

**FIRST IN
ROBOTICS**



ROTANTA 46 RSC ROBOTIC
Robotic Centrifuge
cooled

Hettich
ZENTRIFUGEN

ROTANTA 46 RSC ROBOTIC

The ROTANTA 46 RSC ROBOTIC is a refrigerated centrifuge with PC control and rotor positioning. It is ideal wherever sample processing can be automated. Especially in genetic and pharmaceutical research, it significantly contributes to rationalisation of routine tasks. As well, in pharmaceutical research more and more agents are being tested on cells to keep animal testing to a minimum – necessitating the use of centrifuges.

The ROTANTA 46 RSC ROBOTIC integrates perfectly into automated laboratories. Highly qualified laboratory personnel no longer have to carry out monotonous tasks. Moreover, analyses bearing a high risk of infection can be carried out automatically.

The centrifuge reaches a speed of 6,200 min⁻¹, or a maximum of 6,446 RCF with a capacity of 4 x 250 ml, 24 x MTP, 4 DWP or comparable systems. Its robust, sturdy design guarantees trouble-free, 24-hour operation.

DESIGN

- Metal housing
- Metal lid
- Stainless steel centrifuging chamber
- Casing finished in scratch- and impact-resistant coating

LOCATION

- Ambient temperature between + 5 °C and + 40 °C
- Relative humidity max. 80 % up to + 31 °C, linearly decreasing to 50 % at + 40 °C

REFRIGERATION

- Infinitely variable setting from – 20 °C to + 40 °C
- Cooling agent: R 404A

SAFETY

- Lid locking
- Hatch locking
- Emergency lid lock release
- Motor overheating protection
- Chamber overheating protection
- Imbalance switch-off
- Excess temperature protection of brake resistors
- Dual indication when the rotor is stationary
- Additional control of data transfer
- Subject to regular inspection
- Device protection class I

TECHNOLOGY

- Frequency drive
- Maintenance required only according to BGR 261 regulation
- 89 programmable memories
- Noise generation at 62 dB (A)
- Kinetic energy of 50,000 Nm



ROTANTA 46 RSC ROBOTIC control panel

OPERATION AND CONTROL

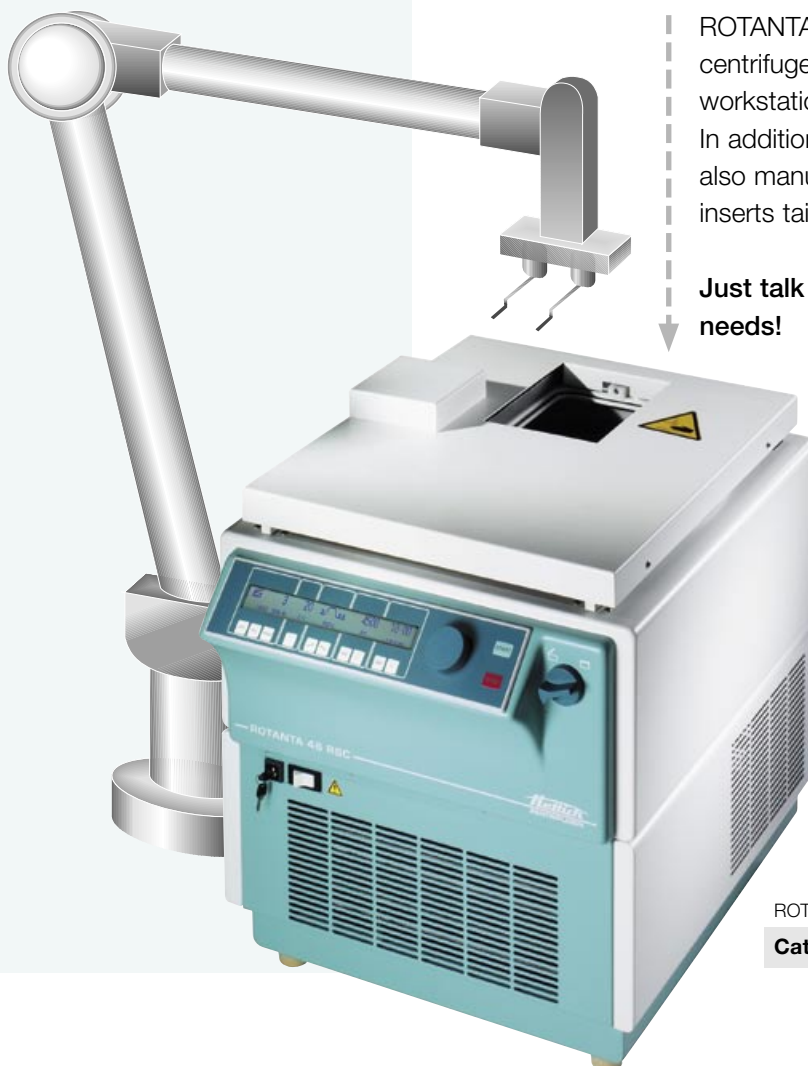
All centrifuge functions can be remote-controlled via optical data transmission. A 9-pole RS 232 cable, an opto data box and a light conducting cable are supplied with the centrifuge. The controlling PC requires a free RS 232 interface.

