Rotavapor® R-250 Pro

Batches up to 30 liters can be quickly and safely distilled in the 50-liter evaporating flask of the R-250 Pro. The powerful heating bath allows a distillation rate up to 30 liters of acetone per hour. Choose your system out of a wide range of possibilities to get the best for your application.

BÜCHI

Scope of delivery

All configurations are supplied ready to use.

Components	R-250 Pro
Glass configuration according to order	1
Evaporating flask according to order	1
All needed tubing's (vacuum and cooling)	1
Seal removal tool	1

Order code

Choose the configuration according to your needs:

1 1 8 5 0 0 ☐ ☐ ☐ ☐

Evaporating flask

D   50-liter evaporating flask
X   no flask

Condensation unit (glass assembly)

51   R2 Double reflux
52   RB2 Double reflux Bullfrog
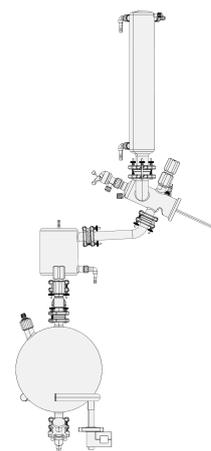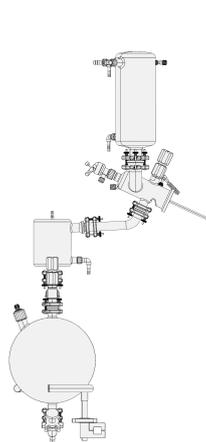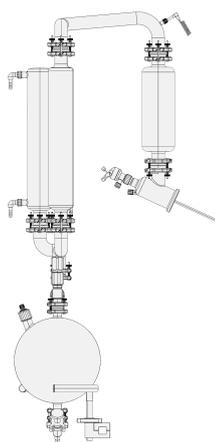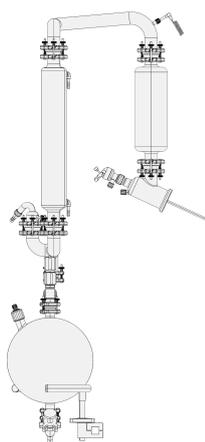54   D2 Double descending
55   D3 Double descending with secondary condenser

Collection unit

1   Single receiving 20 liter
2   Dual receiving flasks 2 x 20 liters

Glassware

Assembly D2	Assembly D3	Assembly RB2	Assembly R2
Low boiling points and/or foaming products		High boiling points	
	Minimum emissions	Reflux reactions	
		Reduced height	
H = 2300 mm	H = 2300 mm	H = 2100 mm	H = 2260 mm

Technical data

Rotavapor® R-250 Pro

Dimensions (W x D x H) (without glass)	1410 x 830 x 1550 mm
Dimensions (W x D x H) (with glass)	1450 x 850 x 2300 mm
Minimum clearance on all sides	400 mm
Weight (without glass)	160 kg
Weight (with glass)	200 kg
Connection voltage	400 ± 10 % VAC (3Ph,N,G)
Power consumption	7500 W
Frequency	50 / 60 Hz
IP Code	IP20
Pollution degree	2
Overvoltage category	II
Pump outlet	max. 2 A
Rotation speed range	5 – 120 rpm
Heating bath temperature range	20 - 180 °C ± 2 °C

Adjustment accuracy	± 1 °C
Regulation precision	At 60 °C: ± 1 °C
	At 95 °C: ± 2 °C
	At 180 °C: ± 3 °C
Heating medium	Water
	Polyethylene glycol 400
Minimum flashpoint of the heating oil	205 °C
Cooling water consumption	200 - 400 L/h
Vacuum pump requirement	min 3 m³ / h
Leakage of the complete system	<1 mbar/min
Approval	CE
(400 VAC Connection Voltage)	UL / CSA
Rotation controlling	Electronically
Rotation accuracy	± 1 rpm at 5 rpm to
	± 5 rpm at 120 rpm
Cooling restriction abs. without pulsation	max. 2.7 bar
Heating capacity	6600 W

Ambient conditions

For indoor use only.

