9. Vacuum technology Vacuum pumps/Aspiration systems-Vacuum drying/Desiccators



1 BioChem-VacuuCenter BVC 21 NT/BVC 01

 Powerful or gentle aspiration of fluid supernatants down to microlitre volumes using VA thumb-wheel fine tuning

VACUUBRAND

- Automatic vacuum control without need for a hand or foot switch
- Vario models with variable vacuum level for gentle or powerful aspiration. Quiet, smooth operation due to speedcontrolled pump.
- Handset removable without spilling or loss of vacuum due to self-closing quick-release coupling.
- Double connector allowing a second user reduces investment cost.

BVC 21 NT supplied with chemistry diaphragm pump. BVC 01 (without pump) to connect to a vacuum network.

Dimens	ions (WxDxH):
Supply	requir	ements:

275 x 450 x 520mm 230V 50/ 60Hz

Туре	Weight	Supply requirements	РК	Cat. No.
	kg	V		
BVC 01	4.0	CEE	1	9.882 972
BVC 01	4.0	CH	1	9.882 973
BVC 21 NT	11.8	CEE	1	9.881 375
BVC 21 NT	11.8	СН	1	9.881 376



2 Accessories for BioChem-VacuuCenter BVC 21 NT/ BVC 01

VACUUBRAND

Туре	РК	Cat. No.
VacuuHandControl VHC handset with tubing	1	9.882 974
VacuuTransContainer VTC	1	9.882 976
Quick coupling to connect VHC-VTC	1	9.882 978
Protection filter 0.2µm, hydrophobic, with tubing	1	9.882 979



3	Desiccators, gla	ass, knob lid
0	Desirection of give	

4 Desiccators, glass, vacuum

DURAN[®]. Clear glass. With ground flange and knob lid. Without disc or plate. DURAN Group Vacuum-tight. DIN 12491.

DN	Height	PK	Cat. No.
	mm		
100	187	1	9.042 019
150	252	1	9.042 031
200	309	1	9.042 038
250	357	1	9.042 043
300	433	1	9.042 047



		s. With ground fla m-tight. To DIN 1	inge and Novus stopcock assembly in lid. Without 2491.	D	URAN Group
DN	Height	Tube socket		РК	Cat. No.
100	mm	NS			
100 150	174 239	24 / 29 24 / 29		1	9.042 119 9.042 131
200	239	24 / 29		1	9.042 131
250	344	24 / 29		1	9.042 138
300	420	24 / 29		1	9.042 143

1 Desiccator lids

 ${\sf DURAN}^{\$}.$ Clear glass. Knob lid. Fits all desiccator bases with the corresponding flat flange. Vacuum-tight. DIN 12491.

	5				
DN	Height	ID	D	PK	Cat. No.
		Flange	lange		
		-	-		
	mm	mm	nm		

100	75	119 153 ± 2	1	9.042 319
150	98	172 215 ± 2	1	9.042 331
200	107	224 270 ± 2	1	9.042 338
250	122	274 320 ± 2	1	9.042 343
300	150	332 380 ± 2	1	9.042 347

2 Desiccator lids

DURAN[®]. Clear glass. Tube top, for Novus stopcock assembly. Without stopcock. Vacuum-tight. DIN 12491.

332 380 ± 2

DN	Height NS	ID OD	PK	Cat. No.
	-	Flange Flange		
	mm	mm mm		
100	62 24 / 29	119 153 ± 2	1	9.042 419
150	85 24 / 29	172 215 ± 2	1	9.042 431
200	94 24 / 29	224 270 ± 2	1	9.042 438
250	109 24 / 29	274 320 ± 2		9.042 443

3 LLG Plate for desiccator, porcelain		(NEW!)
DIN 12911		
Dia.	РК	Cat. No.
mm		
90	1	9.042 801
140	1	9.042 802
190	1	9.042 803
235	1	9.042 804
280	1	9.042 805

4 Desiccator plates, porcelain

137 24/29

300

280

Perforated. Without feet. To DIN 12911. 20mm diameter central hole and 5mm diameter Haldenwanger outer holes. Dia. PK Cat. No. mm 90 9.042 509 1 140 9.042 514 1 9.042 519 190 1 235

5 Desiccator disc, Type 5312, enamel

Light-green, ceramic-metal composite. With numbered quadrants. Autoclavable. Nalgene Recommended for use with 7.048 802 and 9.042 690. ۱.

