

turns more than heads



# Sigma 4-5L Sigma 4-5KL



Benchtop centrifuge

- Unrefrigerated
- Refrigerated



SIGMA 4-SKL

0 808 19

# Top performer for high throughput



**Sigma is a leading international manufacturer of laboratory centrifuges for biotechnology, pharmaceutical, medical, environment analysis, and other sectors. 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 high-performance Sigma 4-5L and Sigma 4-5KL laboratory centrifuges are designed for throughput and capacity. The high torque enables especially short acceleration times and makes laboratory processes efficient. These centrifuges are recommended for applications in clinical diagnostics and for life sciences applications.

The Sigma 4-5L boasts impressive features. Optimal air guidance ensures very low specimen heating and pleasantly quiet running. As an additional innovative feature, the IVD version of the device has a temperature sensor to monitor the specimens.

The refrigerated version Sigma 4-5KL, with a temperature adjustment range of  $-10^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$ , is recommended for the protection of temperature sensitive samples.

# Higher throughput in the laboratory

## Result-oriented, convenient and robust

The Sigma 4-5 centrifuge series is designed for research and routine tasks in the laboratory. With their versatile rotor configurations, these models are suitable for research laboratories, hospitals, universities, cell culture applications, pharmaceutical laboratories, and applications in the biotechnology sector.

The IVD version of the non-refrigerated Sigma 4-5L features the innovative temperature monitoring function, a valuable aid for the protection of sensitive specimens. The maximum permissible specimen temperature can be freely set by the user. The device monitors this temperature and informs the user by an alert on the display if the limit was exceeded during the separation process. The innovative features enable compliance with the strict quality demands of clinical diagnostics.

### Sigma 4-5L

- High-performance benchtop centrifuge
- Speed range up to 4,700 rpm
- Maximum capacity: 4 x 750 ml
- Up to 144 blood collection tubes per run
- User-friendly Spincontrol L controller
- Capacity for 50 programs
- Compact, space-saving device
- Low noise level
- Short braking and acceleration times
- Zero-maintenance induction motor
- High imbalance tolerance
- Motorized lid opening
- Automatic imbalance monitoring
- Rotor life monitoring for high safety
- Easily cleaned stainless steel chamber
- Window in lid for external speed checking
- Manufactured according to the latest national and international standards (e.g. EN 61010-2-020)

### Sigma 4-5L with IVD

- Temperature monitoring: sensor for monitoring the maximum specimen temperature.

The Sigma 4-5KL refrigerated centrifuge is recommended for all applications in which the constant temperature between 4 °C and 22 °C must be maintained. To save energy and reduce costs, the refrigerated centrifuge offers the ECO mode feature. After a user-settable time, the centrifuge automatically switches to standby mode if it is not being used. Along with being energy efficient, this improves the working atmosphere in the lab by switching off the refrigeration to significantly reduce the noise level. The refrigerated centrifuge has a very small footprint and offers good value for money.

### Sigma 4-5KL

All features of the Sigma 4-5L, plus:

- Speed range up to 13,500 rpm
- Temperature adjustment range –10 °C to +40 °C
- Optimized refrigeration compliant with the fluorinated greenhouse gases regulation (EU) No. 517/2014
- Rapid Temp function for fast temperature control
- Rotor temperature control even at standstill
- Adjustable ECO mode for energy-efficient standby mode

### Sigma 4-5KL with IVD

All features of the Sigma 4-5KL.





# Rotors and accessories

## Comprehensive options for the laboratory


A dedicated range of rotors are available for the compact Sigma 4-5 device series. The extensive range of accessories for swing-out rotors can hold tubes and vials from 1.5 ml to 750 ml as well as microtiter and deepwell plates. For working with samples that must be kept contained, the hexagonal bucket can be closed with a transparent cap for biosafe operation. The bail allows the buckets to be opened quickly and easily with just one hand.

There are also fixed-angle rotors for 48 x 1.5 ml reaction tubes, 8 x 50 ml conical vials and 6 x 94 ml vials. All fixed-angle rotors are suitable for biosafe operation.

As a special feature, custom accessories can be produced on request. The rotors and accessories are made of certified high-performance materials to withstand the most severe stresses.

