

Laboratory Evaporation Glassware

**Decades of expertise in  
glass manufacturing**



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 safety coating



- Proven reliability
- More than 80 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

Safety coating



- Maximized safety
- Protects users from contact with chemicals in case of glass breakage
  - Avoids risk of injuries when touching broken glass
  - Prevents glass shard 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

Safety coating properties

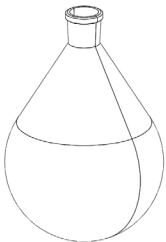
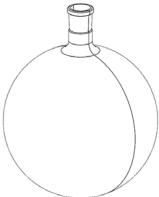
SAFETY COATING	For standard applications. Available for condensers, evaporating and receiving flasks. Operating range: -30 to 60 °C
SAFETY COATING LOW TEMPERATURE	Low temperature receiving flasks are used for cold trap and other low temperature applications. Operating range: -70 to 40 °C



Wide range of high quality BUCHI glassware  
For any rotary evaporator

Evaporating flasks

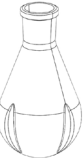
High performance pear-shaped flasks for distillation of solvents.

	Flask size	29/32	24/40	24/29	29/42
	50 mL	000431	008750	000472	008736
	50 mL P+G	033405			
	50 mL P+G-LT*	11066585			
Evaporating flask	100 mL	000432	008751	000473	008737
	100 mL P+G	033404			
Evaporating flask, 5 L	100 mL P+G-LT*	11066586			
	250 mL	000433	008754	008753	008738
	250 mL P+G	025520			
	250 mL P+G-LT*	11066587			
	500 mL	000434	008758		008739
	500 mL P+G	025322	025261		
	500 mL P+G-LT*	11066588			
	1000 mL	000435	000440	008761	008762
	1000 mL P+G	020729	020730		025517
	1000 mL P+G-LT*	11066589			
	1000 mL brown	11069664	11069667		
	2000 mL	000436	008765	008764	008769
	2000 mL P+G	025323	025262		
	2000 mL brown	11069665	11069668		
	3000 mL	000437	008767		008770
	3000 mL P+G	025324	025263		027346
	3000 mL brown	11069666	11069669		
	4000 mL	047991	047990		
	4000 mL P+G	047993	047992		
	5000 mL <sup>1</sup>	046573	046586		
	5000 mL P+G <sup>1</sup>	046583	046596		

<sup>1</sup>Spherical  
\*Evaporating flasks with low temperature P+G-LT coating for freeze drying applications with Dewar container. Operating range from -70°C to 40°C.

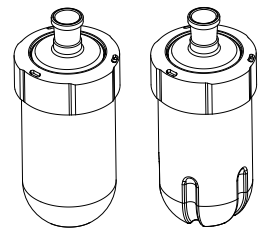
Drying flasks

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

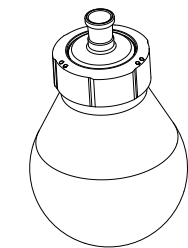
	Flask size	29/32	24/40
	500 mL	000452	011579
Drying flask	1000 mL	000453	000420
	2000 mL	000454	011580

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. Both variations can be used in the temperature range from -40 to 100 °C.



Round bottom / Drying



Pear shape  
Max. gross weight (beaker flask + sample) allowed is 3 kg

Flask size	For evaporation		For drying	
	29/32	24/40	29/32	24/40
500 mL <sup>1</sup> Convex bottom (Ø=75 mm)	11063154	11063155	11063158	11063159
1500 mL <sup>2</sup> Convex bottom (Ø=110 mm)	11063156	11063157	11063160	11063161
1500 mL <sup>2</sup> Round bottom (Ø=110 mm)	11065718	11065719	–	–
4000 mL Pear shape (Ø=110 mm)	11065690	11065691	–	–
<sup>1</sup> Working volume of 150 mL	<sup>2</sup> Working volume of 450 mL		Ø=Diameter of the flask opening	
Spare beaker flasks	500 mL <sup>1</sup> Convex bottom (Ø=75 mm)	1500 mL <sup>2</sup> Convex bottom (Ø=110 mm)	1500 mL <sup>2</sup> Round bottom (Ø=110 mm)	4000 mL Pear shape (Ø=110 mm)
	For evaporation	11059185	11059186	11065716
For drying	11059268	11059269	–	–

Receiving flasks

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

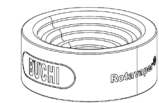


Receiving flask

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

Flask holder

Holder for 50 mL to 5000 mL evaporating and receiving flasks.