Туре	Ext.	PK	Cat. No.
	diam.		
	mm		
5312	230	1	9.042 573

6 De	esiccator stopcock		
Borosilio	cate glass 3.3. With PTFE spindle. To fit side outlet. For NOVUS-type desiccators.		Lenz
Length	NS	РК	Cat. No
Length mm	NS	РК	Cat. No

9. Vacuum technology Vacuum drying/Desiccators

DURAN Group

DURAN Group

9.042 447

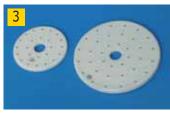
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9.042 528













Lenz

Kartell

9. Vacuum technology Vacuum drying/Desiccators



1 Desiccator stopcock

Borosilicate glass 3.3. With PTFE spindle. To fit tube top lid. For NOVUS-type desiccators.

Length	NS
mm	
101	01/00

Length mm	NS	PK	Cat. No.
mm			
124	24 / 29	1	9.042 505



2 Desiccators, vacuum, O- ring seals

Soft rubber. These O-ring seals make glass lubrication unnecessary. Suitable for desiccators, Witt jars etc.

For DN	PK	Cat. No.
mm		
100	1	9.042 710
150	1	9.042 715
200	1	9.042 720
250	1	9.042 725
250 300	1	9.042 730



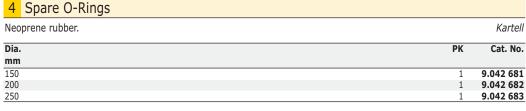
3 Desiccators, plastic, vacuum, PC/PP

Crystal clear, PC dome lid. PP. Lower section and desiccant tray. Venting stopper with non-return valve in lid. Polychlorbutadiene rubber (CK) O-ring seal between lid and base which is compressed when vacuum is applied. Lightweight and easy to use.

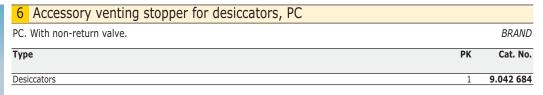
Nominal dia.	Dia.	Height	РК	Cat. No.
mm	mm	mm		
150	170	195	1	9.042 615
200	235	240	1	9.042 620
250	285	300	1	9.042 625







5 Desiccator plates, PP		
PP. For use at room temperature. Not suitable for use with hot crucibles.		Kartell
Dia.	PK	Cat. No.
mm		
141	1	9.042 674
189	1	9.042 675
238	1	9.042 676





9. Vacuum technology Vacuum drying/Desiccators-Desiccator cabinets

1 Desiccators, Type 5309, 5310, PC, blue		NEW!	1
Transparent PC bell and blue PP lower part. Will not break or implode under vacuum provided that the operating instructions are obeyed. Lower part is resistant to diluted acids, alkalis and other common desiccants. Vacuum connection at lower part. TFE stopcock is suitable tubing 6.4mm i.d. For air tight sealing it is sufficient to grease sealing surface a little. No additional sea necessary. The additional rim at the bell prevents grease stains on lab benches.			Ŝ
External diameter: 330mm			1000
Internal diameter: 246mm			
Type Description	РК	Cat. No.	
5309 Desiccator, without stopcock	1	7.048 801	
5310 Desiccator, with stopcock (not autoclavable)	1	7.048 802	
2 Desiccator, Type 5311, PC			2
Transparent, lightweight, unbreakable, for vacuum or non-vacuum use. With stopcock.		Nalgene	(FROM
Large, stable base. No danger of implosion. Capable of maintaining 0.95bar negative			
pressure over a 24 hour period. With silicone O-ring, no lubrication required. Suitable for 230mm diam	eter d	esiccator	The second secon
discs or plates. Max. height over plate 195mm. Plate not included. External diameter: 280mm			
Internal diameter: 251mm			C
Туре	РК	Cat. No.	
5311	1	9.042 690	

Vacuum drying ovens please see page 786

3 Desic	cator cabir	nets, Min	ni desiccators, PS		
catches for		Door opens	ors with rubber seals and two chrome-plated downwards and can be folded away into the base.		SICCO
			2005.		
Width	Depth	Height	2405.	РК	Cat. No.
	· ·		2005.	PK	Cat. No.
Width mm	Depth	Height	2005.	РК 1	Cat. No. 9.042 646
Width	Depth mm	Height mm	2005.	РК 1 1	

4 Desiccator Star, PMMA

Desiccators are designed for storing or drying humidity-sensitive products, using silica gel. The tight fitting door protects the contents from atmospheric contamination. The

controlled environment inside the desiccators are ideal for storing reference materials, library samples, metallographic specimens, tobacco and DNA-samples. Includes four transparent acrylic shelves, tray, hygrometer and desiccant, with positions for up to 26 shelves and stackable.

