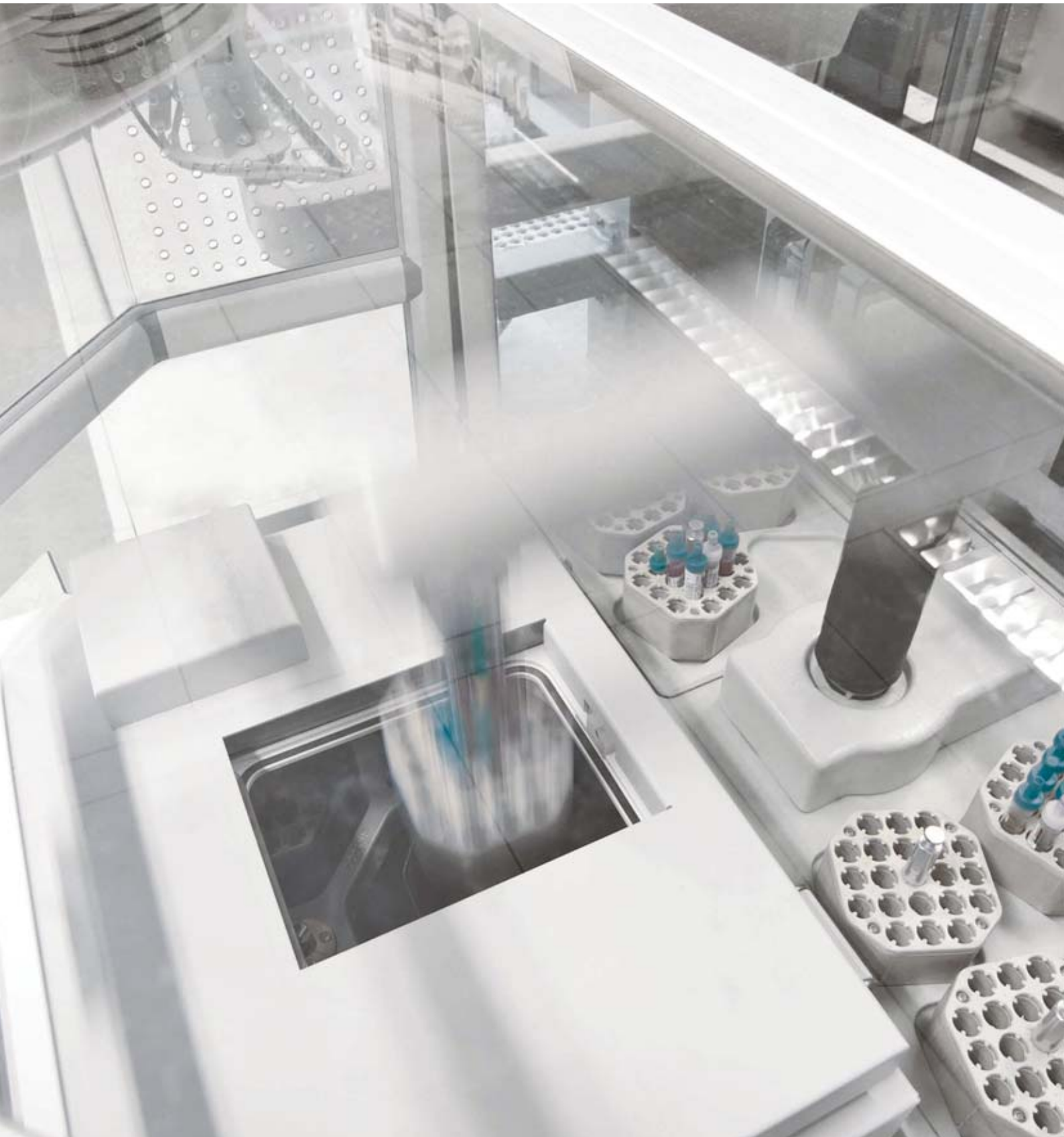


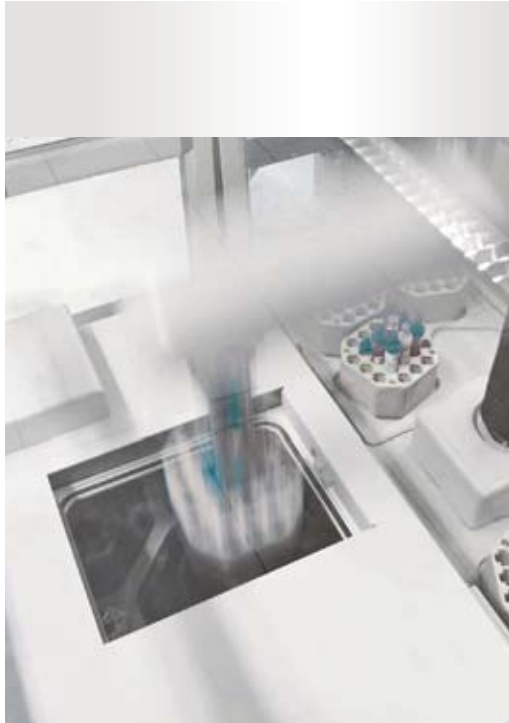
Hettich



Automatically safe and fast

ROBOTIC

ROBOTIC CENTRIFUGES



Robotically operated centrifuges are used wherever sample processing can be automated, and make a significant contribution to the rationalisation and safety of routine tasks. They can be tailored for numerous applications.

More information is available free of charge from robotic@hettichlab.com.

Automatic, and therefore faster and more reliable

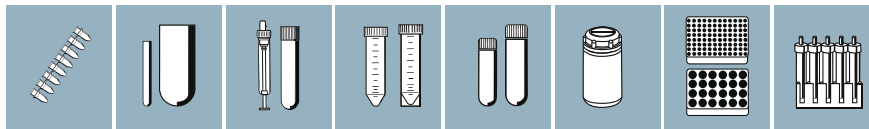
Hettich robotically operated centrifuges have been performing reliably in the laboratory for more than 20 years. They enable time-consuming, repetitive process steps to be carried out automatically. This not only minimises the risk of infection, but also allows laboratory personnel to concentrate on other tasks.

The floorstanding ROTANTA 460 Robotic centrifuges are recommended where large numbers of samples are involved. The MIKRO 220 Robotic, ROTINA 380 and 380 R Robotic models are ideally suited if you are looking for a benchtop solution.

Custom solutions

The Robotic models can be integrated into any workstation. However, automated applications require customized solutions. In addition to our standard range of accessories we therefore also manufacture special carriers and inserts that can be tailored to your robot and your application.





ROTANTA 460 Robotic

The ROTANTA 460 Robotic is a cooled, floor-standing centrifuge. Robotic centrifuges from the ROTANTA range have been an integral part of numerous laboratory automation systems for several decades. Today automated sample preparation is indispensable in medical diagnostics.

