left	9805053	10	1	AlMgSi1
Parallel pin Ø10h8x30	9991030	11	4	1.4305
U-shim M5	9960005	12	1	A2
Cylinder head screw M12x50	9911250	13	2	A4
Cylinder head screw M8x50	9900691	14	2	A2
Hexagon socket set screw M6x6	9951058	15	5	A2
Hexagon socket set screw M8x8	9900729	16	2	A2
Counter sunk screw M5x10R	9910510	17	4	A2
Knurled head screw M8x16 Ø50	9341076	18	1	Duroplast
Linear roll bearing	9340048	19	4	Stainless steel
Pneumatic spring	9340338	20	1	
Decal WARNING	9340499	21	2	
Decal REACTRON white	9340514	22	1	
Rubber foot Ø21x6	9800070	23	4	Rubber
Knob EL 539-23-M10	9340328	24	1	Duroplast

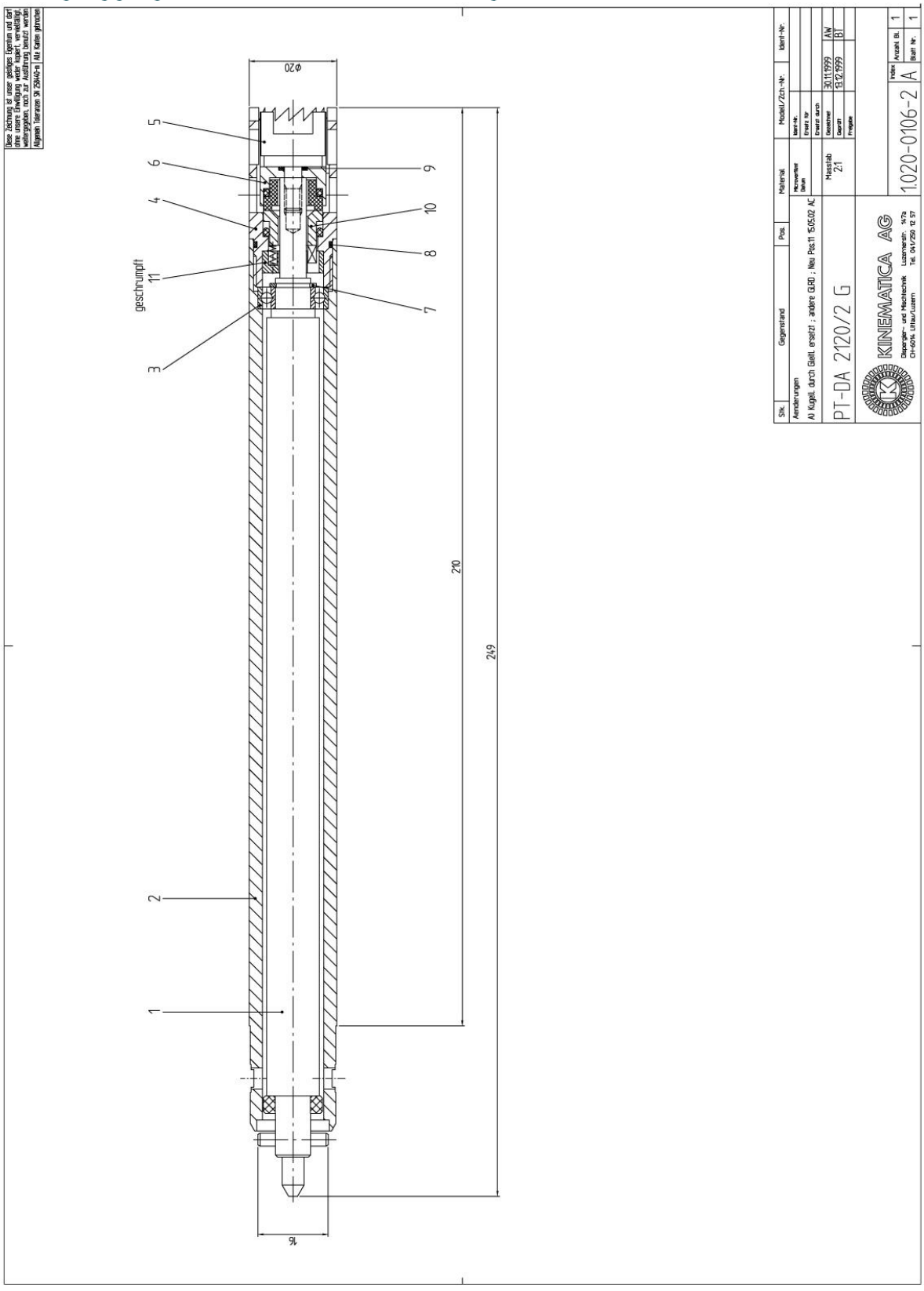
Reactor complete RT 1: drawing-no. *6.020-0019-2* A