The driving motor positions the rotors and securely holds them in the 2 or 4 designated programmable bucket positions under the hatch. After completion of the centrifuging cycle, the drive automatically turns them to rotor position No. 1.

Status information like standstill, acceleration, centrifuging cycle, lid, rotor position, etc. can be accessed.

ROBOTIC

- Remote control of all functions
- If necessary, commands can also be entered manually on the centrifuge's control panel.
- Sophisticated microprocessor technology
- Recallable status information
- Programmable bucket position
- Positioning accuracy < 0.6 mm



ROTANTA 46 RSC ROBOTIC centrifuges can be integrated in any workstation.

In addition to standard accessories, we also manufacture special buckets and inserts tailored to your requirements.

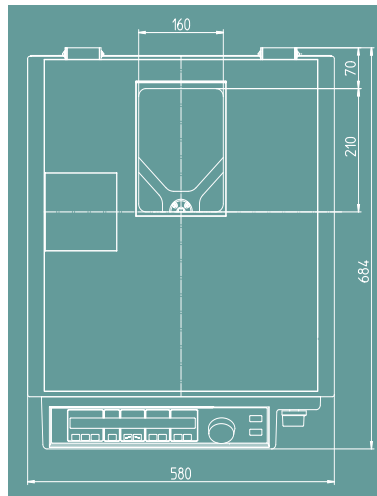
Just talk to us about your special needs!

ROTANTA 46 RSC ROBOTIC

Cat. No. 4816

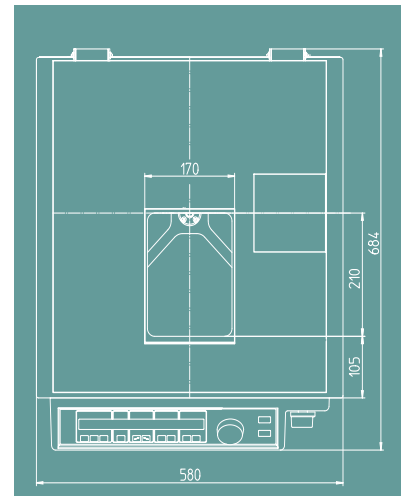
LOADING AND UNLOADING

A sliding hatch in the lid opens before and after every centrifuging cycle and allows loading and unloading of the rotor with a robotic arm. Fully automatic loading and unloading relieves laboratory personnel of routine work while saving valuable time.



Cat. No.s 4816/4816-01

A hatch of 160 x 210 mm opens in the rear section of the lid.
The robotic arm has rear access.



