



Laboratory Evaporation Glassware

Decades of expertise in glass manufacturing

Original BUCHI glassware guarantees the highest levels of efficiency and safety thanks to outstanding precision in manufacturing. For more than 75 years BUCHI has been manufacturing innovative and durable glass parts to ease daily laboratory work.



Glassware made by BUCHI

Benefit from high quality and precision

The BUCHI experience in glass manufacturing results in glassware of outstanding quality and guarantees highest safety and increased efficiency due to our exacting standards of accuracy.

Benefits of BUCHI glassware



Highest efficiency

- Maximized vacuum stability thanks to very tight joints
- Optimum heat transmission due to optimized wall thickness of evaporating flasks
- High evaporating performance due to pear-shaped evaporating flask
- High throughput due to advanced design of condensers



Maximized safety

- Use of highly resistant glass provides highest levels of safety
- Guaranteed leak-tightness and protection against hazardous fumes thanks to high precision joints
- Maximum stability thanks to sophisticated PLASTIC+GLAS coating



Proven reliability

- More than 75 years of experience in glass manufacturing
- Durable products made with best quality raw materials
- Developed and manufactured by experienced and committed employees

Laboratory evaporation glassware quality facts



High quality materials

- Exclusive use of DURAN® borosilicate glass 3.3
- High chemical resistance against acids, alkalis and organic substances
- Resistant to thermal shocks and high temperatures combined with low thermal expansion



Accuracy

- Constant monitoring of glass wall thickness uniformity
- High degree of attention paid to sphericity of rotating glass parts
- Glass parts are tension-relieved at 560 °C



Expertise

- Unique machines developed in-house to automate repetitive manufacturing processes in order to guarantee a high level of reproducibility
- Many decades of experience guarantee top quality glass parts

“PLASTIC+GLAS” coating



Maximized safety

- Protects users from contact with chemicals in case of glass breakage
- Avoids risk of injuries when touching broken glass
- Prevents glass splitter impacts in case of implosions

Improved sturdiness

- Protects glassware from physical damage
- Is chemical resistant high quality coating

Retention of substances

- Retains valuable substance in case of glass breakage
- Valuable sample or toxic solvent vapors remain within glassware

P+G properties



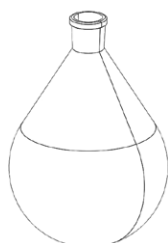
For standard applications. Available for condensers, evaporating and receiving flasks. Operating range: -30 to 60 °C



Low temperature receiving flasks are used for cold trap and other low temperature applications. Operating range: -70 to 40 °C

Evaporating flasks

High performance pear-shaped flasks for distillation of solvents.



Evaporating flask



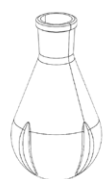
Evaporating flask, 5 L

Flask size	29/32	24/40	24/29	29/42	34/35
50 mL	000431	008750	000472	008736	
50 mL P+G	033405				
100 mL	000432	008751	000473	008737	
100 mL P+G	033404				
250 mL	000433	008754	008753	008738	
250 mL P+G	025520				
500 mL	000434	008758		008739	008759
500 mL P+G	025322	025261			
1000 mL	000435	000440	008761	008762	008763
1000 mL P+G	020729	020730	025517		
2000 mL	000436	008765	008764	008769	
2000 mL P+G	025323	025262			
3000 mL	000437	008767		008770	
3000 mL P+G	025324	025263	027346		
4000 mL	047991	047990			
4000 mL P+G	047993	047992			
5000 mL ¹	046573	046586			
5000 mL P+G ¹	046583	046596			

¹Spherical, for B-495

Drying flasks

Pear shaped flasks with notches for increased efficiency in powder drying by reducing accumulations on the glass walls.

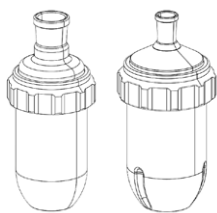


Drying flask

Flask size	29/32	24/40
500 mL	000452	011579
1000 mL	000453	000420
2000 mL	000454	011580

Beaker flasks

Beaker flasks with large screw-cap opening for easy retrieval of substances. Drying beaker flask consists of notches for increased efficiency in powder drying.



Beaker flask

Flask size	For evaporation		For drying	
	29/32	24/40	29/32	24/40
500 mL ¹	034764	034765	034767	034768
1500 mL ²	034230	034247	034269	034270

¹Working volume of 150 mL ²Working volume of 450 mL

Receiving flasks

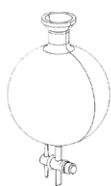
Spherical flasks with ball joint (35/20) for receiving the condensed solvents.



