

TOP



**UNIVERSAL 320/320 R**  
**Benchtop Centrifuges**  
**classic/cooled**

There are good reasons why we have called these centrifuges UNIVERSAL. Their excellent performance and comprehensive range of accessories enable them to carry out virtually any centrifuging task. In the low speed range, the UNIVERSAL 320 and 320 R process standard tubes up to a volume of 100 ml, microtitre plates, conical tubes with screw cap, blood collection tubes and cyto accessories. Microlitre tubes can be accelerated to an RCF of 21,382. Centrifuge tubes taking higher volumes (up to 85 ml) also profit from the extraordinary motor power of the UNIVERSAL 320 / 320 R. At an RCF of 9,509, bacteria and yeast sediment quickly and easily.



UNIVERSAL 320 classic

**Cat. No. 1401**

## PERFORMANCE

- High RCF
  - 85 ml tubes up to 9,509
  - 15 ml tubes up to 16,582
  - Microlitre tubes up to 21,382
- Extremely short run-up and run-down times

## DESIGN

- Metal housing
- Metal lid
- Stainless steel centrifuging chamber
- Viewing port in the lid

## USER-FRIENDLINESS

- Powered lid-locking
- Quick-entry foil keypad
- Easily exchangeable rotors
- 10 programmable memories

## REFRIGERATION (UNIVERSAL 320 R)

- Infinitely variable setting from  $-20\text{ }^{\circ}\text{C}$  to  $+40\text{ }^{\circ}\text{C}$
- Fast cool function

## SAFETY

- Lid locking and holding during rotor run
- Emergency lid-lock release
- Motor-overheating protection
- Chamber-overheating protection (with the UNIVERSAL 320 R)
- Imbalance switch-off
- Automatic rotor recognition
- Lid dropping protection

## OPTIONS


As options, the UNIVERSAL 320 R is also available

- with connection to an external refrigerated/heating circulator (provided by the customer) – **Cat. No. 1406-50** (without internal cooling unit). Depending on circulator performance, the centrifuge can heat or cool within a range of  $0\text{ }^{\circ}\text{C}$  to  $+90\text{ }^{\circ}\text{C}$ ,
- with connection for flushing with nitrogen – **Cat. No. 1406-20** (without monitoring and controlling system).


The display panel and all controls on the UNIVERSAL 320 and 320 R centrifuges have been designed ergonomically. Information on the display is clearly positioned and perfectly legible. During centrifugation, the actual parameter values are indicated. Nine acceleration and braking ramps, or unbraked run-down, can be pre-selected. Ramp 9 always corresponds to the shortest possible run-up or run-down time. The stored parameter combination remains in the memory even after the centrifuge has been switched off. By entering the rotor radius r/mm, the centrifuge calculates and indicates the rotational speed RPM or the relative centrifugal force RCF. The twist knob allows quick and easy entry or changing of the parameters.

## DIGITAL DISPLAY AND CONTROL PANEL

### KEYPAD

	Precooling (UNIVERSAL 320 R)
RCF	Change-over from RPM to RCF indication
SELECT	Selection of parameters
START	Starts centrifugation /
IMPULS	Short cycle mode
STOP	Stops centrifugation manually /
OPEN	Opens the lid

### ENTRY OF THE PARAMETERS

P	Entry of the program number, 10 programmable memories
T/°C	Entry of the temperature in increments of 1 within a range of -20 °C to +40 °C (UNIVERSAL 320 R)
RCF	Entry in increments of 10
RPM	Entry in increments of 10
r/mm	Entry of the rotor radius in mm
t/min	Entry of the centrifuging time in minutes and seconds (max. 99 min : 59 sec)
	Entry of the acceleration ramp 1-9 Entry of the braking ramp 1-9



UNIVERSAL 320 R control panel  
(N Plus control panel)



UNIVERSAL 320 R cooled  
Cat. No. 1406



# ROTORS AND ACCESSORIES

UNIVERSAL 320 / 320 R centrifuges accommodate rotors and accessories for virtually every centrifuging task required in industrial, research and clinical laboratories.

**Quick overview of rotors and suitable accessories. The figures highlighted under the arrows refer to the pages where technical and ordering details are listed.**

## Tubes/plates (selection)

Tubes/plates (selection)	Max. capacity
conical tubes with screw cap	32 x 15 ml or 8 x 50 ml
microtitre plates/filter plates	10/2
cyto suspensions	12
blood collection tubes	48
round-bottom tubes with screw cap	6 x 85 ml
microlitre tubes	30 x 1.5 / 2.0 ml

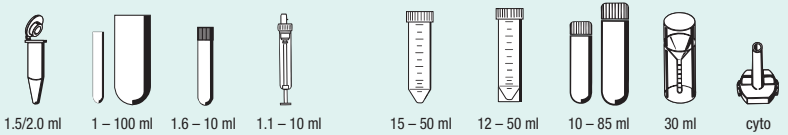
## Rotors (selection)

Rotors (selection)	Max. RCF
swing-out rotor	4,193
swing-out rotor for conical tubes with screw cap	3,857
swing-out rotor for microtitre and culture plates	2,218
swing-out rotor for 6 cyto suspensions	2,039
angle rotor for round-bottom tubes with screw cap (6 x 85 ml)	9,509
angle rotors (12-, 24- or 30-place) for microlitre tubes (0.2 – 2.0 ml)	21,382



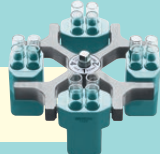
**Swing-out rotor 4-place**  $\nless 90^\circ$   
 $n = 5,000 \text{ min}^{-1}$   
 max. RCF 4,193  
**Cat. No. 1494**

some accessories with biocontainment<sup>6)</sup>



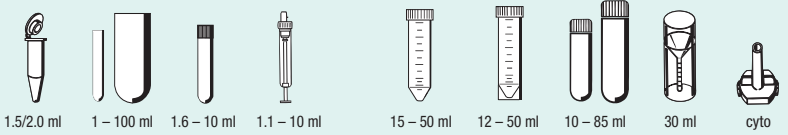
1.5/2.0 ml   1 – 100 ml   1.6 – 10 ml   1.1 – 10 ml   15 – 50 ml   12 – 50 ml   10 – 85 ml   30 ml   cyto

**→ Page 6-8**



**Swing-out rotor 4-place**  $\nless 90^\circ$   
 $n = 4,000 \text{ min}^{-1}$   
 max. RCF 2,665  
**Cat. No. 1624**

some accessories with biocontainment<sup>6)</sup>



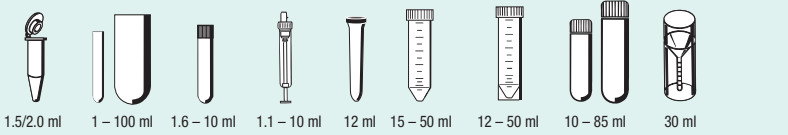
1.5/2.0 ml   1 – 100 ml   1.6 – 10 ml   1.1 – 10 ml   15 – 50 ml   12 – 50 ml   10 – 85 ml   30 ml   cyto

**→ Page 9-10**



**Swing-out rotor 4-place**  $\nless 90^\circ$   
 $n = 4,500 \text{ min}^{-1}$   
 max. RCF 3,328  
**Cat. No. 1324**

some accessories with biocontainment<sup>6)</sup>




1.5/2.0 ml   1 – 100 ml   1.6 – 10 ml   1.1 – 10 ml   12 ml   15 – 50 ml   12 – 50 ml   10 – 85 ml   30 ml

**→ Page 11-13**




**Swing-out rotor 6-place**  $\nless 90^\circ$   
 $n = 4,000 \text{ min}^{-1}$   
 max. RCF 2,701  
**Cat. No. 1619**




15 / 50 ml

**→ Page 13**

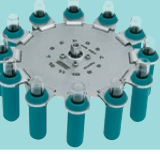


**Swing-out rotor 8-place**  $\nless 45^\circ$   
 $n = 5,000 \text{ min}^{-1}$   
 max. RCF 3,857  
**Cat. No. 1617**

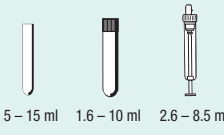


15 / 50 ml

**→ Page 13**



**Swing-out rotor 12-place**  $\nless 55^\circ/60^\circ/80^\circ$   
 $n = 5,000 \text{ min}^{-1}$   
 max. RCF 4,193  
**Cat. No. 1628**