Bill of materials to drawing-no. *6.020-0019-2* A

IDENTIFIER	ID.-NO.	POSITION	QTY	MATERIAL
Anchor stirrer	9753176	1	1	VITON
Cover RT 1	9753146	2	1	VITON
Vessel 1000ml DN120	9340528	3	1	Borosilicateglass
Distant piece	9753160	4	1	1.4305
Hollow shaft	9753159	5	1	316 L
Shim	9753162	6	2	Stainless steel
Sealing disc	9753163	7	1	POM black
Compensation spring	9340323	8	1	spring steel C75
Ball bearing Ø17/35x10	9322001	9	2	Stainless steel
Retaining ring A17	9990077	10	1	Stainless steel
Retaining ring I35	9990106	11	1	Stainless steel
Hexagon socket set screw M4x5	9951059	12	1	A2
O-ring DN 120 VITON	9342056	14	1	VITON
Vessel holder DN 120	9340308	15	1	PA
Shaft sealing ring	9340324	16	2	Gylon W
Decal "K" Ø50	9340515	17	1	
O-ring Ø9.52x1.78	9341189	18	1	VITON
O-ring 20.24x2.62	9320066	19	1	VITON

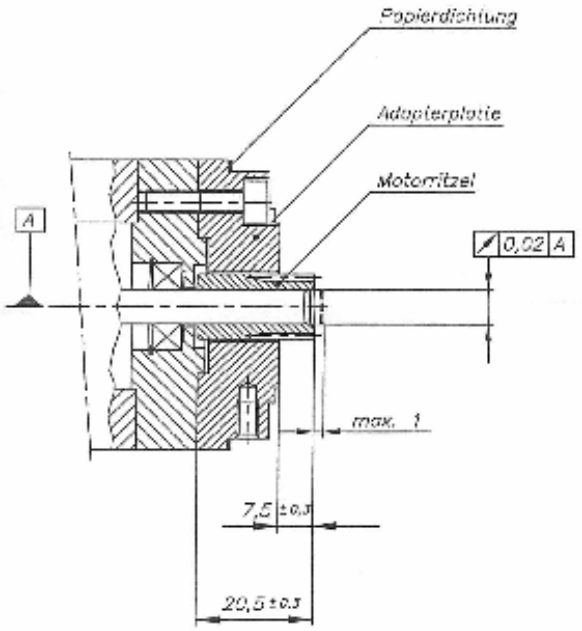
Dispersing Aggregate PT-DA 2120/2 G: drawing-no. *1.020-0106-2 A*



Bill of materials to drawing-no. *1.020-0106-2 A*

IDENTIFIER	ID.-NO.	POSITION	QTY	MATERIAL
Shaft complete 2120/2G	9752050	1	1	316 L
Shaft tube PT-DA 2120/2G	9752038	2	1	316 L
Ball bearing 688-ZZ	9322227	3	1	Stainless steel
Stator PTG 20/2 G	9752621	4	1	316 L
Rotor PTG 20/2	9752040	5	1	316 L
Counter ring retainer	9752041	6	1	316 L
Retaining ring A 8	9900808	7	1	
O-ring 16x1	9320327	8	1	Viton
O-ring 4x1 Viton	9320326	9	1	Viton
Mecanical Seal	9735611	10	1	SBV
Spring retainer	9752604	11	1	316 L

Montageanleitung zu GPL 42



Montageablauf

1. Rundlaufabweichung der Motorenwelle überprüfen 0,02 A
2. Motorritzel mit Welle im Abstand 20,5±0,3 verkleben (siehe Klebebedingungen)
3. Adapterplatte am Motor befestigen
4. Motor und Getriebe vorsichtig zusammenstecken (Papierdichtung verwenden)
5. Getriebe mit beiliegenden Schrauben (M3 DIN 965) an der Adapterplatte befestigen

Klebebedingungen

- Die Passung muss vor dem Zusammenbau ein minimales Spiel von 0,02 mm aufweisen (Motorritzelbohrungen sind H7 gefertigt)
- Nur absolut fettfreie Teile zusammenfügen
- Zum Kleben wird LOCTITE 638 empfohlen (Vorschriften des Klebstoffherstellers beachten)
- Das Motorritzel muss durch Drehbewegung auf die Welle geschoben werden
- Der Motor soll während der Montage und der Aushärtezeit des Klebstoffes ausschliesslich in waagrechter Lage gehalten werden
- **Getriebe 15 Minuten lastfrei einfahren** (Aushärtezeit der Klebeverbindung einhalten)