Receiving flask

Flask size	Standard	P+G	P+G-LT
50 mL	000421		
100 mL	000422		
250 mL	000423	11060907	11060908
500 mL	000424	025264	040774
1000 mL	000425	020728	040775
2000 mL	000426	025265	040776
3000 mL	000427	025266	040777

Spherical flask with ball joint (35/20) and with manual drain valve for draining after aeration without removal of receiving flask.



Receiving flask with drain valve

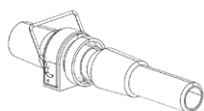
Flask size	P+G
1000 mL	036919

Glassware compatibility

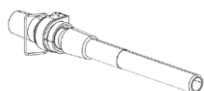
All the items of glassware shown above are compatible with the BUCHI Rotavapor® R-3, R II, R-210, R-215. Glassware compatibility with previous generations or third party rotary evaporators depends upon joint size compatibility and dimension restrictions (e.g. heating bath size). Please contact your local BUCHI representatives for more information.

Vapor ducts

Glass parts to connect the evaporating flask to the Rotavapor®. All vapor ducts include the Combi-Clip.



Vapor duct



Vapor duct (analytical)

R-215, R-210, R II

Glass assembly (vacuum seal)	29/32	24/40	29/42	24/29	34/35
A (WD26)	048164	048165	048166		048167
C and V (WD26)	048160	04816	048162	044444	048163
C and V (analytical) (WD26)	050560	050561	050562		050563
C and V (KD22)	045650				

R-3

Glass assembly (vacuum seal)	29/32	24/40
C and V (KD22)	032339	032241

Vacuum seals

Air-tight lip seals between the rotating vapor duct and the condenser.



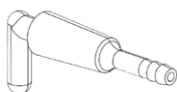
Vacuum seal

Compatibility	Vacuum seal	
R-215, R-210, R II	WD26, seal PTFE-CPPK ¹	048021
R-3	KD22, seal PTFE-CPEK	000636
R-3	KD22, seal PTFE-CPPK ¹	11056622

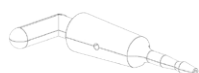
¹FDA-compliant sealing material

Stopcocks

Glass parts for aerating the Rotavapor® system.



Standard stopcock



Classic stopcock

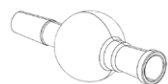
Stopcock	18.8/38
Standard stopcock	040627
Classic stopcock (less contamination)	000637
Stopcock PTFE (no grease needed)	023896

Bump trap adapters

Glass adapters for light-foaming solutions prevents foam from entering the vapor duct and condenser.



Reitmeyer

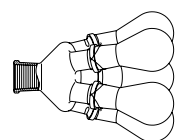


Bump trap

Type	29/32	24/40	Length
Reitmeyer	036576		135 mm
Reitmeyer		036577	150 mm
Bump trap	11056920		160 mm
Bump trap		11056919	175 mm

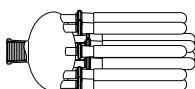
Distillation spiders

Glass parts for simultaneous distillation in 5, 6, 12 or 20 distilling flasks (cross contamination possible). Please refer to the BUCHI "Parallel Evaporation Solutions" brochure for highly efficient parallel evaporation without cross contamination.



Spider with evaporating flasks

Spider with evaporating flasks	29/32 ¹	24/40 ¹	24/29 ²
Spider with 5 x 50 mL flasks (24/29)	001332	011574	
Spider with 5 x 100 mL flasks (24/29)	001333	011575	
1 x 50 mL evaporating flask (without spider)			000472
1 x 100 mL evaporating flask (without spider)			000473



Spider with cylindric flasks

Spider with cylindric flasks	29/32 ¹	24/40 ¹	14/23 ²
Spider with 6 x 20 mL cylindric flasks (14/23)	001334		
Spider with 12 x 20 mL cylindric flasks (14/23)	001335		
Spider with 20 x 20 mL cylindric flasks (14/23)	001336	011578	
1 x 20 mL cylindric flask (without spider)			000477

¹ Joint of the spider to vapor duct ² Joint of the flask to spider

Flask holder

Holder for 50 mL - 4000 mL evaporating and receiving flasks.



