



Centrifuge

4-16S



Refrigerated Centrifuge

4-16KS

SIGMA 4-16S No. 10380 (220 – 240 V, 50/60 Hz), No. 10381 (208 V, 60 Hz), No. 10382 (120 V, 60 Hz), No. 10283 (100 V, 50/60 Hz)

- Universal table top centrifuge; speed range up to 13.500 rpm
- Control unit Spincontrol S
- Various angle and swing-out rotors available
- Lid can easily be opened due pneumatic swing support
- Maximum capacity of 4 x 650 ml down to microtubes with different adapters in the same bucket
- Maintenance-free induction drive motor A Microcontroller controls speed or gravitational field, time
- 2 Motorized lid locks
- Suitable for low speeds e.g. for cell sedimentation, accuracy +/- 1 rpm
- Magnetic rotor identification prevents the rotor from overspeeding
- Stainless steel bowl
- Imbalance switch
- No need to open the casing for emergency lid lock release
- Produced according to national and international safety regulations (e.g. EN 61010-2-020)
- Window in the centrifuge lid for external speed control
- Backlighted keys for start, stop, lid open

SIGMA 4-16KS No. 10385 (220 – 240 V, 50 Hz), No. 10386 (220 - 240 V, 60 Hz), No. 10387 (208 V, 60 Hz), No. 10388 (200 V, 50/60 Hz)

- refrigerated version of 4-16S
- Universal refrigerated table top centrifuge; speed range up to 15.000 rpm
- Possibility of precooling the rotors during standstill Refrigerant CFC-free (R404a)
- Guaranteed 4°C at max. speed for all rotors

SIGMA 4-16KHS No. 10389 (220 – 240 V, 50 Hz)

- heated version of 4-16KS
- Max. Rotor temperature 40°C up to 60°C depending on rotor and speed

SIGMA 4-16KRL (220 – 240 V, 50 Hz)

For Robot systems / Separate brochure



Biosafe rotor

4-16S

4-16KS

Rotor No.	max. rpm	max. RCF	max. rpm	max. RCF
11650 + 1 x 13421	4.200	3.096	4.700	3.877
11650 + 2 x 13450	4.200	3.708	4.700	4.643
11660 + 1 x 13421	4.200	3.096	4.700	3.877
11660 + 2 x 13450	4.200	3.708	5.100	5.467

- 11660 Aluminum swing-out rotor for 4 buckets no. 13421, 13450
 11650 Stainless steel swing-out rotor for 4 buckets no. 13421, 13450
 13421 Bucket for microtiter- and deepwellplates, incl. plate holder, max. height = 60 mm, 1 set = 4 pcs.
 13450 Round bucket, sealable with cap no. 17170, for adapter, (no. 17649 - 17699, 13654), 1 set = 2 pcs.

Adapter for bucket 13450, 1 set = 2 pcs.

