

# Multivapor™

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For environmentally friendly  
parallel evaporation



## Multiply your Rotavapor®

The Multivapor™ is a compact 6 or 12 position parallel vortex evaporator that is designed to optimize existing personal process workflows. When used in combination with the Rotavapor® a unique increase in functionality is observed, as is an expansion of synergy with an impressively small footprint. In the absence of a Rotavapor® the stand-alone setup provides a comprehensive, sophisticated and independent evaporation system.



### The Rotavapor® setup – expand synergy, reduce space

In a large number of laboratories, several rotary evaporators are used to cope with the ever increasing demand of high sample throughput. The Multivapor solves this problem by heating individually sealed samples and transferring the vapor to the condenser assembly of the rotary evaporator. This concept increases the flexibility of the Rotavapor whilst reducing the total evaporation time. Hence, excellent time and resource savings are achieved on a minimal footprint.

- Save time: evaporate 6 x 150 ml or 12 x 30 ml in parallel
- Create synergy and reduce costs: one condenser, vacuum and chiller assembly for two instruments
- Maximize bench space: 27 x 40 cm (footprint) extra space
- Operate safely: no cross-contamination due to individual seals and vapor channels



### The stand-alone setup – a comprehensive benchtop solution

The stand-alone setup features a separate condenser. It requires a peripheral vacuum source with controller. The EasyVac bundle vacuum system is a low price solution for straightforward automatic distillation, whereas the sophisticated bundle allows complex programmed pressure profiles, automatic distillation, repeat functions and much more. With the BUCHI vacuum systems even complex and delicate mixtures are easily, safely and efficiently evaporated.

- Save time: automatic distillation, stored pressure profiles
- Comprehensive solution: optimal interaction between Multivapor and peripherals
- Be independent: personal setup without interference with other processes

### Environmental friendly

In contrast to nitrogen blow down evaporators, evaporation under vacuum is in accordance with the regulations of ISO 14000 that guarantees the smallest possible negative impact on the environment.



## Improve your personal process workflow

The Multivapor™ is designed to fit into particular process workflows where evaporation of multiple samples is considered a bottleneck. A flexible sealing system with a series of specific adapters covers a broad range of common glassware, rendering the time-consuming sample transfer steps obsolete.

### Extraction samples

With modern fast extraction techniques such as Pressurised Solvent Extraction (SpeedExtractor), parallel Soxhlet or hot extraction setups, a number of samples are accumulated within a short period of time and evaporated in one run.



### Reaction samples

Evaporation of samples produced from personal reaction stations or microwave syntheses is easily achieved in the same reaction tubes.

P-6: 6 x 150 ml

P-12: 12 x 30 ml

### Chromatography samples

Fractions collected in test tubes can either be directly evaporated using the P-12, or pooled first in the larger vessel of the P-6.

### Analysis

# Multivapor™: explore new ways in parallel evaporation

## Visible processing

Six or twelve transparent glass cylinders filled with water act as individual heating baths, accommodating a wide variety of vessel types with up to 6 x 150 ml or 12 x 30 ml working volume, providing optimal heat transfer. Furthermore, the samples are visible throughout the whole evaporation process.



## Small footprint

Particularly when combined with the Rotavapor, the instrument requires minimal bench top space. The footprint of the Multivapor is 27 x 40 cm.

## Easy to handle

The temperature and orbital movement settings are each adjusted with a knob. The setpoint and actual temperature is shown on a display. No other adjustments e.g. balance compensation or eccentricity are necessary. Additionally, when used in combination with the sophisticated vacuum controller V-855 the whole distillation process is performed automatically.



## Safe and simple sample preparation

The sample preparation rack in combination with the transfer rack provides a suitable tool to prepare all samples in advance and to transfer the whole assembly into the evaporation rack. Therefore, exposure to the heating medium is minimized and every sample is equally conditioned.



## Environmental friendly and safe

Evaporation under vacuum is in compliance with the ISO 14000 certification, denoting the smallest possible negative impact on the environment. The vapor transferred via the vacuum hose is condensed in either a cold trap, a coiled condenser or the condenser assembly of the Rotavapor. Plastic+Glass coating and an optional safety shield provides effective protection in case of glassware breakage.



