



# Sigma 3-16L Sigma 3-16KL



Benchtop centrifuge

- Unrefrigerated
- Refrigerated

With the new g-lock® rotor system



# All-rounder for a multitude of applications



**Sigma is a leading international manufacturer of laboratory centrifuges for diverse sectors, including biotechnology, pharmaceutical, medical and environment analysis. Laboratories, institutions and companies everywhere in the world have been relying on premium Sigma quality – Made in Germany – for more than 40 years. The company stands for innovative products and development of durable, energy-efficient and especially user-friendly devices.**

The compact benchtop centrifuges Sigma 3-16L and the refrigerated version 3-16KL boast the features of classic all-rounders. Users and buyers appreciate these practically oriented models with their outstanding capacities and wide variety of uses. Along with high performance and reliability, these laboratory centrifuges impress with unmatched versatility. As well-balanced universal centrifuges with extensive rotor and accessory options, they are suitable for an extremely wide variety of tasks.

# Scoring with standards

## Reliable, versatile and safe

The Sigma 3-16L and the refrigerated version Sigma 3-16KL score with impressive features. They are easy to operate, pleasantly quiet, and have extraordinary capacity with a maximum of 4 x 400 ml.

A broad portfolio of fixed-angle and swing-out rotors and an extensive range of accessories, including buckets and adapters, are available. The resulting compatibility with a large number of specimen tubes enables high versatility and allows them to be used for a very wide variety of tasks, including high-throughput applications. Classical deployment areas include hospitals, universities and industrial laboratories.

These units are the perfect choice for routine applications. The patented one-knob controller with illuminated function keys is highly practical and popular with users. Automatic lid opening can optionally be configured for easy end of run indication. After completion of centrifuging, the electromagnetic lid lock unlocks and the lid opens

conveniently with the aid of a gas spring. The high-grade stainless steel chamber is corrosion-resistant and easy to clean.

The Sigma 3-16L also delivers outstanding performance in terms of safety. One of the key functions is cycle counting: after the maximum number of runs has been reached for a rotor, an alert is issued to notify the user. In addition, automatic rotor identification ensures that rotors can only be operated within their permissible speed range.

The refrigerated version Sigma 3-16KL has a powerful cooling system with precise temperature setting in the range of -10 °C to +40 °C. The pre-cooling function "Rapid Temp" allows the centrifuge chamber and accessories to be cooled to a defined temperature. That guarantees optimum safety for work with heat-sensitive specimens.

Both benchtop centrifuges are also available in IVD versions.

### Sigma 3-16L

- Universal benchtop centrifuge
- Speed range up to 15,300 rpm
- Maximum capacity: 4 x 400 ml
- User-friendly Spincontrol L controller
- Fifty programs
- Compact, space-saving unit
- Low noise level
- Automatic rotor identification
- Zero-maintenance induction motor
- Electromechanical lid opening
- Automatic imbalance monitoring
- Rotor life monitoring for a high degree of safety
- Easily cleaned stainless steel chamber
- Window in lid for external speed monitoring
- Produced in compliance with the latest national and international standards (e.g. EN 61010-2-020)

### Sigma 3-16KL

All features of the Sigma 3-16L, plus:

- High-performance cooling
- Temperature setting range: -10 °C to +40 °C
- Rotor cooling also possible at standstill
- Pre-cooling function "Rapid Temp"



# Revolutionary simplicity

## g-lock® rotor exchange without tools or buttons

The innovative g-lock rotor system from Sigma enables rotor exchange with no need for any tools or button pushing. Mounting and exchanging rotors could hardly be easier. The rotor is locked in place by centrifugal force after the centrifuge starts running, eliminating the need for screw mounting.

The new g-lock system makes rotor exchange effortless and is ideally suited to application scenarios that require working with more than one rotor. It minimises non-productive time and saves time and money.

Along with simplified and efficient handling, the system features exceptionally high safety. Improper or incorrect use is also prevented by the rotor identification system.

Furthermore, the g-lock system enables easy cleaning of the stainless steel chamber to help minimise contamination risks.

g-lock



With the g-lock system, no tools or buttons at all are necessary for rotor exchange.



More on the  
Web!

View our video to learn  
more about g-lock.  
Scan the QR code or go  
directly to the web page:  
[www.sigma-zentrifugen.de/  
en/g-lock](http://www.sigma-zentrifugen.de/en/g-lock)



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# Rotors and accessories

## Large selection and a multitude of applications

A broad portfolio of fixed-angle and swing-out rotors is available for the Sigma 3-16L and the Sigma 3-16KL, making them suitable for a large variety of applications. In addition, Sigma offers an extensive range of buckets and adapters for virtually all tube types.



As a special feature, Sigma can produce custom accessories upon request.

The rotors and accessories are made from certified high-grade materials to withstand the most severe stresses.

The centrifuges can be supplied with the g-lock system or with the previous conventional rotor mounting system.

### Swing-out rotors starting on page 9


#### Swing-out rotor 11180

- Max. capacity: 4 x 400 ml
- Max. speed (3-16L / 3-16KL): 4,200 / 4,500 rpm
- Max. RCF (3-16L / 3-16KL): 3,392 / 3,894 x g
- Accessories in part with biosafe closure 
- Angle: 90°
- **NEW:** g-lock rotor 91124 

▶ p.9



#### Swing-out rotor 11133

- Max. capacity: 4 x 200 ml
- Max. speed (3-16L / 3-16KL): 5,000 / 5,500 rpm
- Max. RCF (3-16L / 3-16KL): 4,332 / 5,242 x g
- Angle: 90°
- **NEW:** g-lock rotor 91373 

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#### Swing-out rotor 11135

- Max. capacity: 24 x 2 ml
- Max. speed (3-16L / 3-16KL): 12,500 / 14,000 rpm
- Max. RCF (3-16L / 3-16KL): 12,927 / 16,215 x g
- Angle: 90°

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#### Drum rotor 11136

- Max. capacity: 60 x 2 ml
- Max. speed (3-16L / 3-16KL): 13,000 / 14,500 rpm
- Max. RCF (3-16L / 3-16KL): 13,226 / 16,454 x g
- Angle: 90°

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### MTP swing-out rotors on page 18



#### Swing-out rotor 11222

- Max. capacity: 6 microtiter plates
- Max. speed (3-16L / 3-16KL): 3,000 rpm
- Max. RCF (3-16L / 3-16KL): 1,218 x g
- Angle: 90°

▶ p.19



#### Swing-out rotor 11241

- Max. capacity: 8 microtiter plates
- Max. speed (3-16L / 3-16KL): 4,200 rpm
- Max. RCF (3-16L / 3-16KL): 2,623 x g
- Biosafe with cap 17108 
- Angle: 90°
- **NEW:** g-lock rotor 91551 

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## Fixed-angle rotors starting on page 21

▶ p.21

### Fixed-angle rotor 12115 for PCR strips

- Max. capacity: 96 x 0.2 ml conical
- Max. speed (3-16L / 3-16KL): 14,000 rpm
- Max. RCF (3-16L / 3-16KL): 21,475 x g
- Angle: 45° (both rows)



▶ p.21

### Fixed-angle rotor 12154

- Max. capacity: 24 x 2 ml
- Max. speed (3-16L / 3-16KL): 15,300 rpm
- Max. RCF (3-16L / 3-16KL): 21,460 x g
- Angle: 45°
- NEW:** g-lock rotor 91123 [🔗](#)



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### Fixed-angle rotor 12131

- Max. capacity: 30 x 2 ml
- Max. speed (3-16L / 3-16KL): 13,200 / 14,000 rpm
- Max. RCF (3-16L / 3-16KL): 19,480 / 21,913 x g
- Angle: 45°



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### Fixed-angle rotor 12349

- Max. capacity: 48 x 2 ml
- Max. speed (3-16L / 3-16KL): 13,000 / 14,000 rpm
- Max. RCF (3-16L / 3-16KL): 18,894 / 21,913 x g
- Angle (upper / lower row): 25° / 53°
- NEW:** g-lock rotor 91520 [🔗](#)



▶ p.23

### Fixed-angle rotor 12182

- Max. capacity: 12 x 5 ml conical
- Max. speed (3-16L / 3-16KL): 15,000 / 15,300 rpm
- Max. RCF (3-16L / 3-16KL): 21,130 / 21,984 x g
- Biosafe with aluminium lid 17182 [🔗](#)
- Angle: 40°



▶ p.23

### Fixed-angle rotor 12111

- Max. capacity: 10 x 10 ml round-bottom
- Max. speed (3-16L / 3-16KL): 15,300 rpm
- Max. RCF (3-16L / 3-16KL): 19,890 x g
- Angle: 35°
- NEW:** g-lock rotor 91527 [🔗](#)



▶ p.24

### Fixed-angle rotor 12157

- Max. capacity: 20 x 10 ml round-bottom
- Max. speed (3-16L / 3-16KL): 9,000 / 10,000 rpm
- Max. RCF (3-16L / 3-16KL): 8,875 / 10,956 x g
- Angle: 25°



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### Fixed-angle rotor 12311

- Max. capacity: 12 x 15 ml conical
- Max. speed (3-16L / 3-16KL): 9,000 / 10,000 rpm
- Max. RCF (3-16L / 3-16KL): 8,965 / 11,068 x g
- Biosafe with aluminium lid 17935 [🔗](#)
- Angle: 25°
- NEW:** g-lock rotor 91534 [🔗](#)