Max. altitude above sea level	2000 m
Ambient and storage temperature	5 – 40 °C
Maximum relative humidity	80% for temperatures up to 31 °C
	decreasing linearly to 50 % relative humidity at 40 °C

Materials

Housing	Stainless steel 1.4301 (AISI 304)
Gear head	Aluminum cast (3.2373)
Painting	Powder coated with Epoxy (EPX)
Bath pan	Stainless steel 1.4404 (AISI 316L)
Heating element	Stainless steel 1.4404 (AISI 316L)
Glass	Borosilicate 3.3
In contact with product	FDA approved materials

Safety

Safety coated glassware	Yes, except the evaporating flask
Over temperature protection of the bath	Separate monitoring circuit with manual reset
	Error if temperature is 15 °C above set value
Rotation	Soft start
	Stop in case of blocked rotation

At any Error	Bath lowering, heater off, rotation off
	Type of error showed on display
	Reset with main switch

Display

Bath temperature	1 °C steps
Cooling temperature (option)	1 °C steps
Vapor temperature	1 °C steps
Set rotation speed	1 rpm steps
Set bath temperature	1 °C steps
Actual vacuum	1 mbar steps
Set vacuum	1 mbar steps

Sensors

Vapor temperature	PT-1000, 2 wire
Bath temperature	PT-1000, 2 wire
Vacuum	Ceramic, capacitive

Features R-250 Pro
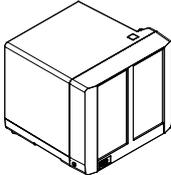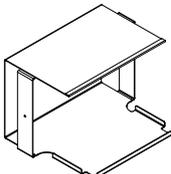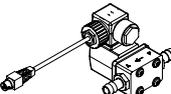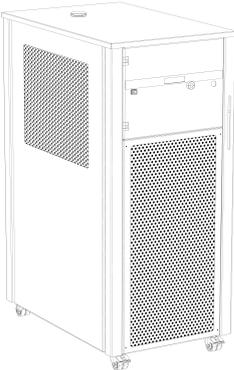
| Two displays	All parameters at a glance on two large displays
	Always all information available and easy operation at the same time
Easy flask handling	Snap flask coupling to fix the evaporating flask
	Ensures the safe and easy mounting of the evaporating flask by a single person
Safety coated glass ware	All glass assemblies (except the evaporating flask) are coated with a robust and transparent safety coating
	To protect the operator from injuries in case of a glass breakage
Indication of process parameters of R-250 Pro	Displays all operating parameters
	Indicates set and actual values of heating bath, coolant temperature and rotation speed
Dynamic distillation	Distillation process starts immediately after choosing the solvent from the library
	Starts the distillation immediately and adjusts the vacuum dynamically – even if the chiller or bath have not reached their set temperatures.
Remote control	The Interface I-300 Pro can be removed and used in combi- nation with a 15 m communication cable to remotely control the complete system
	Enables the Rotavapor® to be operated from a distance or from behind a closed fume hood

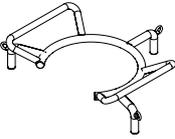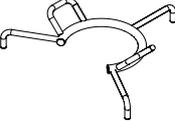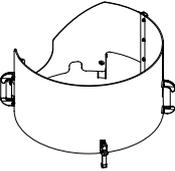|	
Remote monitoring	BUCHI Monitor APP for iOS, Android and Windows offers push notifications and live view of all process parameters Allows to track current status of distillation remotely via smart- phones / tablets and informs user when process is terminated
Charting	All parameters are graphically displayed to facilitate the super- vision of distillation. With the BUCHI Monitor APP also on your mobile device
Data recording	Process can be exported on an SD card for further analysis and traceability purpose Enables the continuous recording of all process parameters
Wear part library	Internal library lists common wear parts inclusive of order code Allows a convenient replacing process of wear parts and alerts user to check vacuum seal
Rotavapor® OpenInterface	Open Interface allows to have an status overview of different BUCHI devices and to have communication between them. Full control on all parameters and functions via PC.
Leak test	Integrated test checks system for possible leaks and displays result Allows verifying tightness of the system automatically
Different operating modes	Manual vacuum control • Manual management of pressure settings and aeration Timer function • Manual vacuum control, stops process after preset time has elapsed Continuous pumping • Pump runs constantly Methods (SOP's) • Performs distillation according to a sequence of program- med steps with defined times and parameters and graphical illustration
Multi-languages	en, de, fr, it, es, zh, ja, ru, pt-br, id, ko
Overpressure prevention	Automatic aeration when pressure is above 1000 - 1300 mbar (adjustable)
ECO-mode	Shuts down activity of bath and chiller, hence lowers energy consumption if system remains inactive for a predefined time period