## Foam protection

In order to reduce contamination of the vacuum cover by foaming and splashing or boiling retardation, an optional porous PE frit can be placed in the vessel adapter closing the vapor duct. This measure also allows sample adsorption onto silica for subsequent chromatographic purposes.



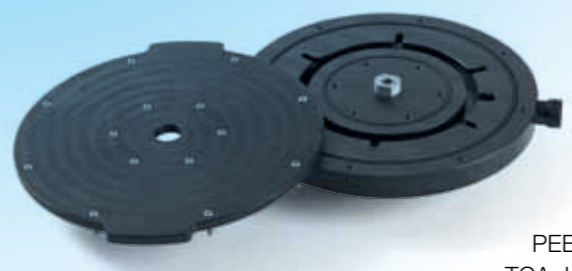
## High throughput

Specific adapters are available for a number of different sample vessels in order to allow the instrument to integrate into existing process workflows. The vessels vary in shape, length and diameter. All adapters of the same format (e.g. P-12) can be mixed arbitrarily in the transfer rack. A comprehensive list is shown in the Multivapor Adapter Guide p. 7).



## No cross contamination

Each sample is independently connected to the vacuum cover. The vapor is transferred in grooved channels to prevent cross contamination to the adjacent samples. The standard cover consists of PETP which is suitable for most applications. For very harsh conditions on a regular basis, PEEK is the recommended alternative (e.g. for TFA, TCA, HCl or NaOH).



# Accessories

## Exchangeable evaporation units



Set comprising the exchangeable crystal rack and the vacuum cover. Vacuum covers are available in PETP or PEEK.

	Order no.	
Evaporation unit	PETP	PEEK
P-12	11058092	11058093
P-6	11058090	11058091

## Wouff bottle set



Trap to be fixed on the side of the instrument that collects any condensate before it reaches the condenser. Holder and additional hose included.

	Order no.
Wouff bottle set	11057282

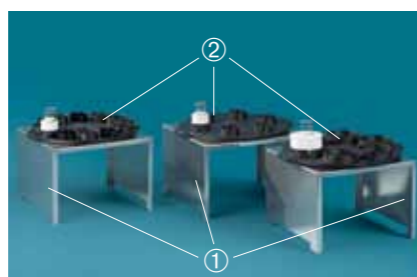
## Vacuum system



Chemically resistant PTFE diaphragm pump with final vacuum of <10 mbar, sec. condenser, Wouff bottle and V-850/V-855 controller for accurate vacuum control.

	Order no.
V-700	71000
V-700/850, type S	71211
V-700/855, type C	71311

## Preparation/Transfer racks



Preparation ① and transfer rack ② for convenient sample preparation.

	P-6	P-12
Preparation rack	49783	49755
Transfer rack	49250	49251
Transfer rack for P-12 Adapter	11055146	

## Condenser assemblies



Plastic + Glas coated condenser assemblies with either 1 or 2 l flasks. Type S designates a condenser with a cooling coil and type C with a cold trap.

	Order no.
Type S, 1 l	48889
Type S, 2 l	48890
Type C, 1 l	48887
Type C, 2 l	48888

## Recirculating chillers



Recirculating chillers for operation with type S condenser.

	Order no.
F-100, 230V; 50/60Hz 500W	11056460
F-100, 115V; 50/60Hz 500W	11056461
F-108, 230V; 50/60Hz 800W	11056464
F-108, 115V; 50/60Hz 800W	11056465

## Safety shield



Transparent polycarbonate safety shield covering the evaporation unit for additional protection in the event of implosion or explosion.

	Order no.
Safety shield	48784

## Rotavapor® set



Rotary evaporator connection interface comprising of a vacuum hose, clip and T-piece for the Rotavapor combination.