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### Fixed-angle rotor 12158

- Max. capacity: 6 x 30 ml round-bottom
- Max. speed (3-16L / 3-16KL): 15,300 rpm
- Max. RCF (3-16L / 3-16KL): 20,675 x g
- Angle: 29°
- NEW:** g-lock rotor 91365 [🔗](#)



▶ p.25

### Fixed-angle rotor 12150

- Max. capacity: 6 x 50 ml round-bottom
- Max. speed (3-16L / 3-16KL): 10,000 / 11,000 rpm
- Max. RCF (3-16L / 3-16KL): 9,391 / 11,363 x g
- Angle: 25°
- NEW:** g-lock rotor 91375 [🔗](#)



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### Fixed-angle rotor 12310

- Max. capacity: 6 x 50 ml conical
- Max. speed (3-16L / 3-16KL): 9,000 / 10,000 rpm
- Max. RCF (3-16L / 3-16KL): 8,512 / 10,509 x g
- Biosafe with aluminium lid 17934 [🔗](#)
- Angle: 25°
- NEW:** g-lock rotor 91377 [🔗](#)



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### Fixed-angle rotor 12156

- Max. capacity: 8 x 50 ml round-bottom
- Max. speed (3-16L / 3-16KL): 9,000 / 10,000 rpm
- Max. RCF (3-16L / 3-16KL): 8,694 / 10,733 x g
- Angle: 25°



▶ p.27

### Fixed-angle rotor 12155

- Max. capacity: 4 x 94 ml round-bottom
- Max. speed (3-16L / 3-16KL): 10,000 rpm
- Max. RCF (3-16L / 3-16KL): 10,174 x g
- Angle: 26°
- NEW:** g-lock rotor 91532 [🔗](#)



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### Fixed-angle rotor 12159

- Max. capacity: 6 x 94 ml round-bottom
- Max. speed (3-16L / 3-16KL): 8,000 rpm
- Max. RCF (3-16L / 3-16KL): 7,012 x g
- Angle: 25°
- NEW:** g-lock rotor 91119 [🔗](#)









































## Swing-out rotor 11180

### Round bucket 13190 (1 set = 2 pcs.)

- Max. capacity: 4 x 400 ml
- Max. speed (3-16L / 3-16KL): 4,200 / 4,500 rpm
- Max. RCF (3-16L / 3-16KL): 3,392 / 3,894 x g
- Max. tube length, mid-bucket, without / with cap: 142 / 125 mm
- Biosafe with cap 17190 
- Tmin at maximum speed: <4°C
- Angle: 90°
- NEW:** g-lock rotor 91124 





Tube										
Rated capacity (filling volume) [ml]	0.2	0.4	0.5	0.5	1.5	2	5	5	6 (5)	7
Diameter x length [mm]	5.8 x 20	5.8 x 47	10.8 x 46.5	7.9 x 28	10.7 x 42	10.7 x 42	12 x 75	17 x 60	12 x 100	12 x 100
Tube material	PP	PE	PP	PP	PP	PP	PS	PPCO	Glass	Glass
Item no.	15042	15014	Paediatrics	15005	15008	15040	15060	–	15007	15027
<b>Adapter</b>										
for round bucket 13190										
Bore diameter x length [mm]	6.3 x 18.5	6 x 45	11 x 32	8.1 x 29	11.1 x 38.5	12.8 x 57	17 x 52	12.8 x 77.5		
Tubes per adapter / rotor	20 / 80	20 / 80	16 / 64	24 / 96	20 / 80	25 / 100	10 / 40	16 / 64		
Centrifuging radius [mm]	166	168	164	168	171	169	169	170		
Item no.	17353 & 13021	17353 & 13000	17361	17350	17353	17352	17210	17354		

Tube									
Rated capacity (filling volume) [ml]	10	10	10	10	10	14	14	15 (13)	15
Diameter x length [mm]	16.1 x 81.1	16.1 x 81.1	16.1 x 81.1	16 x 100	16 x 100	17 x 100	17 x 100	17 x 110	16.5 x 120
Tube material	PF	PC	PPCO	Glass	Glass	PS	PP	Glass	PP
Item no.	15000	15010	15039	15015	15024	15020	15023	15022	15115
<b>Adapter</b>									
for round bucket 13190									
Bore diameter x length [mm]	16.5 x 58						17.5 x 58	17 x 78.5	17 x 78.5
Tubes per adapter / rotor	12 / 48						12 / 48	5 / 20	9 / 36
Centrifuging radius [mm]	170						170	171	171
Item no.	17355						17358	17345	17359*











## Swing-out rotor 11180

### Round bucket 13190 (1 set = 2 pcs.)

- Max. capacity: 4 x 400 ml
- Max. speed (3-16L / 3-16KL): 4,200 / 4,500 rpm
- Max. RCF (3-16L / 3-16KL): 3,392 / 3,894 x g
- Max. tube length, mid-bucket, without / with cap: 142 / 125 mm
- Biosafe with cap 17190 
- Tmin at maximum speed: <math><4^{\circ}\text{C}</math>
- Angle:  $90^{\circ}$
- NEW:** g-lock rotor 91124 



### Tube

										
Rated capacity (filling volume) [ml]	25	25	25	30 (26)	30 (26)	30 (28)	30	30	50 (38)	50 (43)
Diameter x length [mm]	25 x 90	24 x 100	24 x 100	25.3 x 98	25.3 x 98	25.3 x 98	24 x 105	25 x 107	28.8 x 107	28.5 x 107
Tube material	PP	Glass	Glass	PF	PPCO	PC	Glass	PP	PPCO	PF
Item no.	–	15025	15026	15029	15032	15030	15033	–	15052	15051










### Adapter

for round bucket 13190



Bore diameter x length [mm]	25.5 x 56	25.5 x 77.5			25.5 x 77.5	25.5 x 56	29.5 x 77.5	
Tubes per adapter / rotor	5 / 20	5 / 20			5 / 20	5 / 20	4 / 16	
Centrifuging radius [mm]	168	170			170	168	170	
Item no.	17362	17370			17370	17362	17376	

### Tube

									
Rated capacity (filling volume) [ml]	50	50	50	50	50	50	50	85 (73)	85 (76)
Diameter x length [mm]	28.5 x 101.5	34 x 100	34 x 100	34 x 100	35 x 100	29 x 117	29 x 117	38 x 112	38 x 112
Tube material	Stainless steel	Glass	PC	Glass	Glass	PPCO	PP	PF	PPCO
Item no.	13055	15045	15049	15050	15056	–	15151	15080	15076

### Adapter

for round bucket 13190





Bore diameter x length [mm]	29.5 x 77.5	35.5 x 77.5			29.5 x 77	29.5 x 78.5	29.5 x 78.5	38.5 x 77	
Tubes per adapter / rotor	4 / 16	3 / 12			3 / 12	3 / 12	4 / 16	1 / 4	
Centrifuging radius [mm]	170	170			169	171	171	169	
Item no.	17376	17375			17344	17346	17377*	17385	



















\* Only possible without cap 17190




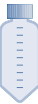









## Swing-out rotor 11180

### Round bucket 13190 (1 set = 2 pcs.)

- Max. capacity: 4 x 400 ml
- Max. speed (3-16L / 3-16KL): 4,200 / 4,500 rpm
- Max. RCF (3-16L / 3-16KL): 3,392 / 3,894 x g
- Max. tube length, mid-bucket, without / with cap: 142 / 125 mm
- Biosafe with cap 17190 
- Tmin at maximum speed: <4°C
- Angle: 90°
- NEW:** g-lock rotor 91124 





Tube										
Rated capacity (filling volume) [ml]	94 (85)	94	100 (75)	100 (90)	100	100	150	150	175	175
Diameter x length [mm]	38 x 103	38 x 110	44 x 100	44 x 100	44 x 100	45 x 100	51 x 99	56 x 113	62 x 139.2	61 x 118
Tube material	Stainless steel	PC	Glass	Glass	Glass	PC	PP	Glass	PP	PP
Item no.	13085	15094	15078	15106	15100	15103	15125	15206	–	–
<b>Adapter</b>										
for round bucket 13190										
Bore diameter x length [mm]	38.5 x 77		45.5 x 77.5		51.5 x 77		58 x 75	62.5 x 105	61 x 104	
Tubes per adapter / rotor	1 / 4		1 / 4		1 / 4		1 / 4	1 / 4	1 / 4	
Centrifuging radius [mm]	169		170		169		167	172	172	
Item no.	17385		17390*		17395		17401**	17393***	17402***	

Tube							
Rated capacity (filling volume) [ml]	200 (168)	200 (170)	200	225	250 (232)	250 (232)	400
Diameter x length [mm]	56 x 112	56 x 112	61 x 130	61 x 137	61.4 x 122	61.4 x 122	85 x 118
Tube material	PPCO	Glass	PP	PP	PF	PPCO	PPCO
Item no.	15202	15201	–	–	15247	15249	15401
<b>Adapter</b>							
for round bucket 13190							
Bore diameter x length [mm]	57.5 x 77	58 x 75	62.5 x 105	61 x 104	62.5 x 80		86 x 97
Tubes per adapter / rotor	1 / 4	1 / 4	1 / 4	1 / 4	1 / 4		– / 4
Centrifuging radius [mm]	169	167	172	172	172		172
Item no.	17400	17401**	17393***	17402***	17347		–

