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LR 1000 control System

/// Data Sheet

The LR 1000 control is a cost efficient, modular laboratory reactor designed to optimize chemical reaction processes as well as for mixing, dispersing and homogenization tasks on a lab scale particularly in the cosmetic and pharmaceutical industry. The system can be adapted quickly and easily to a wide range of applications and specific requirements.

Prominent features are its intuitive menu navigation, integrated pH and temperature sensor connection as well as several interfaces that allow display and storage of process-relevant data on a PC. By using the laboratory software labworldsoft® (accessory) it is possible to even control the reactor via PC and make further settings. In addition, a control valve connection to attach a magnetic valve (accessory) for program-based cooling water control is integrated.

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The medium can be heated either to a fixed maximum temperature of 120 °C or to a set temperature by the heater at the bottom of the vessel. A temperature sensor inside the medium ensures that the set temperature is reached. Both, a PT 100.30 temperature sensor and the corresponding receptacle LR 1000.62 for the lid are included in the delivery.

- Components in contact with medium: stainless steel (ALSI 316 L), FFKM, PTFE, PEEK, borosilicate glass 3.3
- Large easy to read TFT display for easy menu navigation
- Integrated control valve connection to attach a magnetic valve (accessory) for program-based cooling water control
- Integrated weighing function
- Torque trend measurement indicates changes in product viscosity
- Integrated pH sensor connection
- RS 232 and USB interface to operate the unit with the laboratory software labworldsoft
- Standard joint fittings on the lid: 2 x NS 29, 2x NS 14, 2 x GL 14 for flexible adaptation of further equipment
- Expandable for use with the ULTRA-TURRAX® T 25 digital (accessory)
- Vacuum valve included in delivery
- Connections to attach a cooling source to the back of the unit
- Manual adjustable safety circuit
- Integrated safety shutdown when vessel or lid is removed from the base

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Technical Data

Useable volume max. [ml]	1000
Useable volume with disperser tool min. [ml]	500
Useable volume without disperser tool min. [ml]	300
Working temperature max. [°C]	120
Attainable vacuum [mbar]	25
Viscosity max. [mPas]	100000
Speed range [rpm]	10 - 150
Support rod diameter (with integrated fastening on stand) [mm]	16
Material in contact with medium	AISI 316L, 1.4571, borosilicate glass 3.3, PTFE, PEEK, FFKM
Reactor vessel openings (units/standard)	2x NS 29/32, 2x NS 14/23 & 2x GL 14
Permissible ON time [%]	100
Temperature measurement resolution [K]	0.1
Nominal torque [Nm]	3
Heat output [W]	1000
Cooling medium permissible operating pressure [bar]	1
Weighing range max. [g]	2000
Weighing resolution [g]	1
pH measuring range [pH]	0 - 14
pH measurement resolution [pH]	0.1
Speed min (adjustable) [rpm]	10
Heating temperature max. [°C]	180
Adjustable safety circuit [°C]	47 - 225
Adjustable safety circuit, temperature deviation [K]	±10 - ±20
Cooling medium temperature min. [°C]	3
Set temperature resolution [K]	±1
Heat control accuracy of medium with sensor [K]	±0.2
Speed deviation [rpm]	±5
Speed display	TFT
Heat control	TFT
Connection for ext. temperature sensor	PT 100
Stirring element fastening	special output shaft
Torque display	yes
Torque measurement	trend
Timer	yes
Timer display	TFT
Speed adjustment	1 RPM steps
Type of cooling	flow
Temperature display	yes
Working temperature sensor	PT 100
Safety temperature sensor	PT1000
Working temperature display	TFT
Safety temperature display	TFT
Display for operation with ext. sensor	yes
Safety cutout	yes
MV1 interface	yes
pH meter interface	yes / BNC socket female
pH value display	TFT
Dimensions (W x H x D) [mm]	443 x 360 x 295

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Weight [kg]	23
Permissible ambient temperature [°C]	5 - 40
Permissible relative humidity [%]	80
Protection class according to DIN EN 60529	IP 21
RS 232 interface	yes
USB interface	yes
WPAN interface	yes
Voltage [V]	230
Frequency [Hz]	50/60
Power input [W]	1200