



*Centrifuge*

**3-16L**



*Refrigerated Centrifuge*

**3-16KL**

**SIGMA 3-16L** No. 10355 (220-240 V, 50/60 Hz), No. 10356 (120 V, 60 Hz), No. 10357 (100 V, 50 / 60 Hz)

- Universal table top centrifuge; speed range up to 14.500 rpm
- Spincontrol L
- Various angle and swing-out rotors available
- Maximum capacity of 4 x 400 ml down to microtubes with different adapters in the same bucket
- Maintenance-free induction drive motor
- Magnetic rotor identification prevents the rotor from overspeeding, active rotor identification
- Stainless steel bowl
- Window in the lid for external speed control
- Backlighted knobs for start, stop, lid open
- Wearless electric fuse
- Imbalance switch
- Motor over excess temperature switch
- No need to open the casing for emergency lid lock release
- Easy lid opening due pneumatic spring support
- Produced according to national and international safety regulations (e. g. IEC 1010)

**SIGMA 3-16KL** No. 10360 (220-240 V, 50/60 Hz), No. 10361 (120 V, 60 Hz), No. 10362 (100 V, 50/60 Hz)

- refrigerated version of 3-16L
- Universal refrigerated table top centrifuge; speed range up to 15.300 rpm
- Possibility of precooling the rotors during standstill; Refrigerant CFC-free (R 134 a)
- Fast cooling program: Rapid temp
- guaranteed 4°C at max. speed

		<b>3-16L</b>		<b>3-16KL</b>	
<i>Rotor No.</i>		<i>max. rpm</i>	<i>max. RCF</i>	<i>max. rpm</i>	<i>max. RCF</i>
<b>11180 + 2 x 13190</b>		4.200	3.392	4.500	3.894
<b>11180 + 2 x 13194</b>		4.200	3.313	4.500	3.803
<b>complete rotor</b>					
<i>No. 11182: 12 x 50 ml (11180 + 2 x 13190 + 2 x 17346 + 12 x 15151)</i>					
<b>adapters for bucket 13190, sealable with cap 17190</b>					
<b>1 Set = 2 pcs</b>					
<i>No.</i>	<i>Adapter</i>	<i>tube Order No.</i>	<i>No.</i>	<i>Adapter</i>	<i>tube Order No.</i>
<b>17350</b>	24 x <b>0.5 – 0.75 ml</b>	(15005)	<b>17376</b>	4 x <b>40 – 50 ml</b>	(15052)
<b>17361</b>	16 x <b>Microtainer</b>		<b>17375</b>	3 x <b>50 ml</b>	(15050)
<b>17353</b>	20 x <b>1.5 – 2.0 ml</b>	(15008, 15040)	<b>17346</b>	3 x <b>50 ml Culture</b>	(15151)
<b>17352</b>	25 x <b>5 ml RIA</b>	(15006)	<b>17377</b>	4 x <b>50 ml Culture</b>	(15151)**
<b>17356</b>	16 x <b>5 – 6 ml</b>		<b>17344</b>	3 x <b>50 ml Culture*</b>	
	RIA, Hemolyse, Vacutainer		<b>17385</b>	1 x <b>78 – 85 ml</b>	(15076)
<b>17354</b>	16 x <b>7 ml</b>	(15007)	<b>17390</b>	1 x <b>100 ml</b>	(15100)
<b>17351</b>	12 x <b>7 – 9 ml Monovette</b>		<b>17395</b>	1 x <b>125 ml</b>	(15125)
<b>17358</b>	12 x <b>9 – 10 ml Monov. +15 ml</b>	(15015)	<b>17393</b>	1 x <b>175 ml Culture</b>	(15174)**
<b>17355</b>	12 x <b>10 – 12 ml</b>	(15010)	<b>17400</b>	1 x <b>200 ml</b>	(15202)
<b>17345</b>	5 x <b>15 ml Culture</b>	(15115)	<b>17401</b>	1 x <b>200 ml**</b>	(15201)
<b>17359</b>	9 x <b>15 ml Culture</b>	(15115)**	<b>17347</b>	1 x <b>250 ml</b>	(15248)
<b>17370</b>	5 x <b>25 – 30 ml</b>	(15025)	<b>15401</b>	1 x <b>400 ml</b>	(15401)
<b>17362</b>	5 x <b>30 ml Sterilin</b>				
<b>Adapter for bucket 13194</b>					
<i>No.</i>	<i>Adapter</i>		<i>No.</i>	<i>Adapter</i>	
<b>18310</b>	4 x <b>50 ml Culture**</b>	(15151)**	<b>18311</b>	10 x <b>15 ml Cultur</b>	(15115)**
<b>18309</b>	4 x <b>50 ml Culture*</b>				