Flask holder

Quantity	
1	048618
5	11059916



	A	C	V	S	CR	E	BY
	Diagonal	Cold trap	Vertical	Reflux	Cold trap reflux	Expansion	Double jacket

Applications

Distillation	•	•	•	•	•	•	•
Drying	•	•	•	•	•	•	•
Concentration	•	•	•	•	•	•	•
Reflux reaction				•	•		•
Soxhlet extraction				•			•
Re-crystallization	•	•	•	•	•	•	•

Solvent/sample properties

Boiling point range	M – H	L – M	M – H	M – H	L – M	M – H	M – H
Bumping or foaming	• ¹	• ¹	• ¹	• ¹	• ¹	•	• ¹

Characteristics

Cooling	CL	CM	CL	CL	CM	CL	CL
Cooling temperature range	H	M	H	H	M	H	H
Suitable for high throughput	•		•	•		•	•
Vapor temperature sensor			Available	Available		Available	Available
Auto distillation			• ²	• ²			
Suitable for limited space	VS	HS	HS	HS	HS	HS	HS
Condenser surface	1460 cm ²	500 cm ²	1460 cm ²	1460 cm ²	500 cm ²	1480 cm ²	1250 cm ²
Available for R-210 / R-215	•/•	•/•	•/•	•/•	•/•	•/•	•/•
Available for R II / R-3	• ^{4/-}	• ^{4/•}	• ^{3/•} ³				

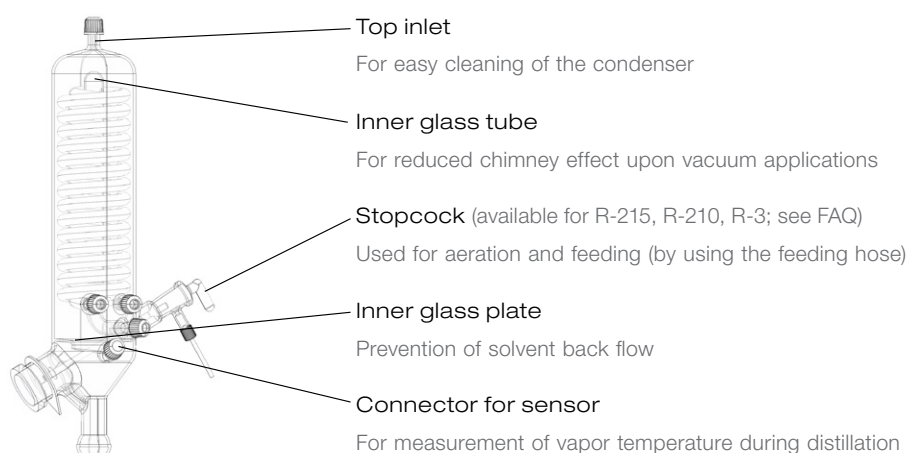
H = High M = Medium L = Low VS = Limited vertical space HS = Limited horizontal space

CL = Cooling liquid CM = Coolant mixtures (e.g. dry-ice/acetone)

¹ With Reitmeier Adapter ² Possible with stage probe only ³ Limited features ⁴ No flask feeding (screw cap only)

Vertical (V) condenser

The following features displayed are only applicable to the condenser compatible to the Rotavapor® R-215 / R-210.



Glass assemblies

All glass assemblies include a 1 liter receiving flask, required hoses and a ball joint clamp. Evaporating flask, vacuum seal, vapor duct and condenser holder are not included.

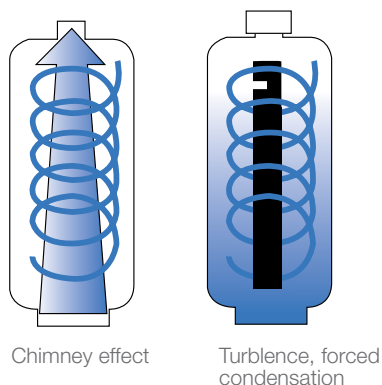
Characteristics	R-21x V	R II V	R-3 V	R-21x C	R II C	R-3 C	R-21x A	R II A	R-21x CR	R-21x S	R-21x E	R-21x BY
Top inlet	•						•	•		•	•	•
Inner glass tube	•									•		
Stopcock (feeding possible)	•	•	•	•	A	•	•	A	•	•	•	•
Inner glass plate	•											
Connector for vapor temperature sensor	•									•	•	•
Condenser holder	A ¹	A ¹	A ²	A ¹	A ¹	A ²			A ¹	A ¹	•	A ¹
Reflux possibility (part included)									•	•		•
Compatibility												
R-210 / R-215 (R-21x)	•	•	•	•	•	•	•	•	•	•	•	•
R II	•	•	•	•	•	•	•	•	•	•	•	•
R-3	•	•	•	•	•	•	•	•				

