

ALL AROUND  
TALENT



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

**Hettich**  
ZENTRIFUGEN

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 9,418, bacteria and yeast sediment quickly and easily.



UNIVERSAL 320 classic

**Cat. No. 1401**

## PERFORMANCE

- High RCF
  - 85 ml tubes up to 9,418
  - 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

- Automatic 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 an option, 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.

## 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 °C 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



UNIVERSAL 320 R cooled

**Cat No. 1406**


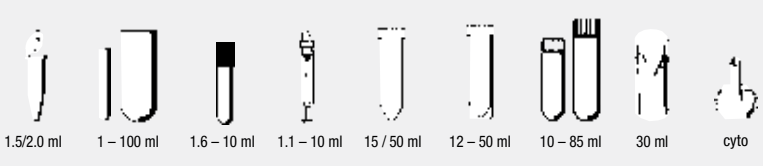

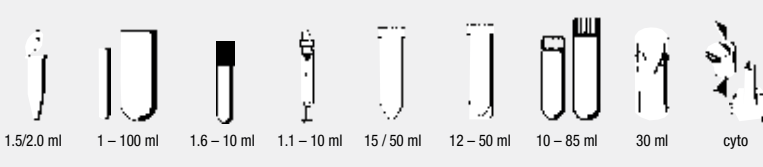





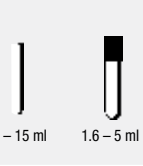

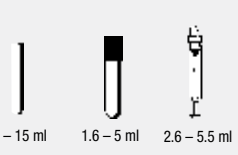
# ROTORS AND ACCESSORIES

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

Tubes / plates	Max. capacity
standard tubes	28 x 15 ml or 4 x 100 ml
hematocrit capillaries	24
conical tubes with screw cap	8 x 15 ml or 8 x 50 ml
microtitre plates	4
culture 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 with bio-containment buckets	2,655
rotor for conical tubes with screw cap	3,857
rotor for microtitre and culture plates	2,093
rotor for 8 cyto suspensions	2,218
angle rotor for round-bottom tubes with screw cap (6 x 85 ml)	9,418
angle rotors (12-, 24- or 30-place) for microlitre tubes (0.2 – 2.0 ml)	21,382

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

 <p>some accessories with bio-containment</p>	<p><b>Swing-out rotor 4-place</b>            n = 5,000 min<sup>-1</sup>            max. RCF 4,193  <b>Cat. No. 1494</b></p>		<p>→ <b>Page 6-8</b></p>
 <p>some accessories with bio-containment</p>	<p><b>Swing-out rotor 4-place</b>            n = 4,000 min<sup>-1</sup>            max. RCF 2,665  <b>Cat. No. 1624</b></p>		<p>→ <b>Page 9-10</b></p>
	<p><b>Swing-out rotor 8-place</b>            n = 5,000 min<sup>-1</sup>            max. RCF 3,875  <b>Cat. No. 1617</b></p>		<p>→ <b>Page 11</b></p>
	<p><b>Swing-out rotor 6-place</b>            n = 4,000 min<sup>-1</sup>            max. RCF 2,701  <b>Cat. No. 1619</b></p>		<p>→ <b>Page 11</b></p>
	<p><b>Swing-out rotor 12-place</b>            n = 5,000 min<sup>-1</sup>            max. RCF 4,187  <b>Cat. No. 1628</b></p>		<p>→ <b>Page 11</b></p>
	<p><b>Swing-out rotor 8-place</b>            n = 4,000 min<sup>-1</sup>            max. RCF 2,415  <b>Cat. No. 1611</b></p>		<p>→ <b>Page 12</b></p>