Cat. No.s 4816-10/4816-11

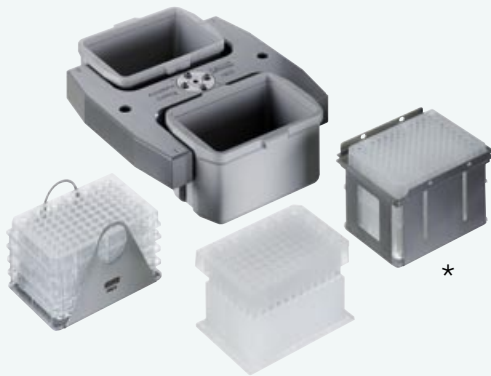
A hatch of 170 x 210 mm opens in the front section of the lid.
The robotic arm has front access.



By means of the dimensioned drawings, the location of the centrifuge can be defined precisely before delivery.

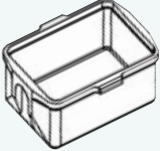

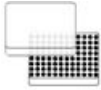
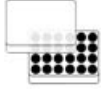





ROTORS AND ACCESSORIES

Swing-out rotor, 2-place





illustrated with buckets No. 4623-R
 $n = 6,200 \text{ min}^{-1}$
 max. RCF = 6,446

Cat. No. 4620 (without buckets)

D x W x H in mm ⁶⁾	86 x 128 x 15	86 x 128 x 17.5	86 x 128 x 22	86 x 128 x 44.5	86 x 128 x 46	86 x 128 x 83
plates	MTP		CP	DWP	MS	QP
 bucket Cat. No. 4623-R						
Cat. No.	4626					
plates per rotor	12	10	8	2	2	2
RCF	6,446					
radius in mm	max. 150					
run-up in sec	38					
run-down in sec	 40  390					
temperature °C ¹⁾	+12					

Abbreviation / Symbol Meaning

MTP	Microtitre plate
CP	Culture plate
DWP	Deep well plate
MS	Micronic system
QP	Filter plate
	braked run-down at level 9
	unbraked run-down

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

⁶⁾ Max. adaptable size (D x W x H): 86 x 128 x 85 mm

* Customised removal frame








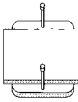
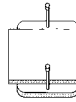
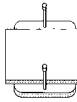
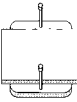
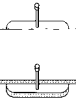
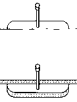


ROTORS AND ACCESSORIES

swing-out rotor, 4-place





illustrated with buckets No. 4428
 $n = 4,500 \text{ min}^{-1}$
 max. RCF = 4,460

Cat. No. 4444 (without buckets)

D x W x H in mm ⁶⁾	86 x 128 x 15	86 x 128 x 17.5	86 x 128 x 22	86 x 128 x 44.5	86 x 128 x 46	86 x 128 x 83
plates	MTP		CP	DWP	MS	QP
 bucket Cat. No. 4428						
						
Cat. No.	4429					
plates per rotor	16	12	8	4	4	4
RCF	3,849					
radius in mm	170					
run-up in sec	78					
run-down in sec	 75  1,080					
temperature °C ¹⁾	+10					






Abbreviation / Symbol Meaning

MTP	Microtitre plate
CP	Culture plate
DWP	Deep well plate
MS	Micronic system
QP	Filter plate
	braked run-down at level 9
	unbraked run-down

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

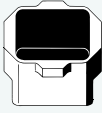























⁶⁾ Max. adaptable size (D x W x H): 86 x 128 x 85 mm

ROTORS AND ACCESSORIES

capacity ml	1.5 / 2.0	1.5 / 2.0
dimensions Ø x L mm	11 x 38	11 x 38
Cat. No.	2078/0536	-
 bucket Cat. No. 4412-R		
		