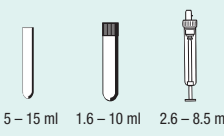


5 – 15 ml   1.6 – 10 ml   2.6 – 8.5 ml

**→ Page 13**

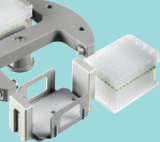


**Swing-out rotor 8-place**  $\nless 90^\circ$   
 $n = 4,000 \text{ min}^{-1}$   
 max. RCF 2,415  
**Cat. No. 1611**

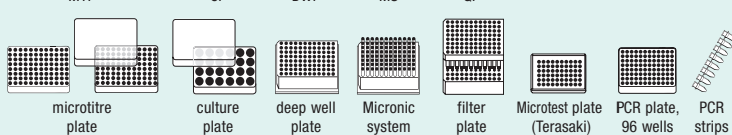


5 – 15 ml   1.6 – 10 ml   2.6 – 8.5 ml

**→ Page 14**



**Swing-out rotor 2-place**  $\nless 90^\circ$   
 $n = 4,000 \text{ min}^{-1}$   
 max. RCF 2,218  
**Cat. No. 1460**


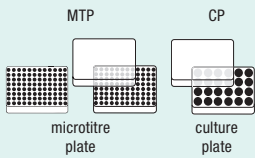




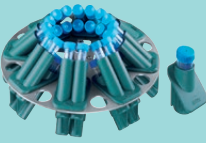
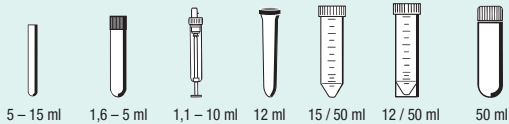



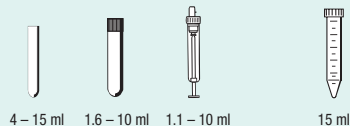


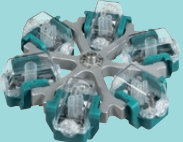


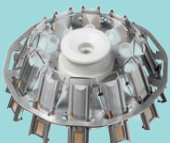



MTP CP DWP MS QP  
 microtitre plate   culture plate   deep well plate   Micronic system   filter plate   Microtest plate (Terasaki)   PCR plate, 96 wells   PCR strips

**→ Page 14**

<sup>6)</sup> Tested by the TÜV in conformity with DIN EN 61010, section 2-020.

# ROTORS AND ACCESSORIES

	<p><b>Swing-out rotor</b>  <b>4-place</b> <math>\sphericalangle 90^\circ</math>  <math>n = 4,000 \text{ min}^{-1}</math>  max. RCF 1,896  <b>Cat. No. 1645</b></p>	 <p>MTP CP  microtitre plate culture plate</p>	<p>→  <b>Page 15</b></p>	
	<p><b>Angle rotor</b>  <b>12-place</b> <math>\sphericalangle 45^\circ</math>  <math>n = 15,000 \text{ min}^{-1}</math>  max. RCF 16,602  <b>Cat. No. 1612</b></p>	 0.2 – 2.0 ml	<p>→  <b>Page 15</b></p>	
<p>auto-clavable  optional with biocontainment<sup>6)</sup></p>		<p><b>Angle rotor</b>  <b>24-place</b> <math>\sphericalangle 40^\circ</math>  <math>n = 15,000 \text{ min}^{-1}</math>  max. RCF 21,382  <b>Cat. No. 1420-B</b></p>	 0.2 – 2.0 ml	<p>→  <b>Page 15</b></p>
<p>auto-clavable  with bio-containment<sup>6)</sup></p>		<p><b>Angle rotor</b>  <b>30-place</b> <math>\sphericalangle 45^\circ</math>  <math>n = 14,000 \text{ min}^{-1}</math>  RCF 21,255  <b>Cat. No. 1689-A</b></p>	 0.2 – 2.0 ml	<p>→  <b>Page 16</b></p>
	<p><b>Angle rotor</b>  <b>8-place</b> <math>\sphericalangle 45^\circ</math>  <math>n = 4,500 \text{ min}^{-1}</math>  max. RCF 3,283  <b>Cat. No. 1418</b></p>	 <p>5 – 15 ml 1,6 – 5 ml 1,1 – 10 ml 12 ml 15 / 50 ml 12 / 50 ml 50 ml</p>	<p>→  <b>Page 16</b></p>	
	<p><b>Angle rotor</b>  <b>6-place</b> <math>\sphericalangle 35^\circ</math>  <math>n = 9,000 \text{ min}^{-1}</math>  max. RCF 9,509  <b>Cat. No. 1620A</b></p>	 <p>1.5/2.0 ml 15 – 94 ml 8.5 – 10 ml 7.5 – 10 ml 15 / 50 ml 10 – 85 ml</p>	<p>→  <b>Page 17</b></p>	
	<p><b>Angle rotor</b>  <b>12-place</b> <math>\sphericalangle 35^\circ</math>  <math>n = 6,000 \text{ min}^{-1}</math>  max. RCF 4,146  <b>Cat. No. 1613</b></p>	 <p>4 – 15 ml 1.6 – 10 ml 1.1 – 10 ml 15 ml</p>	<p>→  <b>Page 17</b></p>	
	<p><b>Angle rotor</b>  <b>12-place</b> <math>\sphericalangle 35^\circ</math>  <math>n = 12,000 \text{ min}^{-1}</math>  max. RCF 16,582  <b>Cat. No. 1615</b></p>	 <p>4 – 15 ml 1.6 – 10 ml 1.1 – 10 ml 15 ml</p>	<p>→  <b>Page 18</b></p>	
	<p><b>Hematocrit rotor</b>  <b>24-place</b>  <math>n = 15,000 \text{ min}^{-1}</math>  max. RCF 21,382  <b>Cat. No. 1650</b></p>	 capillary	<p>→  <b>Page 18</b></p>	
	<p><b>Cyto rotor</b>  <b>6-place</b>  <math>n = 4,000 \text{ min}^{-1}</math>  max. RCF 2,039  <b>Cat. No. 1626</b></p>	 cyto	<p>→  <b>Page 19</b></p>	
	<p><b>Cyto rotor with lid</b>  <b>12-place</b>  <math>n = 2,000 \text{ min}^{-1}</math>  max. RCF 438  <b>Cat. No. 1515</b></p>	 cyto	<p>→  <b>Page 19</b></p>	
	<p><b>Cyto rotor</b>  <b>12-place</b>  <math>n = 2,000 \text{ min}^{-1}</math>  max. RCF 438  <b>Cat. No. 1520</b></p>	 cyto	<p>→  <b>Page 19</b></p>	

Additional tubes e.g. stool tubes or spin columns on request.

# ROTORS AND ACCESSORIES

## Swing-out rotor, 4-place
































↻ 90°

n = 5,000 min<sup>-1</sup>  
max. RCF 4,193

illustrated with carriers 1425

**Cat. No.** (without carriers) **1494**

capacity in ml	1.5	2.0	1	3	5	6	7	9	15	25	50	100	suspension for cyto accessories
Ø x L in mm	11 x 38		6 x 45	10 x 60	12 x 75	12 x 82	12 x 100	14 x 100	17 x 100	24 x 100	34 x 100	44 x 100	
Cat. No.	<b>2078</b>	<b>0536</b>	<b>Rhesus</b>	-	<b>0553<sup>2)</sup></b>	<b>0501<sup>2)</sup></b>	<b>0578<sup>2)</sup></b>	<b>0500<sup>2)</sup></b>	<b>0518<sup>2)</sup></b>	<b>0519<sup>2)</sup></b>	<b>0521<sup>2)</sup></b>	<b>0526<sup>2)</sup></b>	<b>cyto chambers<sup>5)</sup></b>
 <b>carrier</b> Cat. No. <b>1425</b>													
<b>Cat. No.</b>	<b>1444</b>	<b>1432</b>	<b>1433</b>	<b>1438</b>	<b>1434</b>	<b>1431</b>	<b>1435</b>	<b>1436</b>	<b>1437</b>	<b>1452</b>			
boring Ø x L in mm	11.5 x 38	6.5 x 34	10.5 x 40	13.4 x 50	12.7 x 60	17.5 x 84	25.5 x 84	35.5 x 84	45.5 x 86	-			
tubes per rotor	36	144	56	28	48	28	8	4	4	4			4
max. RCF <sup>2)</sup>	3,885	3,969	3,913						3,801			2,739	
radius in mm	139	142	140						136			98	
run-up in sec	30												
run-down in sec, braked	32												
temperature in °C <sup>1)</sup>	-10												

capacity in ml	2.6–3.4	2.7–3	4–5.5	4.5–5	4.9	7.5–8.5	9–10	1.6–5	4–7	4–7	8.5–10	15	50	50
Ø x L in mm	13 x 65	11 x 66	15 x 75	11 x 92	13 x 90	15 x 92	16 x 92	13 x 75	13 x 100	16 x 75	16 x 100	17 x 120	29 x 115	29 x 115
Cat. No.	<b>blood collection/urine tubes</b>											<b>0509</b>	<b>0513</b>	-
 <b>carrier</b> Cat. No. <b>1425</b>														
<b>Cat. No.</b>	<b>1438</b>	<b>1441</b>	<b>1438</b>	<b>1441</b>	<b>1439</b>	<b>1438</b>	<b>1441</b>	<b>1442</b>	<b>1443</b>	<b>1737</b>				
boring Ø x L in mm	13.4 x 50	16.5 x 50	13.4 x 50	16.5 x 50	17 x 45	13.4 x 50	16.5 x 50	17 x 90	30 x 90	30 x 90				
tubes per rotor	28					16	28					4		
max. RCF <sup>2)</sup>	3,913											4,081		
radius in mm	140											146		
run-up in sec	30													
run-down in sec, braked	32													
temperature in °C <sup>1)</sup>	-10													

<sup>1)</sup> Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be reached by reducing the speed.

