Hettich
ZENTRIFUGEN

MIKRO 220 / 220 R
Microlitre centrifuges

Versatile: Microlitre and more

www.hettichlab.com

MIKRO 220 / 220 R

View into the centrifuging chamber
showing the 1158-L angle rotor

HIGHLY IMPRESSIVE SAMPLE PREPARATION IN THE SHORTEST POSSIBLE TIME

The MIKRO 220 makes lab work much less stressful, not just because it is quiet in operation, but also because it prevents bottlenecks from developing before centrifugation runs. This model can achieve an RCF of 31,514 in just 26 seconds when holding 24 reaction tubes. Such high centrifugation speeds can reduce the time needed for centrifugation considerably.

Both models have been proven in use in the fields of genetic research, virology and bacteriology. In research labs they are used for the isolation of protein and RNA, and in clinical chemistry applications they are used in PCR laboratories for sample preparation.

COMPREHENSIVE RANGE OF ACCESSORIES
A further plus point is the large range of rotors. The rotors can be easily changed and are automatically recognized by the centrifuge. The cooled MIKRO 220 R can also hold two swing-out rotors for blood collection tubes and standard tubes.

MIKRO 220
Microlitre centrifuge

Cat. No. 2200

MIKRO 220 R
Microlitre centrifuge with cooling

Cat. No. 2205

MIKRO 220 / 220 R

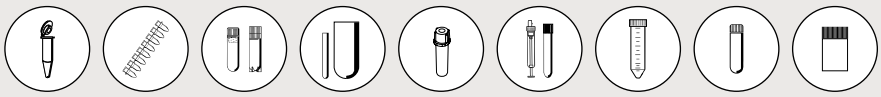
HIGH CAPACITY
The MIKRO 220 offers an extremely high capacity in the micro-litre range as it can hold up to 48 reaction tubes in an angle rotor and up to 60 tubes in a drum rotor. An angle rotor is available that can hold up to six 50 ml tubes.

RELIABLE COOLING
The high cooling performance means that the desired sample temperature is reliably maintained, even when centrifuging samples at high speed.

MAXIMUM SAFETY
The MIKRO 220 / 220 R models contribute to safe working practices. Their robust metal construction and solid design ensure mechanical stability. The accessories with biocontainment (TÜV-tested in accordance with DIN EN 61010, Part 2 - 020) provide protection against dangerous aerosols.

STURDY DESIGN
The centrifuge housing and lid with viewing port are made of metal and the centrifuging chamber is made of stainless steel.

AT A GLANCE



FIELDS OF APPLICATION

- **Research**
  Sample preparation for molecular biology procedures
- **Medical diagnostics**
  Sample preparation, for example in infection diagnostics
- **Education**
  Molecular biology practicals

EASE OF OPERATION

- User-friendly design of operator panel and information display
- Parameters can be rapidly and easily set using the rotary knob
- Motorised lid locking
- Simple rotor change

SAFETY

- Lid locking and holding
- Lid dropping protection
- Imbalance switch-off
- Accessories with biocontainment

DESIGN

- Lid and housing of metal construction
- Centrifuging chamber of stainless steel
- Viewing port in the lid

MAX. RCF

- 31.514

MAX. CAPACITY

- 48 x 1.5 / 2.0 ml tubes in angle rotor and 60 in drum rotor
- 6 x 50 ml tubes

OUR SERVICE
You will find information on Hettich partners in your country at www.hettichlab.com

MIKRO 220 / 220 R

Operator panel of the cooled MIKRO 220 R

The N Plus control panel in the MIKRO 220 and 220 R ensures quick and easy operation. Parameters are selected using the “Select” key. The values are adjusted by turning the knob and saved by pressing the “Start / Impuls” button. The stored parameter combinations are retained after the centrifuge has been switched off.

The cooled MIKRO 220 R is equipped with a pre-cooling function (Fast Cool) and stand-by cooling. When the lid is closed, the stand-by cooling holds the set temperature. When the lid is opened, the cooling turns off automatically.

SIMPLE OPERATION USING THE N-PLUS CONTROL SYSTEM

KEYPAD

❄	Pre-cools the rotor chamber to the required temperature.
RCF	Switches from RPM to RCF display. Entry of the RCF in increments of 10. Input of rotor radius in mm in RCF mode.
SELECT	Guides the user through the menu options.
START IMPULS	Starts centrifugation / stores entries and changes. For short centrifugation steps.
STOP OPEN	Stops centrifugation manually. Opens the lid at standstill.