- 17653 26 x 1.5/2.0 ml, max. Ø 11 mm, e.g. no. 15008, 15040
 17651 20 x 4 - 7 ml, max. Ø 15.5/18 x 50 - 75 mm, e.g. Monovette, Primavette,
 17652 36 x 5 ml, max. Ø 12.5 x 60 - 80 mm, e.g. no. RIA tube 15060, hemolyse tubes
 17656 22 x 5 - 6 ml, max. Ø 13.5/17.5 x 70 - 90 mm, e.g. no. RIA tube 15060
 Vacutainer -, hemolyse tubes
 17654 32 x 7 ml, max. Ø 12.5 x 85 - 115 mm, e.g. no. 15007, 15027
 17658 19 x 9 - 15 ml, max. Ø 17.2/19.5 x 85 - 115 mm, e.g. no. 15015, 15020,
 15022, 15023, 15024 and Monovettes 9 - 10 ml
 17655 20 x 10 - 12 ml, max. Ø 16.2/18 x 65 - 90 mm, e.g. no. 15000, 15010, 15039
 17659 12 x 15 ml culture no. 15115, cap Ø max. 23 mm
 17660 15 x 15 ml culture no. 15115 cap Ø max. 22 mm*
 17670 8 x 25 - 30 ml, max. Ø 25.4/30 x 90 - 115 mm, e.g. no. 15025, 15026, 15029,
 15030, 15032, 15033
 17662 7 x 30 ml, max. Ø 25/31 x 65 - 95 mm, e.g. Barloworld Scientific Ltd.
 17676 7 x 40 - 50 ml max. Ø 29/32 x 90 - 115 mm, e.g. 13055, 15051, 15052
 17675 4 x 50 ml, max. Ø 35/38 x 90 - 115 mm, e.g. 15049, 15056, 15050
 17677 5 x 50 ml culture, e.g. no. 15151, Nunc, Corning, Falcon and Greiner
 17678 5 x 50 ml culture, max. Ø 29.4/36 x 90 - 115 mm**
 17649 7 x 50 ml culture, max. Ø 29/36 x 90 - 115 mm*
 17685 3 x 78 - 85 ml, max. Ø 38/40 x 90 - 110 mm, e.g. no. 13085, 15076, 15080
 17690 2 x 100 ml, max. Ø 45/47 x 85 - 110 mm, e.g. no. 15100, 15102, 15103, 15106
 17692 1 x 125 ml, max. Ø 51 x 90 - 115 mm, e.g. no. 15125
 17694 1x 150 - 250 ml culture angle 88°, max. Ø 60 x 120 - 140 mm*
 e.g. Falcon 175, 225 ml, Labcon 175, 225 ml
 17696 1 x 200 ml approx., max. Ø 57 x 90 - 115 mm, e.g. no. 15202, 15203
 17693 1 x 150 ml - 200 ml culture, angle 60°, max. Ø 61.5 x 140 mm
 e.g. no. 15175, 15174
 17698 1 x 250 ml, max. Ø 61.5 x 90 - 125 mm, e.g. no. 13255, 15247, 15249
 13654 1 x 400 ml, max. Ø 85 x 118 mm, e.g. no. 15401
 13654 1 x 500 ml, Ø 85 x 130 - 173 mm, e.g. no. 15501
 17682 1 x 500 ml culture, no. Corning 431123, angle 75°, Ø 96 x 150 mm*
 13456 1 x 650 ml, Ø 100 x 111 mm, cap 17123

* without bucket cap 17170

** with rim



11650



17170



17677



17659



13450



17652



17653



13421



17682



Corning
431123



17660



17658



17670



17649



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4-16S

4-16KS

<i>Rotor No.</i>	<i>max. rpm</i>	<i>max. RCF</i>	<i>max. rpm</i>	<i>max. RCF</i>
11150 + 2 x 13215	4.500	4.120	5.100	5.292
11150 + 2 x 13220	4.100	3.007	4.100	3.007
11150 + 2 x 13221	4.500	3.622	5.100	4.653
11150 + 2 x 13233	4.500	3.668	5.100	4.711
11150 + 2 x 13234	4.300	3.680	4.300	3.680
11150 + 2 x 13235	4.500	4.302	5.100	5.525
11150 + 2 x 13236	4.500	4.256	5.100	5.467
11150 + 2 x 13350	4.500	4.302	5.100	5.525

11150 Swing-out rotor for 4 buckets no. 13215, 13220, 13221, 13233, 13234, 13235, 13236, 13350

1 set = 2 pcs.