Robotically operated ROTANTA models have long been successfully deployed in biotechnology research laboratories and in the pharmaceutical industry, for example for high-throughput screening.



TECHNOLOGY	ROTANTA 460 Robotic ³⁶⁾
Centrifuge, without rotor	with cooling
	Rear hatch / front hatch
Voltage	Can be operated at different voltages. Units are fitted with a transformer.
Frequency	50 – 60 Hz
Consumption	1,800 VA
Max. RPM (speed)	6,200 min ⁻¹
Max. RCF	6,446
Permissible density	1.2 kg / dm ³
Dimensions (H x W x D)	684 x 554 x 697 mm
Weight	approx. 159 kg
Cooling	
Temperature control, continuous	from -20 to +40 °C
Cat. No.	5680-RS232 / 5680-10-RS232

³⁶⁾ Also available on castors.

STANDARD ACCESSORIES FOR ROBOTIC CENTRIFUGES

MIKRO 220 Robotic

The MIKRO 220 Robotic can run with a swing-out rotor for microlitre tubes and a swing-out rotor for HPLC tubes. Centrifugation of flammable materials is not allowed; application is therefore restricted to non-flammable solvents.

**Swing-out rotor, 24-place,
for microlitre tubes**



Cat. No. (with carriers) 2394

**Swing-out rotor, 12-place,
for HPLC tubes**



Cat. No. (with carriers) 2362

ROTINA 380 / 380 R / 380 RC Robotic

The standard accessories for the ROTINA 380 Robotic models include two swing-out rotors with suitable carriers.

**Swing-out rotor, 4-place
illustrated with carriers 3725-R**



Cat. No. (without carriers) 3724-R

**Swing-out rotor, 2-place
illustrated with carriers 3730-R**



Cat. No. (without carriers) 3722-R

ROTANTA 460 Robotic

A comprehensive range of standard accessories is available for ROTANTA 460 Robotic centrifuges. Three swing-out rotors and eleven sorts of carriers are available for centrifuging different tubes and plates.