ENTRY OF PARAMETERS

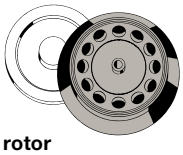
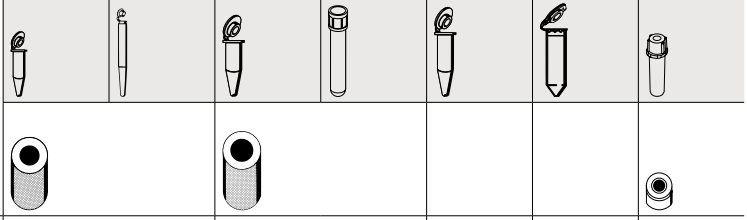
P	Entry of program number, with a choice of 10 programs.
T/°C	Entry of the temperature in increments of 1 °C from –20 °C to +40 °C (MIKRO 220 R).
RCF	Entry in increments of 10.
RPM	Entry in increments of 10.
RAD/mm	Entry of the rotor radius in mm
t/min	Entry of the centrifugation time (max. 99 min : 59 sec).
⌐¬	Entry of the acceleration ramp 1 – 9 Entry of the braking ramp 1 – 9

ACCESSORIES

Angle rotor, 12-place

∢ 45°
n = 18,000 min^{-1}
max. RCF 25,718

Cat. No. 2218-A

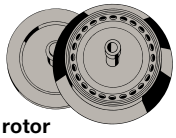
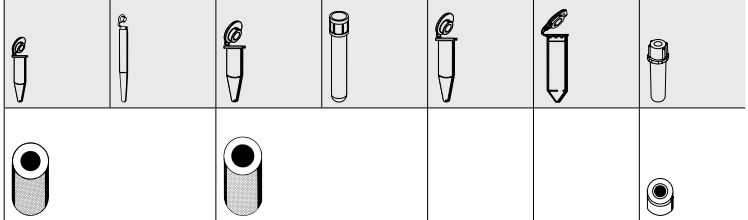
capacity in ml	0.2	0.4	0.5	0.8	1.5	2.0	0.5
Ø x L in mm	6x18	6x45	8x30	8x45	11x38		10.7x36
Cat. No.	**-**				**2078**	**0536**	**Pediatric**
lid incl.  **rotor Cat. No. 2218-A**							
Cat. No.	**2024**		**2023**		**2031** [2]	**-**	**0788**
boring Ø x L in mm	6x40		8x40		10.2x19	11.2x41	11.2x39
tubes per rotor	12						
max. RCF	25,718						24,270
radius in mm	71						67
run-up in sec	11						
run-down in sec, braked	10						
temperature in °C [3]	-5						

Angle rotor, 24-place

with bio-containment [1],
phenol-resistant

∢ 45°
n = 18,000 min^{-1}
max. RCF 31,514

Cat. No. 1195-A

capacity in ml	0.2	0.4	0.5	0.8	1.5	2.0	0.5
Ø x L in mm	6x18	6x45	8x30	8x45	11x38		10.7x36
Cat. No.	**-**				**2078**	**0536**	**Pediatric**
lid with bio-containment [1] **incl.**  **rotor Cat. No. 1195-A**							
Cat. No.	**2024**		**2023**		**2031** [2]	**-**	**0788**
boring Ø x L in mm	6x40		8x40		10.2x19	11.2x40.8	11.2x39
tubes per rotor	24						12
max. RCF	31,514						30,065
radius in mm	87						83
run-up in sec	26						
run-down in sec, braked	23						
temperature in °C [3]	+3						

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

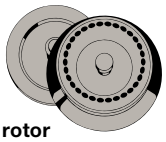
ACCESSORIES

Angle rotor, 30-place

with bio-containment [1],
phenol-resistant

∢ 45°
n = 14,000 min^{-1}
max. RCF 21,255

Cat. No. 1189-A

capacity in ml	0.2	0.4	0.5	0.8	1.5	2.0	0.5
Ø x L in mm	6x18	6x45	8x30	8x45	11x38		10.7x36
Cat. No.	**-**				**2078**	**0536**	**Pediatric**
lid with bio-containment [1] **incl.** **rotor Cat. No. 1189-A**							
Cat. No.	**2024**		**2023**		**2031** [2]	**-**	**0788**
boring Ø x L in mm	6x40		8x40		10.2x19	11.2x40.9	11.2x39
tubes per rotor	30						15
max. RCF	21,255						20,379
radius in mm	97						93
run-up in sec	20						
run-down in sec, braked	22						
temperature in °C [3]	+3						