13215 Rectangular bucket for adapter no. 18000 - 18200 (next page), sealable with cap no. 17112, max. tube length 115 mm

13220 Bucket for microtiter plates, max. height of plates 51 mm

13221 Bucket for microtiter plates, incl. plate holder no. 17979, max. height of plates 56 mm

13233 Multiple carrier for 50 x tubes approx. 5 ml, max. Ø 12.5 x 70 - 90 mm, e.g. RIA tube no. 15060

13234 Multiple carrier for 4 x 100 ml, Ø 45 x 92 - 100 mm e.g. no. 15100, 15102, 15103, 15106, incl. rubber cushion no. 16051

13235 Multiple carrier for 7 culture tubes 50 ml no. 15151

13236 Multiple carrier for 12 culture tubes 15 ml no. 15115

13350 Round bucket, sealable with cap no. 17134 or 17135, for round carriers Ø 85 mm (no. 17344 - 17404), 500 ml bottles no. 15501

17112 Rectangular polysulfone sealing cap

17134 Round aluminium sealing cap

17135 Round polysulfone sealing cap

11151 Swing-out rotor 48 x 15 ml complete, no. 11150, incl. 2 sets rectangular buckets no. 13215, 2 sets rectangular carriers no. 18015 and 48 PP-tubes 15 ml no. 15023



Adapter for bucket 13350, 1 set = 2 pcs.

- 17350 24 x 0.5/0.75 ml, max. Ø 8/10 x 28/31 mm, e.g. no. 15005
- 17353 20 x 1.5/2.2 ml, max. Ø 11 mm, e.g. no. 15008, 15040
- 17351 12 x 4 - 7 ml, max. Ø 15.5/18 x 50 - 75 mm, e.g. Monovettes 4 ml
- 17352 25 x 5 ml, max. Ø 12.5/13.5 x 65 - 80 mm, e.g. no. RIA tube 15060, hemolyse tubes
- 17356 16 x 5 - 6 ml, max. Ø 13.5/17.5 x 70 - 90 mm, e.g. no. RIA tubes, 15060, Vacutainer, hemolyse
- 17354 16 x 7 ml, max. Ø 12.5 x 85 - 115 mm, e.g. no. 15007, 15027
- 17355 12 x 10 - 12 ml, max. Ø 16.2/19 x 65 - 90 mm, e.g. no. 15000, 15010, 15039
- 17358 12 x 10 - 15 ml, max. Ø 17.2/19.5 x 90 - 115 mm, e.g. no. 15015, 15020, 15022, 15023, 15024 and Monovettes 9 - 10 ml
- 17359 9 x 15 ml culture, max. cap Ø 23 mm, e.g. no. 15115, Falcon, Corning and Greiner tubes
- 17360 10 x 15 ml culture, max. cap Ø 22 mm, Falcon, Greiner, tubes
- 17370 5 x 25 - 30 ml, max. Ø 25.4/29 x 85 - 115 mm, e.g. no. 15025, 15026, 15029, 15030, 15032, 15033
- 17362 5 x 30 ml, max. Ø 25/31 x 65 - 95 mm**
- 17376 4 x 40 - 50 ml, max. Ø 29/34 x 85 - 110 mm, e.g. no. 15051, 15052, 13055
- 17375 3 x 50 ml, max. Ø 35/38 x 90 - 110 mm, e.g. no. 15049, 15050, 15056
- 17377 4 x 50 ml culture, e.g. no. 15151, Nunc, Corning, Falcon and Greiner
- 17378 4 x 50 ml **, max. Ø 29.4/36 x 90 - 120 mm
- 17385 1 x 78 - 85 ml, max. Ø 38/40 x 85 - 115 mm, e.g. no. 13085, 15076, 15080
- 17390 1 x 100 ml, max. Ø 45/50 x 85 - 110 mm, e.g. no. 15100, 15102, 15103, 15106
- 17395 1 x 125 ml, max. Ø 51 x 90 - 115 mm, e.g. no. 15125
- 17401 1 x 175 - 200 ml, max. Ø 57.5 x 90 - 150 mm, e.g. no. 15201, 15206, 15250, 15251, 15254
- 17393 1 x 175 - 250 ml with pointed bottom angle 60°, max. Ø 61.5 x 120 - 165 mm, e.g. no. 15174, 15175, Nunc Nalge
- 17402 1 x 150 - 250 ml with pointed bottom angle 88°, max. Ø 60 x 120 - 140 mm, e.g. Nalgene 150 and 200 ml, Labcon 175, 250 ml
- 17400 1 x 200 ml, max. Ø 57 x 90 - 115 mm, e.g. no. 15202, 15203
- 17347 1 x 250 ml, max. Ø 61.5 x 90 - 125 mm, e.g. no. 15247, 15249, 13255
- 15401 1 x 400 ml PP Ø 85 x 118 mm, incl. screw cap
- 15501 1 x 500 ml, PP Ø 85 x 135 mm, incl. screw cap*