### Sigma 4-5L and Sigma 4-5KL rotor options


#### Swing-out rotor 11650 / 11660

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Biosafe with cap 17170 
- Angle: 90°



▶ p. 7

#### Swing-out rotor 11660 and bucket 13460

- Max. capacity: 100 x 15 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,470 x g
- Biosafe with cap 17460 
- Angle: 90°



▶ p. 10

#### MTP swing-out rotor 11650 / 11660


- Max. capacity: 16 microtiter plates
- Max. speed: 4,700 rpm
- Max. RCF: 3,877 x g
- Angle: 90°



▶ p. 11

### Sigma 4-5KL rotor options


#### MTP swing-out rotor 11118

- Max. capacity: 10 microtiter plates
- Max. speed: 5,700 rpm
- Max. RCF: 5,485 x g
- Biosafe with cap 17108 
- Angle: 90°



▶ p. 11


#### Fixed-angle rotor 12449

- Max. capacity: 48 x 2 ml
- Max. speed: 13,500 rpm
- Max. RCF: 20,376 x g
- Biosafe with aluminum lid 17612 
- Angle (outer / inner row): 25° / 53°



▶ p. 12


#### Fixed-angle rotor 12269

- Max. capacity: 8 x 50 ml conical
- Max. speed: 11,360 rpm
- Max. RCF: 15,000 x g
- Biosafe with aluminum lid 17604 
- Angle: 25°



▶ p. 13

#### Fixed-angle rotor 12265

- Max. capacity: 6 x 94 ml round-bottom
- Max. speed: 10,000 rpm
- Max. RCF: 11,851 x g
- Biosafe with aluminum lid 17607 
- Angle: 25°




▶ p. 14

## Sigma 4-5L and Sigma 4-5KL

### Swing-out rotor 11650


#### Round bucket 13450 (1 set = 2 pcs)

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Max. tube length, mid-bucket without / with cap: 148 / 137 mm
- Biosafe with cap 17170 
- Tmin at maximum speed: <4 °C
- Angle: 90°






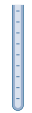










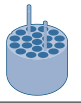
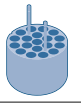












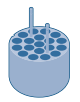

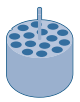


### Swing-out rotor 11660

#### Round bucket 13450 (1 set = 2 pcs)

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Max. tube length, mid-bucket without / with cap: 153 / 137 mm
- Biosafe with cap 17170 
- Tmin at maximum speed: <4 °C
- Angle: 90°



Tube											
Rated capacity (filling volume) [ml]	1.5	2	5	5	6 (5)	7	10	10	10	10	
Diameter x length [mm]	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	16.1 x 81.1	16.1 x 81.1	16 x 100	
Tube material	PP	PP	PS	PPCO	Glass	Glass	PF	PC	PPCO	Glass	
Item no.	15008	15040	15060	–	15007	15027	15000	15010	15039	15015	
<b>Adapter</b>											
for round bucket 13450											
Bore diameter x length [mm]	11.1 x 38.5		12.8 x 52	17 x 52	12.8 x 74		16.5 x 55		17.5 x 55		
Tubes per adapter / rotor	26 / 104		37 / 148	12 / 48	32 / 128		20 / 80		19 / 76		
Centrifuging radius [mm]	181		180	185	182		183		183		
Item no.	17653		17652	17211	17654		17655		17658		


Tube									
Rated capacity (filling volume) [ml]	10	14	14	15 (13)	15	25	25	25	30 (26)
Diameter x length [mm]	16 x 100	17 x 100	17 x 100	17 x 110	16.5 x 120	25 x 90	24 x 100	24 x 100	25.3 x 98
Tube material	Glass	PS	PP	Glass	PP	PP	Glass	Glass	PF
Item no.	15024	15020	15023	15022	15115	–	15025	15026	15029
<b>Adapter</b>									
for round bucket 13450									
Bore diameter x length [mm]	17.5 x 55		17 x 78.5		17 x 78.5	25.5 x 70	25.5 x 77		
Tubes per adapter / rotor	19 / 76		12 / 48	15 / 60	7 / 28	8 / 32			
Centrifuging radius [mm]	183		187	187	175	185			
Item no.	17658		17659	17660*	17662	17670			