\* Including rubber cushion 16051; \*\* Including rubber cushion 16250; \*\*\* Only possible without cap 17190

## Swing-out rotor 11180


### Round bucket 13190 (1 set = 2 pcs.)

- Max. capacity: 4 x 400 ml
- Max. speed (3-16L / 3-16KL): 4,200 / 4,500 rpm
- Max. RCF (3-16L / 3-16KL): 3,392 / 3,894 x g
- Max. tube length, mid-bucket, without / with cap: 142 / 125 mm
- Biosafe with cap 17190 
- Tmin at maximum speed: <4°C
- Angle: 90°
- NEW:** g-lock rotor 91124 













## Swing-out rotor 11180

### Carrier bucket 13194 (1 set = 2 pcs.)






- Max. capacity: 16 x 50 ml
- Max. speed (3-16L / 3-16KL): 4,200 / 4,500 rpm
- Max. RCF (3-16L / 3-16KL): 3,313 / 3,803 x g
- Max. tube length mid-bucket: 139 mm
- Tmin at maximum speed: <4°C
- Angle: 90°
- NEW:** g-lock rotor 91124 








### Blood and urine tubes

										
Rated capacity (filling volume) [ml]	1.1 – 1.4	2.7 – 5	4 – 6	1.8 – 7	1.6 – 6	4 – 10	9.5 – 10	6 – 10	9 – 10	8
Diameter x length with closure [mm]	8 x 82	11 x 82 – 108	13 x 81 – 106	13 x 81 – 107	13 x 81 – 106	15 x 91 – 118	15 x 106	16 x 106 – 107	16 x 108	16 x 131
Tube material	PP	PP	PET	PET	PP	PP	PET	PET	PP	Glass
Item no.	–	–	–	–	–	–	–	–	–	–






### Adapter

for round bucket 13190					
Bore diameter x length [mm]	12.8 x 57	13.8 x 57	17.5 x 58	17.5 x 58	17.5 x 58
Tubes per adapter / rotor	25 / 100	17 / 68	12 / 48	12 / 48	3 / 12
Centrifuging radius [mm]	169	169	170	170	170
Item no.	17352	17356	17358	17358	17358*

### Tube


					
Rated capacity (filling volume) [ml]	15	25	30	50	50
Diameter x length [mm]	16.5 x 120	25 x 90	25 x 107	29 x 117	29 x 117
Tube material	PP	PP	PP	PP	PP
Item no.	15115	–	–	15151	–

### Adapter












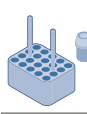

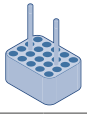




for hexagonal bucket 13194					
Bore diameter x length [mm]	17 x 79	25.5 x 70	29.5 x 78.5	29.5 x 80	29.5 x 80
Tubes per adapter / rotor	10 / 40	4 / 16	4 / 16	4 / 16	4 / 16
Centrifuging radius [mm]	167	158	167	168	168
Item no.	18311	18313	18310	18310	18309















## Swing-out rotor 11180

### Rectangular bucket 13180 (1 set = 2 pcs.)

- Max. capacity: 4 x 200 ml
- Max. speed (3-16L / 3-16KL): 4,200 / 4,500 rpm
- Max. RCF (3-16L / 3-16KL): 3,372 / 3,871 x g
- Max. tube length, mid-bucket, without / with cap: 141 / 124 mm
- Hermetically closable with cap 17112
- Tmin at maximum speed: <4°C
- Angle: 90°
- NEW:** g-lock rotor 91124 




Tube										
Rated capacity (filling volume) [ml]	0.2	0.4	0.5	1.5	2	5	5	6 (5)	7	10
Diameter x length [mm]	5.8 x 20	5.8 x 47	7.9 x 28	10.7 x 42	10.7 x 42	12 x 75	17 x 60	12 x 100	12 x 100	16.1 x 81.1
Tube material	PP	PE	PP	PP	PP	PS	PPCO	Glass	Glass	PF
Item no.	15042	15014	15005	15008	15040	15060	–	15007	15027	15000
<b>Adapter</b>										
for rectangular bucket 13180										
Bore diameter x length [mm]	6.3 x 18.5	6 x 45	8 x 45	11.1 x 38	12.5 x 51	17 x 52	12.5 x 72	17.2 x 46		
Tubes per adapter / rotor	20 / 80	20 / 80	20 / 80	20 / 80	20 / 80	6 / 24	20 / 80	12 / 48		
Centrifuging radius [mm]	166	168	168	170	166	168	166	166		
Item no.	18002 & 13021	18002 & 13000	18002 & 13002	18002	18005*	18006	18007*	18010*		

Tube									
Rated capacity (filling volume) [ml]	10	10	10	10	14	14	15 (13)	15	25
Diameter x length [mm]	16.1 x 81.1	16.1 x 81.1	16 x 100	16 x 100	17 x 100	17 x 100	17 x 110	16.5 x 120	25 x 90
Tube material	PC	PPCO	Glass	Glass	PS	PP	Glass	PP	PP
Item no.	15010	15039	15015	15024	15020	15023	15022	15115	–
<b>Adapter</b>									
for rectangular bucket 13180									
Bore diameter x length [mm]	17.2 x 46	17.2 x 75	17 x 72.5	17 x 72.5	25.5 x 61				
Tubes per adapter / rotor	12 / 48	12 / 48	4 / 16	7 / 28	4 / 16				
Centrifuging radius [mm]	166	166	170	170	167				
Item no.	18010*	18015*	18016	18018**	18022				









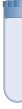

\* Including rubber cushion 16909; \*\* Only possible without cap 17112







## Swing-out rotor 11180











### Rectangular bucket 13180 (1 set = 2 pcs.)






- Max. capacity: 4 x 200 ml
- Max. speed (3-16L / 3-16KL): 4,200 / 4,500 rpm
- Max. RCF (3-16L / 3-16KL): 3,372 / 3,871 x g
- Max. tube length, mid-bucket, without / with cap: 141 / 124 mm
- Hermetically closable with cap 17112
- Tmin at maximum speed: <math><4^{\circ}\text{C}</math>
- Angle:  $90^{\circ}$
- NEW:** g-lock rotor 91124 



Tube										
Rated capacity (filling volume) [ml]	25	25	30 (26)	30 (26)	30 (28)	30	30	50 (38)	50 (43)	50
Diameter x length [mm]	24 x 100	24 x 100	25.3 x 98	25.3 x 98	25.3 x 98	24 x 105	25 x 107	28.5 x 107	28.8 x 107	28.5 x 101.5
Tube material	Glass	Glass	PF	PPCO	PC	Glass	PP	PPCO	PF	Stainless steel
Item no.	15025	15026	15029	15032	15030	15033	–	15052	15051	13055

Adapter for rectangular bucket 13180						
Bore diameter x length [mm]	24.5 x 70	24.5 x 70	25.5 x 71	24.5 x 70	25.5 x 61	29.5 x 71
Tubes per adapter / rotor	5 / 20	5 / 20	5 / 20	5 / 20	4 / 16	2 / 8
Centrifuging radius [mm]	166	166	168	166	167	168
Item no.	18025*	18025*	18030	18025*	18022	18051

Tube										
Rated capacity (filling volume) [ml]	50	50	50	50	50	50	85 (73)	85 (76)	94 (85)	94
Diameter x length [mm]	34 x 100	34 x 100	35 x 100	34 x 100	29 x 117	29 x 117	38 x 112	38 x 112	38 x 103	38 x 110
Tube material	Glass	Glass	Glass	PC	PP	PP	PF	PPCO	Stainless steel	PC
Item no.	15045	15050	15056	15049	–	15151	15080	15076	13085	15094

Adapter for rectangular bucket 13180					
Bore diameter x length [mm]	35.5 x 68	35.5 x 68	30 x 74	29.5 x 72.5	38.5 x 72
Tubes per adapter / rotor	2 / 8	2 / 8	2 / 8	2 / 8	1 / 4
Centrifuging radius [mm]	162	162	171	169.5	169
Item no.	18050**	18050**	18053	18052	18085







## Swing-out rotor 11180

### Rectangular bucket 13180 (1 set = 2 pcs.)

- Max. capacity: 4 x 200 ml
- Max. speed (3-16L / 3-16KL): 4,200 / 4,500 rpm
- Max. RCF (3-16L / 3-16KL): 3,372 / 3,871 x g
- Max. tube length, mid-bucket, without / with cap: 141 / 124 mm
- Hermetically closable with cap 17112
- Tmin at maximum speed: <math><4^{\circ}\text{C}</math>
- Angle:  $90^{\circ}$
- NEW:** g-lock rotor 91124 [A](#)






### Tube

						
Rated capacity (filling volume) [ml]	100 (75)	100 (90)	100	100	150	200 (168)
Diameter x length [mm]	44 x 100	44 x 100	44 x 100	45 x 100	51 x 99	56 x 112
Tube material	Glass	Glass	Glass	PC	PP	PPCO
Item no.	15078	15106	15100	15103	15125	15202