*Single bottle **with rim



32 x 1.5 – 2.0 ml swing out rotor

4-16S

4-16KS

<i>Rotor No.</i>	<i>max. rpm</i>	<i>max. RCF</i>	<i>max. rpm</i>	<i>max. RCF</i>
11148	12.000	13.523	13.200	16.363

<i>No.</i>	<i>Adapter</i>	<i>tubes</i>
13021	0.2 ml PCR	15042
13000	0.4 ml Reaction vials	15014
13002	0.5 ml - 0.75 ml Reaction vials	15005



11148



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4-16S

4-16KS

Rotor No.	max. rpm	max. RCF	max. rpm	max. RCF
11156 + 3 x 13127	4.500	4.324	4.800	4.920

- 11156** Sixplace rotor for buckets 13127
13127 Rectangular bucket, sealable with cap no. 17112, for rectangular carriers (no. 18002 - 18200), max. tube length 115 mm, 1 set = 2 pcs.
17112 Rectangular cap for 13127, PSU, 1 set = 2 pcs.

Adapter for bucket 13127, 1 set = 2 pcs.

- 18002** 20 x 1.5/2.0 ml, max. Ø 11 mm, e.g. no. 15008, 15040
18005 20 x 5 ml, flat and round bottom, max. Ø 12.2 x 60 - 75 mm, e.g. no. RIA 15060
18105 20 x 5 ml, flat and round bottom, max. Ø 12.2 x 60 - 75 mm, e.g. no. RIA 15060, **decantable**
18009 20 x 5 - 6 ml, max. Ø 12.8 x 70 - 90 mm, e.g. no. Hemolyse, RIA 15060
18012 12 x 6 - 7 ml, max. Ø 13.5/18 x 65 - 90 mm, e.g. Vacutainer
18007 20 x 7 ml, max. Ø 12.3 x 80 - 105 mm, e.g. no. 15007, 15027
18107 20 x 7 ml, max. Ø 12.3 x 80 - 105 mm, e.g. no. 15007, 15027 **decantable**
18010 12 x 10 - 12 ml, max. Ø 16.8/17.5 x 60 - 85 mm, e.g. no. 15000, 15010, 15039
18015 12 x 10 - 15 ml, max. Ø 17 x 90 - 105 mm, e.g. no. 15015, 15020, 15022, 15023, 15024
18115 12 x 10 - 15 ml, max. Ø 17 x 90 - 105 mm, e.g. no. 15015, 15020, 15022, 15023, 15024 **decantable**
18016 4 x 15 ml culture e.g. no. 15115
18018 6 x 15 ml culture ** e.g. no. 15115
18017 10 x 15 ml, max. Ø 17.5/19.5 x 80 - 112 mm, e.g. 15015, 15020, 15022, 15023, 15024, Monovettes 9 - 10 ml
18025 5 x 25 ml, max. Ø 24 x 85 - 105 mm, e.g. no. 15025, 15026
18030 5 x 27 - 30 ml, max. Ø 25.4/27.5 x 80 - 110 mm, e.g. no. 15029, 15030, 15032
18022 2 x 30 ml, max. Ø 25/31 x 65 - 95 mm
18051 2 x 40 - 50 ml, max. Ø 29/35 x 80 - 110 mm, e.g. no. 13055, 15051, 15052
18050 2 x 50 ml, max. Ø 35/38 x 85 - 110 mm, e.g. no. 15049, 15050, 15056
18052 2 x 50 ml culture e.g. no. 15151
18053 2 x 50 ml culture* max. Ø 29.5/36 x 85 - 118 mm
18085 1 x 78 - 85 ml, max. Ø 38/40 x 85 - 112 mm, e.g. no. 13085, 15076, 15080
18100 1 x 100 ml, max. Ø 45.5/48 x 85 - 110 mm, e.g. no. 15100, 15102, 15103, 15106
18125 1 x 125 ml, max. Ø 51 x 90 - 120 mm, e.g. no. 15125
18250 1 x 175 - 200 ml, max. Ø 57 x 90 - 137 mm, e.g. no. 15201, 15206
18200 1 x 200 ml, max. Ø 57 x 90 - 115 mm, e.g. no. 15202, 15203