**Swing-out rotor, 4-place
illustrated with carriers 4486-R**



Cat. No. (without carriers) 4444

**Swing-out rotor, 4-place
illustrated with carriers 5632-R**



Cat. No. (without carriers) 5699-R

**Swing-out rotor, 2-place
illustrated with carriers 5631-R**



Cat. No. (without carriers) 5622

	metal housing	plastic housing	metal lid	viewing port in the lid	lid locking and holding	one-hand lid lock	twist lock	powered lid-locking	lid dropping protection	emergency lid lock release	stainless steel chamber
EBA 200 / 200 S		•	•	•	•	•			•	•	
EBA 270		•	•	•	•	•			•	•	•
EBA 280 / 280 S		•	•	•	•	•			•	•	•
HAEMATOKRIT 200		•	•	•	•	•			•	•	
MIKRO 185		•	•	•	•	•			•	•	
MIKRO 200	•		•	•	•	•		•	•	•	•
MIKRO 200 R	•		•	•	•	•		•	•	•	•
MIKRO 220	•		•	•	•	•		•	•	•	•
MIKRO 220 R	•		•	•	•	•		•	•	•	•
ROTOFIX 32 A	•		•	•	•	•			•	•	•
UNIVERSAL 320	•		•	•	•	•		•	•	•	•
UNIVERSAL 320 R	•		•	•	•	•		•	•	•	•
ROTINA 380	•		•	•	•	•		•	•	•	•
ROTINA 380 R	•		•	•	•	•		•	•	•	•
ROTINA 420	•		•	•	•	•		•	•	•	•
ROTINA 420 R	•		•	•	•	•		•	•	•	•
ROTANTA 460 / 460 R	•		•	•	•	•		•	•	•	•
ROTANTA 460 RC / 460 RF	•		•	•	•	•		•	•	•	•
ROTOFIX 46	•		•	•	•		•		•	•	•
ROTOFIX 46 H	•		•	•	•		•		•	•	•
ROTIXA 500 RS	•		•	•	•	•		•	•	•	•
ROTO SILENTA 630 RS	•		•	•	•	•		•	•	•	•
Robotic centrifuges	Details on our models MIKRO 220 Robotic, ROTINA 380, 380 R, 380 RC Robotic and										
ROTO LAVIT II	•		•	•	•	•			•	•	

light alloy chamber
 air cooling
 cooling (-20 °C to +40 °C)
 heating (to +90 °C)
 automatic rotor recognition
 rapid rotor change system
 brushless drive
 control panel
 error display
 imbalance detection
 data report system (option)
 also available in 115 V / 60 Hz

•	•					•	E plus	•	•	•	EBA 200 / 200 S
	•					•	E	•	•	•	EBA 270
	•			•	•	•	M	•	•	•	EBA 280 / 280 S
•	•					•	E plus	•	•	•	HAEMATOKRIT 200

•	•					•	E plus	•	•	•	MIKRO 185
	•					•	N plus	•	•	•	MIKRO 200
		• ^{#)}				•	N plus	•	•	•	MIKRO 200 R
	•			•		•	N plus	•	•	•	MIKRO 220
		•		•		•	N plus	•	•	•	MIKRO 220 R

	•			•		•	E	•	•	•	ROTOFIX 32 A
	•			•		•	N plus	•	•	•	UNIVERSAL 320
		•		•		•	N plus	•	•	•	UNIVERSAL 320 R
	•			•		•	C	•	•	•	ROTINA 380
		•		•		•	C	•	•	•	ROTINA 380 R
	•			•		•	C	•	•	•	ROTINA 420
		•		•		•	C	•	•	•	ROTINA 420 R
	• 460	• 460 R		•		•	C	•	•	•	ROTANTA 460 / 460 R
		•		•		•	C	•	•	•	ROTANTA 460 RC / 460 RF
	•			•		•	N plus	•	•	•	ROTOFIX 46
			•	•		•	N plus	•	•	•	ROTOFIX 46 H
		•		•		•	S	•	•	•	ROTIKA 500 RS
		•		•		•	S	•	•	•	ROTO SILENTA 630 RS











ROTANTA 460 Robotic are given on pages 177 to 181.