<sup>2)</sup> Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes annotated with footnote <sup>2)</sup> is 4,000.

<sup>3)</sup> When using these tubes, carrier 1427 cannot be closed with lid 1421.

# ROTORS AND ACCESSORIES



illustrated with carriers 1427

## Swing-out rotor Cat. No. (without carriers) 1494

capacity in ml	1.5/2.0	1	3	5	6	7	9	15	25	50	1.1–1.4	2.6–3.4	2.7–3	4–5.5
Ø x L in mm	11x38	6x45	10x60	12x75	12x82	12x100	14x100	17x100	24x100	34x100	8x66	13x65	11x66	15x75
<b>Cat. No.</b>	<b>2078/0536</b>	<b>Rhesus</b>	-	<b>0553<sup>2)</sup></b>	<b>0501<sup>2)</sup></b>	<b>0578<sup>2)</sup></b>	<b>0500<sup>2)</sup></b>	<b>0518<sup>2)</sup></b>	<b>0519<sup>2)</sup></b>	<b>0521<sup>2)</sup></b>	<b>blood collection/urine tubes</b>			
lid Cat. No. 1421														
<b>carrier</b> Cat. No. 1427														
<b>Cat. No.</b>	<b>5277</b>	<b>1357</b>	<b>1327</b>	<b>1732</b>	<b>5229</b>	<b>5230</b>	<b>5237</b>	<b>5231</b>	<b>5232</b>	<b>5233</b>	<b>5278</b>	<b>1732</b>	<b>5229</b>	<b>5279</b>
boring Ø x L in mm	11.5x38	6.5x23	10.5x23	13.4x58	12.5x44	12.4x87	15x73	17.8x87	25.5x87	35.5x87	9x41	13.4x58	12.5x44	15.6x41
tubes per rotor	36	120	48	32	48	48	24	8	4	48	32	48	48	20
max. RCF <sup>2)</sup>	4,109	4,081	4,053	4,025	4,053	3,941				4,109	4,025	4,053	4,109	
radius in mm	147	146	145	144	145	141				147	144	145	147	
run-up in sec	30													
run-down in sec, braked	32													
temperature in °C <sup>1)</sup>	-7													

capacity in ml	4.5–5	4.9	7.5–8.5	9–10	1.6–5	4–7	8.5–10	15	50	25	30	50	
Ø x L in mm	11x92	13x90	15x92	16x92	13x75	13x100	16x75	16x100	17x120	29x115	25x90	25x110	29x115
<b>Cat. No.</b>	<b>blood collection/urine tubes</b>								<b>0509</b>	<b>0513</b>	-	-	-
lid Cat. No. 1421													
<b>carrier</b> Cat. No. 1427													
<b>Cat. No.</b>	<b>5230</b>	<b>1732</b>	<b>5279</b>	<b>5271<sup>4)</sup></b>	<b>1732</b>	<b>5271</b>	<b>5231</b>	<b>5275</b>	<b>5276</b>	<b>1731</b>	<b>5272</b>	<b>5233<sup>4)</sup></b>	
boring Ø x L in mm	12.4x87	13.4x58	15.6x41	17x66	13.4x58	17x66	17.8x87	17x90	30x90	25.5x72	25.5x85	35.5x87	
tubes per rotor	48	32	20	32	32	20	24	4	8	4	4	4	
max. RCF <sup>2)</sup>	3,941	4,025	4,109	3,969	4,025	3,969	3,941	4,165	4,053	3,969	4,025	4,053	
radius in mm	141	144	147	142	144	142	141	149	145	142	144	145	
run-up in sec	30												
run-down in sec, braked	32												
temperature in °C <sup>1)</sup>	-7												

<sup>4)</sup> Please remove the inserts.

<sup>5)</sup> Please ask for our detailed cyto brochure.

# ROTORS AND ACCESSORIES



illustrated with carriers 1495 and lids 1492  
with bio-containment<sup>6)</sup>

## Swing-out rotor Cat. No. (without carriers) 1494

capacity in ml	1.5	2.0	1	3	5/6/7	9	15	25	50	94	100	1.1–1.4	2.7–5	2.6–4.9	4–8.5	
Ø x L in mm	11 x 38		6 x 45	10 x 60	12 x 75/82/100	14 x 100	17 x 100	24 x 100	34 x 100	38 x 102	44 x 100	8 x 66	11 x 66/92	13 x 65/90	15 x 75/92	
<b>Cat. No.</b>	<b>2078</b>	<b>0536</b>	<b>Rhesus</b>	<b>-</b>	<b>0553<sup>2)</sup>/0501<sup>2)</sup>/0578<sup>2)</sup></b>	<b>0500<sup>2)</sup></b>	<b>0518<sup>2)</sup></b>	<b>0519<sup>2)</sup></b>	<b>0521<sup>2)</sup></b>	<b>0549</b>	<b>0526<sup>2)</sup></b>	<b>blood/urine tubes</b>				
lid with bio-containment <sup>6)</sup> Cat. No. 1492																
<b>carrier</b> Cat. No. 1495																
<b>Cat. No.</b>	<b>1351</b>	<b>1339</b>	<b>1343</b>	<b>1383</b>	<b>1329</b>	<b>1330</b>	<b>1331</b>	<b>1396</b>	<b>0761</b>	<b>1457</b>	<b>1383</b>	<b>1459</b>				
boring Ø x L in mm	11.2 x 38	6.5 x 34	10.5 x 43	13.4 x 48	17.6 x 91	25.2 x 87	35.2 x 87	38.5 x 92	45.6 x 98	9 x 47	13.4 x 48	15.6 x 47				
tubes per rotor	20	108	36	20	16	4				28	20	16				
max. RCF <sup>2)</sup>	3,857	4,081	4,137	4,025	3,997	3,829	3,801	4,109	4,025	4,053	4,025	4,053				
radius in mm	138	146	148	144	143	137	136	147	144	145	145	144	145			
run-up in sec	30															
run-down in sec, braked	32															
temperature in °C <sup>1)</sup>	-10															

capacity in ml	9–10	10	1.6–7	4–10	15	30	50	12	25	30	50	10	30	50	85	30
Ø x L in mm	16 x 92	15 x 102	13 x 75/100	16 x 75/100	17 x 120	25 x 110	29 x 115	17 x 100	25 x 90	25 x 110	29 x 115	16 x 80	26 x 95	29 x 107	38 x 106	44 x 105
<b>Cat. No.</b>	<b>blood/urine tubes</b>				<b>0509</b>	<b>-</b>	<b>0513</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>0545</b>	<b>0546</b>	<b>0547</b>	<b>0534<sup>7)</sup></b>
lid with bio-containment <sup>6)</sup> Cat. No. 1492																
<b>carrier</b> Cat. No. 1495																
<b>Cat. No.</b>	<b>1329</b>	<b>1329<sup>4)</sup></b>	<b>1383</b>	<b>1348</b>	<b>1347</b>	<b>1365</b>	<b>1384</b>	<b>6311</b>	<b>1363</b>	<b>1365</b>	<b>6318</b>	<b>1348</b>	<b>4417</b>	<b>4416</b>	<b>1396</b>	<b>0765</b>
boring Ø x L in mm	17.6 x 91	13.4 x 48	16.5 x 56	17 x 90	26 x 80	30 x 90	17 x 80	26 x 72	26 x 80	29.5 x 80	16.5 x 56	26 x 83	29 x 93	38.5 x 92	45.9 x 98	
tubes per rotor	16	20	16	4				16				4				
max. RCF <sup>2)</sup>	3,997	4,193	4,025	4,193				3,689	4,193	4,025	3,857	4,137	4,109	3,997		
radius in mm	143	150	144	150				132	150	144	138	148	147	143		
run-up in sec	30															
run-down in sec, braked	32															
temperature in °C <sup>1)</sup>	-10															

<sup>1)</sup> Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be reached by reducing the speed.