- reinforced aluminium frame with acrylic panels

- door with magnetic catch and circular rubber seal
- non-slip rubber feet
- easy to read electronic hygrometer
- variable height shelves made of acrylic glass
- telescopic shelves
- desiccant tray
- silica gel included

Properties

Туре	Internal	External	Weight	РК	Cat.
Total all-over lo	bad	30kg			
	ver load per shelf	10kg			
Stand:		rubber feet			
Use:		normal pressure			
Usable volume,	/Total volume	42/45L			
Temperature re		-20°C to + 70°C			
Material:		PMMA			
Panels:		clear			

Туре	Internal dimensions (W x D x H)	External dimensions (W x D x H)	Weight	РК	Cat. No.
	mm	mm	kg		
Star - Desiccator	260 x 330 x 480	310 x 375 x 525	7.0	1	9.042 651





9. Vacuum technology Vacuum drying/Desiccator cabinets



1 Desiccators Super Star, PMMA

Gas filling Desiccators provide ideal conditions for the safe and secure storing of SICCO poisonous chemicals. An inert gas such as nitrogen can be introduced as soon as the door is closed tightly. Unlike the ambient air, the inert gas does not react with the stored substances. Includes four transparent acrylic shelves, positions for up to 26 shelves, hygrometer, tray, desiccant and tubing with quick coupling for gas filling and door lock. - reinforced aluminium frame with acrylic panels

- door with magnetic catch, circular rubber seal and cylinder lock
- non-slip rubber feet
- extra big electronic hygrometer
- variable height shelves made of acrylic glass
- telescopic shelves
- two connections for gas filling with quick couplings
- non-return valve and tubing

Properties		
Panels:	clear	
Material:	PMMA	
Temperature resistance:	from -20°C to +70°C	
Usable volume/Total volume	42/45L	
Use:	normal pressure	
Stand:	rubber feet	
Maximum all-over load per shelf	10kg	
Total all-over load	30kg	

Туре	Internal dimensions (W x D x H)	External dimensions (W x D x H)	Weight	РК	Cat. No.
	mm	mm	kg		
Super-Star	260 x 330 x 480	310 x 375 x 525*	7.1	1	6.800 667
* Additional anago requirement	t for coupling 150mm por side				

Additional space requirement for coupling, 150mm per side.



2 Desiccator Auto-Star, PMMA

Auto-Star	260 x 330 x 480	310 x 375 x 525	7.3	1	6.201 892
Туре	Internal dimensions (W x D x H) mm	External dimensions (W x D x H) mm	Weight	РК	Cat. No
Total all-over lo	ad	30kg			
	ver load per shelf	10kg			
Stand:		rubber fee	et		
Use:		normal pr	essure		
Usable volume/		42/45L			
Temperature res	sistance:	-20°C to	+70°C		
Material:		PMMA			
Panels:		clear			
Properties	interior number betwee				
,	ing interior humidity betwe	en 20% and 30%			
 telescopic she automatic dry 					
0	t shelves made of acry	lic glass			
	electronic hygrometer	P. 1			
- non-slip rubbe					
	gnetic catch and circula	r rubber seal			
- reinforced alu	minium frame with acr	ylic panels			
	to 26 shelves and stac			de unu nygrennete	
			h four transparent acrylic shelv		
			rage. Even frequent opening ition for storing reference mate	rials electronics	nhoto
			ty of between 20% and 30%,		SICCO



9. Vacuum technology Vacuum drying/Desiccator cabinets

1

1 Desiccator Auto-Big-Star, PMMA (NEWI) SICCO Including two shelves made of stainless steel, tray and hygrometer, usablewith up to 17 shelves, stackable. - Reinforced aluminium frame with acrylic panels - Door with magnetic catch and circular rubber seal - Four casters (two of the casters with brakes) - Easy to read electronic hygrometer - Variable height shelves made of stainless steel - Telescopic shelves - Automatic drying - Constant low interior humidity between 20% and 30% Properties Excess length of drying unit: 100mm Usable volume: 140L Total volume: 150L 30kg Maximum all-over load per shelf: Total all-over load: 80kg Internal External PK Cat. No. Туре Weight dimensions dimensions (W x D x H) $(W \times D \times H)$ mm mm kg Auto-Big-Star 495 x 540 x 500 560 x 580 x 560 22.0 9.042 007

2 Desiccator Big Star, PMMA

To protect sensitive materials from humidity or dust during storage. This is achieved by addition of silica gel which reduces significantly the humidity inside the desiccator. The desiccator is made of a strong aluminium frame with transparent acrylic panels. For easy handling, the door is equipped with a magnetic strip and lined with foam rubber gasket. The standard equipment includes a digital precision hygrometer which displays temperature and humidity as well as two removable and adjustable shelves made of stainless steel and a tray for silica gel. The desiccator can be equipped with up to 17 shelves.