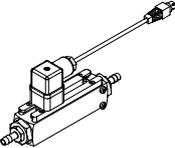# Spare parts and accessories

Accessories

System

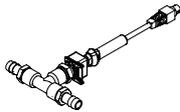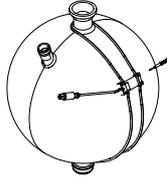|	Order no.	Image
Vacuum Pump V-600 Chemically resistant 3-stage diaphragm pump. It impresses with its silent and economical operation. Capacity and final vacuum: 3.1 m³/h, 1.5 mbar	11V600800	
Vacuum Pump V-600 Chemically resistant 3-stage diaphragm pump. It impresses with its silent and economical operation. With secondary condenser. Capacity and final vacuum: 3.1 m³/h, 1.5 mbar	11V600810	
Holder vacuum pump To safely store the vacuum pump beneath the bath	11071091	
Vacuum valve, 4 mm, 24 V, connection piece 12.5 mm Electrical valve for vacuum regulation when operated with a non-BUCHI vacuum pump.	11055928	
Vacuum pump Edwards nXDS10iC cpl. Dry scroll vacuum pump with high chemical stability and a pumping speed of 10 m3/h at 50 Hz and 60 Hz.	11080656	
Recirculating Chiller F-360 50 Hz Strong chiller with a cooling capacity of 5600 W at 15°C. Controllable via the Rotavapor R-250 Pro. The temperature range is -10°C to 20 °C and it is operated with 400 V (3PH,N,G) 50 Hz.	11F36001	
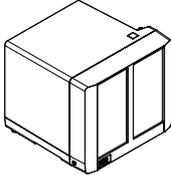
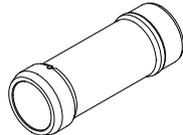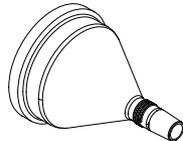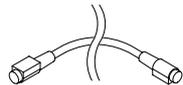|	Order no.	Image
Recirculating Chiller F-360 60 Hz Strong chiller with a cooling capacity of 6600 W at 15°C. Controllable via the Rotavapor R-250 Pro. The temperature range is -10°C to 20 °C and it is operated with 400 V (3PH,N,G) 60 Hz.	11F36002	
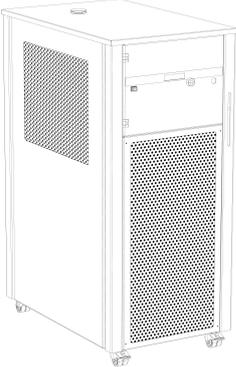
Safety

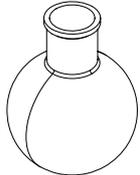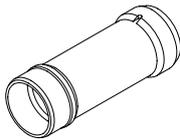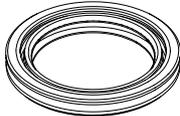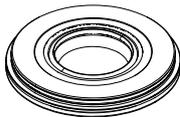|	Order no.	Image
Manual flask handler for 50 L flask For easy mounting and removal of the flasks along with safe transport	041414	
Manual flask handler for 20 L flask For easy mounting and removal of the flasks along with safe transport.	041410	
Splash protection (cpl.)	041420	
Flask crane For the safely secured transport of a 50 liter flask. Incl. the 50 liter manual flask handler.	041494	
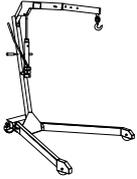
Automation
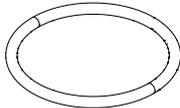
	Order no.	Image
Foam detector assembly Internal sensor detects rising foam and triggers a short aeration pulse, eliminating foam. Only in combination with a descending glass assembly.	11056083	
Cooling water flow sensor Checks the flow of coolant, stopping operation when flow of coolant is insufficient or interrupted.	11055971	