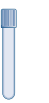



### Adapter

for rectangular bucket 13180



			
Bore diameter x length [mm]	46 x 65.5	51.5 x 71	57 x 34
Tubes per adapter / rotor	1 / 4	1 / 4	1 / 4
Centrifuging radius [mm]	165	168	166
Item no.	18100*	18125	18200






### Blood and urine tubes

										
Rated capacity (filling volume) [ml]	1.1 – 1.4	2.7 – 5	4 – 6	1.8 – 7	1.6 – 6	4 – 10	9.5 – 10	6 – 10	9 – 10	8
Diameter x length with closure [mm]	8 x 82	11 x 82–108	13 x 81–106	13 x 81–107	13 x 81–106	15 x 91–118	15 x 106	16 x 106–107	16 x 108	16 x 131
Tube material	PP	PP	PET	PET	PP	PP	PET	PET	PP	Glass
Item no.	–	–	–	–	–	–	–	–	–	–

### Adapter

for rectangular bucket 13180




					
Bore diameter x length [mm]	12.5 x 51	14 x 58	17.2 x 46	17.5 x 57	17.5 x 57
Tubes per adapter / rotor	20 / 80	12 / 48	12 / 48	11 / 44	7 / 28
Centrifuging radius [mm]	166	164	166	168	168
Item no.	18005**	18012	18010**	18020	18020***

\* Including rubber cushion 16908; \*\* Including rubber cushion 16909; \*\*\* Observe loading











## Swing-out rotor 11133

### Round bucket 13104 (1 set = 2 pcs.)









- Max. capacity: 4 x 200 ml
- Max. speed (3-16L / 3-16KL): 5,000 / 5,500 rpm
- Max. RCF (3-16L / 3-16KL): 4,332 / 5,242 x g
- Max. tube length, mid-bucket, without / with cap: 126 / 118 mm
- Hermetically closable with aluminium cap 17109 or polysulphone cap 17111
- Tmin at maximum speed: <4°C
- Angle: 90°
- NEW:** g-lock rotor 91373 













### Tube

										
Rated capacity (filling volume) [ml]	0.2	0.4	0.5	1.5	2	5	6 (5)	7	10	10
Diameter x length [mm]	5.8 x 20	5.8 x 47	7.9 x 28	10.7 x 42	10.7 x 42	12 x 75	12 x 100	12 x 100	16.1 x 81.1	16.1 x 81.1
Tube material	PP	PE	PP	PP	PP	PS	Glass	Glass	PF	PC
Item no.	15042	15014	15005	15008	15040	15060	15007	15027	15000	15010



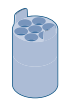

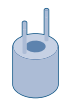
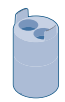
### Adapter

for round bucket 13104								
Bore diameter x length [mm]	6.3 x 18.5	6 x 45	8 x 45	11.1 x 38.5	12.5 x 51	12.5 x 80	12.5 x 80	17 x 50.3
Tubes per adapter / rotor	12 / 48	12 / 48	12 / 48	12 / 48	12 / 48	12 / 48	12 / 48	6 / 24
Centrifuging radius [mm]	146	148	148	153	150	150	150	150
Item no.	17008 & 13021	17008 & 13000	17008 & 13002	17008	17006	17007	17007	17012

### Tube

										
Rated capacity (filling volume) [ml]	10	10	10	14	14	15	25	25	25	30
Diameter x length [mm]	16.1 x 81.1	16 x 100	16 x 100	17 x 100	17 x 100	16.5 x 120	25 x 90	24 x 100	24 x 100	24 x 105
Tube material	PPCO	Glass	Glass	PP	PS	PP	PP	Glass	Glass	Glass
Item no.	15039	15015	15024	15023	15020	15115	–	15025	15026	15033

### Adapter


for round bucket 13104						
Bore diameter x length [mm]	17 x 50.3		17 x 79.7	17 x 78.5	25.5 x 58	24.5 x 79.6
Tubes per adapter / rotor	6 / 24		7 / 28	3 / 12	1 / 4	2 / 8
Centrifuging radius [mm]	150		150	154	153	150
Item no.	17012		17015	17019*	17032	17025

\* Only possible without cap 17109 or 17111











## Swing-out rotor 11133

### Round bucket 13104 (1 set = 2 pcs.)

- Max. capacity: 4 x 200 ml
- Max. speed (3-16L / 3-16KL): 5,000 / 5,500 rpm
- Max. RCF (3-16L / 3-16KL): 4,332 / 5,242 x g
- Max. tube length, mid-bucket, without / with cap: 126 / 118 mm
- Hermetically closable with aluminium cap 17109 or polysulphone cap 17111
- T<sub>min</sub> at maximum speed: <4°C
- Angle: 90°
- NEW:** g-lock rotor 91373 

















Tube										
Rated capacity (filling volume) [ml]	30 (26)	30 (26)	30 (28)	30	50 (38)	50 (43)	50	50	50	50
Diameter x length [mm]	25.3 x 98	25.3 x 98	25.3 x 98	25 x 107	28.5 x 107	28.8 x 107	28.5 x 101.5	34 x 100	34 x 100	35 x 100
Tube material	PF	PPCO	PC	PP	PPCO	PF	Stainless steel	Glass	Glass	Glass
Item no.	15029	15032	15030	–	15052	15051	13055	15045	15050	15056

### Adapter

for round bucket 13104








Adapter				
Bore diameter x length [mm]	25.5 x 78	25.5 x 58	30 x 77.3	35.5 x 80
Tubes per adapter / rotor	2 / 8	1 / 4	1 / 4	1 / 4
Centrifuging radius [mm]	153	153	152	150
Item no.	17030	17032	17052	17050*

Tube										
Rated capacity (filling volume) [ml]	50	50	50	85 (73)	85 (76)	94 (85)	94	100 (75)	100 (90)	100
Diameter x length [mm]	34 x 100	29 x 117	29 x 117	38 x 112	38 x 112	38 x 103	38 x 110	44 x 100	44 x 100	44 x 100
Tube material	PC	PP	PP	PPCO	PF	Stainless steel	PC	Glass	Glass	Glass
Item no.	15049	–	15151	15076	15080	13085	15094	15078	15106	15100

### Adapter


for round bucket 13104



Adapter					
Bore diameter x length [mm]	35.5 x 80	29.5 x 80	29.5 x 78.5	39 x 76.6	46 x 76.6
Tubes per adapter / rotor	1 / 4	1 / 4	1 / 4	1 / 4	1 / 4
Centrifuging radius [mm]	150	155	154	147	147
Item no.	17050*	17048	17049	17085*	17100*




## Swing-out rotor 11133

### Round bucket 13104 (1 set = 2 pcs.)

- Max. capacity: 4 x 200 ml
- Max. speed (3-16L / 3-16KL): 5,000 / 5,500 rpm
- Max. RCF (3-16L / 3-16KL): 4,332 / 5,242 x g
- Max. tube length, mid-bucket, without / with cap: 126 / 118 mm
- Hermetically closable with aluminium cap 17109 or polysulphone cap 17111
- Tmin at maximum speed: <math><4^{\circ}\text{C}</math>
- Angle:  $90^{\circ}$
- NEW:** g-lock rotor 91373 






### Tube











			
Rated capacity (filling volume) [ml]	100	150	200 (168)
Diameter x length [mm]	45 x 100	51 x 99	56 x 112
Tube material	PC	PP	PPCO
Item no.	15103	15125	15202

### Adapter

for round bucket 13104







			
Bore diameter x length [mm]	46 x 76.6	51.4 x 80	57 x 98
Tubes per adapter / rotor	1 / 4	1 / 4	- / 4
Centrifuging radius [mm]	147	155	155
Item no.	17100*	17125	-

### Blood and urine tubes

										
Rated capacity (filling volume) [ml]	1.1 – 1.4	2.7 – 5	4 – 6	1.8 – 7	1.6 – 6	7.5 – 10	6 – 10	4 – 5.5	9 – 10	10
Diameter x length with closure [mm]	8 x 82	11 x 82 – 108	13 x 81 – 106	13 x 81 – 107	13 x 81 – 106	15 x 106 – 108	16 x 106 – 107	15 x 91	16 x 108	15 x 118
Tube material	PP	PP	PET	PET	PP	PP	PET	PET	PP	PP
Item no.	-	-	-	-	-	-	-	-	-	-

### Adapter

for round bucket 13104

						
Bore diameter x length [mm]	12.5 x 51	13.8 x 57	17 x 79.7	17 x 50.3	17.2 x 81.5	
Tubes per adapter / rotor	12 / 48	7 / 28	7 / 28	6 / 24	4 / 16	
Centrifuging radius [mm]	150	152	150	150	150	
Item no.	17006	17027	17015	17012	17018	

## Swing-out rotor 11222

### with 1 set (quantity 2) rectangular buckets 13222

- Max. plate height: 56 mm
- Max. speed (3-16L / 3-16KL): 3,000 rpm
- Max. RCF (3-16L / 3-16KL): 1,218 x g
- Max. load per carrier: 337 g
- Tmin at maximum speed: <4°C
- Angle: 90°