Flask holder

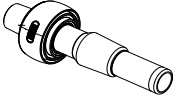
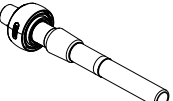

Quantity	
1	048618
5	11059916

Rotavapor® accessories


Wide range of glassware and accessories

Vapor ducts

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

	R-300, R-215, R-210, R II (with Combi-Clip*) Compatible with glass assembly				
		29/32	24/40	29/42	24/29
	A	11062267	11062268	11062269	
	V, HP, C, S, E, CR, BY	11062186	11062187	11062464	11062909
	V, HP, C (analytical)	11062465	11062466	11062467	
	For high temperatures, short Combi clip, vapor duct HT, ring NS 34/32 on 30/32	11061837			
	Vapor duct with frit SJ29/32, incl. Combi-Clip For powder drying. To prevent powder from getting into the condenser. For glass assembly V, HP, C, S, E, BY and CR.	11057297			

\*Single Combi-Clip: 11075539

	R-80, R-100, R-3000, R-144, R-134, R-124, R-114			
	Compatible with glass assembly	29/32	24/40	
	V, C, V mini and C mini	11075728	11075727	

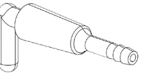
Vacuum seals

Air-tight lip seals between the rotating vapor duct and the condenser. Made from FDA-compliant sealing material.

	Compatibility	Vacuum seal	
	R-300, R-215, R-210, R II	VS26, PTFE base, NBR O-ring	11069167
	R-80, R-100, R-3	VS22, PTFE base, NBR O-ring	11075810

Stopcocks

Glass parts for aerating the Rotavapor® system.

	Stopcock	18.8/38
	Standard stopcock	040627
	Stopcock, Analytic, PTFE/25% glass fiber, SJ18.8/38	11069607
	For condenser C/CR, glass, SJ18.8/38 For aeration of the system. For cold trap outer part.	040628
	PTFE, incl. 3-way valve	11058814

Bump trap adapters

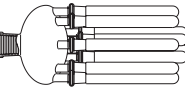
Glass adapters for excessively-foaming samples. Prevents foam from entering the vapor duct and condenser.

	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	29/32 <sup>1</sup>	24/40 <sup>1</sup>	24/29 <sup>2</sup>
	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	29/32 <sup>1</sup>	14/23 <sup>2</sup>
	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	
	1 x 20 mL cylindric flask (without spider)		000477


<sup>1</sup> Joint of the spider to vapor duct    <sup>2</sup> Joint of the flask to spider

Intermediate piece

	Connection piece with 3-way valve, placed between the condenser and the receiving flask. Allows to remove and empty the receiving flask during evaporating process.	11063430
	Combining the Multivapor™ with the Rotavapor® requires a T-shaped glass connector for the condenser of the rotary evaporator. The T-piece consist of two spherical joints for the condenser assembly and a SVL 22 joint for the vacuum tube. The length of the tube is 400 mm.	048740











Set Rotavapor® connection

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

	Flask size	P+G
	1000 mL	036919

Rotavapor® glass assemblies

Widest range of highly efficient condensers

										
	A	C	C-mini	V-mini	V	BF	S	CR	E	HP
Special Application	Diagonal	Cold trap	Cold trap mini	Vertical mini	Vertical	Back feed	Reflux	Cold trap reflux	Expansion	High performance
Reflux reaction							•	•		
Soxhlet extraction							•			