|	Order no.	Image
Cooling water temperature sensor Needed to display the coolant temperature for optimal distillation settings.	11055988	
Level sensor for receiving flask For defined concentration of product or to prevent an overflow of the secondary condenser if combined with a Vacuum Pump V-600 with secondary condenser	11056192	
Automatic bath replenishment Detects the water level in the bath to ensures a constant level and protects the bath from running dry.	11075555	

Various

	Order no.	Image
Vapor duct with integrated sinter plate The integrated sinter plate P3 protects the condenser assembly against powder and dust during the drying process.	041100	
Flange adapter for flasks , SJ29.2/32 To use a 1, 2 or 3 L evaporating flask with SJ29.2/32	11058738	
Stopper, PE, 120 mm To close the evaporating flask	11057349	
Floating balls Reduces the loss of water in the bath and safes energy.	035001	
Flask outlet suction system With magnetic tip and PTFE tube (diameter 10 mm)	041464	
IQ/OQ R-250 Pro official BUCHI document	11071749	
Communication cable. BUCHI COM, 15 m, 6p Enables connection between Rotavapor®, Interface, Vacuum Pump, Recirculating Chiller, VacuBox and LegacyBox.	11064090	

Spare parts

	Order no.	Image
Evaporating flask 50 L D150 For a sample volume of max. 25 L. Flange size 150 mm.	041339	
Evaporating flask 20 L D150 For a sample volume of max. 9 L. Flange size 150 mm.	041432	
Drying flask 20 L D150 Special shaped to dry up to 9 L product. Flange size 150 mm.	041393	
Drying flask 50 L D150 Special shaped to dry up to 25 L product. Flange size 150 mm.	041394	
Vapor duct	041084	
Vacuum seal, PTFE base	041095	
Evaporating flask seal, complete	041121	
FEP coated silicon gasket for DN25 (set of 5)	11056381	
FEP coated silicone gasket for DN40 (set of 5)	11056382	
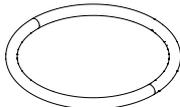
Performance

The following chart shows the maximum distillation rate.
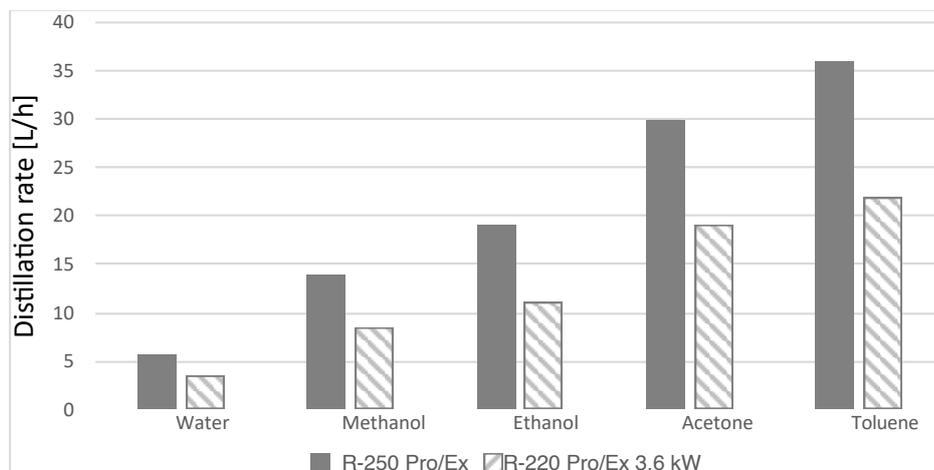
The maximum achievable distillation rate is not just related to the heating capacity, but also on rotation speed, flask size and temperature difference between bath and cooling.

To get a high distillation rate:
- set a high rotation speed
- choose a large evaporating flask (50 L)
- set a high temperature difference between bath and cooling

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