Robotic centrifuges

	•					•	Touch	•	•	•	ROTO LAVIT II
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^{#)} Adjustable temperature range MIKRO 200 R: -10 °C to +40 °C

HETTICH | CAPACITY OF THE CENTRIFUGES

Important tubes at a glance										
Volume in ml	0.2-2	8x0.2	0.5	15	50	100	250	1.6-7	4-10	15
H x W x D in mm										
Ø x L in mm	6-11x38	-	11x36	17x100	34x100	40x115	65x115	13x75/100	16x75/100	17x120

CENTRIFUGE MODELS	Maximum number of tubes per centrifuge										
HANDZENTRIFUGE	-	-	-	4	-	-	-	4	4	4	
EBA 200/EBA 200 S	-	-	8	8	-	-	-	8	- / 8	4	
EBA 270	-	-	6	6	-	-	-	6	6	-	
EBA 280/EBA 280 S	-	-	12	12	6	-	-	12	8 / 12	6	
MIKRO 185	24	-	12	-	-	-	-	-	-	-	
MIKRO 200/200 R	30	4x8	15	-	-	-	-	-	-	-	
MIKRO 220/220 R	48 (60)	6x8	15	12	6	-	-	12	8* / 12	6	
ROTOFIX 32 A	(36)	-	24	32	6	4 (44x100 mm)	-	40/32	28/32	32	
UNIVERSAL 320/320 R	30	24x8	15	32	6	4 (44x100 mm)	-	40/32	28/32	32	
ROTINA 380/380 R	30 (60)	24x8	15	52	12	4 (44x100 mm)	4	64/76	52	36	
ROTINA 420/420 R	30 (160)	48x8	15	72	16	12	4	104	72	52	
ROTANTA 460/460 R ROTANTA 460 RC/460 RF	30 (240)	48x8	15	148	16	12	6	196	148	96	
ROTOFIX 46	-	-	-	48	8	4	4	-	-	28	
ROTIXA 500 RS	(336)	48x8	-	168	24	16	6	200	168	112	
ROTO SILENTA 630 RS	-	-	-	180	36	24	-	180	180	138	
MIKRO 220 Robotic	 /  24 / 12	-	-	-	-	-	-	-	-	-	
ROTINA 380/380 R/380 RC Robotic	on request							48	48	on request	
ROTANTA 460 Robotic	on request							80	80	on request	
ROTOLAVIT II	-	-	-	24x5 ml	-	-	-	-	-	-	

¹⁾ Tubes are only accommodated by the MIKRO 220 R.

											Maximum performance of the centrifuge
50	250/500	250/290	650/750	1,000	2,000	MTP	500	-	-		
29x115/115	60x162/96x147	61x122/62x137	97x139/152	96x176	180x150x100	86x128x15	quadruple	-	-		

Maximum number of tubes per centrifuge											max. RCF	max. RPM min ⁻¹
-	-	-	-	-	-	-	-	-	-	-	1,298	3,000
-	-	-	-	-	-	-	-	-	-	-	3,461/6,153	6,000/8,000
-	-	-	-	-	-	-	-	-	-	-	2,254	4,000
3/-	-	-	-	-	-	-	-	-	-	-	4,146/5,071	6,000
-	-	-	-	-	-	-	-	-	-	-	17,008	13,300
-	-	-	-	-	-	-	-	-	-	-	21,382	15,000
3/-	-	-	-	-	-	-	-	-	-	-	31,514	18,000
8	-	-	-	-	-	-	-	-	6	12	4,226	6,000
8	-	4 x 200 ml	-	-	-	-	10	-	6	12	21,382	15,000
16	-	4	-	-	-	-	12	-	8	-	24,400	15,000
20	-	4	4x600 ml	-	-	-	16	-	8	-	24,400	15,000
40/28	4	8	4	-	-	-	24	4x450 ml	16	-	24,400	15,000
8	-	4	-	-	-	-	-	-	-	-	3,095	4,000
40	4	6	4	4	-	-	24	4	12	-	18,038	11,500
48/36	6	6	6	6	6	6	-	12	-	-	6,520	6,000
-	-	-	-	-	-	-	-	-	-	-	18,516	13,000
16	on request						6	on request			4,696	5,100
24	on request						12	on request			6,446	6,200
-	-	-	-	-	-	-	-	-	-	-	1,438	3,500

Model variants for special requirements

The following variants of the refrigerated models UNIVERSAL 320 R, ROTINA 380 R, ROTINA 420 R, ROTANTA 460 R/RC/RF, ROTIXA 500 RS and ROTO SILENTA 630 RS are available:

Variants with connection for nitrogen (N₂) flushing:

For centrifugation of reactive substances or substances which are unstable in aerial oxygen. If required, customers should install an oxygen concentration monitor.