<sup>2)</sup> Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes annotated with footnote <sup>2)</sup> is 4,000.

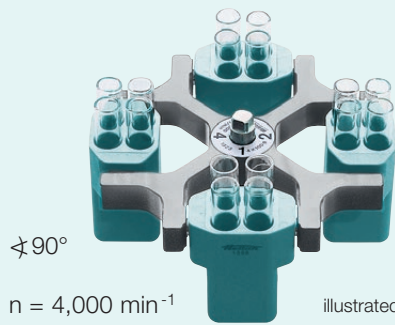
<sup>4)</sup> Please remove the inserts.

<sup>6)</sup> Tested by the TÜV in conformity with DIN EN 61010, section 2-020.



# ROTORS AND ACCESSORIES

## Swing-out rotor, 4-place

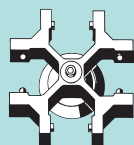














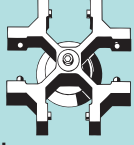






↻ 90°






$n = 4,000 \text{ min}^{-1}$   
max. RCF 2,665

illustrated with carriers 1369

**Cat. No.** (without carriers) **1624**

capacity in ml	5	6	7	9	15	20	25	45	50	1.1–1.4	2.6–3.4	4–5.5
Ø x L in mm	12 x 75	12 x 82	12 x 100	14 x 100	17 x 100	21 x 100	24 x 100	31 x 100	34 x 100	8 x 66	13 x 65	15 x 75
<b>Cat. No.</b>	<b>0553<sup>2)</sup></b>	<b>0501<sup>2)</sup></b>	<b>0578<sup>2)</sup></b>	<b>0500<sup>2)</sup></b>	<b>0518<sup>2)</sup></b>	-	<b>0519<sup>2)</sup></b>	-	<b>0521<sup>2)</sup></b>	<b>blood/urine tubes</b>		
 <b>rotor</b> Cat. No. <b>1624</b>												
<b>Cat. No.</b>	<b>1369-91</b>	<b>1372</b>	<b>1369-92</b>	<b>1370</b>	<b>1741</b>	<b>1369</b>	<b>1742</b>	<b>1346</b>	<b>1745</b>	<b>1345</b>	<b>1746</b>	<b>1741</b>
boring Ø x L in mm	12.5 x 64.4	13.5 x 65	12.5 x 71.5	14.6 x 74	14.6 x 78	17.6 x 74	17.6 x 78	21.5 x 74	26 x 78	32 x 74	35 x 78	14.6 x 78
tubes per rotor	16	68	16	20	40	16	28	8	4	40	28	28
max. RCF <sup>2)</sup>	2,057	2,164	2,308	2,415	2,308	2,451	2,361	2,451	2,361	2,451	2,415	2,325
radius in mm	115	121	129	135	129	137	132	137	132	137	135	130
run-up in sec	20											
run-down in sec, braked	25											
temperature in °C <sup>1)</sup>	-17			-15	-17	-19	-17	-15	-17	-15	-19	

capacity in ml	4.9	1.6–5	1.6–5	4–7	8.5–10	30	suspensions for cyto accessories
Ø x L in mm	13 x 90	13 x 75	13 x 75	16 x 75	16 x 100	26 x 95	
<b>Cat. No.</b>	<b>blood collection/urine tubes</b>					<b>0545</b>	<b>cyto chambers<sup>5)</sup></b>
 <b>rotor</b> Cat. No. <b>1624</b>							
<b>Cat. No.</b>	<b>1741</b>	<b>1741</b>	<b>1742</b>	<b>1369</b>	<b>1745</b>	<b>1660</b>	
boring Ø x L in mm	14.6 x 78	14.6 x 78	17.6 x 78	17.6 x 74	26 x 78	-	
tubes per rotor	40	40	28	16	8	4	
max. RCF <sup>2)</sup>	2,451	2,129	2,325	2,308	2,451	1,646	
radius in mm	137	119	130	129	137	92	
run-up in sec	20						
run-down in sec, braked	25						
temperature in °C <sup>1)</sup>	-15	-15	-19	-17	-15	-16	

capacity in ml	1.5	2.0	1	3	4
Ø x L in mm	11 x 38		6 x 45	10 x 60	12 x 60
<b>Cat. No.</b>	<b>2078</b>	<b>0536</b>	<b>Rhesus</b>	-	-
 <b>carrier</b> Cat. No. <b>1366</b>					
<b>Cat. No.</b>	<b>5277</b>	<b>1357</b>	<b>1327</b>	<b>1326</b>	
boring Ø x L in mm	11.5 x 38	6.5 x 23	10.5 x 23	12.5 x 44	
tubes per rotor	36	120	48		
max. RCF <sup>2)</sup>	1,968	1,950	1,932		
radius in mm	110	109	108		
run-up in sec	20				
run-down in sec, braked	25				
temperature in °C <sup>1)</sup>	-17				

<sup>5)</sup> Please ask for our detailed cyto brochure.

<sup>7)</sup> A rubber stopper for closing the tube is available under Cat. No. 0535.

The tube may not be centrifuged with the stopper. The stopper only serves to close the tube for agitating or mixing.

<sup>1)</sup> Packed in units of 10 pieces.

# ROTORS AND ACCESSORIES



illustrated with carriers 1481 and lids 1492  
with bio-containment<sup>6)</sup>

## Swing-out rotor Cat. No. (without carriers) 1624

capacity in ml	1.5	2.0	1	3	5/6/7	9	15	25	50	94	100	1.1–1.4	2.7–5	2.6–4.9	4–8.5
Ø x L in mm	11 x 38		6 x 45	10 x 60	12 x 75/82/100	14 x 100	17 x 100	24 x 100	34 x 100	38 x 102	44 x 100	8 x 66	11 x 66/92	13 x 65/90	15 x 75/92
<b>Cat. No.</b>	<b>2078</b>	<b>0536</b>	<b>Rhesus</b>	-	<b>0553<sup>2)</sup>/0501<sup>2)</sup>/0578<sup>2)</sup></b>	<b>0500<sup>2)</sup></b>	<b>0518<sup>2)</sup></b>	<b>0519<sup>2)</sup></b>	<b>0521<sup>2)</sup></b>	<b>0549</b>	<b>0526<sup>2)</sup></b>	<b>blood/urine tubes</b>			
lid with bio-containment <sup>6)</sup> Cat. No. 1492															
<b>carrier</b> Cat. No. 1481															
<b>Cat. No.</b>	<b>1351</b>	<b>1339</b>	<b>1343</b>	<b>1383</b>	<b>1329</b>	<b>1330</b>	<b>1331</b>	<b>1396</b>	<b>0761</b>	<b>1457</b>	<b>1383</b>	<b>1459</b>			
boring Ø x L in mm	11.2 x 38	6.5x34	10.5x43	13.4 x 48	17.6x91	25.2x87	35.2x87	38.5x 92	45.6x98	9x47	13.4x48	15.6 x 47			
tubes per rotor	20	108	36	20	16	4				28	20	16			
max. RCF <sup>2)</sup>	2,451	2,594	2,630	2,558	2,540	2,433	2,415	2,612	2,558	2,576	2,558	2,576			
radius in mm	137	145	147	143	142	136	135	146	143	144	143	144			
run-up in sec	20														
run-down in sec, braked	25														
temperature in °C <sup>1)</sup>	-15														

capacity in ml	9–10	10	1.6–7	4–10	15	50	12	25	30	50	10	30	50	85	30
Ø x L in mm	16 x 92	15 x 102	13 x 75/100	16 x 75/100	17 x 120	29 x 115	17 x 100	25 x 90	25 x 110	29 x 115	16 x 80	26 x 95	29 x 107	38 x 106	44 x 105
<b>Cat. No.</b>	<b>blood/urine tubes</b>				<b>0509</b>	<b>0513</b>	-	-	-	-	-	<b>0545</b>	<b>0546</b>	<b>0547</b>	<b>0534<sup>7)</sup></b>
lid with bio-containment <sup>6)</sup> Cat. No. 1492															
<b>carrier</b> Cat. No. 1481															
<b>Cat. No.</b>	<b>1329</b>	<b>1329<sup>4)</sup></b>	<b>1383</b>	<b>1348</b>	<b>1347</b>	<b>1384</b>	<b>6311</b>	<b>1363</b>	<b>1365</b>	<b>6318</b>	<b>1348</b>	<b>4417</b>	<b>4416</b>	<b>1396</b>	<b>0765</b>
boring Ø x L in mm	17.6 x 91		13.4x48	16.5x56	17 x 90	30 x 90	17 x 80	26 x 72	26 x 80	29.5x80	16.5 x 56	26 x 83	29 x 93	38.5 x 92	45.9 x 98
tubes per rotor	16		20	16	4				16		4				
max. RCF <sup>2)</sup>	2,540	2,665	2,558	2,522	2,665		2,343	2,665		2,522	2,451	2,630	2,612	2,540	
radius in mm	142	149	143	141	149		131	149		141	137	147	146	142	
run-up in sec	20														
run-down in sec, braked	25														
temperature in °C <sup>1)</sup>	-15														

<sup>1)</sup> Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be reached by reducing the speed.