	Order no.
Rotavapor set	48740

# Multivapor™ Adapter Guide

for the new generation adapter (since April 2011)

The Multivapor Adapter Guide lists the full range of tube adapters for the P-6 and P-12 configurations. All adapters of the same format (i.e. P-6 or P-12) can be mixed arbitrarily in the transfer rack as the outer dimensions are identical. Each









adapter set comprises 6 or 12 adapters with the corresponding seals and springs. Extra seals are recommended as spare parts. The standard material of the adapters is PETP. For very harsh conditions PEEK alternatives are avail-

able on request. Retaining springs facilitate the opening of the cover. Blank adapters are recommended to close vacant positions. With the help of label rings – available in two colors – similar adapters can easily be distinguished.

## A) Common adapter accessories

Order no.	Item	P-6	P-12	Picture
48791	Set consisting of 12 blank PETP adapters P-12		<input checked="" type="checkbox"/>	
48796	Set consisting of 12 blank PEEK adapters P-12		<input checked="" type="checkbox"/>	
49729	Set consisting of 6 blank PETP adapters P-6	<input checked="" type="checkbox"/>		
49730	Set consisting of 6 blank PEEK adapters P-6	<input checked="" type="checkbox"/>		
44856	Set consisting of 60 PE frits	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
51490	Set consisting of 60 small PE frits for 11057239 and 11057240		<input checked="" type="checkbox"/>	
48756	Set consisting of 12 adapter springs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
49617	Set consisting of 12 green label rings		<input checked="" type="checkbox"/>	
49618	Set consisting of 12 black label rings		<input checked="" type="checkbox"/>	
48867	Set consisting of 12 EPDM rings for vacuum cover	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
48827	Set consisting of 12 FKM rings for vacuum cover	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
48849	Set consisting of 12 FFKM rings for vacuum cover		<input checked="" type="checkbox"/>	
53132	Set consisting of 6 FFKM rings for vacuum cover	<input checked="" type="checkbox"/>		



## B) Multivapor™ P-12 threaded tubes

Tube adapter set with seals and springs (qty 12)			Extra seals	Compatible glassware		
Adapter for:	PETP	PEEK		Distributor or supplier (dimensions, volume/working volume)	Order-no. <sup>2)</sup>	Picture
BUCHI standard tube P-12 (round bottom), SpeedExtractor tube (flat bottom) and Supelco screw cap vial. Generally: fits SVL 22 and GPI 24-400 screw threads. (Compatible with ASE)	11057082	11057178	11057468	<ul style="list-style-type: none"> <li>BUCHI: Set of 25 BUCHI standard round bottom tubes (27 x 140 mm, 60 ml/30 ml)</li> <li>BUCHI: Set of 72 SpeedExtractor tubes, flat bottom (27 x 140 mm, 60 ml/30 ml)</li> <li>Sigma-Aldrich: Set of 100 Supelco screw cap vials (29 x 80 mm, 40 ml/20 ml)</li> </ul>	49662 49535 27028-U	
Radleys Carousel 12 Reaction Station tubes.	11057084	11057185	11057468	<ul style="list-style-type: none"> <li>RDT: Set of 12 threaded reaction tubes (24 x 150 mm, 60 ml/30 ml)</li> </ul>	RR98062	
Quick-Thread Radleys Carousel 12 Reaction Station tubes	11056863	n.a.	11057468	<ul style="list-style-type: none"> <li>RDT: Set of 12 Quick-Thread Glass Reaction tubes (24 x 150mm, 60ml/30ml)</li> </ul>	RR91081	
Disposable conical polypropylene Falcon tubes with an outer diameter of 30 mm and an approximate length of 115 mm.	11057194	11057195	No gasket	<ul style="list-style-type: none"> <li>VWR: Set of 500 conical polypropylene centrifuge tube (30 x 115 mm, 50 ml/25 ml)</li> <li>Fisher: only Falcon BlueMax tubes</li> </ul>	525-4216 14-432-22	
Disposable conical polypropylene Falcon tubes with an outer diameter of 17 mm and an approximate length of 115 mm.	11057083	11057181	11057468	<ul style="list-style-type: none"> <li>VWR: Set of 500 conical polypropylene centrifuge tube (17 x 115 mm, 15 ml/8 ml)</li> <li>Fisher: only Falcon BlueMax tubes</li> </ul>	734-0452 05-527-90	
GL 25 threaded tube typically used for Duran® laboratory bottles.	11057085	1)	11057468	<ul style="list-style-type: none"> <li>OMNILAB: Centrifuge tube (24 x 100 mm, 23 ml/10 ml)</li> </ul>	n.a.	
GL 32 threaded tube typically used for Duran® laboratory bottles.	11057191	1)	11057468	<ul style="list-style-type: none"> <li>OMNILAB: Centrifuge tube (34 x 100 mm, 45 ml/20 ml)</li> </ul>	n.a.	
Pyrex tubes with screw caps and PTFE rubber discs – ideal for culture work.	11057086	1)	11057468	<ul style="list-style-type: none"> <li>Barloworld Scientific: Pyrex screw cap tubes (20 x 100 mm, 30 ml/15 ml)</li> </ul>	n.a.	



