MIKRO 220/220 R

Microlitre Centrifuges

classic/cooled

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MIKRO 220/220 R

MIKRO 220 and 220 R are powerful, compact benchtop centrifuges for processing microlitre tubes of 0.2 ml to 2.0 ml. The refrigerated MIKRO 220 R also accommodates tubes up to a volume of 50 ml.

The MIKRO 220 and 220 R centrifuges are used in clinical laboratories as well as in genetic research, virology and bacteriology. Capacity, performance and cooling of the MIKRO 220 R are specifically designed to meet the demands of sample preparation for PCR applications.

Quiet and smooth running contribute to a good working atmosphere.

PERFORMANCE

- High RCF:
  31,514 in an angle rotor
  18,516 in a swing-out rotor
- Max. capacity:
  60 x 1.5 / 2 ml (MIKRO 220 / 220 R)
  6 x 50 ml (MIKRO 220 R)
- Extremely short run-up and run-down times even with rotors attaining higher speeds

DESIGN

- Metal housing
- Metal lid
- Centrifuging chamber of stainless steel
- Viewing port in the lid

USER-FRIENDLINESS

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

REFRIGERATION (MIKRO 220 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 MIKRO 220 R)
- Imbalance switch-off
- Automatic rotor recognition
- Lid dropping protection

MIKRO 220 R cooled

Cat. No. 2205

The display panel and all controls on the MIKRO 220 and 220 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 preselected. 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 (MIKRO 220 R)
RCF	Change-over from RPM to RCF indication
SELECT	Selection of parameters
START IMPULS	Starts centrifugation / Short cycle mode
STOP OPEN	Stops centrifugation manually / 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 (MIKRO 220 R)
RCF	Entry in increments of 10
RPM	Entry in increments of 10
r/mm	Entry of the radius in mm in RCF mode
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

Keypad of the MIKRO 220 R
(N Plus control panel)

MIKRO 220 classic

Cat. No. 2200

Angle rotor, 12-place

∢45°

n = 18,000 min^{-1}
max. RCF 25,718

Cat. No. 2218

Angle rotor, 24-place

∢45°

n = 18,000 min^{-1}
max. RCF 31,514

with bio-containment[3]

Cat. No. 1195-A

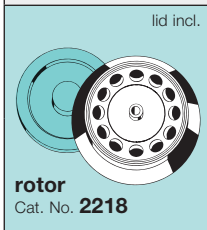
Angle rotor, 30-place

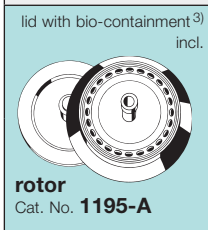
∢45°

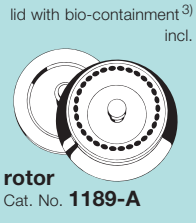
n = 14,000 min^{-1}
max. RCF 21,255

with bio-containment[3]

Cat. No. 1189-A

capacity in ml	0.2	0.4	0.5	0.8	1.5	2.0
Ø x L in mm	6x18	6x45	8x30	8x45	11x38	
Cat. No.	-				**2078**	**0536**
lid incl. **rotor** Cat. No. **2218**						
Cat. No.	**2024**		**2023**		**2031**[4]	**-**
boring Ø x L in mm	6x40		8x40		10.2x19	11.2x41
tubes per rotor	12					
max. RCF	25,718					
radius in mm	71					
run-up in sec	11					
run-down in sec	10 216					
temperature in °C[1]	-5					

capacity in ml	0.2	0.4	0.5	0.8	1.5	2.0
Ø x L in mm	6x18	6x45	8x30	8x45	11x38	
Cat. No.	-				**2078**	**0536**
lid with bio-containment[3] incl. **rotor** Cat. No. **1195-A**						
Cat. No.	**2024**		**2023**		**2031**[4]	**-**
boring Ø x L in mm	6x40		8x40		10.2x19	11.2x40.8
tubes per rotor	24					
max. RCF	31,514					
radius in mm	87					
run-up in sec	26					
run-down in sec	23 371					
temperature in °C[1]	+3					

capacity in ml	0.2	0.4	0.5	0.8	1.5	2.0
Ø x L in mm	6x18	6x45	8x30	8x45	11x38	
Cat. No.	-				**2078**	**0536**
lid with bio-containment[3] incl. **rotor** Cat. No. **1189-A**						
Cat. No.	**2024**		**2023**		**2031**[4]	**-**
boring Ø x L in mm	6x40		8x40		10.2x19	11.2x40.9
tubes per rotor	30					
max. RCF	21,255					
radius in mm	97					
run-up in sec	20					
run-down in sec	22 385					
temperature in °C[1]	+3					

1) Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be attained by reducing the speed.
3) Tested by the TÜV in conformity with DIN EN 61010, section 2-020.
4) For centrifugation at high speeds, we recommend to use form-fitting, phenol-resistant adapters 2031.