# ROTORS AND ACCESSORIES

	<p><b>Swing-out rotor 2-place</b>  <math>n = 4,000 \text{ min}^{-1}</math>            max. RCF 2,093  <b>Cat. No. 1622</b></p>	 microtitre plate	 culture plate	→ <b>Page 12</b>				
	<p><b>Swing-out rotor 4-place</b>  <math>n = 4,000 \text{ min}^{-1}</math>            max. RCF 1,896  <b>Cat. No. 1645</b></p>	 microtitre plate	 culture plate	→ <b>Page 12</b>				
auto-clavable with bio-containment		<p><b>Angle rotor 30-place</b>  <math>n = 14,000 \text{ min}^{-1}</math>            RCF 21,255  <b>Cat. No. 1689</b></p>	 0.2 – 2.0 ml	→ <b>Page 13</b>				
		<p><b>Angle rotor 12-place</b>  <math>n = 15,000 \text{ min}^{-1}</math>            max. RCF 16,602  <b>Cat. No. 1612</b></p>	 0.2 – 2.0 ml	→ <b>Page 13</b>				
auto-clavable with bio-containment		<p><b>Angle rotor 24-place</b>  <math>n = 15,000 \text{ min}^{-1}</math>            max. RCF 21,382  <b>Cat. No. 1420</b></p>	 0.2 – 2.0 ml	→ <b>Page 13</b>				
		<p><b>Angle rotor 12-place</b>  <math>n = 6,000 \text{ min}^{-1}</math>            max. RCF 4,146  <b>Cat. No. 1613</b></p>	 5 – 15 ml	 15 ml	→ <b>Page 14</b>			
		<p><b>Angle rotor 12-place</b>  <math>n = 12,000 \text{ min}^{-1}</math>            max. RCF 16,582  <b>Cat. No. 1615</b></p>	 5 – 15 ml	 15 ml	→ <b>Page 14</b>			
		<p><b>Angle rotor 6-place</b>  <math>n = 9,000 \text{ min}^{-1}</math>            max. RCF 9,418  <b>Cat. No. 1620 A</b></p>	 1.5/2.0 ml	 5 – 15 ml	 9 – 10 ml	 15 / 50 ml	 10 – 85 ml	→ <b>Page 14</b>
		<p><b>Hematocrit rotor 24-place</b>  <math>n = 15,000 \text{ min}^{-1}</math>            max. RCF 21,382  <b>Cat. No. 1650</b></p>			 capillary	→ <b>Page 15</b>		
		<p><b>Cyto rotor 6-place</b>  <math>n = 4,000 \text{ min}^{-1}</math>            max. RCF 2,039  <b>Cat. No. 1626</b></p>			 cyto	→ <b>Page 16</b>		
		<p><b>Cyto rotor 8-place</b>  <math>n = 4,000 \text{ min}^{-1}</math>            max. RCF 2,218  <b>Cat. No. 1648</b></p>			 cyto	→ <b>Page 16</b>		

# ROTORS AND ACCESSORIES

## Swing-out rotor, 4-place




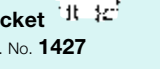






























illustrated with buckets No. 1427

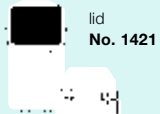
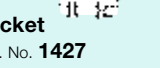




























$n = 5,000 \text{ min}^{-1}$

max. RCF 4,193

$\pm 90^\circ$

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

capacity ml	1.5 - 2.0	1	3	5	6	7	9	15	25	50	15	50	25	30
dimensions Ø x L mm	11 x 38	6 x 45	10 x 60	13 x 75	12 x 82	12 x 100	14 x 100	17 x 100	24 x 100	34 x 100	17 x 120	29 x 115	25 x 90	25 x 110
<b>Cat. No.</b>	<b>2078/0536</b>	<b>Rhesus</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>0509</b>	<b>0513</b>	-	-
 <b>lid No. 1421</b>   <b>bucket Cat. No. 1427</b>														
														
<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>5275</b>	<b>5276</b>	<b>1731</b>	<b>5272</b>
boring Ø x L mm	11.5 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	17 x 90	30 x 90	25.5 x 72	25.5 x 85
tubes per rotor	36	120	48	32	48	48	24	8	4	4	4	4	8	4
max. RCF	4,109	4,081	4,053	4,025	4,053	3,941					4,165	4,053	3,969	4,025
radius in mm	147	146	145	144	145	141					149	145	142	144
run-up in sec	30													
run-down in sec	 32  600													
temperature °C <sup>1)</sup>	-7													

capacity ml	1.1-1.4	2.6-2.9	2.7-3	4-5.5	4.5-5	4.9	7.5-8.2	9-10	1.6-5	4-7	8.5-10		
dimensions Ø x L mm	8 x 66	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	
<b>Cat. No.</b>	<b>blood collection/urine tubes</b>												
 <b>lid No. 1421</b>   <b>bucket Cat. No. 1427</b>													
													
<b>Cat. No.</b>	<b>5278</b>	<b>5229</b>	<b>5229</b>	<b>5279</b>	<b>5230</b>	<b>1732</b>	<b>5279</b>	<b>5271</b>	<b>1732</b>	<b>5271</b>	<b>5231</b>		
boring Ø x L mm	9 x 41	12.5 x 44	12.5 x 44	15.6 x 41	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		
tubes per rotor	48		48	20	48	32	20		32	20	24		
max. RCF	4,109	4,053	4,053	4,109	3,941	4,025	4,109	3,969	4,025	3,969	3,941		
radius in mm	147	145	145	147	141	144	147	142	144	142	141		
run-up in sec	30												
run-down in sec	 32  600												
temperature °C <sup>1)</sup>	-7												

1) Lowest attainable temperature in precooled refrigerated centrifuges at max. speed

2) Please make sure not to exceed the tubes' max. permissible RCF. For glass tubes the max. RCF is 4,000.

3) When using these tubes, bucket No. 1427 cannot be closed with lid No. 1421.



























