

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 °C to + 40 °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 °C to 90 °C,
- with connection for flushing with nitrogen – **Cat. No. 1406-20** (without monitoring and controlling system).

## OPERATION AND CONTROL

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.



UNIVERSAL 320 R cooled  
Cat. No. 1406

## 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 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)

# 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

## Max. capacity

Tubes / plates	Max. capacity
standard tubes	32 x 15 ml or 4 x 100 ml
hematocrit capillaries	24
conical tubes with screw cap	32 x 15 ml or 8 x 50 ml
microtitre plates	10
filter plates	2
cyto suspensions	8
blood collection tubes	48
round-bottom tubes with screw cap	6 x 85 ml
microlitre tubes	30 x 1.5 / 2.0 ml

## Rotors

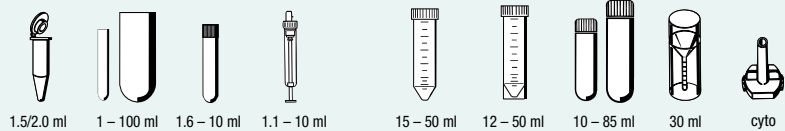
## Max. RCF

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 8 cyto suspensions	2,218
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

n = 5,000 min<sup>-1</sup>  
max. RCF 4,193  
**Cat. No. 1494**

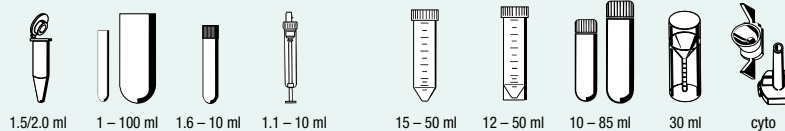


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### Swing-out rotor 4-place

n = 4,000 min<sup>-1</sup>  
max. RCF 2,665  
**Cat. No. 1624**

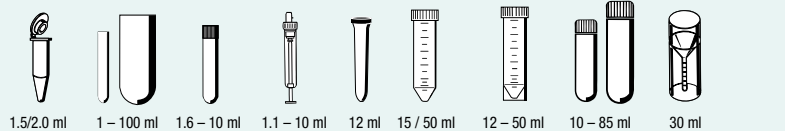


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### Swing-out rotor 4-place

n = 4,500 min<sup>-1</sup>  
max. RCF 3,328  
**Cat. No. 1324**

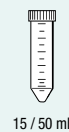


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### Swing-out rotor 6-place

n = 4,000 min<sup>-1</sup>  
max. RCF 2,701  
**Cat. No. 1619**

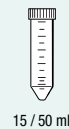


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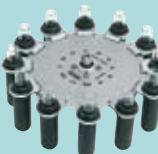


### Swing-out rotor 8-place

n = 5,000 min<sup>-1</sup>  
max. RCF 3,857  
**Cat. No. 1617**

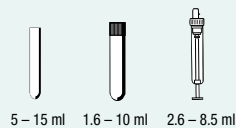


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### Swing-out rotor 12-place

n = 5,000 min<sup>-1</sup>  
max. RCF 4,193  
**Cat. No. 1628**

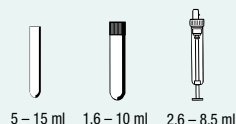


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### Swing-out rotor 8-place

n = 4,000 min<sup>-1</sup>  
max. RCF 2,415  
**Cat. No. 1611**

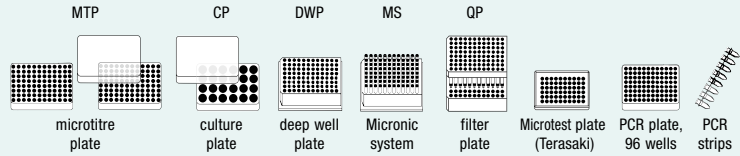


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# ROTORS AND ACCESSORIES



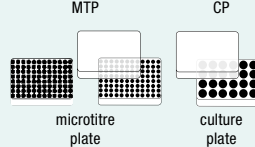
**Swing-out rotor  
2-place**  $\sphericalangle 90^\circ$   
n = 4,000 min<sup>-1</sup>  
max. RCF 2,218  
**Cat. No. 1460**