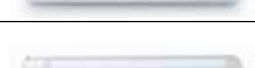

1) PEEK tube adapters are available on request with a delivery time of approx. 8 weeks.

2) Only BUCHI items are available from BUCHI. For all other items – denoted in grey – please contact a local dealer.  
Note: The order codes in grey may vary from country to country.

## C) Multivapor™ P-12 flange tubes (crimp top vials) longer than 60 mm and the following flange dimensions: OD 17-22 mm; ID 10-15 mm




Tube adapter set with seals and springs (qty 12)			Extra seals	Compatible glassware		
Adapter for:	PETP <sup>1)</sup>			Distributor or supplier (dimensions, volume/working volume)	Order-no. <sup>2)</sup>	Picture
Flange tubes with body diameter > 17 mm (body bigger than flange), typically used for microwave synthesis (e.g. Biotage).	49747	Seals 49757 Springs 49731	<ul style="list-style-type: none"> <li>Biotage: Set of 55 microwave safe glass vials (10 – 20 ml)</li> <li>Fisher: Wheaton V vials (20 x 61 mm, 5 ml/2,5 ml)</li> </ul>	354833 22-021-832		
Flange tubes with body diameter ≤ 17 mm (flange bigger than body), typically used for microwave synthesis (e.g. Biotage).	49758	Seals 49757	<ul style="list-style-type: none"> <li>Biotage: Set of 100 microwave safe glass vials (0.5 – 2 ml, 2 – 5 ml, respectively)</li> </ul>	352016		

## D) Multivapor™ P-12 test tubes without a rim or flange longer than 70 mm

Tube adapter set with seals and springs (qty 12)			Extra seals	Compatible glassware		
Adapter for:	PETP <sup>1)</sup>			Distributor or supplier (dimensions, volume/working volume)	Order-no. <sup>2)</sup>	Picture
Test tubes with OD = 25 ± 0.5 mm Compatible with FC30 Sepacore® fraction collector rack.	48873	49733	<ul style="list-style-type: none"> <li>BUCHI: Set of 50 test tubes (25 x 150 mm, 60 ml/30 ml)</li> </ul>	38469	25 	
Test tubes with OD = 20 ± 0.5 mm	48778	48779	<ul style="list-style-type: none"> <li>BUCHI: Set of 100 test tubes (20 x 150 mm, 40 ml/20 ml)</li> </ul>	42845	20 	
Test tubes with OD = 17 ± 0.5 mm	49708	48709	<ul style="list-style-type: none"> <li>Not available from BUCHI</li> </ul>	n.a.	17 	
Test tubes with OD = 16 ± 0.5 mm Compatible with FC60 Sepacore® fraction collector rack.	48770	48773	<ul style="list-style-type: none"> <li>BUCHI: Set of 100 test tubes (16 x 130 mm, 20 ml/10 ml)</li> </ul>	38543	16 	

## E) Multivapor™ P-12 threaded vials


The small diameter of these vials requires extra PE frits with a smaller diameter which are included in the extension set.