<sup>2)</sup> Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes annotated with footnote <sup>2)</sup> is 4,000.

<sup>4)</sup> Please remove the inserts.

<sup>6)</sup> Tested by the TÜV in conformity with DIN EN 61010, section 2-020.

# ROTORS AND ACCESSORIES

## Swing-out rotor, 4-place



↻ 90°

$n = 4,500 \text{ min}^{-1}$   
max. RCF 3,328

illustrated with carriers 1490 and lids 1492  
with bio-containment<sup>6)</sup>

**Cat. No.** (without carriers) **1324**

capacity in ml	1.5	2.0	1	3	4	5	6	7	9	15	25	50	94	100
Ø x L in mm	11 x 38		6 x 45	10 x 60	10 x 88	12 x 75	12 x 82	12 x 100	14 x 100	17 x 100	24 x 100	34 x 100	38 x 102	44 x 100
<b>Cat. No.</b>	<b>2078</b>	<b>0536</b>	<b>Rhesus</b>	-	-	<b>0553<sup>2)</sup></b>	<b>0501<sup>2)</sup></b>	<b>0578<sup>2)</sup></b>	<b>0500<sup>2)</sup></b>	<b>0518<sup>2)</sup></b>	<b>0519<sup>2)</sup></b>	<b>0521<sup>2)</sup></b>	<b>0549</b>	<b>0526<sup>2)</sup></b>
lid with bio-containment <sup>6)</sup> Cat. No. 1492														
<b>carrier</b> Cat. No. 1490														
<b>Cat. No.</b>	<b>1351</b>	<b>1339</b>	<b>1343</b>	<b>1383</b>			<b>1329</b>			<b>1330</b>	<b>1331</b>	<b>1396</b>	<b>0761</b>	
boring Ø x L in mm	11.2 x 38		6.5 x 34	10.5 x 43		13.4 x 48			17.6 x 91		25.2 x 87	35.2 x 87	38.5 x 92	45.9 x 100.5
tubes per rotor	20		108	36		20			16		4			
max. RCF <sup>2)</sup>	3,056		3,237	3,283		3,192			3,170		3,034	3,011	3,260	3,192
radius in mm	135		143	145		141			140		134	133	144	141
run-up in sec	27													
run-down in sec, braked	30													
temperature in °C <sup>1)</sup>	-6													

capacity in ml	1.1–1.4	2.6–3.4	4.9	2.7–3	4.5–5	4–5.5	7.5–8.5	9–10	10	1.6–5	4–7	4–7	8.5–10
Ø x L in mm	8 x 66	13 x 65	13 x 90	11 x 66	11 x 92	15 x 75	15 x 92	16 x 92	15 x 102	13 x 75	13 x 100	16 x 75	16 x 100
<b>Cat. No.</b>	<b>blood collection/urine tubes</b>												
lid with bio-containment <sup>6)</sup> Cat. No. 1492													
<b>carrier</b> Cat. No. 1490													
<b>Cat. No.</b>	<b>1457</b>	<b>1383</b>		<b>1459</b>		<b>1329</b>	<b>1329<sup>4)</sup></b>	<b>1383</b>		<b>1348</b>			
boring Ø x L in mm	9 x 47	13.4 x 48		15.6 x 47		17.6 x 91		13.4 x 48		16.5 x 56			
tubes per rotor	28	20		16				20		16			
max. RCF <sup>2)</sup>	3,215	3,192		3,215		3,170	3,328	3,192		3,147			
radius in mm	142	141		142		140	147	141		139			
run-up in sec	27												
run-down in sec, braked	30												
temperature in °C <sup>1)</sup>	-6												

<sup>7)</sup> A rubber stopper for closing the tube is available under Cat. No. 0535.  
The tube may not be centrifuged with the stopper. The stopper only serves to close the tube for agitating or mixing.

# ROTORS AND ACCESSORIES



illustrated with carriers 1398

## Swing-out rotor 1324

capacity in ml	15	30	50	12	25	30	50	10	30	50	85	30	
Ø x L in mm	17 x 120	25 x 110	29 x 115	17 x 100	25 x 90	25 x 110	29 x 115	16 x 80	26 x 95	29 x 107	38 x 106	44 x 105	
<b>Cat. No.</b>	<b>0509</b>	-	<b>0513</b>	-	-	-	-	-	<b>0545</b>	<b>0546</b>	<b>0547</b>	<b>0534<sup>7)</sup></b>	
lid with bio-containment <sup>6)</sup> Cat. No. 1492													
<b>carrier</b> Cat. No. 1490													
<b>Cat. No.</b>	<b>1347</b>	<b>1356</b>	<b>1365</b>	<b>1384</b>	<b>6311</b>	<b>1363</b>	<b>1365</b>	<b>6318</b>	<b>1348</b>	<b>4417</b>	<b>4416</b>	<b>1396</b>	<b>0765</b>
boring Ø x L in mm	17 x 90	17 x 107	26 x 80	30 x 90	17 x 80	26 x 72	26 x 80	29.5 x 80	16.5 x 56	26 x 83	29 x 93	38.5 x 92	45.9 x 100.5
tubes per rotor	4	12	4				16			4			
max. RCF <sup>2)</sup>	3,328		3,328		2,920		3,328		3,147	3,056	3,283	3,260	3,170
radius in mm	147		147		129		147		139	135	145	144	140
run-up in sec	27												
run-down in sec, braked	30												
temperature in °C <sup>1)</sup>	- 6												

capacity in ml	5	6	7	9	15	2.6–3.4	2.7–3	4–5.5	4.5–5	4.9	9–10	10	1.6–5	4–7	4–7	12
Ø x L in mm	12 x 75	12 x 82	12 x 100	14 x 100	17 x 100	13 x 65	11 x 66	15 x 75	11 x 92	13 x 90	16 x 92	15 x 102	13 x 75	13 x 100	16 x 75	17 x 102
<b>Cat. No.</b>	<b>0553<sup>2)</sup></b>	<b>0501<sup>2)</sup></b>	<b>0578<sup>2)</sup></b>	<b>0500<sup>2)</sup></b>	<b>0518<sup>2)</sup></b>	<b>blood collection/urine tubes</b>										
<b>carrier</b> Cat. No. 1398																
<b>Cat. No.</b>	<b>1486</b>	<b>1482A</b>	<b>1486</b>	<b>1482A</b>	<b>1486</b>	<b>1482A</b>	<b>1486</b>	<b>1482A</b>	<b>1486</b>	<b>1482A</b>	<b>1486</b>	<b>1482A</b>	<b>1486</b>	<b>1482A</b>	<b>1487</b>	
boring Ø x L in mm	13.4 x 57.5		17.5 x 81		13.4 x 57.5		17.5 x 81		13.4 x 57.5		17.5 x 81		13.4 x 57.5		17.5 x 81	17.5 x 74
tubes per rotor	20		16		20		16		20		16		20		16	12
max. RCF <sup>2)</sup>	3,147		3,192		3,147		2,875		3,147		3,192		3,147		3,034	3,102
radius in mm	139		141		139		127		139		141		139		134	137
run-up in sec	27															
run-down in sec, braked	30															
temperature in °C <sup>1)</sup>	- 6															

1) Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be reached by reducing the speed.

2) Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes annotated with footnote 2) is 4,000.

3) When using these tubes, carrier 1490 cannot be closed with lid 1492.