Solvent / Sample properties

Boiling point range	M – H	L – M	L – M	M – H	M – H	M – H	M – H	L – M	M – H	L – M
Bumping or foaming	• <sup>1</sup>	• <sup>1</sup>	• <sup>1</sup>	• <sup>1</sup>	• <sup>1</sup>	• <sup>1</sup>	• <sup>1</sup>	• <sup>1</sup>	•	• <sup>1</sup>

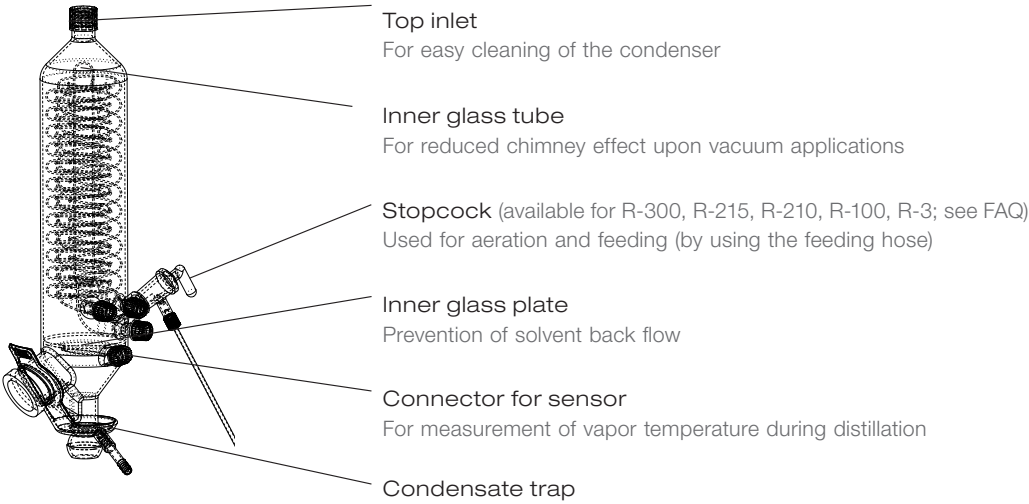
Characteristics

Cooling	CL	CM	CM	CL	CL	CL	CL	CM	CL	CL
Vapor temperature sensor					•	•	•		•	•
Foam sensor		•			•	•				•
Automatic distillation					• <sup>2</sup>	• <sup>2</sup>	• <sup>2</sup>			• <sup>2</sup>
Suitable for limited space	VS	HS	HS & VS	HS & VS	HS	HS	HS	HS	HS	HS

H = High    M = Medium    L = Low    VS = Suitable for limited vertical space    HS = Suitable for limited horizontal space  
CL = Cooling liquid    CM = Coolant mixtures (e.g. dry-ice/acetone)  
<sup>1</sup> Bump trap adapters    <sup>2</sup> Possible with AutoDest sensor only

Vertical (V) condenser

The following features displayed are only applicable to the condenser compatible to the Rotavapor® R-300.



Glass assemblies

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

	R-100		R-80		R-300							
Characteristics	V	C	V-mini	C-mini	A	V	BF	C	CR	S	E	HP
Top inlet	•				•	•	•			•	•	•
Inner glass tube						•	•			•		•
Stopcock (feeding possible)	•	•			•	•	•	•	•	•	•	•
Inner glass plate						•	•					•
Connector for vapor temperature sensor						•	•			•	•	•
Condenser holder*	052893	052893				048180	048180	048180	048180	048180	included	included
Condensate trap						•	•					•
Condenser surface max. [cm²]	1500	500	1280	450	1500	1500	1500	500	500	1500	1500	3000
Condenser height	42.0	37.2	30.2	30.0	36.5	44.3	44.3	37.2	40	40.8	34.2	64.8
Tilt angle	30	30	35	35	30	30	30	30	30	30	30	30