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**Swing-out rotor  
4-place**  $\sphericalangle 90^\circ$   
n = 4,000 min<sup>-1</sup>  
max. RCF 1,896  
**Cat. No. 1645**



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**Angle rotor  
12-place**  $\sphericalangle 45^\circ$   
n = 15,000 min<sup>-1</sup>  
max. RCF 16,602  
**Cat. No. 1612**



0.2 – 2.0 ml

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auto-  
clavable  
optional with  
biocontainment



**Angle rotor  
24-place**  $\sphericalangle 40^\circ$   
n = 15,000 min<sup>-1</sup>  
max. RCF 21,382  
**Cat. No. 1420-B**



0.2 – 2.0 ml

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auto-  
clavable  
with bio-  
containment



**Angle rotor  
30-place**  $\sphericalangle 45^\circ$   
n = 14,000 min<sup>-1</sup>  
RCF 21,255  
**Cat. No. 1689-A**

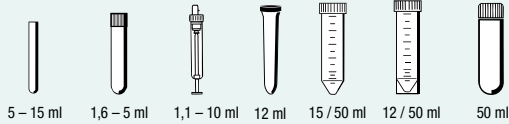


0.2 – 2.0 ml

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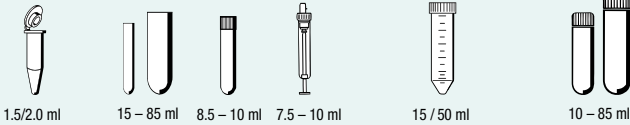
**Angle rotor  
8-place**  $\sphericalangle 45^\circ$   
n = 4,500 min<sup>-1</sup>  
max. RCF 3,283  
**Cat. No. 1418**



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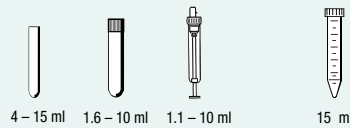
**Angle rotor  
6-place**  $\sphericalangle 35^\circ$   
n = 9,000 min<sup>-1</sup>  
max. RCF 9,509  
**Cat. No. 1620 A**



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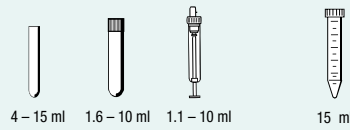
**Angle rotor  
12-place**  $\sphericalangle 35^\circ$   
n = 6,000 min<sup>-1</sup>  
max. RCF 4,146  
**Cat. No. 1613**



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**Angle rotor  
12-place**  $\sphericalangle 35^\circ$   
n = 12,000 min<sup>-1</sup>  
max. RCF 16,582  
**Cat. No. 1615**



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**Hematocrit rotor  
24-place**  
n = 15,000 min<sup>-1</sup>  
max. RCF 21,382  
**Cat. No. 1650**



capillary

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**Cyto rotor  
6-place**  
n = 4,000 min<sup>-1</sup>  
max. RCF 2,039  
**Cat. No. 1626**

Detailed information on our comprehensive range of cyto accessories is provided in a separate brochure. We will be pleased to send one to you on request.