Туре	Internal dimensions (W x D x H)	External dimensions (W x D x H)	Weight	РК	Cat. No.
	mm	mm	kg		
Big Star	502 x 502 x 502	585 x 560 x 555	18.0	1	6.300 334

3 Desiccate	or Star-Vitrium, boi	rosilicate glass 3	3.3		NEW!	3
 hygrometer and Reinforced alur Door with mag Non slip rubber Easy to read el 	lectronic hygrometer t shelves made of stainless lves	to 26 shelves, stackal cate glass panels bber seal			SICCO	
Properties						
Usable volume:		42L				
Total volume:		45L				
Maximum all-ove	er load per shelf:	10kg				
Total all-over loa	ad:	30kg				
Туре	Internal dimensions (W x D x H)	External dimensions (W x D x H)	Weight	РК	Cat. No.	
	mm	mm	kg			
Star-Vitrum	260 x 330 x 480	310 x 375 x 525	14.0	1	9.042 006	

9. Vacuum technology Vacuum drying/Desiccator cabinets



1 Desiccator Horizontal-Star, PMMA

To protect sensitive materials from humidity or dust during storage. This is achieved by addition of silica gel which reduces significantly the humidity inside the desiccator. The desiccator is made of a strong aluminium frame with transparent acrylic panels. For easy handling, the door is equipped with a magnetic strip and lined with foam rubber gasket. The standard equipment includes a digital precision hygrometer which displays temperature and humidity as well as two removable and adjustable shelves made of PMMA and a tray for silica gel. The desiccator can be equipped with up to 13 shelves.

Туре	Internal dimensions (W x D x H)	External dimensions (W x D x H)	Weight	РК	Cat. No.
	mm	mm	kg		
Horizontal-Star	480 x 320 x 260	520 x 375 x 340	7.0	1	6.800 632



Desiccators Maxi 1 and Maxi 2, PMMA

SICCO Desiccators are designed for storing or drying humidity sensitive products using silica gel. The tight fitting door protects the contents from contamination from the atmosphere. The controlled environment inside the desiccators are ideal for storing reference materials, retained samples, metallographic specimen, tobacco and DNA-samples.

- Reinforced aluminium frame with acrylic panels
- Door with magnetic catch and circular rubber seal
- Four casters (two of the casters with brakes)
- Easy to read electronic hygrometer
- Variable height shelves made of stainless steel
- Telescopic shelves
- Desiccant tray

Maxi 1: Including four shelves made of stainless steel, tray and hygrometer, usable with up to 34 shelves.

Maxi 2: Two chambers, two doors, each chamber usable with up to 17 shelves. Including two shelves per chamber, two trays and two hygrometers.

Properties Usable volume: Total volume: Maximum all-over load per shelf:		Maxi 1/Maxi 2 280/140L 300/150L		
	um all-over load per ll-over load:	sneif:	30/80kg 160kg	
Туре	Internal dimensions (W x D x H)	External dimensions (W x D x H)	Weight	PK Cat. No.
	mm	mm	kg	
Maxi 1	495 x 1030 x 540	560 x 1150 x 580	30.0	1 9.042 643 2
Maxi 2	495 x 500 x 450*	560 x 1150 x 580	80.0	1 9.042 644 3

* per chamber.

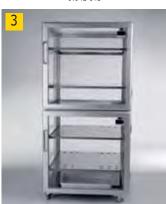


4 LLG Desiccant beads

With orange indicator colour. Grain size 1 to 3mm. This self-indicating drying agent (white silica gel) is free from any heavy metals and therefore environmentally compatible. The gel is naturally orange when active and at a 6 weight-% saturation level. As the gel adsorbs moisture, the colour changes into white. The total adsorption capacity is approximately 23 in weight-% at 40% RH. The range of application is identical with that of white silica gel. The colour change, however, represents a great advantage since it allows monitoring of the saturation level. The gel can be regenerated when heated at a temperature of maximum 120°C until it turns to its original orange colour.