Heating/cooling variants (H/C):

For applications demanding temperatures above 40 °C, such as mineral oil testing according to ASTM, material endurance tests, etc.

The heating/cooling variants of the UNIVERSAL 320 R feature no cooling unit and no built-in heater. An external refrigerated/heating circulator must be provided by the customer. Depending on the circulator performance, the centrifuge is able to heat/refrigerate in a range from 0 °C to +90 °C.

The floorstanding ROTO SILENTA 630 RS and ROTIXA 500 RS centrifuges are also available as variants with internal cooling unit or for connection to external cooling units, and as GMP versions.

	Variant	Power supply*	Frequency	Cat. No.
UNIVERSAL 320 R	N ₂ flushing	200–240 V	50 Hz	1406-20
		240 V	60 Hz	
UNIVERSAL 320 R	N ₂ flushing	115–127 V	60 Hz	1406-21
UNIVERSAL 320 R**	H/C to +90 °C	200–240 V	50–60 Hz	1406-50
UNIVERSAL 320 R**	H/C to +90 °C	100–127 V	50–60 Hz	1406-51
UNIVERSAL 320 R**	H/C to +90 °C plus N ₂ flushing	200–240 V	50–60 Hz	1406-70
UNIVERSAL 320 R**	H/C to +90 °C plus N ₂ flushing	100–127 V	50–60 Hz	1406-71
ROTINA 380 R	H/C to +90 °C	200–240 V	50–60 Hz	1706-50
ROTINA 420 R	N ₂ flushing	200–240 V	50 Hz	4706-20
ROTINA 420 R	H/C to +90 °C	200–240 V	50 Hz	4706-50
ROTANTA 460 R	N ₂ flushing	200–240 V	50 Hz	5660-20
ROTANTA 460 R	H/C to +90 °C	200–240 V	50 Hz	5660-50
ROTANTA 460 R	H/C to +90 °C	100–127 V	60 Hz	5660-51
		100 V	50 Hz	
ROTANTA 460 R	H/C to +90 °C plus N ₂ flushing	200–240 V	50 Hz	5660-70
ROTANTA 460 RC	H/C to +90 °C	200–240 V	50 Hz	5670-50
ROTANTA 460 RF	H/C to +90 °C	200–240 V	50 Hz	5675-50
ROTIXA 500 RS	H/C to +60 °C	230–240 V	50 Hz	4950-50
ROTIXA 500 RS	GMP, internal cooling unit with water-cooled condenser	220–240 V	50–60 Hz	4950-80
ROTO SILENTA 630 RS	N ₂ flushing	400 V 3~ +N	50–60 Hz	5005-20
ROTO SILENTA 630 RS	H/C to +90 °C	400 V 3~ +N	50–60 Hz	5005-50
ROTO SILENTA 630 RS	brine cooling	400 V 3~ +N	50–60 Hz	5005-60
ROTO SILENTA 630 RS	GMP, internal cooling unit with water-cooled condenser	400 V 3~ +N	50–60 Hz	5005-80
ROTO SILENTA 630 RS	GMP, external cooling unit	400 V 3~ +N	50–60 Hz	5005-90

*) Other voltages on request.

**) An external refrigerated / heating circulator must be provided by the customer.

Centrifugation

Centrifuges generate centrifugal forces which are many times stronger than the pull of the earth's gravity. They separate suspended particles in liquids, or separate liquids of differing densities from each other. By centrifugation, sedimentation occurs much more rapidly than by the natural force of gravity.

A range of different rotors are available for the various applications. In laboratory centrifuges the principal rotors used are

- angle rotors and
- swing-out rotors.

Both rotor types have their specific advantages.



THE ANGLE ROTOR

Fixed-angle rotors are used primarily in the higher speed range. Their relatively low drag means high speeds are attained. The oblique angling of the tubes shortens the overall distance the particles have to travel, thereby additionally speeding up the sedimentation process.