# ROTORS AND ACCESSORIES

## Swing-out rotor, 6-place



∠90°

n = 4,000 min<sup>-1</sup>  
max. RCF 2,701

**Cat. No.** (with carriers) **1619**

## Swing-out rotor, 8-place

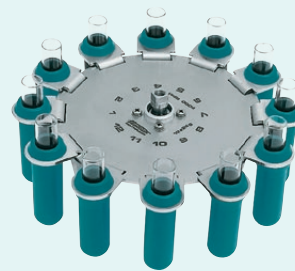


∠45°

n = 5,000 min<sup>-1</sup>  
max. RCF 3,857

**Cat. No.** (with carriers) **1617**










## Swing-out rotor, 12-place







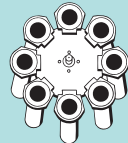



∠55° (with carriers 1127)  
∠60° (with carriers 1122)  
∠80° (with carriers 1621)






















n = 5,000 min<sup>-1</sup>  
max. RCF 4,193

**Cat. No.** (without carriers) **1628**

capacity in ml	15	50	12	50
∅ x L in mm	17x120	29x115	17x100	29x115
<b>Cat. No.</b>	<b>0509</b>	<b>0513</b>	-	-
				
<b>carrier</b> Cat. No. <b>1398</b>				
<b>Cat. No.</b>	<b>1483A</b>	<b>1484</b>	<b>1482A</b>	<b>1484<sup>4)</sup></b>
boring ∅ x L in mm	17x100	30x98	17.5x81	30x98
tubes per rotor	16	4	16	4
max. RCF <sup>2)</sup>	3,305	3,260	3,192	3,260
radius in mm	146	144	141	144
run-up in sec	27			
run-down in sec, braked	30			
temperature in °C <sup>1)</sup>	-6			

capacity in ml	15	50
∅ x L in mm	17x120	29x115
<b>Cat. No.</b>	<b>0509</b>	<b>0513</b>
		
<b>rotor</b> Cat. No. <b>1619</b>		
<b>Cat. No.</b>	<b>1462-A</b>	-
boring ∅ x L in mm	17 x 84	30x87.5
tubes per rotor	6	
max. RCF <sup>2)</sup>	2,701	
radius in mm	151	
run-up in sec	20	
run-down in sec, braked	22	
temperature in °C <sup>1)</sup>	-15	

capacity in ml	15	50
∅ x L in mm	17x120	29x115
<b>Cat. No.</b>	<b>0509</b>	<b>0513</b>
		
<b>rotor</b> Cat. No. <b>1617</b>		
<b>Cat. No.</b>	<b>1462-A</b>	-
boring ∅ x L in mm	17 x 84	30x94.5
tubes per rotor	8	
max. RCF <sup>2)</sup>	3,857	
radius in mm	138	
run-up in sec	20	
run-down in sec, braked	19	
temperature in °C <sup>1)</sup>	-10	

capacity in ml	5	10	15	2.6–3.4	2.7–3	4–5.5	7.5–8.5	1.6–5	4–7	8.5–10
∅ x L in mm	12 x 75	17x70	17x100	13x65	11x66	15x75	15x92	13x75	16x75	16 x 100
<b>Cat. No.</b>	<b>0553<sup>2)</sup></b>	<b>2079</b>	<b>0518<sup>2)</sup></b>	<b>blood collection/urine tubes</b>						
										
<b>rotor</b> Cat. No. <b>1628</b>										
<b>Cat. No.</b>	<b>1127</b>	<b>1122</b>	<b>1621</b>	<b>1127</b>	<b>1122</b>	<b>1621</b>	<b>1127</b>	<b>1122</b>	<b>1621</b>	
boring ∅ x L in mm	13.2 x 53	17.5 x 53	17.5 x 79	13.2 x 53	17.5 x 53	17.5 x 79	13.2 x 53	17.5 x 53	17.5 x 79	
tubes per rotor	12									
max. RCF <sup>2)</sup>	3,494	3,522	4,193	3,494	3,522	4,193	3,494	3,522	4,193	
radius in mm	125	126	150	125	126	150	125	126	150	
run-up in sec	16									
run-down in sec, braked	16									
temperature in °C <sup>1)</sup>	-15	-10	-15	-15	-15	-10	-15	-15	-10	

<sup>4)</sup> Please remove the inserts.

<sup>6)</sup> Tested by the TÜV in conformity with DIN EN 61010, section 2-020.

<sup>7)</sup> A rubber stopper for closing the tube is available under Cat. No. 0535.

The tube may not be centrifuged with the stopper. The stopper only serves to close the tube for agitating or mixing.

# ROTORS AND ACCESSORIES

## Swing-out rotor, 8-place

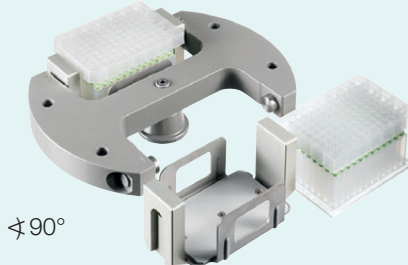
## Swing-out rotor, 2-place



±90°

n = 4,000 min<sup>-1</sup>  
max. RCF 2,415

















**Cat. No.** (without carriers) **1611**

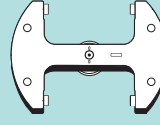

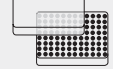









±90°

n = 4,000 min<sup>-1</sup>  
max. RCF 2,218

**Cat. No.** (without carriers) **1460**

capacity in ml	5	6	7	10	15	2.6–3.4	2.7–3	4–5.5	4.5–5	7.5–8.5	1.6–5	4–7	4–7	8.5–10	
Ø x L in mm	12 x 75	12 x 82	12 x 100	17 x 70	13 x 100	17 x 100	13 x 65	11 x 66	15 x 75	11 x 92	15 x 92	13 x 75	13 x 100	16 x 75	16 x 100
Cat. No.	<b>0553</b> <sup>2)</sup>	<b>0501</b> <sup>2)</sup>	<b>0578</b> <sup>2)</sup>	<b>2079</b>	-	<b>0518</b> <sup>2)</sup>	<b>blood collection/urine tubes</b>								
 <b>rotor</b> Cat. No. <b>1611</b>															
Cat. No.	<b>1131-A</b>	<b>1643</b>	<b>1132-A</b>	<b>1643</b>	<b>1644</b>	<b>1131-A</b>	<b>1132-A</b>	<b>1643</b>	<b>1644</b>	<b>1131-A</b>	<b>1643</b>	<b>1132-A</b>	<b>1644</b>	<b>1131-A</b>	<b>1644</b>
boring Ø x L in mm	13 x 53	13.2 x 81	17.5 x 53	13.2 x 81	17.5 x 81	13 x 53	17.5 x 53	13.2 x 81	17.5 x 81	13 x 53	13.2 x 81	17.5 x 53	17.5 x 81	13 x 53	17.5 x 81
tubes per rotor	8														
max. RCF <sup>2)</sup>	1,914	2,415	1,914	2,415	1,914	2,415	1,914	2,415	1,914	2,415	1,914	2,415	1,914	2,415	2,415
radius in mm	107	135	107	135	107	135	107	135	107	135	107	135	107	135	135
run-up in sec	20														
run-down in sec, braked	20														
temperature in °C <sup>1)</sup>	-16														

D x W x H in mm	86 x 128 x 15/17.5		86 x 128 x 22	86 x 128 x 44.5	86 x 128 x 46	86 x 128 x 83	59 x 84 x 11	82 x 124 x 20	-	
capacity in ml	-									0.2
Cat. No.	<b>MTP</b>		<b>CP</b>	<b>DWP</b>	<b>MS</b>	<b>QP</b>	<b>Microtest plate (Terasaki)</b>	<b>PCR plate, 96 wells</b>	<b>PCR strips</b>	
 <b>rotor</b> Cat. No. <b>1460</b>										
Cat. No.	<b>1453-A</b>							<b>1453-A + 1485</b>		
boring Ø x L in mm	-									
plates/strips per rotor	10	8	6	2	2	2	4	2	24 x 8	
max. RCF <sup>2)</sup>	2,218									
radius in mm	124									
run-up in sec	40									
run-down in sec, braked	45									
temperature in °C <sup>1)</sup>	-6									

<sup>1)</sup> Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be reached by reducing the speed.

<sup>2)</sup> Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes annotated with footnote <sup>2)</sup> is 4,000.

<sup>6)</sup> Tested by the TÜV in conformity with DIN EN 61010, section 2-020.