cyto

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**Cyto rotor  
8-place**  
n = 4,000 min<sup>-1</sup>  
max. RCF 2,218  
**Cat. No. 1648**



cyto

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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>													
Cat. No.	<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>1437</b>	<b>1437</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	12.7 x 60	17.5 x 84	17.5 x 84	25.5 x 84	35.5 x 84	45.5 x 86	-
tubes per rotor	36		144	56	28	48	48	28	28	8	4	4	4
max. RCF <sup>2)</sup>	3,885		3,969	3,913				3,913				3,801	2,739
radius in mm	139		142	140				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>															
Cat. No.	<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>1442</b>	<b>1443</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	16.5 x 50	17 x 90	30 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	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	8 x 66	13 x 65	11 x 66	15 x 75	
<b>Cat. No.</b>	<b>2078/0536</b>	<b>-</b>	<b>Rhesus</b>	<b>-</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>5273</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	11.5 x 38	13.7 x 38	6.5 x 23	10.5 x 23	13.4 x 58	12.5 x 44	12.4 x 87	15 x 73	17.8 x 87	25.5 x 87	35.5 x 87	9 x 41	13.4 x 58	12.5 x 44	15.6 x 41	
tubes per rotor	36	48	120	48	32	48	48	24		8	4	48	32	48	20	
max. RCF <sup>2)</sup>	4,109	4,053	4,081	4,053	4,025	4,053	3,941				4,109	4,025	4,053	4,109		
radius in mm	147	145	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	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	25 x 90	25 x 110	29 x 115
<b>Cat. No.</b>	<b>blood collection/urine tubes</b>								<b>0509</b>	<b>0513</b>	<b>-</b>	<b>-</b>	<b>-</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>	<b>+ 6316</b>
boring Ø x L in mm	12.4 x 87	13.4 x 58	15.6 x 41	17 x 66	13.4 x 58	17 x 66	17.8 x 87	17 x 90	30 x 90	25.5 x 72	25.5 x 85	35.5 x 87	
tubes per rotor	48	32	20		32	20	24	4		8	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.

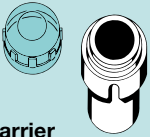































<sup>5)</sup> Please ask for our detailed cyto brochure.

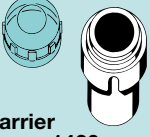
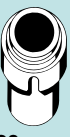
































# ROTORS AND ACCESSORIES



illustrated with carriers 1430 and lids 1382

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

capacity in ml	1.5	2.0	1	3	5/6/7	9	15	25	50	85	100	1.1-1.4	2.7-5	2.6-4.9	4-8.5	
Ø x L in mm	11x38		6x45	10x60	12x75/82/100		14x100	17x100	24x100	34x100	38x101	44x100	8x66	11x66/92	13x65/90	15x75/92
Cat. No.	2078	0536	Rhesus	-	0553 <sup>2)</sup> /0501 <sup>2)</sup> /0578 <sup>2)</sup>		0500 <sup>2)</sup>	0518 <sup>2)</sup>	0519 <sup>2)</sup>	0521 <sup>2)</sup>	0549	0526 <sup>2)</sup>	blood/urine tubes			
lid Cat. No. 1382  carrier Cat. No. 1430 																
																
Cat. No.	1351	1339	1343	1383	1329	1330	1331	1396	0761	1457	1383	1459				
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	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	16x92	15x102	13x75/100	16x75/100	17x120	25x110	29x115	17x100	25x90	25x110	29x115	16x80	26x95	29x107	38x106	44x105
Cat. No.	blood/urine tubes				0509	-	0513	-	-	-	-	-	0545	0546	0547	0534 <sup>6)</sup>
lid Cat. No. 1382  carrier Cat. No. 1430 																
																
Cat. No.	1329	1329 <sup>4)</sup>	1383	1348	1347	1365	1384	6311	1363	1365	6318	1348	4417	4416	1396	0765
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	45.6 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															

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

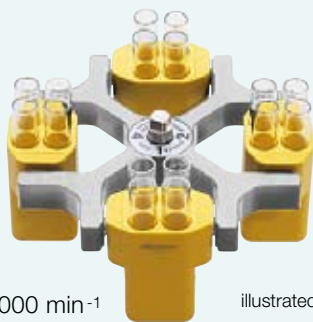
2) Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes annotated with footnote 2) is 4,000.

4) Please remove the inserts.