THE SWING-OUT ROTOR

During centrifugation, the tubes are swung horizontal. In the process, the sediment is deposited at the bottom of the tube, phase limits are formed horizontally. If higher capacities are required in the mid speed range, swing-out rotors are used. The wide variety of accessories is a further feature of these rotors.

CALCULATING CENTRIFUGAL FORCE

The performance of a centrifuge is often specified as the maximum rotor speed. However, the speed provides only an approximation of the force actually acting on the centrifuged material and causing the mixtures to be separated. This force is termed the relative centrifugal force (RCF). The non-unit-specific numerical value indicates the multiple by which the centrifugal force exceeds the acceleration due to gravity 'g'. The formula for calculating RCF is:

$$\text{RCF} = \left(\frac{n}{1000}\right)^2 \times r \times 1,118$$

n = revolutions per minute (RPM)
r = radius in mm

This means that a doubling of the radius results in a doubling of the RCF; a doubling of the speed results in a quadrupling of the RCF. Centrifuge performance should therefore always be compared by way of the RCF value instead of rpm.

The state-of-the-art control panels from Hettich are easy to operate and specifically tailored to users' needs. Entry of the parameters is fast, precise and convenient

by way of an adjuster knob and / or selector keys on a foil keypad. The intuitive display shows the actual values in digital format while the centrifuge is running.

THE E CONTROL PANEL



EBA 270



ROTOFIX 32 A

The E(conomy) control panel is fitted in the EBA 270 and ROTOFIX 32 A models. The required centrifugation parameters can be entered quickly and easily on the user-friendly keypad:

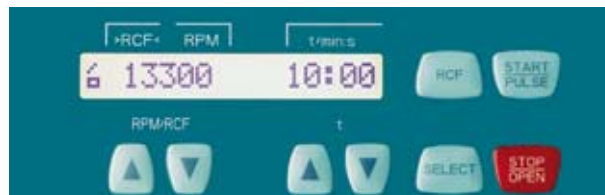
DISPLAY

- RPM Speed indication. Entry in increments of 100.
- t Time indication. Entry in minutes, max. 99 min.

KEYPAD

- ▲ Increases the relevant value.
- ▼ Decreases the relevant value.
- PULSE For short centrifugation steps.
- OPEN Opens the lid (EBA 270).
- START Starts centrifugation.
- STOP Stops centrifugation manually
- RCF Switches from RPM to RCF display (ROTOFIX 32 A).

THE E PLUS CONTROL PANEL



The models EBA 200, EBA 200 S, HAEMATOKRIT 200 and MIKKRO 185 are operated with the E Plus control panel. In contrast to the E control panel this allows entry of the speed (RPM) **or** the relative centrifugal force (RCF).

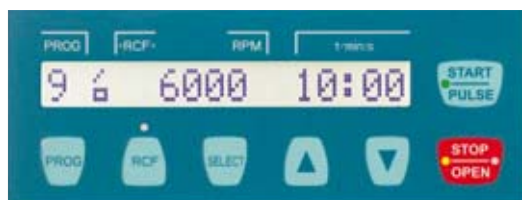
DISPLAY

- >RCF< Relative centrifugal force.
- RPM Speed indication. Entry in increments of 10.
- t/min:s Centrifugation time (max. 99 min : 59 sec).

KEYPAD

- ▲ Increases the relevant value.
- ▼ Decreases the relevant value.
- RCF Switches from RPM to RCF display. Entry of the RCF in increments of 1. Input of rotor radius in mm in RCF mode.
- SELECT Guides the user through the menu options.
- START Starts centrifugation.
- PULSE For short centrifugation steps.
- STOP Stops centrifugation manually.
- OPEN Opens the lid at standstill.

THE M CONTROL PANEL



Centrifuge models EBA 280 and EBA 280 S are equipped with the M control panel. The parameters are selected with the Select key and the desired values are set using arrow keys and stored by pressing the Start/Pulse key.

DISPLAY

- PROG** Program number.
Ten programmable memories are available.
- >RCF<** Relative centrifugal force.
- RPM** Speed indication. Entry in increments of 10.
- t/min:s** Centrifugation time (max. 99 min : 59 sec).