4) Please remove the rubber insert.




























# ROTORS AND ACCESSORIES



adapter No. 1441  
for blood collection  
tubes



bucket No. 1425

capacity ml	1.5	2.0	1	3	5	6	7	9	15	25	50	100	50	50
dimensions Ø x L mm	11 x 38		6 x 45	10 x 60	13 x 75	12 x 82	12 x 100	14 x 100	17 x 100	24 x 100	34 x 100	44 x 100	29 x 115	29 x 115
<b>Cat. No.</b>	<b>2078</b>	<b>0536</b>	<b>Rhesus</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>0513</b>	-
 <b>bucket</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>1443</b>	<b>1443</b>	<b>1737</b>		
boring Ø x L 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	30 x 90	30 x 90
tubes per rotor	36		144	56	28	48		28		8	4	4	4	4
max. RCF	3,885		3,969	3,913								3,801	4,081	4,081
radius in mm	139		142	140								136	146	146
run-up in sec	30													
run-down in sec	 32  600													
temperature °C <sup>1)</sup>	-10													

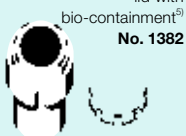
















capacity ml	1.1-1.4	2.6 - 2.9	2.7 - 3	4 - 5.5	4.5 - 5	4.9	7.5 - 8.2	9 - 10	1.6 - 7		4 - 10	
dimensions Ø x L mm	8 x 66	13 x 65	11 x 66	15 x 75	11 x 92	13 x 90	15 x 92	16 x 92	13 x 75	13 x 100	16 x 75	16 x 100
<b>Cat. No.</b>	<b>blood collection/urine tubes</b>											
 <b>bucket</b> Cat. No. <b>1425</b>												
												
<b>Cat. No.</b>	<b>1458</b>	<b>1438</b>	<b>1441</b>	<b>1438</b>	<b>1441</b>	<b>1439</b>	<b>1438</b>	<b>1438</b>	<b>1438</b>	<b>1441</b>	<b>1441</b>	<b>1441</b>
boring Ø x L mm	9 x 50	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	
tubes per rotor	36	28					16	28				
max. RCF	4,025	3,913										
radius in mm	144	140										
run-up in sec	30											
run-down in sec	 32  600											
temperature °C <sup>1)</sup>	-10											

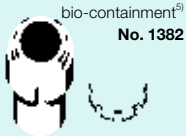
















 braked run-down at level 9  
 unbraked run-down

# ROTORS AND ACCESSORIES

rotor No. 1494  
with buckets  
No. 1425



capacity ml	1.5	2.0	1	3	5/6/7	9	15	25	50	100	10	30	50	85
dimensions Ø x L mm	11 x 38		6 x 45	10 x 60	13 x 75/82/100	14 x 100	17 x 100	24 x 100	34 x 100	44 x 100	16 x 80	26 x 95	29 x 107	38 x 106
<b>Cat. No.</b>	<b>2078</b>	<b>0536</b>	<b>Rhesus</b>	-	<b>-/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>0526<sup>2)</sup></b>	-	<b>0545</b>	<b>0546</b>	<b>0547</b>
 <b>bucket</b> Cat. No. 1430														
	<b>Cat. No.</b>	<b>1351</b>	<b>1336</b>	<b>1339</b>	<b>1343</b>	<b>1383</b>	<b>1329</b>	<b>1330</b>	<b>1331</b>	<b>0761<sup>6)</sup></b>	<b>1348</b>	<b>4417</b>	<b>4416</b>	<b>4416</b>
boring Ø x L 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	45.6 x 98	16.5 x 56	26 x 83	29 x 93	38.5 x 92	
tubes per rotor	20		108	36	20	16	4			16	4			
max. RCF	3,857		4,081	4,137	4,025	3,997	3,829	3,801	4,025	4,025	3,857	4,137	4,109	
radius in mm	138		146	148	144	143	137	136	144	144	138	148	147	
run-up in sec	30													
run-down in sec	 32  600													
temperature °C <sup>1)</sup>	-10													