\*Optionally available

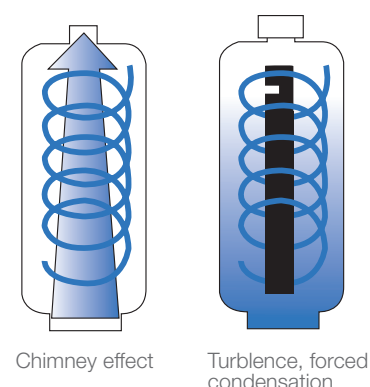
Part no. of glass assemblies

	A	C	C-mini	V-mini	V	BF	CR	S	E	HP
P+G: R-300, R-2xx	048169	040642			11062433	11074662	048293	048291	11061113	11066562
P+G R-80			11075732	11074653						
P+G: R II	048171	040642			048173					
P+G: R-100, R-3		040642			11057057					
R-100, R-3 (No savety coating)		040640			11057056					

## Benefit from the market leader

### Frequently asked questions

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

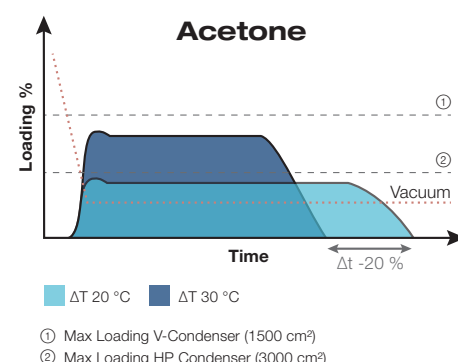


By evaporation - changing of state from liquid to gas - the volume of the sample increases by a factor up to 20,000. In the condenser the gas is re-condensed to a liquid and the volume shrinks immediately. During this evaporation-condensation process, vapor velocity at narrow points of the glass apparatus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

When is a 3000 cm<sup>2</sup> high performance condenser recommended?



High performance condenser is recommended in the following cases:

- For reduction of solvent emissions.
- For operating at higher temperature difference ( $\Delta T > 20^\circ\text{C}$ ) and lower pressure values.
- For distilling low boiling solvents.
- If faster process and greater distillation rate are required.

Are the condensers shown on the page 9 compatible with the older generation of BUCHI Rotavapor® product lines (R-215, R-210, R II, R-3)?

Yes, glass assemblies V, C, A, CR, S, E, HP and BY are compatible with the product lines R-300, R-210 and R-215 only. R-II product line is compatible with glass assemblies V, C and A. R-3 product line is compatible with V and C glass assemblies.

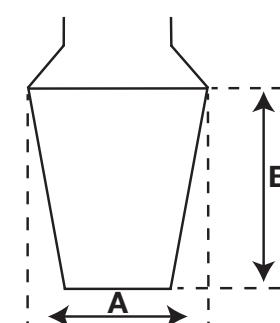
What factors influence glass shock temperature?

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.

# Core messages to our customers

## BUCHI creates added value

“Quality in your hands” is the guiding principle that shapes our philosophy and our actions. It challenges us to provide outstanding services that are precisely tailored to your needs. This means that we must stay in close contact with our customers. That is why we keep in touch and continue to work very hard to understand you and your business even better.

We help you by providing high-quality products, systems, solutions, applications and services that offer you added value. This allows you to focus entirely on your processes and your work.



### Competent

We have the technological expertise and decades of experience needed to provide competent support and work with you to continually improve our services.



### Reliable

We guarantee the quality and functionality of our equipment and will continue to help you quickly and efficiently whenever something does not operate to your satisfaction.



### Safe

By collaborating closely with you, we do everything in our power to make our products, systems, solutions, applications and services as safe as possible for people and the environment.



### Cost-effective

We strive to create a high level of economic benefit and maximum added value for you.



### Global

As an international family-owned business with own subsidiaries and qualified distributors, we have a presence wherever you are located.



### Easy

We support you by providing carefully designed solutions as well as instruments and systems that are easy to operate.



### Sustainable

We support environmentally friendly processes and manufacture products that have a long service life. We utilize advanced technologies to leave the smallest environmental footprint possible.

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We are represented by more than 100 distribution partners worldwide.  
Find your local representative at:

[www.buchi.com](http://www.buchi.com)

Quality in your hands