		<b>3-16L</b>		<b>3-16KL</b>	
<i>Rotor No.</i>		<i>max. rpm</i>	<i>max. RCF</i>	<i>max. rpm</i>	<i>max. RCF</i>
<b>11180 + 2 x 13180</b>		4.200	3.372	4.500	3.871
<b>complete rotor</b>					
<i>No. 11181: 48 x 15 ml (11180 + 2 x 13180 + 2 x 18015 + 48 x 15020)</i>					
<b>adapters for bucket 13180, sealable with cap 17112</b>					
<b>1 Set = 2 pcs</b>					
<i>No.</i>	<i>Adapter</i>	<i>tube Order No.</i>	<i>No.</i>	<i>Adapter</i>	<i>tube Order No.</i>
<b>18002</b>	20 x <b>1.5 – 2.0 ml</b>	(15008, 15040)	<b>18025</b>	5 x <b>25 ml</b>	(15025)
<b>18005</b>	20 x <b>5 ml RIA</b>	(15006)	<b>18030</b>	5 x <b>25 – 30 ml</b>	(15030)
<b>18009</b>	20 x <b>5 – 6 ml Hemolyse</b>		<b>18022</b>	4 x <b>30 ml Sterilin</b>	
<b>18012</b>	12 x <b>5 – 7 ml Vacutainer</b>		<b>18050</b>	2 x <b>50 ml</b>	(15050)
<b>18007</b>	20 x <b>7 ml</b>	(15007)	<b>18051</b>	2 x <b>40 – 50 ml</b>	(15052)
<b>18017</b>	10 x <b>9 – 15 ml Monov. +15 ml</b>	(15015)	<b>18052</b>	2 x <b>50 ml Culture</b>	(15151)
<b>18010</b>	12 x <b>9 – 12 ml</b>	(15010)	<b>18053</b>	2 x <b>50 ml Culture*</b>	
<b>18015</b>	12 x <b>15 ml</b>	(15015)	<b>18085</b>	1 x <b>78 – 85 ml</b>	(15076)
<b>18016</b>	4 x <b>15 ml Culture</b>	(15115)	<b>18100</b>	1 x <b>100 ml</b>	(15100)
<b>18018</b>	6 x <b>15 ml Culture**</b>	(15115)	<b>18125</b>	1 x <b>125 ml</b>	(15125)
			<b>18200</b>	1 x <b>200 ml</b>	(15202)

\* with skirt \*\*without bucket cap



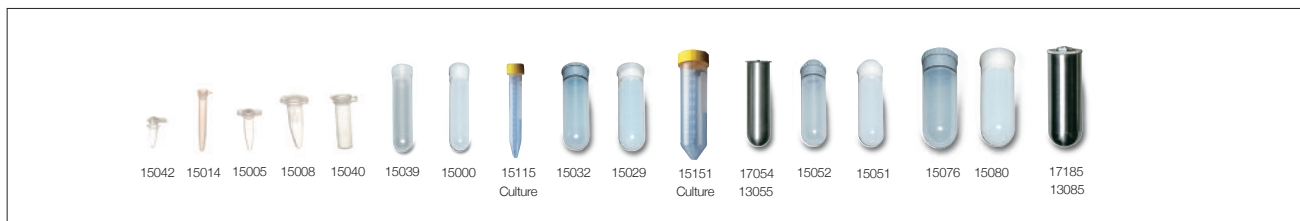
		<b>3-16L</b>		<b>3-16KL</b>	
<i>Rotor No.</i>		<i>max. rpm</i>	<i>max. RCF</i>	<i>max. rpm</i>	<i>max. RCF</i>
<b>11133</b>	<b>+ 2 x 13104</b>	5.000	4.500	5.500	5.445
<b>11133</b>	<b>+ 2 x 13130</b>	5.000	4.472	5.500	5.411
<b>complete rotor</b>					
<i>No. 11132: 28 x 15 ml (11133 + 2 x 13104 + 2 x 17015 + 28 x 15023)</i>					
<b>adapters for bucket 13104, sealable with cap 17111</b>					
<b>1 Set = 2 pcs</b>					
<i>No.</i>	<i>Adapter</i>	<i>tube Order No.</i>	<i>No.</i>	<i>Adapter</i>	<i>tube Order No.</i>
<b>17008</b>	<b>12 x 1.5 – 2.0 ml</b>	(15008, 15040)	<b>17032</b>	<b>1 x 30 ml Sterilin</b>	
<b>17006</b>	<b>12 x 5 ml RIA, Hemolyse</b>	(15060)	<b>17049</b>	<b>1 x 50 ml Culture (15151)</b>	
<b>17027</b>	<b>7 x 5 – 7 ml Vacutainer</b>		<b>17048</b>	<b>1 x 50 ml Culture*</b>	
<b>17007</b>	<b>12 x 7 ml</b>	(15007)	<b>17050</b>	<b>1 x 50 ml</b>	(15050)
<b>17012</b>	<b>6 x 10 ml</b>	(15010)	<b>17052</b>	<b>1 x 40 – 50 ml</b>	(15052)
<b>17018</b>	<b>4 x 9 – 10 ml Monov. +15 ml</b>		<b>17085</b>	<b>1 x 78 – 85 ml</b>	(15076)
<b>17015</b>	<b>7 x 15 ml</b>	(15015)	<b>17100</b>	<b>1 x 100 ml</b>	(15100)
<b>17019</b>	<b>3 x 15 ml Culture**</b>	(15115)	<b>17101</b>	<b>1 x 100 ml</b>	(15102)
<b>13130</b>	<b>3 x 15 ml Culture</b>	(15115)	<b>17125</b>	<b>1 x 125 ml</b>	(15125)
<b>17025</b>	<b>2 x 25 ml</b>	(15025)	<b>15202</b>	<b>PP-bottle 190 ml</b>	
<b>17030</b>	<b>2 x 25 – 30 ml</b>	(15030)	<b>15203</b>	<b>PC-bottle 200 ml</b>	