KEYPAD

- PROG** Selects the program menu to call up or store programs.
- RCF** Switches from RPM to RCF display. Entry of the RCF in increments of 1. Entry of the centrifuging radius in mm.
- SELECT** Guides the user through the menu options.
- ▲** Increases the relevant value.
- ▼** Decreases the relevant value.
- START PULSE** Starts centrifugation.
For short centrifugation steps.
- STOP OPEN** Stops centrifugation manually.
Opens the lid at standstill.

A LED in the keyboard lights up:


- when the RCF display is activated (RCF key)
- during centrifugation (Start/Pulse key)
- during the braking period (Start/Open key – LED at the right)
- if the lid can be opened (Start/Open key – LED at the left)

THE N PLUS CONTROL PANEL





The MIKRO 200 / 200 R, MIKRO 220 / 220 R, UNIVERSAL 320 / 320 R and ROTOFIX 46 / 46 H models are quick and easy to operate using this variant of the N control panel. The parameters are selected with the Select key. An adjuster knob is used to set the values, and the settings are stored by pressing the Start/Impulse key.

DISPLAY

- P** Program number. Four (MIKRO 200 / 200 R) or 10 (MIKRO 220 / 220 R, UNIVERSAL 320 / 320 R, ROTOFIX 46 / 46 H) programmable memories are available.
- T/°C** Temperature of refrigerated and heatable centrifuges. The temperature of the refrigerated models is infinitely variable between -20 °C and +40 °C (MIKRO 220 R, UNIVERSAL 320 R) or between -10 °C and +40 °C (MIKRO 200 R). Model ROTOFIX 46 H can be heated up to +90 °C.
- >RCF<** Relative centrifugal force.
- RPM** Speed indication. Entry in increments of 10.
- t/min** Centrifugation time (max. 99 min : 59 sec).
-  Entry of the acceleration ramp 1 – 9
Entry of the braking ramp 1 – 9

KEYPAD


-  Pre-cools the rotor chamber (MIKRO 200 R, MIKRO 220 R and UNIVERSAL 320 R) to the required temperature.
-  Heats the rotor chamber of the ROTOFIX 46 H 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 IMPULSE** Starts centrifugation.
For short centrifugation steps.
- STOP OPEN** Stops centrifugation manually.
Opens the lid at standstill.

THE C CONTROL PANEL




The advanced C control panel significantly facilitates the daily laboratory routine. Parameter selection is done via the use of symbol keys. Values are set with the control knob, and recorded by pressing the Start key. The temperature in the refrigerated ROTINA 380 R, ROTINA 420 R, ROTANTA 460 R and ROTANTA 460 Robotic centrifuges can be set in either Celsius (°C) or Fahrenheit (°F) degrees.

DISPLAY

- PROG** Entry and recall of the program number. 98 programs can be stored.
- T/°C** Entry of the temperature from -20 °C to +40 °C or -4 °F to +104 °F in increments of 1 with refrigerated models.
-  Entry of the run-up time in ramps 1 – 9 or in min : sec. Entry of the run-down time in ramps R 1 – 9 and B 1 – 9 or in min : sec. Also unbraked run-down or a brake force cut-off speed can be selected.
- RCF** Entry of the relative centrifugal force in increments of 1. Entry of the centrifuging radius (RAD) in mm.
- RPM** Entry of the speed in increments of 10.
- TIME** Entry of the centrifugation time (max. 99 h : 59 min : 59 sec) or continuous operation.

KEYPAD

- START** Starts centrifugation. Starts short centrifugation. Stores entries and changes.
-  Starts pre-cooling program **PREC**.
- STOP** Stops centrifugation manually.
- OPEN** Opens the lid at standstill.

Centrifuges with C control panel permit the centrifugation time to be switched from „at start“ (commencing upon start) to „at speed“ (start when the set speed has been reached).

OPTIONS

PROGRAM INTERLOCKING:
to combine several centrifugation runs.

THE S CONTROL PANEL






This special-class control panel is standard with the ROTIXA 500 RS and ROTO SILENTA 630 RS floorstanding centrifuges.

DISPLAY

- PROG-Nr** Program number. 89 programmable memories are available.
- T/°C** Temperature.
- PROFIL** Run-up and run-down profile.
- n/min-1** Speed indication.
- t/min:sec** Centrifugation time (max. 999 min : 59 sec).