capacity ml	15	50	12	25	30	50	1.6-7	4-10	1.1-1,4	2.7-5	2.6-4,9	4-8.2	9-10	10	30
dimensions Ø x L mm	17 x 120	29 x 115	17 x 100	25 x 90	25 x 110	29 x 115	13x75/100	16x75/100	8 x 66	11x66/92	13 x 65/90	15 x 75/92	16 x 92	15 x 102	44 x 105
<b>Cat. No.</b>	<b>0509</b>	<b>0513</b>	-	-	-	-	<b>blood collection/urine tubes</b>								<b>0534<sup>5)</sup></b>
 <b>bucket</b> Cat. No. 1430															
	<b>Cat. No.</b>	<b>1347</b>	<b>1384</b>	<b>6311</b>	<b>1363</b>	<b>1365</b>	<b>6318</b>	<b>1383</b>	<b>1348</b>	<b>1457</b>	<b>1383</b>	<b>1459</b>	<b>1329</b>	<b>1329</b>	<b>0765</b>
boring Ø x L mm	17 x 90	30 x 90	17 x 80	26 x 72	26 x 80	29.5 x 80	13.4 x 48	16.5 x 56	9 x 47	13.4 x 48	15.6 x 47	17.6 x 91		45.6 x 98	
tubes per rotor	4						20	16	28	20		16			4
max. RCF	4,193			3,689	4,193		4,025		4,053	4,025	4,053	3,997	4,193	3,997	
radius in mm	150		132	150		144		145	144	145	143	150	143		
run-up in sec	30														
run-down in sec	 32  600														
temperature °C <sup>1)</sup>	-10														

- 1) Lowest attainable temperature in precooled refrigerated centrifuges at max. speed
- 2) Please make sure not to exceed the tubes' max. permissible RCF. For glass tubes the max. RCF is 4,000.
- 4) Please remove the rubber insert.
- 5) Tested by the TÜV in conformity with DIN EN 61010, part 2-020.
- 6) A rubber stopper for closing the tube is available with Cat. No. 0535.



# ROTORS AND ACCESSORIES

## Swing-out rotor, 4-place




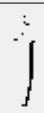
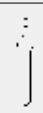










illustrated with suspensions No. 1369


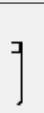



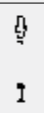







$n = 4.000 \text{ min}^{-1}$











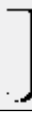
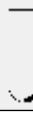
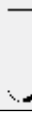
















max. RCF 2.665


$\pm 90^\circ$


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

capacity ml	1.5	2.0	1	3	4
dimensions $\varnothing \times L$ 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>bucket</b> Cat. No. <b>1366</b>					
					
<b>Cat. No.</b>	<b>5277</b>	<b>1357</b>	<b>1327</b>	<b>1326</b>	
boring $\varnothing \times L$ 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	1,968	1,950	1,932		
radius in mm	110	109	108		
run-up in sec	20				
run-down in sec	 25  390				
temperature $^\circ\text{C}^{(1)}$	-17				

capacity ml	1.6 - 5	4 - 7	1.1 - 1.4	4-5.5	4.9
dimensions $\varnothing \times L$ mm	13 x 75	16 x 75	8 x 66	15 x 75	13 x 90
<b>Cat. No.</b>	<b>blood collection tubes</b>				
 <b>rotor</b> Cat. No. <b>1624</b>					
					
<b>Cat. No.</b>	<b>1742</b>	<b>1741</b>	<b>1742</b>	<b>1741</b>	
boring $\varnothing \times L$ mm	17.6 x 78	14.6 x 78	17.6 x 78	14.6 x 78	
tubes per rotor	28	40	28	40	
max. RCF	2,451	2,415	2,451	2,451	
radius in mm	137	135	137	137	
run-up in sec	20				
run-down in sec	 25  390				
temperature $^\circ\text{C}^{(1)}$	-15				

capacity ml	5	5	7	9	9	15	15	20	25	45	50	50	8.5-10
dimensions $\varnothing \times L$ mm	13 x 75	13 x 75	12 x 100	14 x 100	14 x 100	17 x 100	17 x 100	21 x 100	24 x 100	31 x 100	34 x 100	34 x 100	16 x 100
<b>Cat. No.</b>	-	-	<b>0578<sup>2)</sup></b>	<b>0500<sup>2)</sup></b>	<b>0500<sup>2)</sup></b>	<b>0518</b>	<b>0518</b>	-	<b>0519<sup>2)</sup></b>	-	<b>0521<sup>2)</sup></b>	<b>0521<sup>2)</sup></b>	<b>blood coll. tube</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>1308</b>	<b>1746</b>	<b>1369</b>
boring $\varnothing \times L$ 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	35.7 x 88.2	35 x 78	17.6 x 74
tubes per rotor	16	68	16	20	40	16	28	8	8	4	4	4	16
max. RCF	2,057	2,164	2,308	2,415	2,308	2,451	2,361	2,451	2,361	2,290	2,451	2,308	2,308
radius in mm	115	121	129	135	129	137	132	137	137	132	128	137	129
run-up in sec	20												
run-down in sec	 25  390												
temperature $^\circ\text{C}^{(1)}$	-17	-17	-17	-15	-17	-15	-17	-15	-17	-15	-17	-15	-17

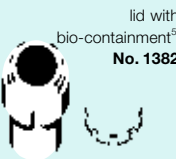
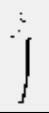





























 braked run-down at level 9

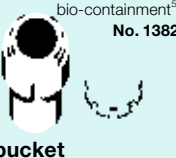
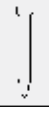
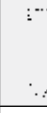