## Swing-out rotor 11241

### with 1 set (quantity 2) rectangular buckets 13241, caps 17108 and plate holder 17982

- Max. plate height without / with cap: 66 / 55 mm
- Max. speed (3-16L / 3-16KL): 4,200 rpm
- Max. RCF (3-16L / 3-16KL): 2,623 x g
- Max. load per carrier: 320 g
- Biosafe with cap 17108
- Tmin at maximum speed: <4°C
- Angle: 90°
- NEW:** g-lock rotor 91551



### Plate



Description	MTP (without lid)	MTP (with lid)	DWP	PCR plate 96-fold
W x D x H [mm]	128 x 86 x 15	128 x 86 x 17.5	128 x 86 x 44.5	128 x 86 x 20

### Adapter

for rectangular bucket 13222



Bore diameter x length [mm]	-			
Plates per rotor	6	6	2	4
Centrifuging radius [mm]	121			
Item no.	-			

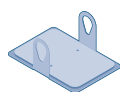
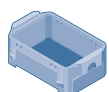
### Plate



Description	MTP (without lid)	MTP (with lid)	DWP	PCR plate 96-fold
W x D x H [mm]	128 x 86 x 15	128 x 86 x 17.5	128 x 86 x 44.5	128 x 86 x 20

### Adapter

for rectangular bucket 13241



Bore diameter x length [mm]	-			
Plates per rotor (without / with cap)	8 / 6	6 / 6	2 / 2	6 / 4
Centrifuging radius [mm]	133			
Item no.	17982			

## Swing-out rotor 11135

### with 3 sets (quantity 6) carrier bucket 13124 and aluminium lid 17879

- Max. capacity: 24 x 2 ml
- Max. speed (3-16L / 3-16KL): 12,500 / 14,000 rpm
- Max. RCF (3-16L / 3-16KL): 12,927 / 16,215 x g
- Hermetically closable with aluminium lid 17879
- Tmin at maximum speed: <4°C
- Angle: 90°









## Drum rotor 11136

### with aluminium lid 17898

- Max. capacity: 60 x 2 ml
- Max. speed (3-16L / 3-16KL): 13,000 / 14,500 rpm
- Max. RCF (3-16L / 3-16KL): 13,226 / 16,454 x g
- Hermetically closable with aluminium lid 17878
- Tmin at maximum speed: <4°C
- Angle: 90°







### Tube

						
Rated capacity (filling volume) [ml]	0.2	0.4	0.5	0.5	1.5	2
Diameter x length [mm]	5.8 x 20	5.8 x 47	7.9 x 28	10.8 x 47.6	10.7 x 42	10.7 x 42
Tube material	PP	PE	PP	PP	PP	PP
Item no.	15042	15014	15005	Paediatrics	15008	15040



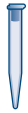


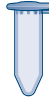
### Adapter

for carrier bucket 13124



					
Bore diameter x length [mm]	6.3 x 18.5	6 x 45	8 x 45	11.1 x 29.5	11.1 x 38.5
Tubes per adapter / rotor	1 / 24	1 / 24	1 / 24	1 / 12*	- / 24
Centrifuging radius [mm]	70	72	72	65	74
Item no.	13021	13000	13002	13074	-






### Tube

						
Rated capacity (filling volume) [ml]	0.2	0.2	0.4	0.5	1.5	2
Diameter x length [mm]	5.8 x 20	-	5.8 x 47	7.9 x 28	10.7 x 42	10.7 x 42
Tube material	PP	-	PE	PP	PP	PP
Item no.	15042	PCR strips	15014	15005	15008	15040

### Adapter

for drum rotor 11136



					
Bore diameter x length [mm]	6.2 x 17	6.2 x 17	6 x 46	8.1 x 21	11.2 x 39
Tubes per adapter / rotor	32 / 192	4 x 8 / 24 x 8	20 / 120	10 / 60	10 / 60
Centrifuging radius [mm]	48	48	70	52	70
Item no.	14021	14021	14000	14020	14002

## Fixed-angle rotor 12115

### with aluminium lid 17875

- Max. capacity: 96 x 0.2 ml conical
- Max. speed (3-16L / 3-16KL): 14,000 rpm
- Max. RCF outer row (3-16L / 3-16KL): 21,475 x g
- Max. RCF inner row (3-16L / 3-16KL): 18,297 x g
- Hermetically closable with aluminium lid 17875
- Tmin at maximum speed: <4°C
- Angle: 45° (both rows)





## Fixed-angle rotor 12154

### with aluminium lid 17829

- Max. capacity: 24 x 2 ml
- Max. speed (3-16L / 3-16KL): 15,300 rpm
- Max. RCF (3-16L / 3-16KL): 21,460 x g
- Hermetically closable with aluminium lid 17829
- Tmin at maximum speed: <4°C
- Angle: 45°
- NEW:** g-lock rotor 91123 [🔗](#)





### Tube

		
Rated capacity (filling volume) [ml]	0.2	0.2
Diameter x length [mm]	5.8 x 20	–
Tube material	PP	–
Item no.	15042	PCR strips







### Adapter

for fixed-angle rotor 12115



		
Bore diameter x length [mm]	6.3 x 15.5	6.3 x 16.5
Tubes per adapter / rotor	96	12 x 8
Centrifuging radius outer / inner row [mm]	98 / 83	98 / 83
Item no.	–	–







### Tube

						
Rated capacity (filling volume) [ml]	0.2	0.4	0.5	0.5	1.5	2
Diameter x length [mm]	5.8 x 20	5.8 x 47	7.9 x 28	10.8 x 47.6	10.7 x 42	10.7 x 42
Tube material	PP	PE	PP	PP	PP	PP
Item no.	15042	15014	15005	Paediatrics	15008	15040

### Adapter

for fixed-angle rotor 12154



						
Bore diameter x length [mm]	6.3 x 18.5	6 x 45	8 x 45	11.1 x 29.5	11.1 x 38.5	–
Tubes per adapter / rotor	1 / 24	1 / 24	1 / 24	1 / 24	– / 24	–
Centrifuging radius [mm]	78	80	80	73	82	–
Item no.	13021	13000	13002	13074*	–	–

\* Only partial loading possible in some cases, depending on choice of paediatric tubes

## Fixed-angle rotor 12131

### with aluminium lid 17848

- Max. capacity: 30 x 2 ml
- Max. speed (3-16L / 3-16KL): 13,200 / 14,000 rpm
- Max. RCF (3-16L / 3-16KL): 19,480 / 21,913 x g
- Hermetically closable with aluminium lid 17848
- Tmin at maximum speed: <4°C
- Angle: 45°









## Fixed-angle rotor 12349

### with aluminium lid 17349

- Max. capacity: 48 x 2 ml
- Max. speed (3-16L / 3-16KL): 13,000 / 14,000 rpm
- Max. RCF (3-16L / 3-16KL): 18,894 / 21,913 x g
- Hermetically closable with aluminium lid 17349
- Tmin at maximum speed: <4°C
- Angle (outer / inner row): 25° / 53°
- NEW:** g-lock rotor 91520 [↗](#)







### Tube

						
Rated capacity (filling volume) [ml]	0.2	0.4	0.5	0.5	1.5	2
Diameter x length [mm]	5.8 x 20	5.8 x 47	7.9 x 28	10.8 x 47.6	10.7 x 42	10.7 x 42
Tube material	PP	PE	PP	PP	PP	PP
Item no.	15042	15014	15005	Paediatrics	15008	15040







### Adapter

for fixed-angle rotor 12131



					
Bore diameter x length [mm]	6.3 x 18.5	6 x 45	8 x 45	11.1 x 29.5	11.1 x 38.5
Tubes per adapter / rotor	1 / 30	1 / 30	1 / 30	1 / 30	– / 30
Centrifuging radius [mm]	96	98	98	91	100
Item no.	13021	13000	13002	13074*	–





### Tube

						
Rated capacity (filling volume) [ml]	0.2	0.4	0.5	0.5	1.5	2
Diameter x length [mm]	5.8 x 20	5.8 x 47	7.9 x 28	10.8 x 47.6	10.7 x 42	10.7 x 42
Tube material	PP	PE	PP	PP	PP	PP
Item no.	15042	15014	15005	Paediatrics	15008	15040

### Adapter


for fixed-angle rotor 12349



					
Bore diameter x length [mm]	6.3 x 18.5	6 x 45	8 x 45	11.1 x 29.5	11.1 x 38.5
Tubes per adapter / rotor	1 / 48	1 / 48	1 / 48	1 / 48	– / 48
Centrifuging radius outer / inner [mm]	96 / 96	98 / 98	98 / 98	91 / 91	100 / 100
Item no.	13021	13000	13002	13074*	–

## Fixed-angle rotor 12182


### with aluminium lid 17182

- Max. capacity: 12 x 5 ml conical
- Max. speed (3-16L / 3-16KL): 15,000 / 15,300 rpm
- Max. RCF (3-16L / 3-16KL): 21,130 / 21,984 x g
- Biosafe with aluminium lid 17182 
- Tmin at maximum speed: <4°C
- Angle: 40°








## Fixed-angle rotor 12111

### with aluminium lid 17835

- Max. capacity: 10 x 10 ml round-bottom
- Max. speed (3-16L / 3-16KL): 15,300 rpm
- Max. RCF (3-16L / 3-16KL): 19,890 x g
- Hermetically closable with aluminium lid 17835
- Tmin at maximum speed: <4°C
- Angle: 35°
- NEW:** g-lock rotor 91527 