Tube with extension (qty 12)				Frits	Compatible glassware		
Adapter for:	PETP	PEEK	Extra seals		Distributor or supplier (dimensions, volume/working volume)	Order-no. <sup>2)</sup>	Picture
Small threaded vials with GPI 13-425 cap size, typically manufactured from borosilicate glass, autoclavable.	11057239	11057240	51489	51490	<ul style="list-style-type: none"> <li>Sigma-Aldrich: Set of 200 Wheaton vials (15 x 46 mm, 4 ml/2 ml)</li> <li>VWR: Set of 500 Chromacol vials (15 x 46 mm, 4 ml/2 ml)</li> </ul>	Z18870-1PAK 548-1214	
22 threaded glass vials with screw cap length 45 to 85 mm, outer diameter 27.5 (Please verify the tube compatibility before ordering)	11055486	1)	53125	44856	<ul style="list-style-type: none"> <li>Not available from BUCHI</li> </ul>	n.a.	
KIMAX and IWAKI 15 threaded glass test and culture tubes with screw cap length 60–125 mm, outer diameter 16mm (Please verify the tube compatibility before ordering)	11055275	1)	51489	44856	<ul style="list-style-type: none"> <li>Not available from BUCHI</li> </ul>	n.a.	

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## F) Multivapor™ P-6 vessels

Tube adapter set with seals and springs (qty 6)			Extra seals	Compatible glassware		
Adapter for:	PETP	PEEK		Distributor or supplier (dimensions, volume/working volume)	Order-no. <sup>2)</sup>	Picture
BUCHI standard tube P-6 with round bottom, GL 45 screw thread.	11056598	11057243	11057469	<ul style="list-style-type: none"> <li>BUCHI: Set of 6 standard P-6 tubes (60 x 135 mm, 220 ml/150 ml)</li> </ul>	49774	
BUCHI SpeedExtractor flat bottom extraction vessel. (Compatible with Dionex ASE 300). BUCHI standard tube P-12 (round bottom), BUCHI Speed-Extractor tube (flat bottom) and Supelco screw cap vial. Generally: SVL 22 and GPI 24-400 screw threads fit.	11056585	11057253	11057469	<ul style="list-style-type: none"> <li>BUCHI: Set of 6 SpeedExtractor vessels (60 x 135 mm, 240 ml/180 ml)</li> </ul>	52672	
Radleys Carousel 6 Reaction Station cylindrical round bottom reaction flask. Also compatible with 50 ml flasks.	11056607	11057257	11057469	<ul style="list-style-type: none"> <li>RDT: Set of 6 cylindrical reaction flasks (60 x 110 mm, 170 ml/100 ml)</li> <li>RDT: Set of 6 round bottom flasks (50 x 110 mm, 50 ml/30 ml)</li> </ul>	RR99052 RR99070	
SJ 29/32 flask with a maximum diameter of 58mm. E.g. 50 ml round bottom flask. Consisting of 6 standard adapters 11056585, 6 glass joint/SVL 22 adapters and 6 clamps	11056909	n.a.	11057469	<ul style="list-style-type: none"> <li>BUCHI evaporation flask 50 ml</li> <li>BUCHI evaporation flask 100 ml</li> </ul>	00431 00432	
SJ 29/32 flask with a maximum diameter of 58mm. E.g. 50 ml round bottom flask. Clamping the flange of the flask.	11056938	n.a.	03575	<ul style="list-style-type: none"> <li>BUCHI evaporation flask 50 ml</li> <li>BUCHI evaporation flask 100 ml</li> </ul>	00431 00432	