Cat. No. ³⁾	5281	5257
tubes per rotor	128	320
RCF	4,369	3,260/4,369
radius in mm	193	144/193
run-up in sec	78	
run-down in sec	☐ 75 ☐ 1,080	
temperature °C ¹⁾	+10	



swing-out rotor, 4-place, No. 4444,
illustrated with buckets No. 4412-R

capacity ml	3	5	6	7	9	15	25	50	100	250		
dimensions Ø x L mm	10 x 60	13 x 75	12 x 82	12 x 100	14 x 100	17 x 100	24 x 100	34 x 100	40 x 115	44 x 100	65 x 115	
Cat. No.	-	-	0501²⁾	0578²⁾	0500²⁾	0518²⁾	0519²⁾	0521²⁾	0523²⁾	0526²⁾	0530²⁾	
 bucket Cat. No. 4412-R												
												
Cat. No.	5267³⁾	5227³⁾	5227³⁾	5247^{3,4)}	5264³⁾	5248^{3,4)}	5242³⁾	5261	5243³⁾	5249³⁾	5262³⁾	5263
tubes per rotor	160	160	160	160	96	96	40	24	16	8	4	
RCF	4,279	4,324	4,302	4,302	4,302	4,302	4,302	4,256	4,302	4,279	4,256	
radius in mm	189	191	190	191	190	190	190	188	190	189	188	
run-up in sec	78											
run-down in sec	☐ 75 ☐ 1,080											
temperature °C ¹⁾	+10											

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

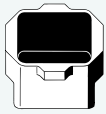














²⁾ Please make sure not to exceed the tubes' max. permissible RCF.

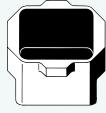


























For glass tubes the max. RCF is 4,000.

³⁾ Two each of these adapters need to be placed into bucket No. 4412-R.

⁴⁾ With Cat No. 5247-91 or 5248-91 these adapters can be ordered with a decanting aid.

ROTORS AND ACCESSORIES

capacity ml	12	15	25	30	50	250		
dimensions Ø x L mm	17 x 100	17 x 120	25 x 90	25 x 110	29 x 115	62 x 122		
Cat. No.	-	0509	-	-	-	0513	5127	
 bucket Cat. No. 4412-R								
								
Cat. No.	6306³⁾	4459	6306³⁾	5266³⁾	5243³⁾	5259³⁾	5263	
tubes per rotor	56	52	56	40	16	16	24	4
RCF	4,460	4,460	4,302	4,302	4,392	4,460	4,392	4,392
radius in mm	197	197	190	190	194	197	194	194
run-up in sec	78							
run-down in sec	☐ 75 ○ 1,080							
temperature °C ¹⁾	+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	1.6-5	4-7	4-7	8.5-10	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	15 x 102
Cat. No.	blood collection tubes								blood collection/urine tubes				
 bucket Cat. No. 4412-R													
													
Cat. No. ³⁾	5267	5268	5227	5264	5247	5268	5248	5258	5268	6301	5264	5248	5264
tubes per rotor	160	96	160	96	160	96	96	88	96	96	96	96	96
RCF	4,279	4,369	4,324	4,324	4,302	4,369	4,302	4,302	4,369	4,302	4,324	4,302	4,324
radius in mm	189	193	191	191	190	193	190	190	193	190	191	190	191
run-up in sec	78												
run-down in sec	☐ 75 ○ 1,080												
temperature °C ¹⁾	+10												

Abbreviation / Symbol Meaning

MTP	Microtitre plate
CP	Culture plate
DWP	Deep well plate
MS	Micronic system
QP	Filter plate
☐	braked run-down at level 9
○	unbraked run-down

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⁾ Two each of these adapters need to be placed into bucket No. 4412-R or 5628-R.

⁴⁾ With Cat. No. 5247-91 or 5248-91 these adapters can be ordered with a decanting aid.