# ROTORS AND ACCESSORIES

## Swing-out rotor, 4-place

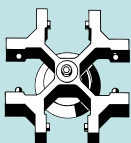













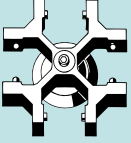






↻ 90°

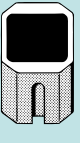





n = 4,000 min<sup>-1</sup>  
max. RCF 2,665

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	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	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>
boring Ø x L in mm	11.5 x 64.4	13.5 x 65	11.5 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
tubes per rotor	16	68	16	20	40	16	28	8	4	40	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	2,325
radius in mm	115	121	129	135	129	137	132	137	132	137	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	4–7	8.5–10	30	suspensions for cyto accessories
Ø x L in mm	13 x 90	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>1742</b>	<b>1369</b>	<b>1745</b>	<b>1660</b>	<b>1680</b>
boring Ø x L in mm	14.6 x 78	17.6 x 78	17.6 x 74	26 x 78	-	-
tubes per rotor	40	28	16	8	4	4
max. RCF <sup>2)</sup>	2,451	2,325	2,308	2,451	1,646	1,467
radius in mm	137	130	129	137	92	82
run-up in sec	20					
run-down in sec, braked	25					
temperature in °C <sup>1)</sup>	-15	-19	-17	-15	-16	-17

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>6)</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 1381 and lids 1382

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

capacity in ml	1.5	2.0	1	3	5/6/7	9	15	25	50	85	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 101	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 Cat. No. 1382																	
<b>carrier</b> Cat. No. 1381																	
<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>	<b>1459</b>	<b>1459</b>	<b>1459</b>	<b>1459</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	13.4 x 48	15.6 x 47	15.6 x 47	
tubes per rotor	20		108	36	20		16	4				28	20	16	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	2,558	2,576	2,576	
radius in mm	137	145	147	143	142		136	135	146	143	144	143	144	143	144	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>6)</sup></b>	
lid Cat. No. 1382																
<b>carrier</b> Cat. No. 1381																
<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		13.4 x 48	16.5 x 56	17 x 90	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	45.6 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	2,540	
radius in mm	142	149	143	141	149		131	149		141	137	147	146	142	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.

# ROTORS AND ACCESSORIES

## Swing-out rotor, 4-place



↻ 90°

n = 4,500 min<sup>-1</sup>  
max. RCF 3,328

illustrated with carriers 1398

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

capacity in ml	1.5	2.0	1	3	4	5	6	7	9	15	25	50	85	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 101	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 Cat. No. 1382															
carrier Cat. No. 1390															
<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	45.6 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 Cat. No. 1382													
carrier Cat. No. 1390													
<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		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>6)</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.












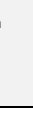
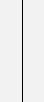




















# ROTORS AND ACCESSORIES



carrier 1398 with adapter 1483  
and conical 15 ml tubes with screw cap 0509

## 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>3)</sup></b>
 <b>carrier</b> Cat. No. <b>1390</b>		 <sup>3)</sup>											
													
<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	45.6 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. <b>1398</b>																
																
<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>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	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	20	16	20	16	12	
max. RCF <sup>2)</sup>	3,147		3,192		3,147	2,875	3,147	3,192	3,147	3,192	3,147	3,192	3,147	3,034	3,102	
radius in mm	139		141		139	127	139	141	139	141	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 <sup>2)</sup> is 4,000.  
 3) When using these tubes, carrier 1390 cannot be closed with lid 1382.