Angle rotor, 20-place, for cryo tubes

∢40°

n = 14,000 min^{-1}
max. RCF 18,407

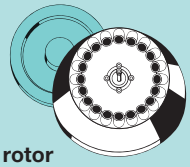
Cat. No. 2219

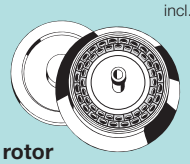
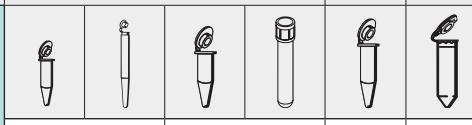
Angle rotor, 48-place, 2-row

∢45°

n = 14,000 min^{-1} with bio-containment[3]
max. RCF outer row 21,255 / inner row 18,845

Cat. No. 1158-L

capacity in ml	1.8
Ø x L in mm	-
Cat. No.	**cryo tubes**
lid **E2040** incl.  **rotor** Cat. No. **2219**	
Cat. No.	**-**
boring Ø x L in mm	12.5 x 36
tubes per rotor	20
max. RCF	18,407
radius in mm	84
run-up in sec	21
run-down in sec	21 277
temperature in °C[1]	- 9

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.	-				**2078**	**0536**
lid with bio-containment[3] incl.  **rotor** Cat. No. **1158-L**	 					
Cat. No.	**2024**		**2023**		**2031**[4]	**-**
boring Ø x L in mm	6 x 40		8 x 40		10.2 x 19	11.4 x 39
tubes per rotor	48					
max. RCF outer/inner	21,255 / 18,845					
radius in mm outer/inner	97 / 86					
run-up in sec	21					
run-down in sec	22 420					
temperature in °C[1]	- 4					

Optional for rotor 2219

lid **Cat. No. 2425**
with bio-containment[3],
autoclavable

lid **Cat. No. 2423**
with bio-containment[3],
autoclavable, phenol-resistant

Swing-out rotor, 24-place

∢90°

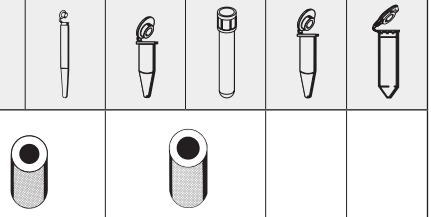
n = 13,000 min^{-1}
max. RCF 18,516

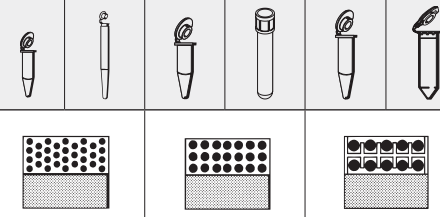
Cat. No. 1154-L

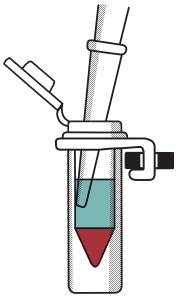
Drum rotor, 6-place

n = 13,000 min^{-1}
max. RCF 14,171

Cat. No. 1161

capacity in ml	0.2	0.4	0.5	0.8	1.5	2.0
Ø x L in mm	6x18	6x45	8x30	8x45	11x38	
Cat. No.	-				**2078**	**0536**
lid incl. **rotor** Cat. No. **1154-L**						
Cat. No.	**2024**		**2023**		**2031**[4]	**-**
boring Ø x L in mm	6x40		8x40		10.2x19	11.5 x 38.5
tubes per rotor	24					
max. RCF	18,516					
radius in mm	98					
run-up in sec	26					
run-down in sec	27 425					
temperature in °C[1]	-2					

capacity in ml	0.2	0.4	0.5	0.8	1.5	2.0
Ø x L in mm	6x18	6x45	8x30	8x45	11x38	
Cat. No.	-				**2078**	**0536**
lid incl. **rotor** Cat. No. **1161**						
Cat. No.	**1378**		**1379**		**1377**	
boring Ø x L in mm	6x40		8.4x43		10.8x37	
tubes per rotor	192		126		60	
max. RCF	14,171					
radius in mm	75					
run-up in sec	17					
run-down in sec	18 403					
temperature in °C[1]	-3					



Centrifugation in a swing-out rotor makes the pellet collect exactly in the tip of the tube. This facilitates analysis and further processing.