Angle rotor, 48-place, 2-row

with bio-containment [1],
phenol-resistant

∢ 45°
n = 14,000 min^{-1}
max. RCF outer 21,255 / inner 18,845

Cat. No. 1158-L

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 [1] **incl.** **rotor Cat. No. 1158-L**						
Cat. No.	**2024**		**2023**		**2031** [2]	**-**
boring Ø x L in mm	6x40		8x40		10.2x19	11.4x39
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, braked	22					
temperature in °C [3]	-4					

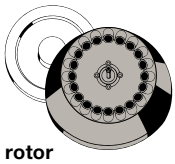
[1] Tested by the TÜV in conformity with DIN EN 61010, section 2 - 020.
[2] For centrifugation at high speeds, we recommend to use form-fitting, phenol-resistant adapters 2031.
[3] Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be attained by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

ACCESSORIES

Angle rotor, 20-place, for cryo tubes

∢ 40°
n = 14,000 min^{-1}
max. RCF 18,407

Cat. No. 2219-A

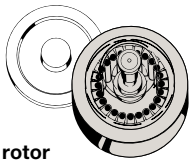
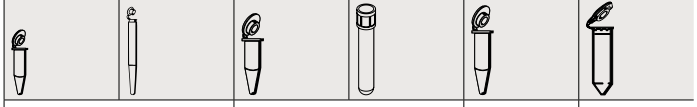
capacity in ml	1.8
Ø x L in mm	-
Cat. No.	**cryo tubes**
lid **E3243** incl.  **rotor Cat. No. 2219-A**	
Cat. No.	**-**
boring Ø x L in mm	12.5 x 36
tubes per rotor	20
max. RCF	18,407
radius in mm	84
run-up in sec	21
run-down in sec, braked	21
temperature in °C [3]	-9

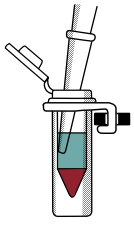
Swing-out rotor, 24-place

with bio-containment [1]

∢ 90°
n = 13,000 min^{-1}
max. RCF 18,516

Cat. No. 1154-L

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 **2425** [1] incl.  **rotor Cat. No. 1154-L**	 					
Cat. No.	**2024**		**2023**		**2031** [2]	**-**
boring Ø x L in mm	6 x 40		8 x 40		10.2 x 19	11.5 x 38.5
tubes per rotor	24					
max. RCF	18,516					
radius in mm	98					
run-up in sec	25					
run-down in sec, braked	26					
temperature in °C [3]	+1					



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

lid optional for rotor 2219-A

with bio-containment [1], autoclavable

Cat. No. 2425

lid optional for rotor 2219-A and 1154-L

with bio-containment [1], autoclavable und phenol-resistant

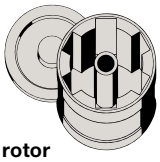
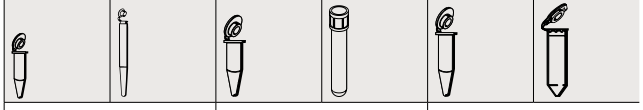
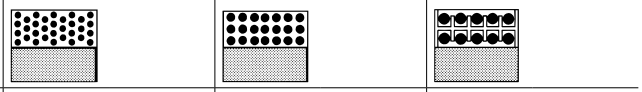
Cat. No. 2423

ACCESSORIES

Drum rotor, 6-place

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

Cat. No. 1161

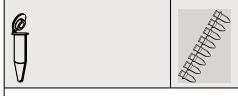
capacity in ml	0.2	0.4	0.5	0.8	1.5	2.0
Ø x L in mm	6x18	6x45	8x30	8x45	11x38	
Cat. No.	**-**				**2078**	**0536**
lid incl.  **rotor Cat. No. 1161**	 					
Cat. No.	**1378**		**1379**		**1377**	
boring Ø x L in mm	6x40		8.4x43		10.8x37	
tubes per rotor	192		126		60	
max. RCF	14,171					
radius in mm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

Angle rotor, 6-place, for PCR strips

lid 1162
(optional)

∢ 45°
n = 14,000 min^{-1}
max. RCF 18,845

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

capacity in ml	0.2	0.2
Ø x L in mm	6x18	-
Cat. No.	**-**	**PCR strips**
 **rotor Cat. No. 1160**		
Cat. No.	**-**	
boring Ø x L in mm	6.5x15.5	
tubes per rotor	48	6x8
max. RCF	18,845	
radius in mm	86	
run-up in sec	20	
run-down in sec, braked	22	
temperature in °C [3]	-4	