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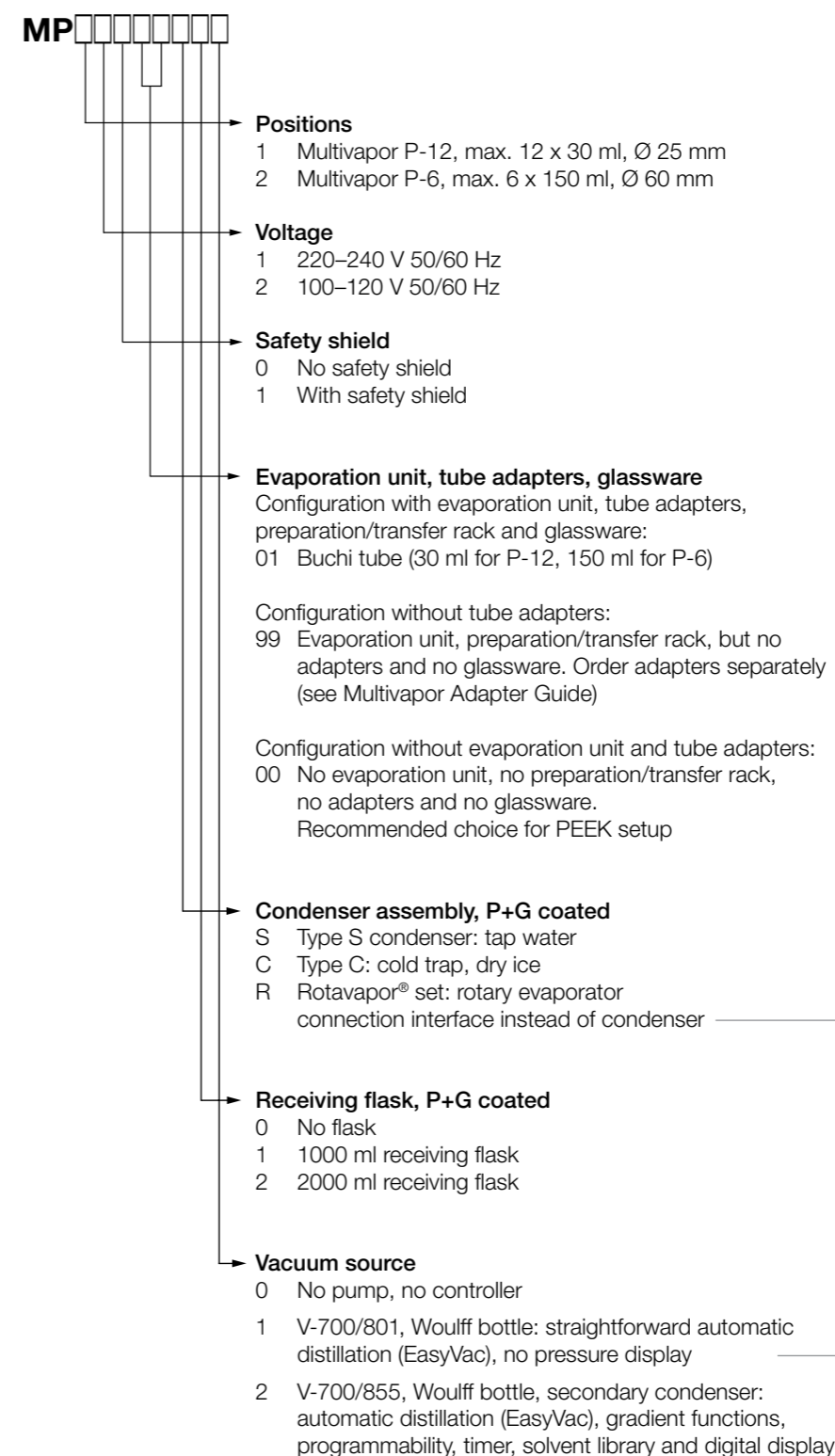
### Customised Adapter for Multivapor P-12 and P-6

To get best results and fasten up the process please follow the instruction and contact your local sales organization. My tube is:

- P-6:** within the limitations for a screw thread tube: length 70 – 150 mm; OD 14 – 58 mm; ID > 10 mm; thread: at least 2 windings
- P-12:** within the limitations for a screw thread tube: length 70 – 150 mm; OD 14 – 30 mm; ID > 10 mm; thread: at least 2 windings
- P-12:** within the limitations for a flange tube: length 50 – 150 mm; OD 14 – 30 mm; ID > 10 mm; OD flange 14-22 mm
- P-12:** within the limitations for a screw thread vial: length 15 – 70 mm; OD 15 – 25 mm; ID > 7 mm; thread: at least 2 windings

## Ordering information

With the ordering matrix any personal configuration including the vacuum pump and controller can be compiled into a bundle. All evacuated glass parts – except the sample vessels – are Plastic+Glas coated to provide maximum safety. PETP is the standard material for the cover and adapters.