\* Only possible without cap 17170

## Sigma 4-5L and Sigma 4-5KL

## Swing-out rotor 11650


## Round bucket 13450 (1 set = 2 pcs)

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Max. tube length, mid-bucket without / with cap: 148 / 137 mm
- Biosafe with cap 17170 
- Tmin at maximum speed: <4 °C
- Angle: 90°































## Swing-out rotor 11660

## Round bucket 13450 (1 set = 2 pcs)

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Max. tube length, mid-bucket without / with cap: 153 / 137 mm
- Biosafe with cap 17170 
- Tmin at maximum speed: <4 °C
- Angle: 90°



Tube										
Rated capacity (filling volume) [ml]	30 (26)	30 (28)	30	30	50 (38)	50 (43)	50	50	50	50
Diameter x length [mm]	25.3 x 98	25.3 x 98	24 x 105	25 x 107	28.8 x 107	28.5 x 107	28.5 x 101.5	34 x 100	34 x 100	34 x 100
Tube material	PPCO	PC	Glass	PP	PPCO	PF	Stainless steel	Glass	Glass	PC
Item no.	15032	15030	15033	–	15052	15051	13055	15045	15050	15049
<b>Adapter</b>										
for round bucket 13450										
Bore diameter x length [mm]	25.5 x 77		25.5 x 70	29.5 x 77			35.5 x 77.5			
Tubes per adapter / rotor	8 / 32		7 / 28	7 / 28			4 / 16			
Centrifuging radius [mm]	185		175	185			185			
Item no.	17670		17662	17676			17675			


Tube									
Rated capacity (filling volume) [ml]	50	50	50	85 (73)	85 (76)	94 (85)	94	100 (75)	100 (90)
Diameter x length [mm]	35 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
Tube material	Glass	PP	PP	PF	PPCO	Stainless steel	PC	Glass	Glass
Item no.	15056	–	15151	15080	15076	13085	15094	15078	15106
<b>Adapter</b>									
for round bucket 13450									
Bore diameter x length [mm]	35.5 x 77.5	29.5 x 74	29.5 x 78.5	29.5 x 78	38.5 x 77			45.5 x 77	
Tubes per adapter / rotor	4 / 16	5 / 20	5 / 20	7 / 28	3 / 12			2 / 8	
Centrifuging radius [mm]	185	182	186	186	185			185	
Item no.	17675	17678	17677	17649*	17685			17690**	



## Sigma 4-5L and Sigma 4-5KL

### Swing-out rotor 11650


#### Round bucket 13450 (1 set = 2 pcs)

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Max. tube length, mid-bucket without / with cap: 148 / 137 mm
- Biosafe with cap 17170 
- Tmin at maximum speed: <4 °C
- Angle: 90°





































### Swing-out rotor 11660

#### Round bucket 13450 (1 set = 2 pcs)

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Max. tube length, mid-bucket without / with cap: 153 / 137 mm
- Biosafe with cap 17170 
- Tmin at maximum speed: <4 °C
- Angle: 90°




Tube										
Rated capacity (filling volume) [ml]	100	100	150	175	175	200 (168)	200	225	250 (232)	250 (232)
Diameter x length [mm]	44 x 100	45 x 100	51 x 99	61 x 118	62 x 139.2	56 x 112	61 x 130	61 x 137	61.4 x 122	61.4 x 122
Tube material	Glass	PC	PP	PP	PP	PPCO	PP	PP	PF	PPCO
Item no.	15100	15103	15125	–	15175	15202	15174	–	15247	15249
<b>Adapter</b>										
for round bucket 13450 										
Bore diameter x length [mm]	45.5 x 77	51.5 x 77	61 x 100	62.5 x 110	57.5 x 77	62.5 x 110	61 x 100		62.5 x 77	
Tubes per adapter / rotor	2 / 8	1 / 4	1 / 4	1 / 4	1 / 4	1 / 4	1 / 4	1 / 4	1 / 4	1 / 4
Centrifuging radius [mm]	185	185	188	188	185	188	188	188	185	185
Item no.	17690*	17692	17694	17693	17696	17693	17694		17698	