# ROTORS AND ACCESSORIES

## Swing-out rotor, 4-place



±90°

n = 4,000 min<sup>-1</sup>  
max. RCF 1,896

**Cat. No.** (without carriers) **1645**

## Angle rotor, 12-place



±45°

n = 15,000 min<sup>-1</sup>  
max. RCF 16,602

**Cat. No.** **1612**

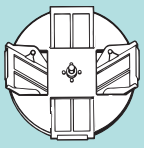
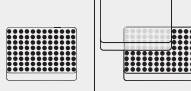

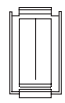
## Angle rotor, 24-place

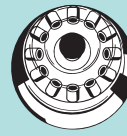










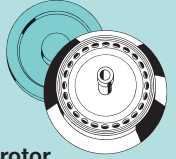










±40°

n = 15,000 min<sup>-1</sup>  
max. RCF 21,382

**Cat. No.** **1420-B**

D x W x H in mm	86 x 128 x 15/17.5	86 x 128 x 22
Cat. No.	MTP	CP
		
<b>rotor</b> Cat. No. <b>1645</b>		
<b>Cat. No.</b>	<b>4345</b>	
boring Ø x L in mm	-	
plates per rotor	4	
max. RCF <sup>2)</sup>	1,896	
radius in mm	106	
run-up in sec	20	
run-down in sec, braked	19	
temperature in °C <sup>1)</sup>	- 16	

capacity in ml	0.2	0.4	0.5	0.8	1.5	2.0
Ø x L in mm	6 x 18	6 x 45	8 x 30	8 x 45	11 x 38	
Cat. No.	-	-	-	-	<b>2078</b>	<b>0536</b>
 lid incl.						
<b>rotor</b> Cat. No. <b>1612</b>						
<b>Cat. No.</b>	<b>2024</b>		<b>2023</b>		<b>2031<sup>B)</sup></b>	-
boring Ø x L in mm	6 x 40		8 x 40		10.2x19	11.4 x 39
tubes per rotor	12					
max. RCF <sup>2)</sup>	16,602					
radius in mm	66					
run-up in sec	25					
run-down in sec, braked	23					
temperature in °C <sup>1)</sup>	- 10					

capacity in ml	0.2	0.4	0.5	0.8	1.5	2.0	0.5
Ø x L in mm	6 x 18	6 x 45	8 x 30	8 x 45	11 x 38		10.7 x 36
Cat. No.	-	-	-	-	<b>2078</b>	<b>0536</b>	<b>Pediatric</b>
 lid incl.							
<b>rotor</b> Cat. No. <b>1420-B</b>							
<b>Cat. No.</b>	<b>2024</b>		<b>2023</b>		<b>2031<sup>B)</sup></b>	-	<b>0788</b>
boring Ø x L in mm	6 x 40		8 x 40		10.2x19	11.2x42.6	11.2x39
tubes per rotor	24						12
max. RCF <sup>2)</sup>	21,382						20,376
radius in mm	85						81
run-up in sec	25						
run-down in sec, braked	24						
temperature in °C <sup>1)</sup>	- 4						

### Optional for rotor 1420-B:



lid **Cat. No. 2425**  
with bio-containment<sup>6)</sup>,  
autoclavable



lid **Cat. No. 2423**  
with bio-containment<sup>6)</sup>,  
autoclavable, phenol-resistant

<sup>B)</sup> For centrifugation at high speeds, we recommend to use form-fitting, phenol-resistant adapters 2031.

# ROTORS AND ACCESSORIES

## Angle rotor, 30-place

## Angle rotor, 8-place

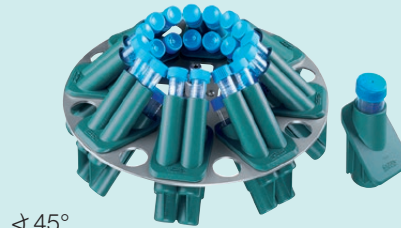


±45°

n = 14,000 min<sup>-1</sup>  
max. RCF 21,255

with bio-containment<sup>6)</sup>

**Cat. No. 1689-A**



±45°

n = 4,500 min<sup>-1</sup>  
max. RCF 3,283

**Cat. No. (without adapters) 1418**

capacity in ml	0.2	0.4	0.5	0.8	1.5	2.0	0.5
Ø x L in mm	6 x 18	6 x 45	8 x 30	8 x 45	11 x 38		10.7 x 36
<b>Cat. No.</b>	-	-	-	-	<b>2078</b>	<b>0536</b>	<b>Pediatric</b>
lid with bio-containment <sup>6)</sup> incl.							
<b>rotor</b> Cat. No. <b>1689-A</b>							
<b>Cat. No.</b>	<b>2024</b>	<b>2023</b>	<b>2031<sup>6)</sup></b>	-	<b>0788</b>		
boring Ø x L in mm	6 x 40	8 x 40	10.2 x 19	11.2 x 40.9	11.2 x 39		
tubes per rotor	30						15
max. RCF <sup>2)</sup>	21,255						20,376
radius in mm	97						93
run-up in sec	35						
run-down in sec, braked	31						
temperature in °C <sup>1)</sup>	0						

capacity in ml	5	15	1,1–1,4	2,6–3,4	2,7–3	9–10	1,6–5	12	15	50	12	50	50
Ø x L in mm	12 x 75	17 x 100	8 x 66	13 x 65	11 x 66	16 x 92	13 x 75	17 x 102	17 x 120	29 x 115	17 x 100	29 x 115	29 x 107
<b>Cat. No.</b>	<b>0553<sup>2)</sup></b>	<b>0518<sup>2)</sup></b>	<b>blood collection/urine tubes</b>					<b>0509</b>	<b>0513</b>	-	-	<b>0546</b>	
<b>rotor</b> Cat. No. <b>1418</b>													
<b>Cat. No.</b>	<b>1467</b>	<b>1467</b>	<b>1467</b>	<b>1467</b>	<b>1467</b>	<b>1467</b>	<b>1467</b>	<b>1467</b>	<b>1468</b>	<b>1467</b>	<b>1468</b>	<b>1468</b>	
boring Ø x L in mm	17,4 x 91	17,4 x 91	17,4 x 91	17,4 x 91	17,4 x 91	17,4 x 91	17,4 x 91	17,4 x 91	30,2 x 92	17,4 x 91	30,2 x 92		
tubes per rotor	32	32	32	32	32	32	32	32	8	32	8		
max. RCF <sup>2)</sup>	2.762	3.215	2.762	3.215	2.762	3.215	3.215	3.283	3.147	3.215	3.147		
radius in mm	122	142	122	142	122	142	145	139	142	139			
run-up in sec	30												
run-down in sec, braked	31												
temperature in °C <sup>1)</sup>	- 11												

<sup>1)</sup> Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be reached by reducing the speed.

<sup>2)</sup> Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes annotated with footnote <sup>2)</sup> is 4,000.

<sup>6)</sup> Tested by the TÜV in conformity with DIN EN 61010, section 2-020.

<sup>9)</sup> 6-place adapter set for conical 50 ml tubes with screw cap.



# ROTORS AND ACCESSORIES

## Angle rotor, 6-place



↗ 35°

n = 9,000 min<sup>-1</sup>  
max. RCF 9,509

**Cat. No. 1620A**






































## Angle rotor, 12-place








































↗ 35°

n = 6,000 min<sup>-1</sup>  
max. RCF 4,146

**Cat. No. 1613**

capacity in ml	1.5	2.0	15	50	75	94	7.5–8.5	9–10	10	8.5–10	15	50	10	30	50	85		
Ø x L in mm	11 x 38		17 x 100	34 x 100	35 x 105	38 x 102	15 x 92	16 x 92	15 x 102	16 x 100	17 x 120	29 x 115	16 x 80	26 x 95	29 x 107	38 x 106		
Cat. No.	<b>2078</b>	<b>0536</b>	<b>0518<sup>2)</sup></b>	<b>0521<sup>2)</sup></b>	<b>0548</b>	<b>0549</b>	<b>blood/urine tubes</b>				<b>0509</b>	<b>0513</b>		-	<b>0545</b>	<b>0546</b>	<b>0547</b>	
																		