Container	Capacity	РК	Cat. No.
	kg		
Box	1	1	9.042 555
Box	3	1	9.042 556
Bucket	8	1	9.042 557
Cardboard box	25	1	9.042 558

9.042 643



9.042 644

(NEW!)

SICCO

9. Vacuum technology Vacuum drying/Vacuum concentrators

1

1 Condensation traps, borosilicate 3.3

Borosilicate 3.3 glass, comprising bottle with ground glass cone neck fitting a separate inlet/outlet head with choice of tubing or ground joint connections.

Capacity	Cone	Socket	Connection	РК	Cat. No.
ml	NS	NS			
100	29	29	Tubing connections	1	9.305 350
250	45	45	Tubing connections	1	9.305 351
100	29	29	Cone / socket NS 29	1	9.305 352
250	45	45	Cone / socket NS 29	1	9.305 353

2 Cold traps, borosilicate 3.3

Borosilicate 3.3 glass, one-piece, with GL 45 neck and cap closure, GL 14 threaded side connections with caps and plastic tubing adapters.

Capacity ml	РК	Cat. No.
250	1	9.305 349



Cold traps with Dewar flask, borosilicate glass 3.3

Cold traps with Dewar flasks are made from 3.3 DIN/ISO 3585 borosilicate glass to hold LN_2 for vacuum applications. The flasks are vacuum insulated and silver-plated. They are encased in metal sheet, blue coated for protection and have a plastic ring collar, into which the cold trap is inserted. Thus no additional support is needed for the cold trap. The Dewar flask has got a theoretical coolant capacity of 1.0L or 2.0L respectively.

The cold trap has got a theoretical condensate capacity of 150ml or 250ml respectively.

Items supplied: Cold trap, Dewar-flask, plastic ring.

Dewar type 12C/18C: see no. 9.032.024/9.032.030 Versions Cold trap joints: S29 = spherical joints GL18 = glass screwthead with PTFE olive 10mm O 29 = spherical joints S29 with O-ring seal

Туре	Condensate capacity	Coolant capacity	Dewar	Cold trap	PK Cat. No.
	ml	ml	Туре	joints	
KF 29-K	150	1000	12 C	S 29	1 9.032 065 3
KF 29-0K	150	1000	12 C	O 29	1 9.032 066 5
KF 29-GL	150	1000	12 C	GL 18	1 9.032 067 4
KFL 29-K	250	2000	18 C	S 29	1 9.032 068
KFL 29-OK	250	2000	18 C	O 29	1 9.032 069
KFL 29-GL	250	2000	18 C	GL 18	1 9.032 070
KF 29-K-A	150	1000	12 C	S 29	1 9.032 071
KF 29-OK-A	150	1000	12 C	0 29	1 9.032 072
KF 29-GL-A	150	1000	12 C	GL 18	1 9.032 073 6
KFL 29-K-A	250	2000	18 C	S 29	1 9.032 074
KFL 29-OK-A	250	2000	18 C	0 29	1 9.032 075
KFL 29-GL-A	250	2000	18 C	GL 18	1 9.032 076











9.032 066

KGW

9.032 073

9. Vacuum technology Vacuum drying/Vacuum concentrators



2

1 Cold traps, SKF H, stainless steel

Cold traps protect both the vacuum system and the pump. They extend maintenance intervals and improve the overall performance of the vacuum installation.

VACUUBRAND

- sturdy, easy-to-clean design
- easy to disassemble
- double-wall design without separate insulating vacuum for good conductance
- long operating time with one filling
- easy condensate drain and cleaning without disassembling

Туре	Connection	Length	Width	Height	РК	Cat. No.
		mm	mm	mm		
SKF H 25	KF DN 25	166	140	303	1	9.882 855
SKF H 40	KF DN 40	166	140	319	1	9.882 856

2 Woulff bottles, DURAN®

Erlenmeyer pattern (5000ml is bottle-shaped), with reinforced walls, for work under vacuum and plastic coating to act as a splinter and implosion protection. A glass insert is fitted with removable PP tubing connections, vent valve head and analogue pressure gauge with 2 scale ranges (1000 to 0mbar, 760mm to 0mm Hg).