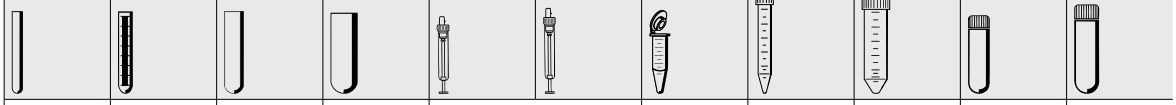
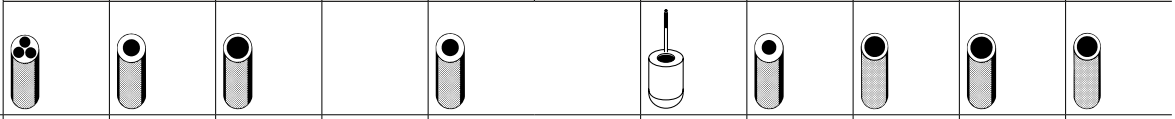
[1] Tested by the TÜV in conformity with DIN EN 61010, section 2 - 020.
[3] Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be attained by reducing the speed.
[4] Please note that the RCF values indicated refer only to rotor performance. The max. permissible RCF of tubes used should be verified with the individual manufacturers. The max. RCF for glass tubes annotated with footnote [4] is 4,000.

ACCESSORIES

Angle rotor, 6-place

∢ 35°
n = 6,000 min^{-1}
max. RCF 4,025

Cat. No. 1016

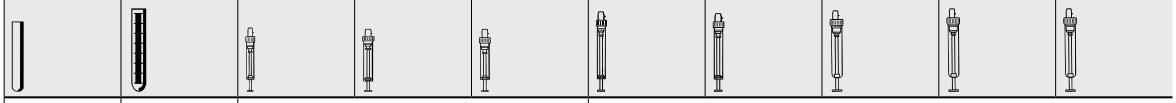
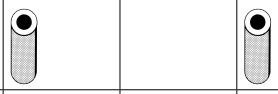
capacity in ml	7	15	25	50	9–10	10	5	15	50	30	50
Ø x L in mm	12x100	17x100	24x100	34x100	16x92	15x102	17x59	17x120	29x115	26x95	29x107
Cat. No.	**0578** [4]	**0518** [4]	**0519** [4]	**0521** [4]	**blood / urine tubes**		**-**	**0509**	**0513**	**0545**	**0546**
 **rotor Cat. No. 1016**	 										
Cat. No.	**1632**	**1635**	**1633**	**-**	**1635**		**1649**	**1631**	**1641**	**1633**	**1634**
boring Ø x L in mm	13x92	17.5x95	26x88	35x96	17.5x95		17x51	17x98	30x98	26x88	29x95
tubes per rotor	18	6							3	6	
max. RCF [4]	3,944	3,783	3,703	4,025	3,783		3,622	3,824	3,824	3,703	3,904
radius in mm	98	94	92	100	94		90	95	95	92	97
run-up in sec	14										
run-down in sec, braked	17										
temperature in °C [3]	-20										

ACCESSORIES

Angle rotor, 12-place

∢ 35°
n = 6,000 min^{-1}
max. RCF 4,146

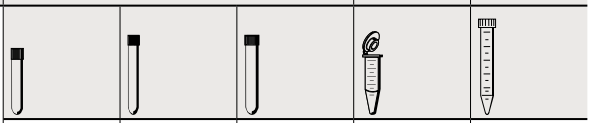
Cat. No. 1015

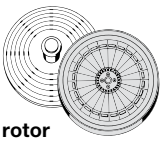
capacity in ml	5	15	1.1–1.4	2.6–3.4	2.7–3	4.5–5	4.9	7.5–8.5	9–10	10
Ø x L in mm	12x75	17x100	8x66	13x65	11x66	11x92	13x90	15x92	16x92	15x102
Cat. No.	**0553** [4]	**0518** [4]	**blood collection / urine tubes**							
 **rotor Cat. No. 1015**	 									
Cat. No.	**1054-A**	**-**	**1054-A**			**-**				
boring Ø x L in mm	13.5x60	17.7x88	13.5x60			17.7x88				
tubes per rotor	12									
max. RCF [4]	3,300	4,146	3,300			4,146				
radius in mm	82	103	82			103				
run-up in sec	14									
run-down in sec, braked	16									
temperature in °C [3]	-20									