### Tube

					
Rated capacity (filling volume) [ml]	1.5	1.5–1.8	1.5	2	5
Diameter x length [mm]	11.7 x 34	12.3 x 49	10.7 x 42	10.7 x 42	17 x 60
Tube material	Glass	PP	PP	PP	PPCO
Item no.	HPLC	Cryo tube	15008	15040	–




### Adapter

for fixed-angle rotor 12182



				
Bore diameter x length [mm]	12.5 x 28	12.7 x 32	11.1 x 38.5	17 x 52
Tubes per adapter / rotor	1 / 12	1 / 12	1 / 12	– / 12
Centrifuging radius [mm]	57	61	69	84
Item no.	14081	14080*	14082	–

### Tube

			
Rated capacity (filling volume) [ml]	10	10	10
Diameter x length [mm]	16.1 x 81.1	16.1 x 81.1	16.1 x 81.1
Tube material	PF	PC	PPCO
Item no.	15000	15010	15039

### Adapter

for fixed-angle rotor 12111



Bore diameter x length [mm]	16.3 x 69
Tubes per adapter / rotor	– / 10
Centrifuging radius [mm]	76
Item no.	–

## Fixed-angle rotor 12157



### with aluminium lid 17841

- Max. capacity: 20 x 10 ml round-bottom
- Max. speed (3-16L / 3-16KL): 9,000 / 10,000 rpm
- Max. RCF (3-16L / 3-16KL): 8,875 / 10,956 x g
- Hermetically closable with aluminium lid 17841
- Tmin at maximum speed: <4°C
- Angle: 25°



## Fixed-angle rotor 12311

### with aluminium lid 17935

- Max. capacity: 12 x 15 ml conical
- Max. speed (3-16L / 3-16KL): 9,000 / 10,000 rpm
- Max. RCF (3-16L / 3-16KL): 8,965 / 11,068 x g
- Biosafe with aluminium lid 17935 
- Tmin at maximum speed: <4°C
- Angle: 25°
- **NEW:** g-lock rotor 91534 



### Tube



Rated capacity (filling volume) [ml]	10	10	10
Diameter x length [mm]	16.1 x 81.1	16.1 x 81.1	16.1 x 81.1
Tube material	PF	PC	PPCO
Item no.	15000	15010	15039

### Adapter

for fixed-angle rotor 12157



Bore diameter x length [mm]	16.3 x 69
Tubes per adapter / rotor	- / 20
Centrifuging radius [mm]	98
Item no.	-

### Tube



Rated capacity (filling volume) [ml]	15
Diameter x length [mm]	16.5 x 120
Tube material	PP
Item no.	15115

### Adapter

for fixed-angle rotor 12311



Bore diameter x length [mm]	17.5 x 106
Tubes per adapter / rotor	- / 12
Centrifuging radius [mm]	99
Item no.	-

# Cleanroom

## Robust and resistant



An extremely resistant cleanroom coating is available from Sigma for all aluminium buckets and rotors. This coating provides reliable corrosion protection for accessories, especially where aggressive chemicals are used. The cleanroom coating can even withstand




exposure to sodium hydroxide and hydrochloric acid. The surfaces are also food-grade (FDA certified) and can easily be cleaned without residues.

**Cleanroom coating**  
Available for all accessories



## Fixed-angle rotor 12158


### with aluminium lid 17842

- Max. capacity: 6 x 30 ml round-bottom
- Max. speed (3-16L / 3-16KL): 15,300 rpm
- Max. RCF (3-16L / 3-16KL): 20,675 x g
- Hermetically closable with aluminium lid 17842
- Tmin at maximum speed: <4°C
- Angle: 29°
- NEW:** g-lock rotor 91365 



## Fixed-angle rotor 12150

### with aluminium lid 17837

- Max. capacity: 6 x 50 ml round-bottom
- Max. speed (3-16L / 3-16KL): 10,000 / 11,000 rpm
- Max. RCF (3-16L / 3-16KL): 9,391 / 11,363 x g
- Hermetically closable with aluminium lid 17837
- Tmin at maximum speed: <4°C
- Angle: 25°
- NEW:** g-lock rotor 91375 



### Tube



Rated capacity (filling volume) [ml]	10	10	10	30 (26)	30 (26)	30 (28)
Diameter x length [mm]	16.1 x 81.1	16.1 x 81.1	16.1 x 81.1	25.3 x 98	25.3 x 98	25.3 x 98
Tube material	PF	PC	PPCO	PF	PPCO	PC
Item no.	15000	15010	15039	15029	15032	15030

### Adapter

for fixed-angle rotor 12158



Bore diameter x length [mm]	16.5 x 70			25.7 x 82.5		
Tubes per adapter / rotor	1 / 6			- / 6		
Centrifuging radius [mm]	69			79		
Item no.	13059			-		

### Tube



Rated capacity (filling volume) [ml]	10	10	14	15	30 (26)	30 (28)	30	50 (38)	50 (43)	50
Diameter x length [mm]	16.1 x 81.1	16.1 x 81.1	17 x 100	17.5 x 106	25.3 x 98	25.3 x 98	23.6 x 106	28.8 x 107	28.5 x 107	28.5 x 101.5
Tube material	PF	PPCO	PP	HS glass	PPCO	PC	HS glass	PPCO	PF	Stainless steel
Item no.	15000	15039	15023	15085	15032	15030	15086	15052	15051	13055

### Adapter



for fixed-angle rotor 12150



Bore diameter x length [mm]	16.2 x 65	17 x 88	18 x 90	25.6 x 75	24.5 x 93	29 x 98				
Tubes per adapter / rotor	1 / 6	1 / 6	1 / 6	1 / 6	1 / 6	- / 6				
Centrifuging radius [mm]	52	79	79	69	82	84				
Item no.	13087	13062	16018	13086	16030	-				

## Fixed-angle rotor 12310

### with aluminium lid 17934

- Max. capacity: 6 x 50 ml conical
- Max. speed (3-16L / 3-16KL): 9,000 / 10,000 rpm
- Max. RCF (3-16L / 3-16KL): 8,512 / 10,509 x g
- Biosafe with aluminium lid 17934 
- Tmin at maximum speed: <4°C
- Angle: 25°
- NEW:** g-lock rotor 91377 









## Fixed-angle rotor 12156

### with aluminium lid 17840

- Max. capacity: 8 x 50 ml round-bottom
- Max. speed (3-16L / 3-16KL): 9,000 / 10,000 rpm
- Max. RCF (3-16L / 3-16KL): 8,694 / 10,733 x g
- Hermetically closable with aluminium lid 17840
- Tmin at maximum speed: <4°C
- Angle: 25°







### Tube

						
Rated capacity (filling volume) [ml]	15	25	30	50 (38)	50 (43)	50
Diameter x length [mm]	16.5 x 120	25 x 90	25 x 107	28.8 x 107	28.5 x 107	29 x 117
Tube material	PP	PP	PP	PPCO	PF	PP
Item no.	15115	–	–	15052	15051	15151











### Adapter

for fixed-angle rotor 12310



				
Bore diameter x length [mm]	17 x 107	25.5 x 71	30 x 91	30 x 101
Tubes per adapter / rotor	1 / 6	1 / 6	1 / 6	– / 6
Centrifuging radius [mm]	93	71	84	94
Item no.	13060	13064	13079	–









### Tube

										
Rated capacity (filling volume) [ml]	10	10	14	15	30 (26)	30 (28)	30	50 (38)	50 (43)	50
Diameter x length [mm]	16.1 x 81.1	16.1 x 81.1	17 x 100	17.5 x 106	25.3 x 98	25.3 x 98	23.6 x 106	28.8 x 107	28.5 x 107	28.5 x 101.5
Tube material	PF	PPCO	PP	HS glass	PPCO	PC	HS glass	PPCO	PF	Stainless steel
Item no.	15000	15039	15023	15085	15032	15030	15086	15052	15051	13055

### Adapter


for fixed-angle rotor 12156













								
Bore diameter x length [mm]	16.2 x 65	17 x 88	18 x 90	25.6 x 75	24.5 x 93			29 x 98
Tubes per adapter / rotor	1 / 8	1 / 8	1 / 8	1 / 8	1 / 8			– / 8
Centrifuging radius [mm]	64	91	91	81	94			96
Item no.	13087	13062	16018	13086	16030			–

## Fixed-angle rotor 12155

### with aluminium lid 17839

- Max. capacity: 4 x 94 ml round-bottom
- Max. speed (3-16L / 3-16KL): 10,000 rpm
- Max. RCF (3-16L / 3-16KL): 10,174 x g
- Hermetically closable with aluminium lid 17839
- Tmin at maximum speed: <4°C
- Angle: 26°
- NEW:** g-lock rotor 91532 


















Tube										
Rated capacity (filling volume) [ml]	10	10	10	14	14	15	15	25	30 (26)	30 (26)
Diameter x length [mm]	16.1 x 81.1	16.1 x 81.1	16.1 x 81.1	17 x 100	17 x 100	17.5 x 106	16.5 x 120	24 x 100	25.3 x 98	25.3 x 98
Tube material	PF	PC	PPCO	PS	PP	HS glass	PP	Glass	PF	PPCO
Item no.	15000	15010	15039	15020	15023	15085	15115	15025	15029	15032