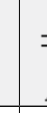
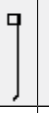

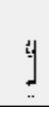
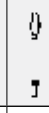
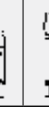
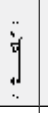
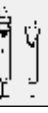















 unbraked run-down

# ROTORS AND ACCESSORIES



rotor No. 1624  
with buckets No. 1381  
and lid No. 1382

capacity ml	1.5	2.0	1	3	5/6/7	9	15	25	50	100	10	30	50	85	
dimensions Ø x L mm	11 x 38		6 x 45	10 x 60	13 x 75/82/100		14 x 100	17 x 100	24 x 100	34 x 100	44 x 100	16 x 80	26 x 95	29 x 107	38 x 106
<b>Cat. No.</b>	<b>2078</b>	<b>0536</b>	<b>Rhesus</b>	-	-/0501 <sup>2)</sup> /0578 <sup>2)</sup>		<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>0545</b>	<b>0546</b>	<b>0547</b>
 <b>bucket</b> Cat. No. <b>1381</b>															
															
<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>0761</b>	<b>1348</b>	<b>4417</b>	<b>4416</b>	<b>1396</b>			
boring Ø x L 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	45.6 x 98	16.5 x 56	26 x 83	29 x 93	38.5 x 92	
tubes per rotor	20		108	36	20		16	4	4	4	16	4	4	4	
max. RCF	2,451		2,594	2,630	2,558		2,540	2,433	2,415	2,558	2,522	2,451	2,630	2,612	
radius in mm	137		145	147	143		142	136	135	143	141	137	147	146	
run-up in sec	20														
run-down in sec	25 390														
temperature °C <sup>1)</sup>	-15														

capacity ml	15	50	12	25	30	50	1.6 - 7	4 - 10	1.1 - 1.4	2.7 - 5	2.6 - 4.9	4 - 8.2	9 - 10	10	30
dimensions Ø x L mm	17 x 120	29 x 115	17 x 100	25 x 90	25 x 110	29 x 115	13 x 75/100	16 x 75/100	8 x 66	11 x 66/92	13 x 65/100	15 x 75/92	16 x 92	15 x 102	44 x 105
<b>Cat. No.</b>	<b>0509</b>	<b>0513</b>	-	-	-	-	<b>blood collection/urine tubes</b>								<b>0534<sup>6)</sup></b>
 <b>bucket</b> Cat. No. <b>1381</b>															
															
<b>Cat. No.</b>	<b>1347</b>	<b>1384</b>	<b>6311</b>	<b>1363</b>	<b>1365</b>	<b>6318</b>	<b>1383</b>	<b>1348</b>	<b>1457</b>	<b>1383</b>	<b>1459</b>	<b>1329</b>	<b>1329</b>	<b>1329</b>	<b>0765</b>
boring Ø x L mm	17 x 90	30 x 90	17 x 80	26 x 72	26 x 80	29.5 x 80	13.4 x 48	16.5 x 56	9 x 47	13.4 x 48	15.6 x 47	17.6 x 91	17.6 x 91	17.6 x 91	45.6 x 98
tubes per rotor	4						20	16	28	20		16			4
max. RCF	2,665			2,343	2,655		2,558	2,522	2,576	2,558		2,576	2,540	2,665	2,540
radius in mm	149			131	149		143	141	144	143		144	142	149	142
run-up in sec	20														
run-down in sec	25 390														
temperature °C <sup>1)</sup>	-15														

- 1) Lowest attainable temperature in precooled refrigerated centrifuges at max. speed
- 2) Please make sure not to exceed the tubes' max. permissible RCF. For glass tubes the max. RCF is 4,000.
- 4) Please remove the rubber insert.
- 5) Tested by the TÜV in conformity with DIN EN 61010, part 2-020.
- 6) A rubber stopper for closing the tube is available with Cat. No. 0535.

# ROTORS AND ACCESSORIES

Swing-out rotor, 8-place



±45°

n = 5,000 min<sup>-1</sup>  
max. RCF 3,875

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

Swing-out rotor, 6-place



±90°

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

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



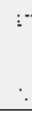



Swing-out rotor, 12-place



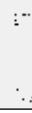









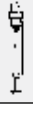










±75°



n = 5,000 min<sup>-1</sup>  
max. RCF 4,187

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

capacity ml	15	50
dimensions Ø x L 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 Ø x L mm	17 x 84	30 x 94.5
tubes per rotor	8	
max. RCF	3,875	
radius in mm	138	
run-up in sec	20	
run-down in sec	 19	 380
temperature °C <sup>1)</sup>	-10	