⁶⁾ Max. adaptable size (D x W x H): 86 x 128 x 85 mm

* Customised removal frame

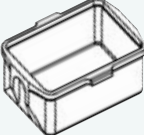






ROTORS AND ACCESSORIES

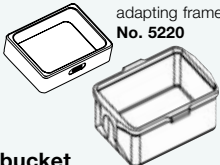













swing-out rotor, 4-place



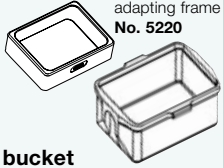







illustrated with buckets No. 5628-R
 n = 4,600 min⁻¹
 max. RCF = 4,637

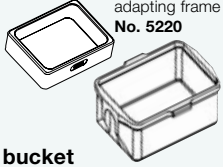


























Cat. No. 5624 (without buckets)
















D x W x H in mm ⁶⁾	86 x 128 x 15	86 x 128 x 17.5	86 x 128 x 22	86 x 128 x 44.5	86 x 128 x 46	86 x 128 x 83
plates	MTP		CP	DWP	MS	QP
 bucket Cat. No. 5628-R						
Cat. No.	4626					
plates per rotor	24	20	16	4	4	4
RCF	4,211					
radius in mm	178					
run-up in sec	90					
run-down in sec	☐ 95 ☐ 960					
temperature °C ¹⁾	+4					

capacity ml	1.5 / 2.0	1.5 / 2.0	3	5	6	7	15	25	50	100	100	250	250
dimensions Ø x L mm	11 x 38	11 x 38	10 x 60	13 x 75	12 x 82	12 x 100	17 x 100	24 x 100	34 x 100	40 x 115	44 x 100	65 x 115	62 x 122
Cat. No.	2078/0536	-	-	-	0501²⁾	0578²⁾	0518²⁾	0519²⁾	0521²⁾	0523²⁾	0526²⁾	-	5127
 bucket Cat. No. 5628-R													
Cat. No.³⁾	5281	5257	5267	5227	5247⁴⁾	5248⁴⁾	5242	5243	5249	5262	5263		
tubes per rotor	128	320	160	160	160	96	40	16	8		4		
RCF	4,164	3,004/4,164	4,069	4,116	4,093			4,069		4,045	4,187		
radius in mm	176	127/176	172	174	173			172		171	177		
run-up in sec	90												
run-down in sec	☐ 95 ☐ 960												
temperature °C ¹⁾	+4												

ROTORS AND ACCESSORIES

capacity ml	15	50	50	
dimensions Ø x L mm	17 x 120	29 x 115	29 x 115	
Cat. No.	0509	0513	-	
 bucket Cat. No. 5628-R				
				 + 2 x 6316
Cat. No.	6306³⁾	5259³⁾	5269	5243³⁾
tubes per rotor	56	16	24	16
RCF	4,258	4,187	4,258	4,093
radius in mm	180	177	180	173
run-up in sec	90			
run-down in sec	☐ 95 ☐ 960			
temperature °C ¹⁾	+4			

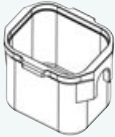












capacity ml	1.1 - 1.4	2.6 - 2.9	2.7 - 3	4 - 5.5	4.5 - 5	4.9	7.5 - 8.2	9 - 10	1.6 - 5	4 - 7	4 - 7	8.5 - 10	10
dimensions Ø x L mm	8 x 66	13 x 65	11 x 66	15 x 75	11 x 92	13 x 90	15 x 92	16 x 92	13 x 75	13 x 100	16 x 75	16 x 100	15 x 102
Cat. No.	blood collection tubes								blood collection/urine tubes				
 bucket Cat. No. 5628-R													
													
Cat. No. ³⁾	5267	5268	5227	5264	5247	5268	5248	5258	5268	6301	5264	5248	5258
tubes per rotor	160	96	160	96	160	96	96	88	96	96	96	96	88
RCF	4,069	4,164	4,116		4,093	4,164	4,093		4,164	4,093	4,116	4,093	
radius in mm	172	176	174		173	176	173		176	173	174	173	
run-up in sec	90												
run-down in sec	☐ 95 ☐ 960												
temperature °C ¹⁾	+4												

capacity ml	1.5/2.0	3	4	4	5	6	7
dimensions Ø x L mm	11 x 38	10 x 60	10 x 88	12 x 60	13 x 75	12 x 82	12 x 100
Cat. No.	2078/0536	-	-	-	-	0501²⁾	0578²⁾
 bucket Cat. No. 5625							
							