Tube						
Rated capacity (filling volume) [ml]	250	250	400	500	500	750
Diameter x length [mm]	61.4 x 125	61 x 145	85 x 118	85 x 135	95.5 x 147	100 x 127
Tube material	Stainless steel	PP	PPCO	PPCO	PP	PPCO
Item no.	13255	–	15401	15501	–	15917
<b>Adapter</b>						
for round bucket 13450 						
Bore diameter x length [mm]	62.5 x 77	62.5 x 110	86 x 107	96.3 x 110	101 x 102	
Tubes per adapter / rotor	1 / 4	1 / 4	1 / 4	1 / 4	– / 4	
Centrifuging radius [mm]	185	188	185	188	188	
Item no.	17698	17693**	13654	17682**	–	

## Sigma 4-5L and Sigma 4-5KL

### Swing-out rotor 11650 / 11660


#### Round bucket 13450 (1 set = 2 pcs)

- Max. capacity: 4 x 750 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,643 x g
- Max. tube length, mid-bucket without / with cap: 148 / 137 mm
- Biosafe with cap 17170 
- Tmin at maximum speed: <4 °C
- Angle: 90°













### Swing-out rotor 11660

#### Bucket 13460 with cap 17460 (1 set = 2 pcs)

- Max. capacity: 100 x 15 ml
- Max. speed: 4,700 rpm
- Max. RCF: 4,470 x g
- Max. tube length, mid-bucket without / with cap: 141 / 135 mm
- Biosafe with cap 17460 
- Tmin at maximum speed: <4 °C
- Angle: 90°



#### Blood and urine tubes

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











#### Adapter

for round bucket 13450



Bore diameter x length [mm]	12.8 x 52	13.8 x 54	16.5 x 55	17.5 x 55	17.5 x 55
Tubes per adapter / rotor	37 / 148	23 / 92	20 / 80	19 / 76	7 / 28
Centrifuging radius [mm]	180	182	183	183	183
Item no.	17652	17656	17655	17658	17658*

#### Blood and urine tubes

										
Rated capacity (filling volume) [ml]	1.1 – 1.4	2.7 – 5	4 – 6	1.6 – 5.6	1.8 – 7	4 – 10	6 – 10	9 – 10	10	8
Diameter x length [mm]	8 x 82	11 x 82 – 108	13 x 81 – 106	13 x 81 – 106	13 x 81 – 107	15 x 91 – 108	16 x 106 – 107	16 x 108	15 x 118	16 x 131
Tube material	PP	PP	PET	PP	PET	PP	PET	PP	PP	Glass
Item no.	–	–	–	–	–	–	–	–	–	–

#### Adapter

for bucket 13460



Bore diameter x length [mm]	13.5 x 56	17.5 x 57	17.5 x 57	17.5 x 57
Tubes per adapter / rotor	36 / 144	25 / 100	25 / 100	11 / 44
Centrifuging radius [mm]	177	178	178	178
Item no.	18461	18460	18460*	18460*,**

\* Observe loading \*\* Only possible without cap 17460

## Sigma 4-5L and Sigma 4-5KL

### MTP swing-out rotor 11650 / 11660

#### Rectangular bucket 13421 (1 set = 4 pcs), with extractor 17979


- Max. plate height: 61 mm
- Max. speed: 4,700 rpm
- Max. RCF: 3,877 x g
- Max. load per carrier: 500 g
- Tmin at maximum speed: <4 °C
- Angle: 90°



## Sigma 4-5KL

### MTP swing-out rotor 11118

#### with 1 set (2 pcs) rectangular buckets 13218, caps 17108 and extractor 17978

- Max. plate height without / with cap: 93 / 80 mm
- Max. speed: 5,700 rpm
- Max. RCF: 5,485 x g
- Max. load per carrier: 520 g
- Biosafe with cap 17108 
- Max. speed for 4°C: 5,600 rpm
- Angle: 90°



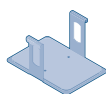
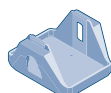
#### Plate



Description	MTP (without lid)	MTP (with lid)	DWP	PCR plate 96-fold	Filter plate
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	128 x 86 x 60

#### Adapter

for rectangular bucket 13421



Bore diameter x length [mm]	—				
Plates per rotor	16	12	4	12	4
Centrifuging radius [mm]	157				
Item no.	17979				

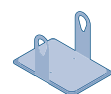
#### Plate



Description	MTP (without lid)	MTP (with lid)	DWP	PCR plate 96-fold	Filter plate
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	128 x 86 x 60