Capacity	Dia.	РК	Cat. No.
ml	mm		
500	110	1	9.305 340
1000	140	1	9.305 341
2000	170	1	9.305 342
5000	185	1	9.305 343
10000	240	1	9.305 344
15000	255	1	9.305 345
20000	290	1	9.305 346

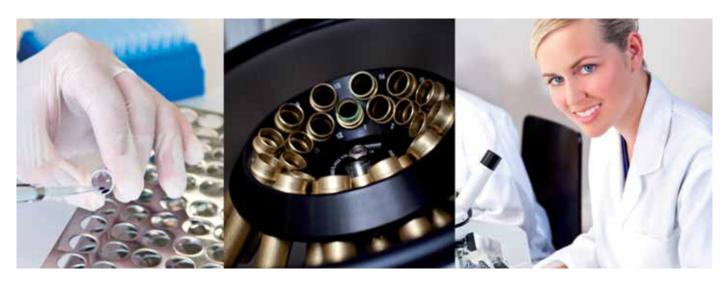


3 Woulff bottles, DURAN®

DIN 12480. With 3 NS standard ground joints. Without base tubulature. Glass Type I/neutral glass as per USP, EP and JP. Autoclavable.

DURAN Group

Capacity	Dia.	Neck	РК	Cat. No.
L	mm	NS		
0.50	87	19/26	1	9.305 319
1.00	113	24/29	1	9.305 324
2.00	135	29/32	1	9.305 329
5.00	185	34/35	1	9.305 336



9. Vacuum technology Vacuum drying/Vacuum concentrators

1

Eppendorf AG

1 Vacuum Concentrator Concentrator Plus

The new Concentrator plus features a new LCD display and user-friendly control panel with clearly labelled function keys. The new Concentrator Plus from Eppendorf is

available in two configurations: Complete system with an integrated, service-free, diaphragm pump and Basic concentrator for connecting to an existing vacuum source. The Concentrator's heating technology optimizes the evaporation process. No matter which configuration you choose, you're assured of quick, efficient and gentle vacuum concentration of your samples (e.g. DNA/RNA, proteins). The complete system includes a vapour condenser that purifies the exhaust air by up to 85%. This serves as protection against unpleasant vapours. At the same time, an automatic condensate drain extends the service life of all components that come into contact with the vapours. A wide range of fixed-angle rotors and the microplate rotor A-2-VC enable the Concentrator Plus to be used for various applications in the laboratory.

Product features:

- Narrow 32cm width saves valuable bench space
- Chemically-resistant, PTFE diaphragm pump
- Chemically-resistant, stainless steel chamber
- Extremely quiet operation, even when pump running
- Choice of three application modes (aqueous, alcohol or high vapour pressure) to correspond with sample solvent, reduction of processing time up to 20%
- Choice of four heating levels (room temperature, 30°C, 45°C, 60°C) allows safe and efficient concentration of various samples
- Centrifugation and Desiccator function
- Concentrator junction system adds extra flexibility. Simply connect the port to any external device that requires vacuum (e.g. gel dryer).

Description	РК	Cat. No.
Concentrator junction system with integrated vacuum pump and 48 x 1.5/2.0ml fixed angle rotor	1	9.776 536
Concentrator junction system with integrated vacuum pump and port for external devices, without rotor	1	9.776 537
Concentrator junction system with integrated vacuum pump, without rotor	1	9.776 538
Concentrator single device with 48 x 1.5/2.0ml fixed angle rotor	1	9.776 539

Rotors for Concentrator plus

		Eppendorf AG
Туре	Description	PK Cat. No.
A-2-VC	for 2 x 96 tubes 0.2ml (128 x 86 x 27 mm)	1 9.776 496
F-45-8-17	for 8 tubes 15ml (Falcon) (17 x 120mm)	1 9.776 490 2
F-45-48-11	for 48 tubes 1.5/2.0ml (11 x 41/11 x 47mm)	1 9.776 465



9.776 490

Accessories for Concentrator Plus			
	 	Eppendorf AG	
Description	РК	Cat. No.	
Kit for upgrading from basic concentrator to complete system	1	9.776 533	
Spacer for using fixed angle rotors in sandwich mode	1	9.776 534	
CombiSlide® Adapter	1	9.776 451	
Adapter, 0.5ml reaction tube and 0.6ml microtainer	6	9.776 488	
Adapter for 0.2ml PCR tubes, for F-45-24-11	6	9.776 504	
Work tray for 96 x 0.2ml PCR tubes	10	9.283 623	
Frame for work tray	5	9.283 624	



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Much of what is now achievable in technology has its origins in some of the most demanding process solutions found in nature; for example, the incubation temperature of an egg is critical in ensuring life, and, so it is with many complex processes in the laboratory.

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