### Adapter

for fixed-angle rotor 12155








Adapter					
Bore diameter x length [mm]	16.2 x 71	18 x 87	17 x 107	24.5 x 88	26 x 83
Tubes per adapter / rotor	2 / 8	1 / 4	1 / 4	1 / 4	1 / 4
Centrifuging radius [mm]	62	83	90	84	74
Item no.	13084	16019	13081*	16031	13083

Tube										
Rated capacity (filling volume) [ml]	30 (28)	30	50 (38)	50 (43)	50	50	85 (73)	85 (76)	94 (85)	94
Diameter x length [mm]	25.3 x 98	23.6 x 106	28.8 x 107	28.5 x 107	28.5 x 101.5	29.5 x 117	38 x 112	38 x 112	38 x 103	38 x 110
Tube material	PC	HS glass	PPCO	PF	Stainless steel	PP	PF	PPCO	Stainless steel	PC
Item no.	15030	15086	15052	15051	13055	15151	15080	15076	13085	15094

### Adapter


for fixed-angle rotor 12155



Adapter					
Bore diameter x length [mm]	26 x 83	24.5 x 88	29 x 97	30 x 100	38.3 x 91
Tubes per adapter / rotor	1 / 4	1 / 4	1 / 4	1 / 4	- / 4
Centrifuging radius [mm]	74	84	88	91	91
Item no.	13083	16031	13082	13080*	-











## Fixed-angle rotor 12159

### with aluminium lid 17843

- Max. capacity: 6 x 94 ml round-bottom
- Max. speed (3-16L / 3-16KL): 8,000 rpm
- Max. RCF (3-16L / 3-16KL): 7,012 x g
- Hermetically closable with aluminium lid 17843
- T<sub>min</sub> at maximum speed: <4°C
- Angle: 25°
- NEW:** g-lock rotor 91119 








### Tube

										
Rated capacity (filling volume) [ml]	10	10	10	14	14	15	15	25	30 (26)	30 (26)
Diameter x length [mm]	16.1 x 81.1	16.1 x 81.1	16.1 x 81.1	17 x 100	17 x 100	17.5 x 106	16.5 x 120	24 x 100	25.3 x 98	25.3 x 98
Tube material	PF	PC	PPCO	PS	PP	HS glass	PP	Glass	PF	PPCO
Item no.	15000	15010	15039	15020	15023	15085	15115	15025	15029	15032











### Adapter

for fixed-angle rotor 12159



					
Bore diameter x length [mm]	16.2 x 71	18 x 87	17 x 107	24.5 x 88	26 x 83
Tubes per adapter / rotor	2 / 12	1 / 6	1 / 6	1 / 6	1 / 6
Centrifuging radius [mm]	69	90	97	91	81
Item no.	13084	16019	13081	16031	13083






### Tube

										
Rated capacity (filling volume) [ml]	30 (28)	30	50 (38)	50 (43)	50	50	85 (73)	85 (76)	94 (85)	94
Diameter x length [mm]	25.3 x 98	23.6 x 106	28.8 x 107	28.5 x 107	28.5 x 101.5	29.5 x 117	38 x 112	38 x 112	38 x 103	38 x 110
Tube material	PC	HS glass	PPCO	PF	Stainless steel	PP	PF	PPCO	Stainless steel	PC
Item no.	15030	15086	15052	15051	13055	15151	15080	15076	13085	15094

### Adapter

for fixed-angle rotor 12159



					
Bore diameter x length [mm]	26 x 83	24.5 x 88	29 x 97	30 x 100	38.3 x 91
Tubes per adapter / rotor	1 / 6	1 / 6	1 / 6	1 / 6	- / 6
Centrifuging radius [mm]	81	91	95	98	98
Item no.	13083	16031	13082	13080	-

# Material properties

## Guideline for optimal tube selection

Due to the many factors that influence material properties, this overview is only intended as a general recommendation. There is no guarantee of the stated properties. Users should therefore carefully

test materials for suitability under specific application conditions. Tubes should be discarded as soon as they show any sign of material fatigue.

	Polycarbonate (PC)	Polyvinyl fluoride (PF)	Polystyrene (PS)	Polyethylene (PE)	Polypropylene (PP)
<b>Autoclave resistant</b>	Yes	Yes	No	No	Yes
<b>Elasticity</b>	Not elastic	Not elastic	Not elastic	Good	Not elastic
<b>Transparency</b>	Transparent	Translucent	Transparent	Translucent	Translucent
<b>Microwave resistant</b>	Moderate	Yes	No	Limited	Moderate
<b>Chemical resistance</b>					
Weak acids	Yes	Yes	Yes	Yes	Yes
Strong acids	No	Yes	Limited	Yes	Yes
Alcohols and alkalis	No	Yes	Yes	Yes	Yes
Salts	Limited	Yes	Limited	Yes	Yes
<b>Note:</b>	Frequent autoclaving leads to loss of strength	Tubes should be completely filled and closed for use at maximum RCF			

	PP copolymer (PPCO)	Glass	High-speed glass (HS glass)	Stainless steel
<b>Autoclave resistant</b>	Yes	Yes	Yes	Yes
<b>Elasticity</b>	Moderate	Not elastic	Not elastic	Not elastic
<b>Transparency</b>	Translucent	Transparent	Transparent	Opaque
<b>Microwave resistant</b>	Moderate	Yes	Yes	No
<b>Chemical resistance</b>				
Weak acids	Yes	Yes	Yes	Limited
Strong acids	Yes	Yes	Yes	Limited
Alcohols and alkalis	Yes	Yes	Yes	Yes
Salts	Yes	Yes	Yes	Limited
<b>Note:</b>		Max. RCF for all glass tubes approx. 4,000 x g	High-speed glass for maximum RCF of 13,100 x g	



SONICARE

Digital LCD display showing the following data:

Time	0:00
Power	100%
Speed	10000
Mode	1
Temp	20



# Spincontrol L controller

## Easy operation, maximum safety

Well conceived, uncluttered and extensive options are hallmarks of the Spincontrol L controller. Based on a patented Sigma concept. The brilliantly simple design of the Spincontrol L has only three buttons (Start, Stop, and Lid) along with the proven multifunction knob. Operating parameters can be entered conveniently and stored in up to 50 programs using the intuitive user interface. The backlit LCD display is easy to read at a distance.

A special feature is automatic monitoring of the number of operational rotor cycles. The integrated cycle counter keeps track of all completed rotor runs and informs the user when a defined limit value is reached. This alert system is based on real measurement data and helps to reliably avoid damage to rotors and the centrifuge.

The high-performance cooling system provides precise control over the range of  $-10^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$  with fine adjustment in  $1^{\circ}\text{C}$  increments. Along with the pre-cooling function, the Sigma 3-16KL has optionally selectable standstill cooling.

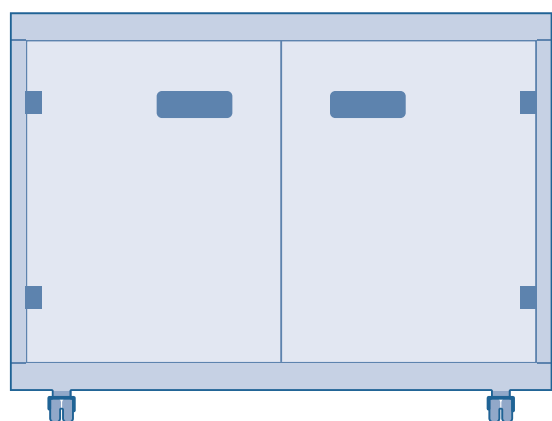
Display	Backlit LCD
Constant display of setpoints and actual values	+
Speed/RCF display	+
Timer (s; h:min)	10 – 99:59
Timer tracks time after setpoint speed is reached; switchable	+, +
Short run, Continuous run	+, +
Time increment [s]	1
Speed increment [rpm]	100
Temperature increment [ $^{\circ}\text{C}$ ]	1*
RCF increment [x g]	10
Programs	50
Acceleration curves	10
Braking curves	10
Free run-out	+
Automatic cap opening at end of run, switchable	+, +
Standstill cooling	+*
Pre-cooling program "Rapid Temp"	+*
Audible signal, switchable	+, +
Visual standstill indication	+
Rotor cycle monitoring	+
Rotor end-of-life warning	+
Lockable controller	+
Microprocessor control	+

\* Only for Sigma 3-16KL



# Centrifuge tables

Sigma centrifuge tables are available in six different sizes. Matched to the corresponding centrifuge dimensions, they combine convenient work height with an optimally calculated footprint. The tables are made from coated sheet steel and are equipped with a storage compartment (with two doors) and a convenient pull-out shelf. Lockable castors allow the centrifuge tables to be easily moved and positioned in the laboratory.