# 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**





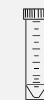
## Swing-out rotor, 12-place






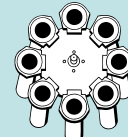


∅ 55°  
(with carriers 1127)  
∅ 60°  
(with carriers 1122)  
∅ 80°  
(with carriers 1621)












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	17 x 120	29 x 115	17 x 100	29 x 115
<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	17 x 100	30 x 98	17.5 x 81	30 x 98
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	17 x 120	29 x 115
<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	30 x 87.5
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	17 x 120	29 x 115
<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	30 x 94.5
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	17 x 70	17 x 100	13 x 65	11 x 66	15 x 75	15 x 92	13 x 75	16 x 75	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	-10	-15	-15	-10	-15	-15	-10	

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

<sup>6)</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

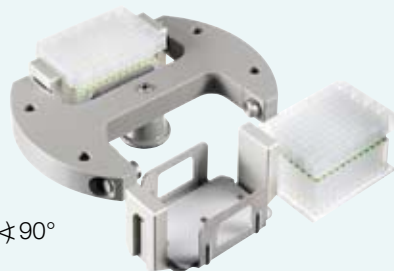
## Swing-out rotor, 2-place



↻ 90°

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


















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

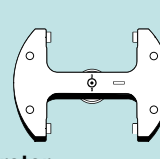

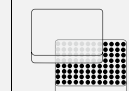
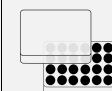


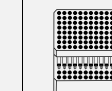

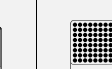
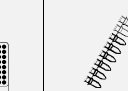


↻ 90°

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	
<b>Cat. No.</b>	<b>0553<sup>2)</sup></b>	<b>0501<sup>2)</sup></b>	<b>0578<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>1611</b>																
<b>Cat. No.</b>	<b>1131</b>	<b>1643</b>	<b>1132</b>	<b>1643</b>	<b>1644</b>	<b>1131</b>	<b>1132</b>	<b>1643</b>	<b>1644</b>	<b>1643</b>	<b>1644</b>	<b>1131</b>	<b>1643</b>	<b>1132</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			
tubes per rotor	8															
max. RCF <sup>2)</sup>	1,914	2,415	1,914	2,415	2,415	1,914	2,415	1,914	2,415	1,914	2,415	1,914	2,415	1,914	2,415	
radius in mm	107	135	107	135	135	107	135	107	135	107	135	107	135	107	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
<b>Cat. No.</b>	<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>									
<b>Cat. No.</b>	<b>1453-A</b>							<b>1453-A + 1485</b>	
boring Ø x L in mm	-								
plates/strips pro 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								

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.

7) For centrifugation at high speeds, we recommend to use form-fitting, phenol-resistant adapters 2031.

8) 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**

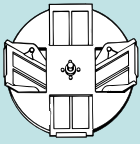



## Angle rotor, 24-place

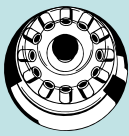










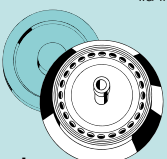








↻ 40°

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>7)</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
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>1420-B</b>						
<b>Cat. No.</b>	<b>2024</b>		<b>2023</b>		<b>2031<sup>7)</sup></b>	-
boring Ø x L in mm	6 x 40		8 x 40		10.2x19	11.2x42.6
tubes per rotor	24					
max. RCF <sup>2)</sup>	21,382					
radius in mm	85					
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>®)</sup>,  
autoclavable