KEYPAD

- STO** Stores the program.
- RCL** Calls up the selected program.
- PROG** Selects the program menu.
-  Entry of the temperature from -20 °C to +40 °C in increments of 1 °C. Entry of the rotor radius in mm in RCF mode
- RCF** Switches from RPM to RCF display. Entry of the RCF in increments of 1.
-  Entry of the run-up time in ramps 1 – 9 or in min : sec.
-  Entry of the run-down time in ramps R 1 – 9 and B 1 – 9 or in min : sec. Also unbraked run-down or a brake force cut-off speed can be selected.
- J RCF** The integral over the RCF indicates the overall RCF acting on the centrifuged material during the running time so far.
- n** Entry of the speed in increments of 10.
- t** Entry of the centrifugation time (max. 999 min : 59 sec) or continuous operation.
- START** Starts centrifugation.
- STOP** Stops centrifugation manually.

OPTIONS

PROGRAM INTERLOCKING:
to combine several centrifugation runs.

DATA REPORT SYSTEM:
For detailed information on this subject, please refer to the HettInfo section on pages 172-173

Symbols and Abbreviations

	reaction tubes up to 5.0 ml
	cryo tubes
	PCR strips
	standard tubes
	blood collection tubes urine tubes
	tubes with screw cap
	bottles
	plates filter plates
	racks
	blood bags
	special tubes
	hematocrit capillaries
	cyto accessories For detailed information on the Hettich cyto system, please refer to the pages 138-143.

	swing-out rotor
	angle rotor
	drum rotor
	hematocrit rotor, disk rotor

ABBREVIATIONS

CP	=	Culture Plate
DWP	=	Deep Well Platte
MS	=	Micronic System
MTP	=	Microtitre Plate
QP	=	Filter Plate
PA	=	polyamide
PC	=	polycarbonate
PE	=	polyethylene
PP	=	polypropylene

C	C after the model name stands for underbench centrifuge .
F	F after the model name stands for floorstanding centrifuge .
H	H after the model name stands for heated centrifuge .
R	R after the model name stands for refrigerated centrifuge .
S	S after the model name stands for S control panel (except EBA 200 S, EBA 280 S).
✦	max. angle the rotor swings out to

Available tubes

	Capacity in ml	Dimensions Ø x L in mm	Description	Cat. No.		Capacity in ml	Dimensions Ø x L in mm	Description	Cat. No.	
	1.5	11x38	microlitre tube	2078		200	56 x 112	bottle, PP, with screw cap	0555	
	2.0	11x38		0536		250	61 x 122		5127	
5	12x75	tube, glass, cylindrical	0553	600		93x134	0551			
6	12x82		0501	650		97x139	0554			
7	12x100		0578	750		97x152	0512			
9	14x100		0500	1,000		96x176	4239			
12	17x100		tube, glass, conical, calibrated	0503			450		97 x 110	bucket, PP
15	17x100	tube, glass, cylindrical	0507	750			96 x 135		4234-A	
		tube, glass, cyl., calibrated	0518	1,000			98 x 138		bucket, stainless steel, with screw cap	4255
15	17x103	tube, glass, conical	0502			2,000	180x150x100 HxWxD		bottle, PP, with screw cap	0550
		tube, glass, conical	0515		30	24 x 151	chrome bath tube with stopper	0508		
	tube, glass, conical, calibrated	0516	0529							
25	24x100	tube, glass, cylindrical	0519		30	44 x 105	chrome bath tube	0534		
50	34x100		0521			-	rubber stopper for 0534	0535		
94	38x102	tube, PP, cylindrical	0549		25	24 x 146.5	Schlenk tube	0532		
100	40x115	tube, glass, cylindrical	0523		50	38 x 148.5		0533		
100	44x100		0526		100	37x200	ASTM tube (petroleum tester), glass, calibrated	0531 conical		
250	56x147		0525		100	58x161	0528 pear-shaped			
250	65x115		0530		3.3	-	disposable Pasteur pipette, PE	0552		
	30		26x95						0545	
	50	29x107	tube with screw cap, PC, cylindrical	0546						
	85	38x106	0547							
	94	38x102	tube, PC, with screw thread	0538						
-		screw cap for 0538	0539							
	15	17x120	tube with screw cap, PP, conical	0509						
	50	29x115	0513							

Please make sure not to exceed the tubes' max. permissible RCF.

The capacity of the vessels is given as the nominal volume according to the manufacturer. The filling volume can be different.

The chrome bath tubes 0508, 0529 and 0534 may not be centrifuged with the stopper. The stopper only serves to close the tube for agitating or mixing.