## Centrifuge table 17920

For Sigma 2-16KL  
W x H x D [mm]: 600 x 501 x 550

## Centrifuge table 17921

For Sigma 6-16KS  
W x H x D [mm]: 790 x 515 x 684

## Centrifuge table 17922

For Sigma 6-16S  
W x H x D [mm]: 581 x 481 x 684

## Centrifuge table 17923

For Sigma 3-30KS  
W x H x D [mm]: 570 x 481 x 616

## Centrifuge table 17926

For Sigma 3-16KL, 3-18KS, 4-16KS  
W x H x D [mm]: 650 x 501 x 647

## Centrifuge table 17927

For Sigma 3-16L, 4-5L, 4-16S  
W x H x D [mm]: 490 x 497 x 647



# Premium quality

## Made in Germany

The Sigma 3-16L and Sigma 3-16KL meet the highest technical requirements of laboratory standards. Developed and produced at our facility in Osterode, Germany, they are high-performance, durable and energy-efficient quality products and conform to the latest safety, emissions and environmental standards. Sigma guarantees the availability of spare parts and wearing parts for at least 10 years.

Furthermore, you benefit from our extensive services portfolio, including commissioning, maintenance, device calibration and more. Our qualified service technicians are ready to provide professional maintenance and repair as well as loaner devices if necessary. All support services are designed to ensure reliability and optimise system availability.

	Sigma 3-16L	Sigma 3-16KL
<b>Max. capacity [ml]</b>		
Swing-out rotor	4 x 400	4 x 400
Fixed-angle rotor	6 x 94	6 x 94
<b>Max. RCF</b>	21,475	21,984
<b>Maximum speed [rpm]</b>	15,300	15,300
<b>Minimum speed [rpm]</b>	100	100
<b>Noise level at maximum speed (approx.) [dB(A)]</b>		
Fixed-angle rotor 12154	≤ 60	≤ 55
Swing-out rotor 11180 with bucket 13190	≤ 65	≤ 52
<b>Max. acceleration time [s]</b>		
Fixed-angle rotor 12154	≤ 25	≤ 25
Swing-out rotor 11180 with bucket 13190	≤ 20	≤ 16
<b>Max. braking time [s]</b>		
Fixed-angle rotor 12154	≤ 42	≤ 40
Swing-out rotor 11180 with bucket 13190	≤ 22	≤ 17
<b>Temperature adjustment range [°C]</b>	–	-10–+40
<b>Power consumption [W]</b>	500	1,010
<b>Height x width x depth [mm]</b>	355 x 460 x 600	355 x 630 x 600
<b>Height with open cap [mm]</b>	770	785
<b>Weight without rotor [kg]</b>	48	78

### Sigma 3-16L centrifuge

220–240 V, 50/60 Hz (item no. 10355)  
 120 V, 60 Hz (item no. 10356)  
 100 V, 50/60 Hz (item no. 10357)

### Sigma 3-16L centrifuge, IVD version

220–240 V, 50/60 Hz (item no. 10358)  
 120 V, 60 Hz (item no. 10359)

### Sigma 3-16KL centrifuge

220–240 V, 50/60 Hz (item no. 10360)  
 120 V, 60 Hz (item no. 10361)  
 100 V, 50/60 Hz (item no. 10362)

### Sigma 3-16KL centrifuge, IVD version

220–240 V, 50/60 Hz (item no. 10363)  
 120 V, 60 Hz (item no. 10364)

### Sigma Service

For maintenance and repairs please contact our Service department at [www.sigma-zentrifugen.de/en/service](http://www.sigma-zentrifugen.de/en/service)

### Calibration

Documented proof of compliance with essential technical parameters.

Speed or run time (item no. 17713)  
 Speed and run time (item no. 17714)  
 Speed, run time, temperature (item no. 17715)

### Device qualification (IQOQ)

This comprehensive device qualification includes installation qualification and metrological checking of all functional parameters with a rotor.

IQOQ package for:

Unrefrigerated centrifuges (item no. 17710)  
 Refrigerated centrifuges (item no. 17711)  
 An additional rotor (item no. 17712)



**Sigma 3-16KL centrifuge, inert gas**  
 220–240 V, 50/60 Hz (item no. 91027)

# Product portfolio

Sigma offers a broad product portfolio with more than 25 laboratory centrifuges. They can be combined with an extensive range of fixed-angle and swing-out rotors and a large variety of accessories to obtain the right device configuration for every application.



**Microcentrifuge**  
**Sigma 1-16**

- 36 x 2 ml
- 15,000 rpm
- 20,627 x g

**Floor-standing centrifuge**  
**Sigma 8KS**

- 12 x 1,000 ml
- 5,100 rpm
- 8,578 x g

- 6 x 1,000 ml
- 10,500 rpm
- 20,461 x g



**Benchtop centrifuge**  
**Sigma 2-7**

- 4 x 100 ml
- 4,000 rpm
- 2,540 x g

- 30 x 15 ml
- 4,000 rpm
- 2,486 x g



**Benchtop centrifuge**  
**Sigma 3-30KS**

- 4 x 100 ml
- 5,000 rpm
- 3,969 x g

- 6 x 94 ml
- 30,000 rpm
- 70,121 x g



**Robot centrifuge**  
**Sigma 4-5KRL**

- 100 x 15 ml
- 4,700 rpm
- 4,470 x g

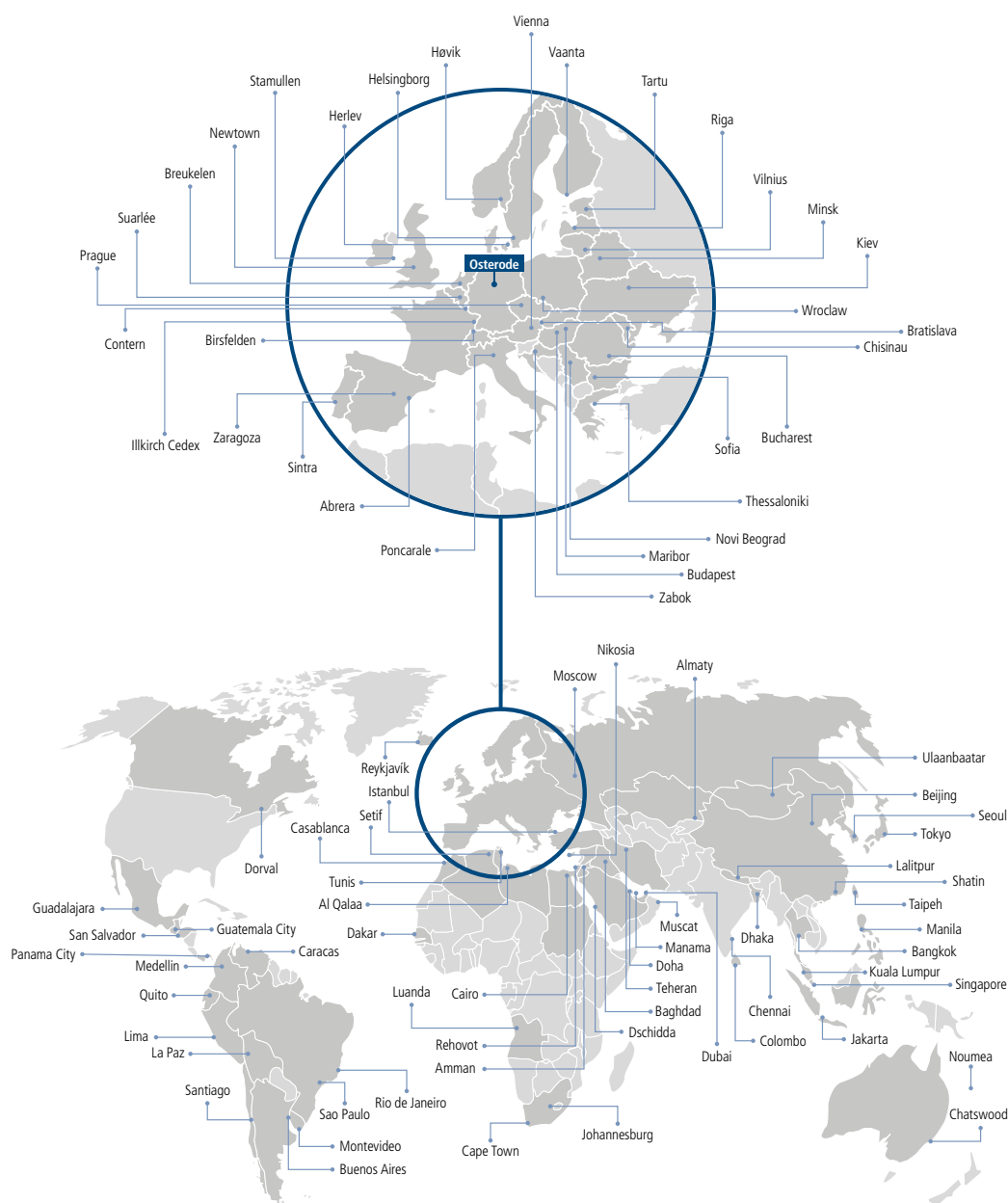
## Legend

- Max. capacity
- Max. speed
- Max. RCF
- Swing-out rotor
- Fixed-angle rotor

# Global service

## For local product security

Our trained service partners in over 100 countries ensure consistently high quality in accordance with national regulations. Our specialists can also be engaged quickly around the world, either remotely or on site in person.



Selected locations of our representatives.

An overview of all representatives with detailed contact information can be found at [www.sigma-zentrifugen.de/en/sales-partners](http://www.sigma-zentrifugen.de/en/sales-partners)



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