[1] Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be attained by reducing the speed.
[4] For centrifugation at high speeds, we recommend to use form-fitting, phenol-resistant adapters 2031.

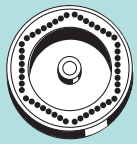
Angle rotor, 6-place, for PCR strips

∢45°

n = 14,000 min^{-1}
max. RCF 18,845

lid (optional)
Cat. No. **1162**

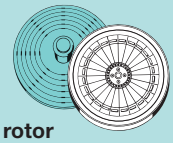
Cat. No. (without lid) **1160**

capacity in ml	0.2	0.2
Ø x L in mm	6 x 18	-
Cat. No.	**-**	**PCR strips**
 **rotor** Cat. No. **1160**		
Cat. No.	**-**	
boring Ø x L in mm	6.5 x 15.5	
tubes per rotor	48	6 x 8
max. RCF	18,845	
radius in mm	86	
run-up in sec	20	
run-down in sec	22	377
temperature in °C[1)]	- 4	

Hematocrit rotor, 24-place

n = 15,000 min^{-1}
max. RCF 21,382

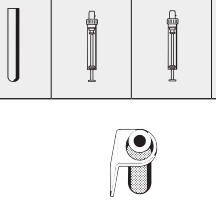
Cat. No. 1023

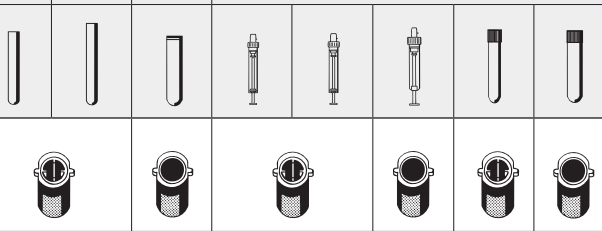
standard capillaries, heparinised	basic	mylar-coated	self-sealing and mylar-coated
Cat. No.	**2074**	**1072**	**1071**
lid as evaluation disk incl.  **rotor** Cat. No. **1023**			
	sealing putty		
Cat. No.	**2077**		**-**
boring Ø x L in mm	-		
capillaries per rotor	24		
max. RCF	21,382		
radius in mm	85		
run-up in sec	11		
run-down in sec	12	98	
temperature in °C[1)]	-11		

Whether hematocrit determination or the preparation of samples for bilirubin analysis, the MIKRO 220 / 220 R centrifuges achieve quick results.

As a special feature, the hematocrit rotor is segmented into 24 chambers, each chamber containing one capillary only. In case a capillary breaks or leaks, fragments and leaked blood stay in the chamber and will not affect other capillaries. The lid of the rotor is evaluation disk and cover in one. This ensures fast and easy determination of the hematocrit value right after centrifugation.

	Swing-out rotor, 12-place	Swing-out rotor, 8-place
The following rotors can only be operated in the refrigerated MIKRO 220 R.	 ∢60°	 ∢90°
	n = 5,000 min^{-1} max. RCF 2,963	n = 5,000 min^{-1} max. RCF 2,879
	Cat. No. (without carriers) **2226**	**Cat. No.** (without carriers) **1020**

capacity in ml	5	2.6–2.9	2.7–3	1.6–5
Ø x L in mm	12x75	13x65	11x66	13x75
Cat. No.	**0553**[2)]	**blood collection tubes**		
 **rotor** Cat. No. **2226**				
Cat. No.	**1127**			
boring Ø x L in mm	13.2x53			
tubes per rotor	12			
max. RCF[2)]	2,963			
radius in mm	106			
run-up in sec	10			
run-down in sec	10 105			
temperature in °C[1)]	-20			

capacity in ml	5	6	10	2.6–2.9	2.7–3	4–5.5	1.6–5	4–7
Ø x L in mm	12x75	12x82	17x70	13x65	11x66	15x75	13x75	16x75
Cat. No.	**0553**[2)]	**0501**[2)]	**2079**	**blood collection tubes**				
 **rotor** Cat. No. **1020**								
Cat. No.	**1131**		**1132**	**1131**		**1132**	**1131**	**1132**
boring Ø x L in mm	13x53		17.5x53	13x53		17.5x53	13x53	17.5x53
tubes per rotor	8							
max. RCF[2)]	2,879							
radius in mm	103							
run-up in sec	10							
run-down in sec	10 60							
temperature in °C[1)]	-20							

[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.