capacity ml	15	50
dimensions Ø x L 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 Ø x L mm	17 x 84	30 x 87.5
tubes per rotor	6	
max. RCF	2,701	
radius in mm	151	
run-up in sec	20	
run-down in sec	 22	 265
temperature °C <sup>1)</sup>	-15	

capacity ml	5	10	15	7.5 - 8.2	1.6 - 5	8.5 - 10
dimensions Ø x L mm	13 x 75	17 x 70	17 x 100	15 x 92	13 x 75	16 x 100
<b>Cat. No.</b>	-	<b>2079</b>	<b>0518</b>	<b>blood collection 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>1621</b>	
boring Ø x L mm	13.2 x 53	17.5 x 53	17.5 x 79	13.2 x 53	17.5 x 79	
tubes per rotor	12					
max. RCF	3,488	3,530	4,187	3,488	4,187	
radius in mm	125	126	150	125	150	
run-up in sec	16					
run-down in sec	 16  360					
temperature °C <sup>1)</sup>	-15		-10	-15	-10	

 braked run-down at level 9  
 unbraked run-down

# ROTORS AND ACCESSORIES

Swing-out rotor, 8-place



±90°

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

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

Swing-out rotor, 2-place



±90°

n = 4,000 min<sup>-1</sup>  
max. RCF 2,093

**Cat. No.** (with carriers) **1622**













Swing-out rotor, 4-place













±90°

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

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

capacity ml	5	10	15	2.6 - 2.9	4 - 5.5	1.6 - 5	4 - 7	8.5 - 10	
dimensions Ø x L mm	13 x 75	17 x 70	13 x 100	17 x 100	13 x 65	15 x 75	13 x 75	13 x 100	16 x 100
<b>Cat. No.</b>	-	<b>2079</b>	-	<b>0518<sup>2)</sup></b>	<b>blood collection tubes</b>				
 <b>rotor</b> Cat. No. <b>1611</b>									
<b>Cat. No.</b>	<b>1131</b>	<b>1132</b>	<b>1643</b>	<b>1644</b>	<b>1131</b>	<b>1132</b>	<b>1131</b>	<b>1643</b>	<b>1644</b>
boring Ø x L mm	13 x 53	17.5 x 53	13.2 x 81	17.5 x 81	13 x 53	17.5 x 53	13 x 53	13.2 x 81	17.5 x 81
tubes per rotor	8								
max. RCF	1,914		2,415		1,914		2,415		
radius in mm	107		135		107		135		
run-up in sec	20								
run-down in sec	 20  155								
temperature °C <sup>1)</sup>	-16								

D x W x H in mm	86 x 128 x 15	86 x 128 x 22
<b>plates</b>	<b>MTP</b>	<b>CP</b>
<b>Cat. No.</b>	-	-
 <b>rotor</b> Cat. No. <b>1622</b>		
<b>Cat. No.</b>	-	
boring Ø x L mm	-	
plates per rotor	4	2
max. RCF	2,093	
radius in mm	117	
run-up in sec	20	
run-down in sec	 26  470	
temperature °C <sup>1)</sup>	-15	

D x W x H in mm	86 x 128 x 15	86 x 128 x 22
<b>plates</b>	<b>MTP</b>	<b>CP</b>
<b>Cat. No.</b>	-	-
 <b>rotor</b> Cat. No. <b>1645</b>		
<b>Cat. No.</b>	<b>4345</b>	
boring Ø x L mm	-	
plates per rotor	4	
max. RCF	1,896	
radius in mm	106	
run-up in sec	20	
run-down in sec	 19  800	
temperature °C <sup>1)</sup>	-16	

Abbreviation	Description
<b>MTP</b>	Microtitre plate
<b>CP</b>	Culture plate

- 1) Lowest attainable temperature in precooled refrigerated centrifuges at max. speed
- 2) Please make sure not to exceed the tubes' max. permissible RCF. For glass tubes the max. RCF is 4,000.
- 5) Tested by the TÜV in conformity with DIN EN 61010, part 2-020.
- 7) For centrifugation at high speeds we recommend the use of form-fitting adapter No. 2031.

# ROTORS AND ACCESSORIES

Angle rotor, 30-place

Angle rotor, 12-place

Angle rotor, 24-place



with bio-containment<sup>5)</sup>

45°

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

Cat. No. 1689



45°

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

Cat. No. 1612



40°

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

Cat. No. 1420

capacity ml	0.2	0.4	0.5	0.8	1.5	2.0
dimensions Ø x L mm	6 x 18	6 x 45	8 x 30	8 x 45	11 x 38	
Cat. No.	-	-	-	-	2078	0536
rotor with bio-containment <sup>5)</sup> Cat. No. 1689						
Cat. No.	2024	2023	2031 <sup>7)</sup>	-		
boring Ø x L mm	6 x 40		8 x 40		11.2 x 40.9	
tubes per rotor	30					
max. RCF	21,255					
radius in mm	97					
run-up in sec	35					
run-down in sec	31  1770					
temperature °C <sup>1)</sup>	0					