Part no. of glass assemblies

	V	C	A	CR	S	E	BY
R-210 / R-215 (R-21x)	040600	040640	048168	048292	048290	11061112	048176
R-210 / R-215 (R-21x) P+G	040602	040642	048169	048293	048291	11061113	048297
R II	048172	048174	048170				
R II P+G	048173	048175	048171				
R-3	11057056	040640					
R-3 P+G	11057057	040642					

¹Condenser holder cpl. (048180) is recommended ²Condenser holder cpl. (052893) is recommended ^AOptionally available

What is the chimney effect and how does it affect distillation efficiency?

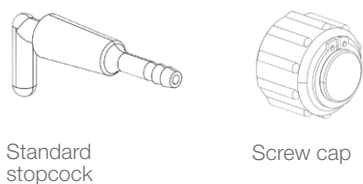


By evaporation - changing of state from liquid to gas - the volume of the sample increases by a factor up to 20,000. In the condenser the gas is re-condensed to a liquid and the volume shrinks immediately. During this evaporation-condensation process, vapor velocity at narrow points of the glass apparatus can be up to 150 km/h.

Distillation efficiency can be significantly increased by reducing the so-called chimney effect.

In order to maximize turbulence inside the condenser, the vacuum is applied at the top middle, however, the vacuum connectors are below. This optimal construction maximizes the movement of vapor inside the condenser, thus preventing fumes escaping to the vacuum source.

Can the evaporation flask be fed via the condenser stopcock?



Yes, all condensers used for R-210, R-215 and R-3 allow feeding of the evaporation flask through the standard stopcock. The C- and A-condenser for R II consist of a screw-cap instead of a stopcock and therefore does not allow feeding, a stopcock for feeding is optionally available.

Are the condensers shown on the previous page compatible with the entire current generation of BUCHI Rotavapor® product lines (R-215, R-210, R II, R-3)?

Yes, the glass assemblies V, C and A are compatible with the current generation BUCHI Rotavapor®. Glass assemblies CR, S, E and BY are compatible with the product lines R-210 / R-215 and R II only. It is recommended to also obtain a support rod (condenser holder) for glass assemblies V, C, CR, S and BY.

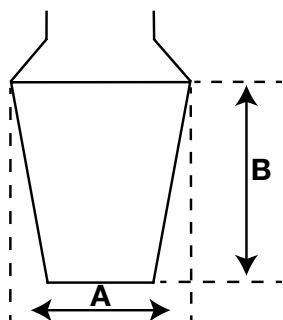
What factors influence glass shock temperature?

DURAN® borosilicate glass 3.3 is notable for its excellent temperature stability. The shock temperature is influenced by many stress factors which act cumulatively. Typical factors are tensions, vacuum, mechanical damage and shape as well as thickness of the respective glass part. Glass should be inspected visually prior to any use, especially when applying vacuums.

Are there differences between BUCHI and 3rd party evaporating flasks?

Yes, there may be several properties which set high quality BUCHI flasks apart: Optimized/uniform flask thickness, quality of joints and sphericity of the flask. All of these properties have an important impact on distillation efficiency.

What do the numbers “29/32” shown on previous pages mean?



The number-pair (e.g. 29/32) describes a joint size. The first number refers to the width of the joint (A). The second number (after the slash) refers to the length of the joint (B). 29/32 therefore means that the width of the joint is 29 mm and the length of the joint is 32 mm.

Can BUCHI provide customized glassware which is not listed in this document?

Yes, there is an additional extensive range of glassware available. BUCHI also offers customized glass according to your needs, for example amber glass for light-sensitive samples. For further information about our glassware range please contact your local BUCHI representative.



BUCHI Laboratory Evaporation Solutions

Discover our entire product range



**Rotavapor®
R-215**
Excellence in
evaporation



**Vacuum Controller
V-850 / V-855**
Achieve best process
performance



**Vacuum Pump
V-700 / V-710**
The economical way
to generate vacuum



**Recirculating Chiller
F-105**
The efficient way of
cooling

Quality in your hands

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