* with rim

** without cap 17112



11156



17112



18007



18005



13127



18100



18050



18025



18015



18200



18052



18016



18012



11157



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	4-16S		4-16KS	
<i>Rotor No.</i>	<i>max. rpm</i>	<i>max. RCF</i>	<i>max. rpm</i>	<i>max. RCF</i>
11118 + 13218	5.700	5.485	5.700	5.485

11118	Swing-out rotor for microtiter plates complete, incl. 2 carriers no. 13218, incl. plate holder no. 17978, max. height of plates 80 mm
13218	Bucket for microtiter plates, sealable with cap no. 17108, incl. plate holder no. 17978, max. height of plates approx. 80 mm, 1 set = 2 pcs.
17108	Polysulfone sealing cap, clear, incl. 4 clips no. 17118, 1 set = 2 pcs.
17118	Clip for lid no. 17108, 1 set = 2 pcs.
17978	Plate holder for bucket no. 13218, 1 set = 2 pcs.



Created during production. Centrifuge with one rotor		
	Sigma 4-16S	Sigma 4-16KS, 4-16KHS
<i>Calibration certificate for speed and time</i>	No. 17714	No. 17714
<i>Calibration certificate for temperature speed and time</i>	–	No. 17715
<i>IQOQ</i>	No. 17710	No. 17711
<i>For a further rotor</i>	No. 17712	No. 17712



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12449



12174







12269



12265

4-16S

4-16KS

Typ	Rotor No.	tubes	max. rpm	max. RCF	max. rpm	max. RCF
 48 x 1.5-2.0 ml Biosafe 100 x 1.5-2.0 ml	12449	15008, 15040	13.500	20.376	15.000	25.155
	12201	15008, 15040	9.000	14.761	9.600	16.795
<i>Adapter</i>	<i>Order No.</i>					
0.2 ml PCR	13021	15042				
0.4 ml	13000	15014				
0.5 – 0.75 ml	13002	15005				
20 x 10 ml	12168	15000, 15039	12.500	17.119	14.000	21.475
12 x 15 ml Culture	12170	15115	12.500	17.496	13.500	20.376
24 x 15 ml Culture	12174	15115	10.000	15.531	12.000	20.285
12 x 30 ml	12172	15029, 15032	12.500	19.216	14.000	21.475
<i>Adapter</i>	<i>Order No.</i>					
10 ml	13059	15000, 15039				
 8 x 50 ml Biosafe	12266	15051, 15052	12.500	17.469	14.000	21.913
<i>Adapter</i>	<i>Order No.</i>					
15 ml	16018	15022				
15 ml glass	16018	15085				
15 ml round bottom	13062					
30 ml glass	16030	15086				
 8 x 50 ml Culture Biosafe	12269	15151	12.500	18.168	13.500	21.191
<i>Adapter</i>	<i>Order No.</i>					
15 ml Culture	13060	15115				
50 ml round bottom	13079	15051, 15052				
 6 x 85 ml Biosafe	12265	15076, 15080	12.500	18.517	14.000	23.228
<i>Adapter</i>	<i>Order No.</i>					
10 ml	13084	15000, 15039				
15 ml glass	16019	15085				
15 ml Culture	13081	15115				
15 ml round bottom	13063					
30 ml	13083	15029, 15032				
30 ml glass	16031	15086				
50 ml Culture	13080	15151				
50 ml	13082	15051, 15052				