<b>rotor</b> Cat. No. <b>1620A</b>																		
<b>Cat. No.</b>	<b>1449</b>	<b>1451</b>	<b>1463</b>	-	<b>1451</b>	<b>1466</b>	<b>1454</b>	<b>1646<sup>9)</sup></b>	<b>1448</b>	<b>1447</b>	<b>1446</b>	-						
boring Ø x L in mm	11.4 x 39		17.5 x 92	35 x 89	38.6 x 90.2	17.5 x 92				17 x 106	29.8 x 97	-	16.5 x 74	26 x 85	29 x 92	38.6 x 90.2		
tubes per rotor	24		6	6	6	6				6	3	6	12	6				
max. RCF <sup>2)</sup>	9,237		8,784	9,327	9,509	8,784				8,965		8,784	8,603	9,056	9,509			
radius in mm	102		97	103	105	97				99		97	95	100	105			
run-up in sec	30																	
run-down in sec, braked	30																	
temperature in °C <sup>1)</sup>	- 11																	

capacity in ml	4	5	6	15	1.1–1.4	2.6–3.4	2.7–3	4.5–5	4.9	7.5–10	10	1.6–5	4–7	8–10	15				
Ø x L in mm	10 x 88	12 x 75	12 x 82	17 x 100	8 x 66	13 x 65	11 x 66	11 x 92	13 x 90	15/16 x 92	15 x 102	13 x 75	13 x 100	16 x 100/125	17 x 120				
Cat. No.	-	<b>0553<sup>2)</sup></b>	<b>0501<sup>2)</sup></b>	<b>0518<sup>2)</sup></b>	<b>blood collection/urine tubes</b>										<b>0509</b>				
																			
<b>rotor</b> Cat. No. <b>1613</b>																			
<b>Cat. No.</b>	<b>6305</b>	<b>1054-A</b>	-	<b>1054-A</b>	-							<b>1054-A</b>	<b>1058</b>	-					
boring Ø x L in mm	11.5 x 67.5	13.5 x 60	17.7 x 88	13.5 x 60	17.7 x 88							13.5 x 60	13.5 x 79	17.7 x 88					
tubes per rotor	12				12										12	12	12	6	6
max. RCF <sup>2)</sup>	3,502	3,300	4,146	3,300	4,146							3,300	4,146						
radius in mm	87	82	103	82	103							82	103						
run-up in sec	15																		
run-down in sec, braked	15																		
temperature in °C <sup>1)</sup>	- 16																		

# ROTORS AND ACCESSORIES

## Angle rotor, 12-place

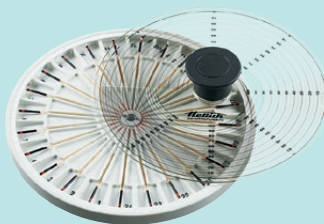


35°

n = 12,000 min<sup>-1</sup>  
max. RCF 16,582
























**Cat. No. 1615**



## Hematocrit rotor, 24-place



n = 15,000 min<sup>-1</sup>  
max. RCF 21,382

**Cat. No. 1650**

capacity in ml	4	5	6	15	1.1–1.4	2.6–3.4	2.7–3	4.5–5	4.9	7.5–10	10	1.6–5	4–7	8–10	15	
Ø x L in mm	10x88	12x75	12x82	17x100	8x66	13x65	11x66	11x92	13x90	15/16x92	15x102	13x75	13x100	16x100/125	17x120	
<b>Cat. No.</b>	-	<b>0553<sup>2)</sup></b>	<b>0501<sup>2)</sup></b>	<b>0518<sup>2)</sup></b>	<b>blood collection/urine tubes</b>										<b>0509</b>	
 <b>rotor</b> Cat. No. 1615																
																
<b>Cat. No.</b>	<b>6305</b>	<b>1054-A</b>	-	<b>1054-A</b>	-					<b>1054-A</b>	<b>1058</b>	-	<b>1647<sup>10)</sup></b>			
boring Ø x L in mm	11.5x67.5	13.5x60	17.7x88	13.5x60	17.7x88					13.5x60	13.5x79	17.7x88	17x104			
tubes per rotor					12							12	12	12	6	6
max. RCF <sup>2)</sup>	14,006	13,201	16,582	13,201	16,582					13,201	16,582	16,582	15,455			
radius in mm	87	82	103	82	103					82	103	103	96			
run-up in sec	40															
run-down in sec, braked	40															
temperature in °C <sup>1)</sup>	- 2															

standard capillaries, heparinised	basic	self-sealing and mylar-coated
<b>Cat. No.</b>	<b>2074</b>	<b>1071</b>
 <b>rotor</b> Cat. No. 1650		
	sealing putty	
<b>Cat. No.</b>	<b>2077</b>	-
boring Ø x L in mm	-	
capillaries per rotor	24	
max. RCF <sup>2)</sup>	21,382	
radius in mm	85	
run-up in sec	13	
run-down in sec, braked	9	
temperature in °C <sup>1)</sup>	- 1	

<sup>1)</sup> Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be reached by reducing the speed.

<sup>2)</sup> Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes annotated with footnote <sup>2)</sup> is 4,000

<sup>10)</sup> Set of 6 carriers. For accommodating conical 15 ml tubes with screw cap, remove 6 opposite carriers from rotor No. 1615 and replace them with adapters No. 1647.

## ROTORS AND ACCESSORIES

### THE HETTICH CYTO SYSTEM

The Hettich Cyto System provides cytologists with an extensive range of accessories to prepare high-quality cyto sediments from the most diverse body fluids.

Benefits of the Hettich Cyto System include:

- Low purchase costs
- Easy assembly
- Valuable time savings
- Optimal cell yield
- Targeted preparation of dry or wet sediments
- First-class customer support

### THE CLASSIC ACCESSORIES

The 1624 (4-place) and 1626 (6-place) rotors allow preparation of top-quality cytological specimens using the proven Hettich method. See Hettich's application notes for cytology, which you can order free of charge or download from our website [www.hettichlab.com](http://www.hettichlab.com).

For laboratories engaged in other areas besides cytology the 1624 rotor has the additional advantage that it can centrifuge tubes as well.

### THE NEW ACCESSORIES

Hettich also offers two 12-place cyto rotors for higher sample throughputs and alternative methods.

The two new rotors are easy to insert and remove from the centrifuge without the need for any tools.



#### **Rotor, 4-place**

$n = 4,000 \text{ min}^{-1}$   
max. RCF 1.646

illustrated with carriers 1660  
and lids 1661 for cyto chambers.

**Cat. No. 1624** (without carriers)



#### **Rotor, 6-place**

$n = 4,000 \text{ min}^{-1}$   
max. RCF 2,039

illustrated with suspensions 1660  
and lids 1661 for cyto chambers

**Cat. No. 1626** (without carriers)



#### **Rotor, 12-place with a leaktight lid**

$n = 2,000 \text{ min}^{-1}$   
max. RCF 438

illustrated with clip 1524  
for different cyto chambers

**Cat. No. 1515** (without clips)






#### **Disk rotor, 12-place**

$n = 2,000 \text{ min}^{-1}$   
max. RCF 438

illustrated with clip 1524  
for different cyto chambers

**Cat. No. 1520** (without clips)

# UNIVERSAL 320/320 R

TECHNOLOGY	UNIVERSAL 320		UNIVERSAL 320 R		
<b>Benchtop centrifuge, without rotor</b>	<b>classic</b>		<b>cooled</b>		
Power supply <sup>*)</sup>	200–240 V 1~	100–127 V 1~	200-240 V 1~	240 V 1~	115–127 V 1~
Frequency	50–60 Hz	50–60 Hz	50 Hz	60 Hz	60 Hz
Consumption	400 VA		800 VA	950 VA	
Emission, Immunity	EN/IEC 61326-1, class B	FCC class B	EN/IEC 61326-1, class B	FCC class B	
 /  Max. capacity	8 x 85 ml / 4 x 100 ml / 32 x 15 ml				
 Max. RPM (speed)	15,000 min <sup>-1</sup>				
Max. RCF	21,382				
Running time	1 sec – 99 min : 59 sec, ∞ continuous run, short cycle mode (impulse key)				
Dimensions (HxWxD)	346 x 395 x 520 mm		346 x 401 x 695 mm		
Weight	approx. 31 kg		approx. 53 kg		
<b>Refrigeration</b>					
Temperature control, infinitely variable	-		from –20 to +40 °C		
<b>Cat. No.</b>	<b>1401</b>	<b>1401-01</b>	<b>1406</b>	<b>1406-01</b>	

<sup>\*)</sup> Other voltages on request.



Hettich centrifuges comply with all relevant EU standards in effect and conform to the European level of quality and safety for medical devices. Evidence is provided by national and international test marks such as IEC 61010 or the CE conformity. The ISO 9001, ISO 13485 and ISO 14001 certificates accredited to the company bear witness to the extreme care and responsibility Hettich puts into the manufacturing of centrifuges and their accessories.



Our certification as an “Authorized Economic Operator” enables accelerated customs clearance.



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LAB TECHNOLOGY