\* with skirt \*\*without bucket cap



<b>4 x Cyt rotor</b>					
		<b>3-16L</b>		<b>3-16KL</b>	
<i>Rotor No.</i>		<i>max. rpm</i>	<i>max. RCF</i>	<i>max. rpm</i>	<i>max. RCF</i>
<b>11224</b>		3.000	1.137	3.000	1.137
<b>MTP swing-out rotor</b>					
		<b>3-16L</b>		<b>3-16KL</b>	
<i>Rotor No.</i>		<i>max. rpm</i>	<i>max. RCF</i>	<i>max. rpm</i>	<i>max. RCF</i>
<b>11222</b>		3.000	1.238	3.000	1.238
<i>max. H. = 56 mm</i>					
<b>11241</b>		4.200	2.505	4.200	2.505
<i>max. H. = 60 mm</i>					
<b>24 x 1.5 – 2.0 ml swing-out rotor</b>					
		<b>3-16L</b>		<b>3-16KL</b>	
<i>Rotor No.</i>		<i>max. rpm</i>	<i>max. RCF</i>	<i>max. rpm</i>	<i>max. RCF</i>
<b>11135</b>		12.500	12.927	14.000	16.215
<i>No.</i>	<i>Adapter</i>	<i>1 Set = 2 pcs</i>			
<b>13021</b>	<b>0.2 ml PCR</b>				
<b>13000</b>	<b>0.4 ml reaction caps</b>				
<b>13002</b>	<b>0.5 – 0.75 ml reaction caps</b>				
<b>0.2 – 2.0 ml drum rotor</b>					
		<b>3-16L</b>		<b>3-16KL</b>	
<i>Rotor No.</i>		<i>max. rpm</i>	<i>max. RCF</i>	<i>max. rpm</i>	<i>max. RCF</i>
<b>11136</b>		13.000	13.226	14.500	16.454
<i>capacity: 6 x adapter</i>					
<i>No.</i>	<i>Adapter</i>	<i>1 Set = 2 pcs</i>			
<b>14021</b>	<b>8 x 4 x 0.2 ml PCR</b>				
<b>14020</b>	<b>10 x 0.2 – 0.5 ml PCR</b>				
<b>14000</b>	<b>20 x 0.25 – 0.4 ml reaction caps</b>				
<b>14002</b>	<b>10 x 1.5 – 2.0 ml reaction caps</b>				