#### Adapter

for rectangular bucket 13218




Bore diameter x length [mm]	—				
Plates per rotor (without / with cap)	12 / 10	10 / 8	4 / 2	8 / 8	2 / 2
Centrifuging radius [mm]	151				
Item no.	17978				

## Sigma 4-5KL






### Fixed-angle rotor 12449

#### with aluminum lid 17612

- Max. capacity: 48 x 2 ml
- Max. speed: 13,500 rpm
- Max. RCF: 20,376 x g
- Biosafe with aluminum lid 17612 
- Max. speed for 4 °C: 13,000 rpm
- Angle (outer / inner row): 25° / 53°

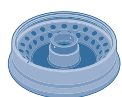






#### Tube

					
Rated capacity (filling volume) [ml]	0,2	0,4	0,5	1,5	2
Diameter x length [mm]	5.85 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	15014	15005	15008	15040

#### Adapter

for  
fixed-angle  
rotor 12449




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



## Sigma 4-5KL

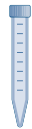





### Fixed-angle rotor 12269

#### with aluminum lid 17604

- Max. capacity: 8 x 50 ml conical
- Max. speed: 11,360 rpm
- Max. RCF: 15,000 x g
- Biosafe with aluminum lid 17604 
- Tmin at maximum speed: <math><4^{\circ}\text{C}</math>
- Angle:  $25^{\circ}$







#### 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 12269




				
Bore diameter x length [mm]	17 x 107	25.5 x 71	30 x 91	29.5 x 102
Plates per rotor (without / with cap)	1 / 8	1 / 8	1 / 8	– / 8
Centrifuging radius [mm]	103	81	94	104
Item no.	13060	13064	13079	–



## Sigma 4-5KL











## Fixed-angle rotor 12265

## with aluminum lid 17607

- Max. capacity: 6 x 94 ml round-bottom
- Max. speed: 10,000 rpm
- Max. RCF: 11,851 x g
- Biosafe with aluminum lid 17607 
- T<sub>min</sub> at maximum speed: <4 °C
- Angle: 25°

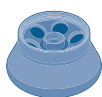






## Tube

										
Rated capacity (filling volume) [ml]	10	10	10	14	14	15	15	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	17 x 100	17 x 100	17.5 x 106	16.5 x 120	25.3 x 98	25.3 x 98	25.3 x 98
Tube material	PF	PC	PPCO	PS	PP	HS Glass	PP	PF	PPCO	PC
Item no.	15000	15010	15039	15020	15023	15085	15115	15029	15032	15030










## Adapter

for fixed-angle rotor 12265



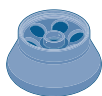
				
Bore diameter x length [mm]	16.2 x 71	18 x 87	17 x 107	26 x 83
Tubes per adapter / rotor	2 / 12	1 / 6	1 / 6	1 / 6
Centrifuging radius [mm]	77	98	105	89
Item no.	13084	16019	13081	13083


## Tube

									
Rated capacity (filling volume) [ml]	30	50 (38)	50 (43)	50	50	85 (73)	85 (76)	94 (85)	94
Diameter x length [mm]	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	HS Glass	PPCO	PF	Stainless steel	PP	PF	PPCO	Stainless steel	PC
Item no.	15086	15052	15051	13055	15151	15080	15076	13085	15094

## Adapter

for fixed-angle rotor 12265



				
Bore diameter x length [mm]	24.5 x 88	29 x 97	30 x 100	38.3 x 99
Tubes per adapter / rotor	1 / 6	1 / 6	1 / 6	- / 6
Centrifuging radius [mm]	99	103	106	106
Item no.	16031	13082	13080	-

# Material properties

## Guideline for optimal tube/vial 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 and vials 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 and vials should be completely filled and closed for deployment 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. RFC for all glass tubes/vials approximately 4,000 x g	High-speed glass for max. RCF 13,100 x g	

# Spincontrol L controller

## Easy operation, maximum safety

The Spincontrol L controller combines intuitive operation with a multitude of options in a well-conceived package. It is still 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 setting range of  $-10^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$  with fine adjustment in  $1^{\circ}\text{C}$  increments. Along with the fast pre-cooling function, the Sigma 4-5KL features standstill cooling.

The optional ECO mode, which switches off the centrifuge after a defined time without use, can be adjusted quickly.