capacity ml	0.2	0.4	0.5	0.8	1.5	2.0
dimensions Ø x L mm	6 x 18	6 x 45	8 x 30	8 x 45	11 x 38	
Cat. No.	-	-	-	-	2078	0536
rotor Cat. No. 1612						
Cat. No.	2024	2023	2031 <sup>7)</sup>	-		
boring Ø x L mm	6 x 40		8 x 40		11.4 x 39	
tubes per rotor	12					
max. RCF	16,602					
radius in mm	66					
run-up in sec	25					
run-down in sec	23  240					
temperature °C <sup>1)</sup>	-10					

capacity ml	0.2	0.4	0.5	0.8	1.5	2.0
dimensions Ø x L mm	6 x 18	6 x 45	8 x 30	8 x 45	11 x 38	
Cat. No.	-	-	-	-	2078	0536
rotor Cat. No. 1420						
Cat. No.	2024	2023	2031 <sup>7)</sup>	-		
boring Ø x L mm	6 x 40		8 x 40		5.6 x 21.3	
tubes per rotor	24					
max. RCF	21,382					
radius in mm	85					
run-up in sec	25					
run-down in sec	24  550					
temperature °C <sup>1)</sup>	-4					

## Optional lids for rotor Nr. 1420

Cat. No. 2423

Cat. No. 2425

- phenol-resistant
- with bio-containment<sup>5)</sup>
- autoclavable

- with bio-containment<sup>5)</sup>
- autoclavable



braked run-down at level 9  
 unbraked run-down

# ROTORS AND ACCESSORIES

Angle rotor, 6-place



↯35°

n = 9,000 min<sup>-1</sup>  
max. RCF 9,418

**Cat. No. 1620 A**

Angle rotor, 12-place



↯35°

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

**Cat. No. 1613**



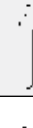




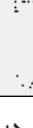



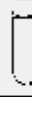
Angle rotor, 12-place








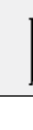
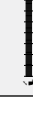
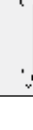
↯35°

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

**Cat. No. 1615**

capacity ml	1.5	2.0	15	75	15	50	10	30	50	85	9-10	
dimensions Ø x L mm	11 x 38		17 x 100	35 x 105	17 x 120	29 x 115	16 x 80	26 x 95	29 x 107	38 x 106	16 x 92	
<b>Cat. No.</b>	<b>2078</b>	<b>0536</b>	<b>0518<sup>2)</sup></b>	<b>0548</b>	<b>0509</b>	<b>0513</b>	-	<b>0545</b>	<b>0546</b>	<b>0547</b>	<b>blood coll. tube</b>	
 <b>rotor</b> Cat. No. <b>1620A</b>												
<b>Cat. No.</b>	<b>1449</b>	<b>1451</b>	<b>1463</b>	<b>1466</b>	<b>1454</b>	<b>1646<sup>8)</sup></b>	<b>1448</b>	<b>1447</b>	<b>1446</b>	-	<b>1451</b>	
boring Ø x L mm	11.4 x 39		17.5 x 92	35 x 89	17 x 106	29.8 x 97	-	16.5 x 74	26 x 85	29 x 92	38.6x90.2	17.5 x 92
tubes per rotor	24		6			3	6	12		6		
max. RCF	9,146		8,784	9,327	8,965		8,784	8,603	9,056	9,418	8,784	
radius in mm	101		97	103	99		97	95	100	104	97	
run-up in sec	30											
run-down in sec	☐ 30 ☐ 970											
temperature °C <sup>1)</sup>	-11											

capacity ml	5	15	15
dimensions Ø x L mm	13 x 75	17 x 100	17 x 120
<b>Cat. No.</b>	-	<b>0518<sup>2)</sup></b>	<b>0509</b>
 <b>rotor</b> Cat. No. <b>1613</b>			
<b>Cat. No.</b>	<b>1054-A</b>	-	-
boring Ø x L mm	13.5 x 60		18 x 88
tubes per rotor	12		6
max. RCF	3,300	4,146	
radius in mm	82	103	
run-up in sec	15		
run-down in sec	☐ 15	☐ 570	
temperature °C <sup>1)</sup>	-16		

capacity ml	5	15	15
dimensions Ø x L mm	13 x 75	17 x 100	17 x 120
<b>Cat. No.</b>	-	<b>0518<sup>2)</sup></b>	<b>0509</b>
 <b>rotor</b> Cat. No. <b>1615</b>			
<b>Cat. No.</b>	<b>1054-A</b>	-	-
boring Ø x L mm	13.5 x 60		18 x 88
tubes per rotor	12		6
max. RCF	13,201	16,582	
radius in mm	82	103	
run-up in sec	40		
run-down in sec	☐ 40	☐ 840	
temperature °C <sup>1)</sup>	-2		

1) Lowest attainable temperature in precooled refrigerated centrifuges at max. speed

2) Please make sure not to exceed the tubes' max. permissible RCF. For glass tubes the max. RCF is 4,000.