Rotor No.	capacity	tube	3-16L		3-16KL	
			max. rpm	max. RCF	max. rpm	max. RCF
12115	12 x 8 x 0.2 ml PCR	(15042)	14.000	21.475	14.000	21.475
12154	24 x 1.5 – 2.0 ml	(15008, 15040)	14.500	19.275	15.300	21.460
12131	30 x 1.5 – 2.0 ml	(15008, 15040)	13.200	19.480	14.000	21.913
12348	48 x 1.5 – 2.0 ml	(15008, 15040)	14.000	18.407	15.300	21.984
12111	10 x 10 ml	(15000, 15039)	14.500	17.865	15.300	19.890
12157	20 x 10 ml	(15000, 15039)	9.000	8.875	10.000	10.956
12171	12 x 15 ml Culture	(15115)	9.000	8.965	9.500	9.989
12112	12 x 15 ml	(15065)	8.000	7.155	9.000	9.056
12158	6 x 30 ml	(15032, 15029)	14.500	18.570	15.300	20.675
19776	6 x 50 ml Culture	(15151)	9.000	8.422	9.500	9.384
12150	6 x 50 ml	(15051, 15052)	10.000	9.391	11.000	11.363
12156	8 x 50 ml	(15051, 15052)	9.000	8.694	10.000	10.733
12155	4 x 85 ml	(15076, 15080)	10.000	10.174	10.000	10.174
12159	6 x 85 ml	(15076, 15080)	8.000	7.012	8.000	7.012

All rotors incl. hermetic aluminium lid

**adapter for angle rotors 1 Set = 2 pcs**

Rotortype	No.	Adapter	Gefäß Order No.	No.	Adapter	Gefäß Order No.
1.5 – 2.0 ml	13021	0.25 – 0.4 ml	(15042)	13002	0.5 – 0.75 ml PCR	(15005)
	13000	0.4 ml	(15014)			
30 ml	13059	10 ml	(15000, 15039)			
50 ml Culture	13060	15 ml Culture	(15115)	13079	50 ml	(15051, 15052)
50 ml	16018	15 ml Glass	(15085)	16030	30 ml Glass	(15086)
	13062	15 ml Greiner	(15065)			
85 ml	13084	10 ml	(15000, 15020)	13083	30 ml	(15029, 15032)
	16019	15 ml Glass	(15085)	16031	30 ml Glass	(15086)
	13081	15 ml Culture	(15115)	13080	50 ml Culture	(15151)
	13063	15 ml Greiner	(15065)	13082	50 ml	(15051, 15052)





**Sigma 3-16L**



**Sigma 3-16KL**

## Spincontrol L

Display	LCD with backlight
Permanent display set and current values	+
Display of dimensions	+
Timer	10 sec - 99h 59 min
Runtime starts after set speed has been reached	+
Time increments [sec]	1
Short run	+
Continuous run	+
Speed increments [rpm]	100
Display speed or g-force	+
G-force increments [xg]	10
Programs	50
Acceleration curves	10
Deceleration curves	10
Brakeless	+
Acoustic signal, switchable	+, +
Optical display standstill	+
Cycle counter	+
Signal expired rotor life time	+
Automatic lid opening at the end of the run, switchable	+, +
Control unit lockable	+



### *Created during production. Centrifuge with one rotor*

	<b>Sigma 3-16L</b>	<b>Sigma 3-16KL</b>
<i>Calibration certificate for speed and time</i>	No. 17714	No. 17714
<i>Calibration certificate for temperature speed and time</i>	–	No. 17715
<i>IQQQ</i>	No. 17710	No. 17711
<i>For a further rotor</i>	No. 17712	No. 17712



17927 Trolley  
(W x H x D, 490 x 497 x 647 mm)



17926 Trolley  
(W x H x D, 650 x 497 x 647 mm)

Technical data	3-16L	3-16KL
Power consumption [W]	440	1010
Max. capacity [ml]	4 x 400	4 x 400
Max. speed [rpm]	14.500	15.300
Min. speed [rpm]	100	100
Hight x Width x Depth [mm]	355 x 460 x 600	355 x 630 x 600
Hight with open lid [mm]	770	785
Interference suppression	EN 61326	EN 61326
Weight without rotor [kg]	48	78
Kinetic energy max. [Nm]	9.530	9.970
Noise level at max. speed (approx.)		
Rotor 12154 at 14.500/15.300 rpm	60 dB (A)	66 dB (A)
Rotor 11132 at 5.000 rpm	66 dB (A)	60 dB (A)
Max. acceleration rotor 12154 [sec]	29	28
rotor 11132 [sec]	22	20
Max deceleration rotor 12154 [sec]	46	53
rotor 11132 [sec]	11	12
Temperature setting range	-	-10°C - +40°C
Rotor 11132 5.500 rpm *) [°C]	-	< 2
Rotor 12154 15.300 rpm *) [°C]	-	< 4

\* at 23 °C ambient temperature

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