The time interval can be set between 30 minutes and 8 hours. When the time interval expires, the cooling is switched off and the lid is opened to allow ice to melt and water to evaporate.

Display	Backlit LCD
Constant display of setpoints and actual values	+
Speed/RCF display	+
Timer (s; h:min)	10 – 99:59
The timer starts after the setpoint speed is reached and can be switched off	+, +
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 lid opening at end of run, can be switched off	+, +
Standstill cooling	+*
Rapid Temp fast pre-cooling function	+*
Audible signal, mutable	+, +
Visual standstill indication	+
Rotor cycle monitoring	+
Rotor end-of-life warning	+
Lockable controller	+
Microprocessor control	+
Adjustable energy-efficient ECO mode	+*

\* Only Sigma 4-5KL

### Spincontrol L

Get more information.

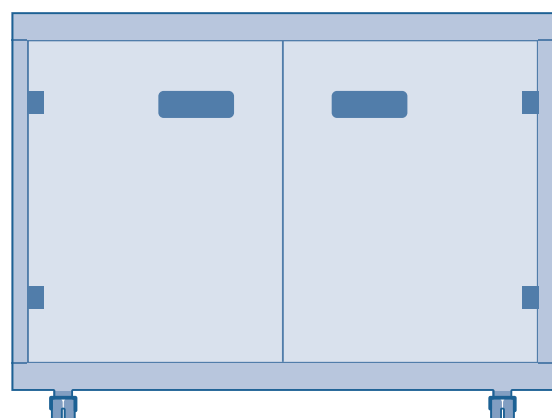
View our video:





# Centrifuge tables

Sigma centrifuge tables are available in six different sizes. Matched to the respective centrifuge dimensions, they combine a convenient work height with an optimally calculated footprint. The tables are made of 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 170001

for Sigma 4-5KL

W x H x D [mm]: 605 x 581 x 635

## 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 4-5L series meets 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, emission and environmental standards. Sigma guarantees the availability of spare parts and wearing parts for at least 10 years. Furthermore, you benefit from our extensive range of services,

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 maintain reliability and optimise system availability. With our three service locations (South, West and North/East), we can provide comprehensive support and short response times.

	Sigma 4-5L	Sigma 4-5KL
<b>Max. capacity [ml]</b>		
Swing-out rotor	4 x 750	4 x 750
Fixed-angle rotor	–	6 x 94
<b>Max. RCF</b>	4,643	20,376
<b>Max. speed [rpm]:</b>	4,700	13,500
<b>Min. speed [rpm]:</b>	100	100
<b>Noise level at maximum speed (approximate) [dB (A)]</b>		
Fixed-angle rotor 12449	–	≤55
Swing-out rotor 11660 with bucket 13460 and cap	≤66	≤54
<b>Max. acceleration time [s]</b>		
Fixed-angle rotor 12449	–	≤32
Swing-out rotor 11660 with bucket 13460 and cap	≤23	≤26
<b>Min. braking time [s]</b>		
Fixed-angle rotor 12449	–	≤48
Swing-out rotor 11660 with bucket 13460 and cap	≤23	≤38
<b>Temperature adjustment range [°C]</b>	–	-10 to +40
<b>Power consumption [W]</b>	1,230	1,910
<b>Height x width x depth [mm]</b>	390 x 496 x 634	390 x 602 x 634
<b>Height with open lid [mm]</b>	880	865
<b>Weight without rotor [kg]</b>	77	110
<b>Refrigerant</b>		R452a
Fill quantity [kg] / Pressure [bar]		0.290 / 31
CO <sub>2</sub> equivalent [t]		0.621

### Sigma 4-5L centrifuge

220–240 V, 50/60 Hz (Item no. 10405)  
120 V, 60 Hz (Item no. 10404)

### Sigma 4-5L centrifuge, IVD version

220–240 V, 50/60 Hz (Item no. 10407)

### Sigma 4-5KL centrifuge

220–240 V, 50 Hz (Item no. 100004)  
220 V, 60 Hz (Item no. 100013)  
200 V, 50/60 Hz  
& 208 V, 60 Hz (Item no. 100005)

### Service Sigma

For maintenance and repairs please contact our Service department at:



### 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 documents (Item no. 170000)  
IQOQ on site (on request)



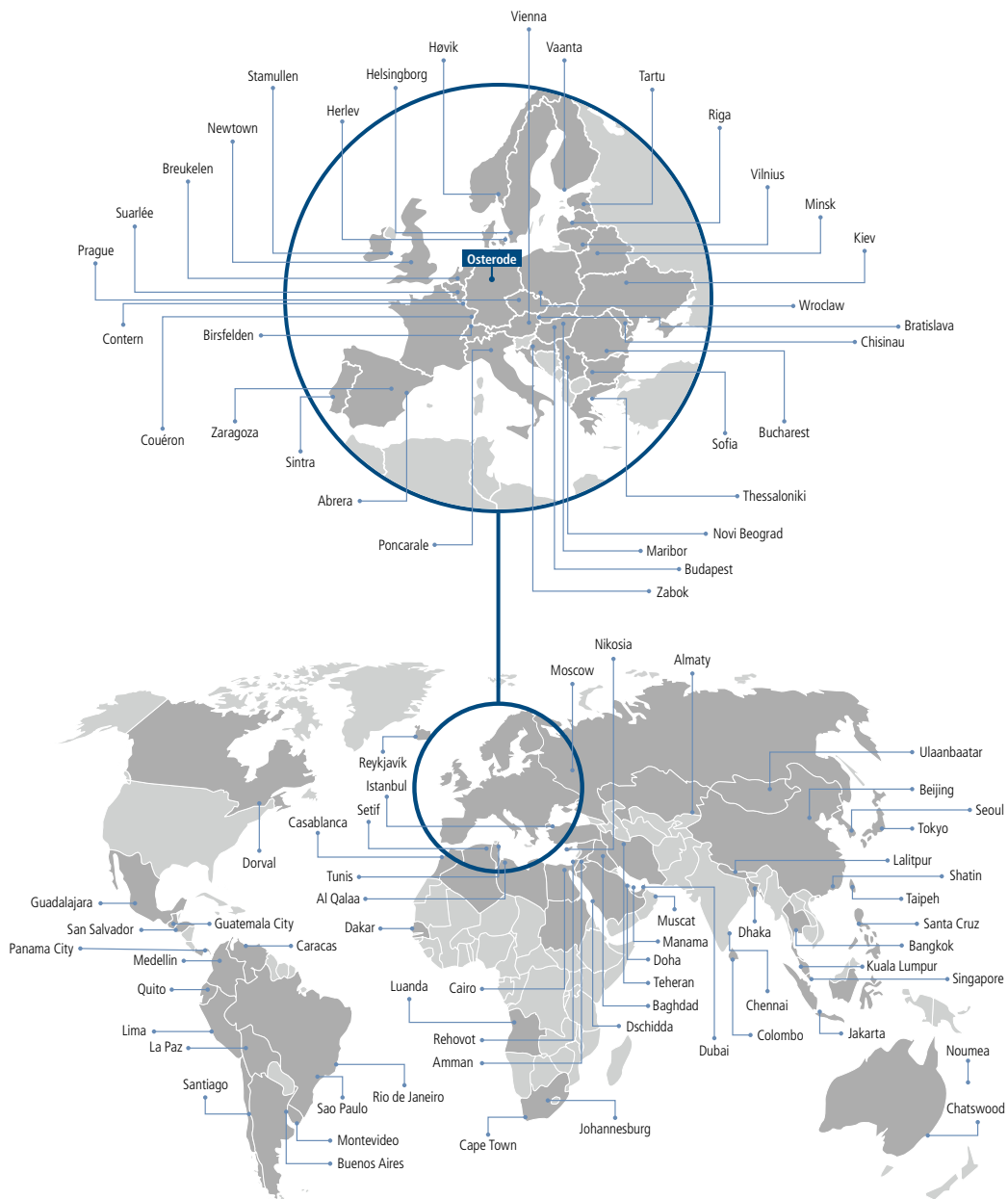
### Sigma 4-5KL centrifuge, IVD version

220–240 V, 50 Hz (Item no. 100006)  
220 V, 60 Hz (Item no. 100012)  
200 V, 50/60 Hz  
& 208 V, 60 Hz (Item no. 100007)

# 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 <https://www.sigma-zentrifugen.de/en/sales-partners>



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