### Multivapor™ Rotavapor®



Solution for combining with an already existing rotary evaporator.

### Multivapor™ Professional



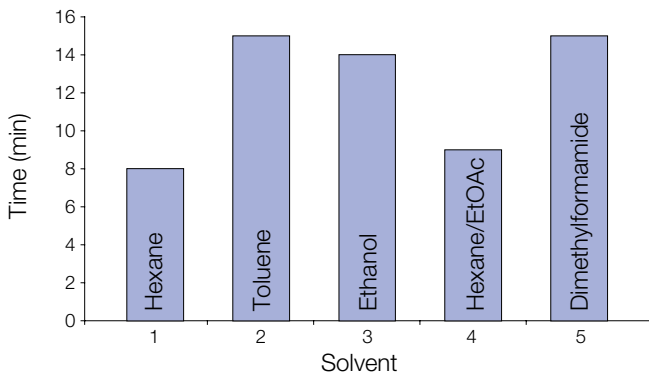
Comprehensive solution for automatic distillation, sophisticated vacuum control with pressure profiles, repeat function, sec. condenser and much more.



Find the Multivapor Adapters Guide with information about gaskets and spare parts (shipped before April 2011) on:

[www.buchi.com](http://www.buchi.com) → parallel evaporation → Multivapor

# Performance data



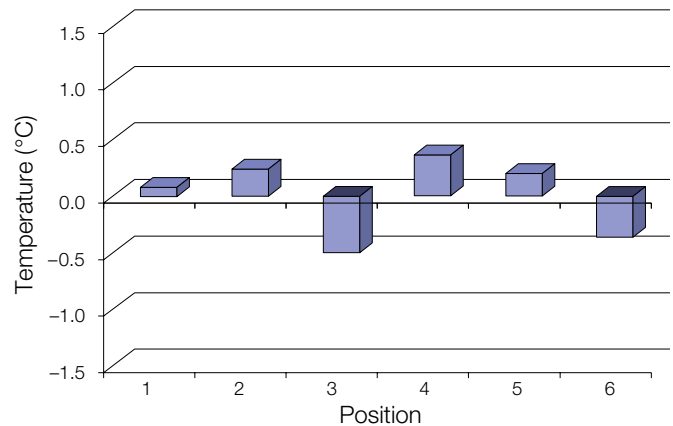
### Conditions:

Volume: 12 x 25 ml; temperature settings: 50 °C rack (80 °C for DMF), 5 °C condenser; vacuum settings: optimized gradient for each sample using the controller V-855. A detailed comprehensive list of applications is collected in the Multivapor Application booklet on the internet:

[www.buchi.com](http://www.buchi.com) → Parallel Evaporation.

# Temperature distribution

A uniform temperature distribution across all positions allows reproducible conditions with minimal deviation.



### Conditions:

12 x 30 ml water; temperature measured in equilibrium at 50 °C rack temperature.

# Technical data

Dimensions (W x H x D)	270 x 400 x 400 mm
Weight	22 kg for P-6; 21 kg for P-12
Power consumption	max. 800 W
Electrical requirements	100–120 VAC or 220–240 VAC ± 10% 50/60 Hz
Temperature range	ambient to 95 °C
Temperature deviation	± 3 °C max. (instrument calibrated at 20 °C)
Orbital movement	0–370 rpm for P-6; 0–485 rpm for P-12
Possible tube dimensions	OD 16–60 mm, L 110–150 mm for P-6; OD 15–30 mm, L 15–150 mm for P-12
Working volumes	10–150 ml for P-6; 0.5–30 ml for P-12
Material in contact with sample	PETP (or PEEK alternatively), PTFE, PFA, glass
Safety class	IP21
Approvals	CE

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

Quality in your hands