Hematocrit rotor, 24-place

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

Cat. No. 1023

capacity in ml	1.6–5	4–7	8.5–10	5	15
Ø x L in mm	13x75	13x100	16x100	17x59	17x120
Cat. No.	**blood / urine tubes**			**-**	**0509**
 **rotor Cat. No. 1015**	 				
Cat. No.	**1054-A**	**1058**	**-**	**1064**	**-**
boring Ø x L in mm	13.5x60	13.5x79	17.7x88	17x25	17.7x88
tubes per rotor	12				6
max. RCF [4]	3,300	4,146		3,180	4,146
radius in mm	82	103		79	103
run-up in sec	14				
run-down in sec, braked	16				
temperature in °C [3]	-20				

standard capillaries, heparinised	basic	self-sealing and mylar-coated
Cat. No.	**2074**	**1071**
lid as evaluation disk **incl.**  **rotor Cat. No. 1023**	 sealing putty	
Cat. No.	**2077**	**-**
boring Ø x L in mm	-	
capillaries pro rotor	24	
max. RCF	21,382	
radius in mm	85	
run-up in sec	11	
run-down in sec, braked	12	
temperature in °C [3]	-11	

[3] Lowest attainable temperature in precooled refrigerated centrifuges at max. speed. Lower temperatures can be attained by reducing the speed.
[4] 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 [4] is 4,000.

ACCESSORIES

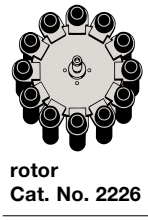
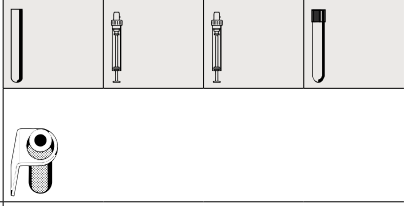
ACCESSORIES FOR MIKRO 220 R ONLY:

The rotors 2226 and 1020 can only be operated in the refrigerated MIKRO 220 R.

Swing-out rotor, 12-place

∢ 60°
n = 5,000 min^{-1}
max. RCF 2,963

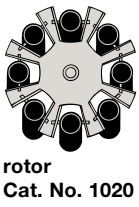
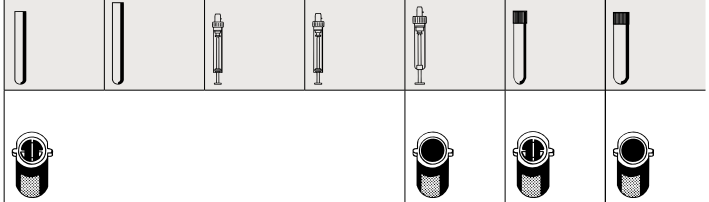
Cat. No. (without carriers) **2226**

capacity in ml	5	2.6–3.4	2.7–3	1.6–5
Ø x L in mm	12x75	13x65	11x66	13x75
Cat. No.	**0553** [4]	**blood collection tubes**		
rotor Cat. No. 2226				
Cat. No.	**1127-A**			
boring Ø x L in mm	13.2x53			
tubes per rotor	12			
max. RCF [4]	2,963			
radius in mm	106			
run-up in sec	10			
run-down in sec, braked	10			
temperature in °C [3]	-20			

Swing-out rotor, 8-place

∢ 90°
n = 5,000 min^{-1}
max. RCF 2,879

Cat. No. (without carriers) **1020**

capacity in ml	5	6	2.6–3.4	2.7–3	4–5.5	1.6–5	4–7
Ø x L in mm	12x75	12x82	13x65	11x66	15x75	13x75	16x75
Cat. No.	**0553** [4]	**0501** [4]	**blood collection tubes**				
rotor Cat. No. 1020							
Cat. No.	**1131-A**				**1132-A**	**1131-A**	**1132-A**
boring Ø x L in mm	13x53				17.5x53	13x53	17.5x53
tubes per rotor	8						
max. RCF [4]	2,879						
radius in mm	103						
run-up in sec	10						
run-down in sec, braked	10						
temperature in °C [3]	-20						

TECHNICAL DATA

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 – 60 Hz	50 Hz	60 Hz
Consumption	510 VA	510 VA	850 VA	950 VA
Emission, Immunity	EN / IEC 61326-1, class B	FCC class B	EN / IEC 61326-1, class B	FCC class B
Max. capacity	60 x 1.5 / 2.0 ml			
Max. capacity	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 420 mm	313 x 330 x 650 mm	313 x 330 x 650 mm
Weight	approx. 21 kg	approx. 21 kg	approx. 42 kg	approx. 42 kg
Refrigeration				
Temperature control, infinitely variable	-	-	from -20 to +40 °C	from -20 to +40 °C
Cat. No.	**2200**	**2200-01**	**2205**	**2205-01**

*) Other voltages on request.

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

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

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