8) Adapter set, 6-place, for conical 50 ml tubes with screw cap.

## ROTORS AND ACCESSORIES

### Hematocrit rotor

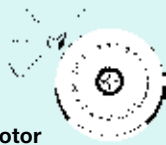



The hematocrit rotor enables centrifuging the capillaries in separate chambers. Each capillary is secured within its own chamber and supported by a holding tray. This holding tray serves to contain glass shards and any leakage, should a tube break. It is easy to clean and disposable in the case of glass breakage. Other capillaries will not be affected. The rotor lid is cover and evaluation disk in one. This ensures fast and easy determination of the hematocrit value.

#### Hematocrit rotor, 24-place



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

**Cat. No. 1650**

capillaries	basic	mylar-coated	self-sealing and mylar-coated
<b>Cat. No.</b>	<b>2074</b>	<b>1072</b>	<b>1071</b>
 <b>rotor</b> Cat. No. <b>1650</b>			
	sealing putty		
<b>Cat. No.</b>	<b>2077</b>		-
boring Ø x L mm	-	-	-
capillaries per rotor	24		
max. RCF	21,382		
radius in mm	85		
run-up in sec	13		
run-down in sec	 9  180		
temperature °C <sup>1)</sup>	-1		

### Rotors for cytology

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).

#### Cyto rotor, 6-place



illustrated with suspensions No. 1660  
for cyto chambers  
 $n = 4,000 \text{ min}^{-1}$ , max. RCF 2,039

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

#### Cyto rotor, 8-place



illustrated with suspensions No. 1680  
for angle chambers  
 $n = 4,000 \text{ min}^{-1}$ , max. RCF 2,218

**Cat. No.** (without suspensions) **1648**

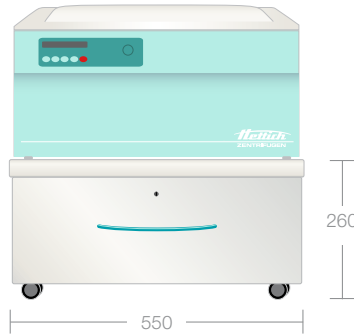


## ROLLING CABINETS

Rolling cabinets for Hettich centrifuges save space on the laboratory bench while ensuring enhanced flexibility.

All rolling cabinets are of sturdy design and feature large castors and two locks.

Any vibrations of the centrifuge are safely compensated for.



Low and narrow,  
with one drawer.  
Depth 650 mm

**Cat. No. 4612**



Low and wide,  
with one drawer.  
Depth 650 mm

**Cat. No. 4614**



High and narrow,  
with two drawers.  
Depth 650 mm

**Cat. No. 4613**



High and wide,  
with two drawers.  
Depth 650 mm

**Cat. No. 4615**

# UNIVERSAL 320/320 R

## TECHNOLOGY

TECHNOLOGY	UNIVERSAL 320		UNIVERSAL 320 R	
	classic		cooled	
Benchtop centrifuge, without rotor				
Power supply*	200 – 240 V 1~	110 – 127 V 1~	200 - 240 V1~ / 240 V1~	110 – 127 V 1~
Frequency	50 – 60 Hz	50 – 60 Hz	50 Hz / 60 Hz	60 Hz
Consumption	400 VA	450 VA	800 VA	1000 VA
Radio interference	EN 55011 ISM class B	FCC class B	EN 55011 ISM class B	FCC class B
Immunity	EN 61000-6-2	-	EN 61000-6-2	-
Max. capacity	4 x 100 ml			
Max. RPM (speed)	15,000 min <sup>-1</sup>			
Max. RCF	21,382			
Running time	1 – 99 min:59 sec, ∞ continuous run, impulse key (short cycle mode)			
Dimensions (H x W x D) in mm	346 x 395 x 520		346 x 401 x 695	
Weight	approx. 29 kg		approx. 52 kg	
<b>Refrigeration</b>				
Temperature control, infinitely variable	-		from -20 to +40 °C	
Cat. No.	1401	1401-01	1406	1406-01

\* other voltages on request

Hettich centrifuges conform to all relevant EC standards in effect. All stages from design to end-product are continuously subjected to the strictest controls. Evidence is provided by national and international test marks such as IEC 61010 or the CE mark. The ISO 9001:2000 certificate accredited to the entire company bears witness to the extreme care and responsibility Hettich puts into the manufacturing of centrifuges and their accessories. This is why Hettich centrifuges are known for safety and reliability all over the world.



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