1,5 – 2,0 ml



10 ml



15 ml Kultur



30 ml



50 ml



50 ml Kultur



80 ml



Typ	Rotor No.	tubes	4-16S		4-16KS	
			max. rpm	max. RCF	max. rpm	max. RCF
6 x 250 ml Biosafe Adapter 9 x 1.5 – 2.0 ml 6 x 10 ml 4 x 15 ml Culture 2 x 30 ml 1 x 50 ml 1 x 50 ml Culture 1 x 85 ml	12356	13255, 15247, 15249	8.000	10.375	9.000	13.131
	Order No.		In 4-16KHS max. Rotortemp. +50 °C			
		15008, 15040 14124 15000, 15039 14125 15115 14127 15029, 15032 14129 15051, 15052 14131 15151 14134 13085, 15076, 15080				




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Spincontrol S



Spincontrol S

Display	TFT
Plain text pop up windows	+
Permanent display preselected, actual values	+
Display shows dimensions	+
Languages	
Timer	10 sec - 99 h 59 min
Timing after set speed has been reached	+
Time increments [sec]	60;1
Short run	+
Continuous run	+
Speed increments [rpm]	10;1
Display speed and g-force	+
g-force increments [xg]	10;1
Temperature increments [°C] ¹	1
Switchable °C, °F ¹	+
Standstill cooling, switchable ¹	+, +
Standstill heating, switchable ²	+, +
Rapid cooling program: Rapid_temp ¹	+
Start refused with exceeded temperature tolerance, tolerance preselectable ¹	+
Programs	60
User defined program name	+
Program list shows all parameters	+, +
Linear acceleration curves	10
Quadratic acceleration curves	10
User defined acceleration curves	10
Linear deceleration curves	10
Quadratic deceleration curves	10
User defined deceleration curves	10
Brakeless	+
Combination deceleration a. brakeless from 1000 - 100 rpm selectable	+
Acoustic signal, switchable	+, +
Signal length preselectable	+
Optical display standstill	+
Counting cycles centrifuge, each rotor	+, +
Pop up window end of rotor life time	+
Automatic lid opening at the end of the run, switchable	+, +
All rotors preprogrammed speed, g-force, radius	+
Max. radius decreasable	+
Calculation for liquid density >1.2 g/cm ³	+
Start delay	+
Control unit lockable	+
Code protection	+
Run monitoring	+
Microprocessor controlled	+

¹ only for 4-16K, 4-16KH

² only for 4-16KH





17927 Trolley
(w x d x h) (490 x 647 x 497 mm)



17926 Trolley
(w x d x h) (670 x 650 x 497 mm)

Technical data	4-16	4-16K
Power consumption [W]	1.680	2.280
Max. capacity [ml]	4 x 650	4 x 650
Max. speed [rpm]	13.500	15.000
Min. speed [rpm]	100	100
Interference suppression	EN 61326	EN 61326
Height x Width x Depth [mm]	489 x 496 x 650	489 x 670 x 650
Height with open lid [mm]	940	940
Weight without rotor [kg]	82	124
Kinetic energy max. [Nm]	50.486	63.897
Noise level at max. speed (approx.)		
Rotor 12449 at 13.500 rpm [dB (A)]		
Rotor 11150 at 4.500 rpm [dB (A)]	73	62
Max. acceleration rotor 11150 + 13350 [sec]	24 ¹	41 ²
rotor 12356 [sec]	75 ³	55 ⁴
Max. acceleration rotor 11150 + 13350 [sec]	29 ¹	43 ²
rotor 12356 [sec]	58 ³	73 ⁴
Temperature setting range	-	-20°C – +40°C

¹4.500 min⁻¹ · ²5.100 min⁻¹ · ³8.000 min⁻¹ · ⁴9.000 min⁻¹



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MADE IN GERMANY



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