Cat. No.	4730	4730		4732			
tubes per rotor	224	120		80			
RCF	3,572/4,637			4,637			
radius in mm	151/196			196			
run-up in sec	90						
run-down in sec	☐ 95 ☐ 960						
temperature °C ¹⁾	+4						

The adapters for bucket No. 5625 are built in layers. With shorter tubes, 1 to 2 layers should be removed. In the tables, the required layers are marked in grey.




























- 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) Two each of these adapters need to be placed into bucket No. 5628-R.
- 5) The screw cap for tube No. 0538 is available with Cat. No. 0539 (dimensions with lid 38 x 106 mm).




























ROTORS AND ACCESSORIES

capacity ml	10	15	25	50	85	100
dimensions Ø x L mm	17 x 70	17 x 100	24 x 100	35 x 105	38 x 106	40 x 115
Cat. No.	2079	0518²⁾	0519²⁾	0548	0549	0523²⁾
 bucket Cat. No. 5625						
						
Cat. No.	4733	4734	4734	4735	4735	4736
tubes per rotor	68	24	12			
RCF	4,637			4,495		
radius in mm	196			190		
run-up in sec	90					
run-down in sec	☐ 95 ☐ 960					
temperature °C ¹⁾	+4					



swing-out rotor, 4-place, No. 5624,
illustrated with buckets No. 5625

capacity ml	100	250	15	50	12	25	30	50	10	30	50	85	94
dimensions Ø x L mm	44 x 100	65 x 115	17 x 120	29 x 115	17 x 100	25 x 90	25 x 110	29 x 115	16 x 80	26 x 95	29 x 107	38 x 106	38 x 102
Cat. No.	0526²⁾	0530²⁾	0509	0513	-	-	-	-	-	0545	0546	0547	0538⁵⁾
 bucket Cat. No. 5625													
													
Cat. No.	4737	4738	4739	4740	4739	4734	4740	4733	4734	4740	4736		
tubes per rotor	8	4	48	20	48	24	20	68	24	20	12		
RCF	4,637	4,495	4,637						4,495				
radius in mm	196	190	196						190				
run-up in sec	90												
run-down in sec	☐ 95 ☐ 960												
temperature °C ¹⁾	+4												

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	4 - 7	8.5 - 10	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	15 x 102
Cat. No.	blood collection tubes								blood collection/urine tubes				
 bucket Cat. No. 5625													
													
Cat. No.	4730	4732	4733	4732	4733	4733	4732	4733	4732		4733		
tubes per rotor	120	80	68	80	68	80	68	80	80	68			
RCF	4,637												
radius in mm	196												
run-up in sec	90												
run-down in sec	☐ 95 ☐ 960												
temperature °C ¹⁾	+4												

ROTANTA 46 RSC ROBOTIC

TECHNOLOGY

ROTANTA 46 RSC ROBOTIC		
Floorstanding centrifuge, without rotor	refrigerated	
	rear hatch / front hatch	rear hatch / front hatch
Power supply *	230-240 V 1~	110-127 V 1~
Frequency	50 Hz	60 Hz
Consumption	max. 2,300 VA	
Emitted interference / radio shielding	EN 55011 ISM class B	FCC class A
Interference resistance	EN 61000-6-2	
Capacity	4 x 250 ml	
Max. RPM (speed)	6,200 min ⁻¹	
Max. RCF	6,446	
Permissible density	1.2 kg/dm ³	
Temperature control, infinitely variable	-20 °C to +40 °C	
Dimensions (H x W x D)	684 x 580 x 684 mm	
Weight	approx. 130 kg	
Cat. No.	4816 / 4816-10	4816-01 / 4816-11

* 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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