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

# ROTORS AND ACCESSORIES

## Angle rotor, 30-place



∠ 45°

n = 14,000 min<sup>-1</sup> with bio-containment<sup>8)</sup>  
max. RCF 21,255

**Cat. No. 1689-A**

## Angle rotor, 8-place



∠ 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
∅ x L in mm	6 x 18	6 x 45	8 x 30	8 x 45	11 x 38	
<b>Cat. No.</b>	-	-	-	-	<b>2078</b>	<b>0536</b>
lid with bio-containment <sup>8)</sup> incl.						
<b>rotor</b> Cat. No. <b>1689-A</b>						
<b>Cat. No.</b>	<b>2024</b>	<b>2023</b>	<b>2031</b> <sup>7)</sup>	-		
boring ∅ x L in mm	6 x 40	8 x 40	10.2x19	11.2x40.9		
tubes per rotor	30					
max. RCF <sup>2)</sup>	21,255					
radius in mm	97					
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		
∅ 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</b> <sup>2)</sup>	<b>0518</b> <sup>2)</sup>	<b>blood collection/urine tubes</b>								<b>0509</b>	<b>0513</b>	-	-	<b>0546</b>
<b>rotor</b> Cat. No. <b>1418</b>															
	+ 1054-A	+ 0716	+ 1054-A			+ 0716	+ 1054-A	+ 0716	+ E 2109	+ E 2110-A	+ 0716				
<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>1468</b>	<b>1467</b>	<b>1468</b>			
boring ∅ 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	30.2 x 92	17.4 x 91	30.2 x 92			
tubes per rotor	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	3,283	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														

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.

8) Tested by the TÜV in conformity with DIN EN 61010, section 2-020.

9) 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. 1620 A**




























## Angle rotor, 12-place
























↗ 35°



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






















**Cat. No. 1613**

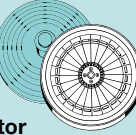

capacity in ml	1.5	2.0	15	50	75	85	7.5-8.5	9-10	10	8.5-10	15	50	10	30	50	85	
Ø x L in mm	11 x 38		17 x 100	34 x 100	35 x 105	38 x 101	15 x 92	16 x 92	15 x 102	16 x 100	17 x 120	29 x 115	16 x 80	26 x 95	29 x 107	38 x 106	
Cat. No.	<b>2078</b>	<b>0536</b>	<b>0518<sup>2)</sup></b>	<b>0521<sup>2)</sup></b>	<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>1620 A</b>																	
																	
Cat. No.	<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>																
																
Cat. No.	<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															
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	Hematocrit rotor, 24-place
	
$\nabla 35^\circ$ n = 12,000 min <sup>-1</sup> max. RCF 16,582	n = 15,000 min <sup>-1</sup> max. RCF 21,382
<b>Cat. No. 1615</b>	<b>Cat. No. 1650</b>

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. <b>1615</b>															
															
<b>Cat. No.</b>	<b>6305</b>	<b>1054-A</b>	-		<b>1054-A</b>			<b>-</b>				<b>1054-A</b>	<b>1058</b>	<b>-</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	mylar-coated	self-sealing and mylar-coated
<b>Cat. No.</b>	<b>2074</b>	<b>1072</b>	<b>1071</b>
lid as evaluation disk incl.  <b>rotor</b> Cat. No. <b>1650</b>			
<b>Cat. No.</b>	<b>2077</b>		<b>-</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		

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

10) 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 FOR CYTOLOGY

Rotors **No. 1626** and **No. 1648** were especially designed for use in cytology. They are recommended for laboratories working exclusively in this area.



#### **Cyto 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 suspensions)



#### **Cyto rotor, 8-place**

$n = 4,000 \text{ min}^{-1}$   
max. RCF 2,218

illustrated with suspensions 1680  
for angle chambers

**Cat. No. 1648** (with suspensions)

### 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

Detailed information on our comprehensive range of cyto accessories is provided in a separate brochure. We will be pleased to send one to you on request.

Application notes from our R&D department on the preparation of slides for the cytological examination of various body fluids can be obtained free of charge or downloaded from our homepage [www.hettichlab.com](http://www.hettichlab.com)

### The assembly of a complete cyto insert is really easy





suspension 1660  
for cyto chambers



suspension 1680  
for angle chambers

# 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	EN / IEC 61326-1, class B	FCC class B	EN / IEC 61326-1, class B		FCC class B
Immunity	EN 61000-6-2	-	EN 61000-6-2		-
 Max. capacity	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 9001:2008, ISO 13485:2003 and 14001:2004 certificates accredited to the company bear witness to the extreme care and responsibility Hettich puts into the manufacturing of centrifuges and their accessories.

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**National Service: -202**  
**International Service: -203**



LAB TECHNOLOGY