	Angle rotor, 6-place	Angle rotor, 12-place
Accessories for MIKRO 220 R only:		
	∢35°	∢35°
	n = 6,000 min^{-1} max. RCF 4,025	n = 6,000 min^{-1} max. RCF 4,146
	Cat. No. 1016	**Cat. No. 1015**

By also accepting rotors for tubes up to 50 ml, the refrigerated MIKRO 220 R enables an extended range of applications.

With the robust angle rotors even large volumes can be accelerated to considerable speeds.

capacity in ml	7	15	25	50	9–10	10	15	50	30	50
Ø x L in mm	12x100	17x100	24x100	34x100	16x92	15x102	17x120	29x115	26x95	29x107
Cat. No.	**0578**[2)]	**0518**[2)]	**0519**[2)]	**0521**[2)]	**blood collection/ urine tubes**		**0509**	**0513**	**0545**	**0546**
 **rotor** Cat. No. **1016**										
										
Cat. No.	**1632**	**1635**	**1633**	**-**	**1635**		**1631**	**1641**	**1633**	**1634**
boring Ø x L in mm	13x92	17.5x95	26x88	35x96	17.5x95		17x98	30x98	26x88	29x95
tubes per rotor	18	6			6		6	3	6	
max. RCF[2)]	3,944	3,783	3,703	4,025	3,783		3,824	3,824	3,703	3,904
radius in mm	98	94	92	100	94		95	95	92	97
run-up in sec	14									
run-down in sec	17 373									
temperature in °C[1)]	-20									

capacity in ml	5	15	1.1–1.4	2.6–2.9	2.7–3	4.5–5	4.9	7.5–8.2	9–10	10	1.6–5	4–7	8.5–10	15
Ø x L in mm	12x75	17x100	8x66	13x65	11x66	11x92	13x90	15x92	16x92	15x102	13x75	13x100	16x100	17x120
Cat. No.	**0553**[2)]	**0518**[2)]	**blood collection/urine tubes**											**0509**
 **rotor** Cat. No. **1015**														
														
Cat. No.	**1054-A**	**-**	**1054-A**			**-**					**1054-A**	**1058**	**-**	**-**
boring Ø x L in mm	13.5x60	17.7x88	13.5x60			17.7x88					13.5x60	13.5x79	17.7x88	17.7x88
tubes per rotor	12	12	12			12					12	12	12	6
max. RCF[2)]	3,300	4,146	3,300			4,146					3,300	4,146		
radius in mm	82	103	82			103					82	103		
run-up in sec	14													
run-down in sec	16 291													
temperature in °C[1)]	-20													

[1)] Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be attained 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.

MIKRO 220/220 R

TECHNOLOGY

	MIKRO 220		MIKRO 220 R	
Microlitre centrifuge, without rotor	**classic**		**cooled**	
Power supply*)	200 - 240 V 1 ~	100 - 127 V 1 ~	200 - 240 V 1 ~	100 - 127 V 1 ~
Frequency	50 – 60 Hz		50 Hz	60 Hz
Consumption	510 VA	510 VA	850 VA	950 VA
Emission	EN 55011 group 1, class B, EN 61000-3-2, EN 61000-3-3	FCC class B	EN 55011 group 1, class B, EN 61000-3-2, EN 61000-3-3	FCC class B
Immunity	EN 61000-6-2	-	EN 61000-6-2	-

	Max. capacity	60 x 1.5 / 2.0 ml	
	Max. capacity	48 x 1.5 / 2.0 ml	48 x 1.5 / 2.0 ml, 6 x 50 ml
	Max. RPM (speed)	18,000 min^{-1}	
	Max. RCF	31,514	
Running time		1 sec – 99 min : 59 sec, ∞ continuous run, short cycle mode (impulse key)	

Dimensions (H x W x D)	313 x 330 x 420 mm	313 x 330 x 650 mm
Weight	approx. 23 kg	approx. 42 kg

Refrigeration		
Temperature control, infinitely variable	-	from -20 to +40 °C

Cat. No.	**2200**	**2200-01**	**2205**	**2205-01**

*) Other voltages on request.

Connect With Us

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 9001:2000 and ISO 13485:2003 certificates accredited to the company bear witness to the extreme care and responsibility Hettich puts into the manufacturing of centrifuges and their accessories.

Hettich
LAB TECHNOLOGY

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