

A close-up photograph of a centrifuge rotor assembly. The rotor is black with several grey and white caps. In the foreground, several stainless steel tubes are arranged in a row, each engraved with the brand name 'ortoalresa' and a model number 'Ns 220759/05'. The background shows a black bucket containing several red-tipped tubes. The overall scene is brightly lit, highlighting the metallic and plastic textures.

# orto alresa

About centrifugation

General applications | Series MAGNUS 22



## MAGNUS 22



As a floor standing equipment, Magnus 22 offers the maximum performance for your processes. Its design enables it to be installed in any space in the lab, avoiding the occupation of useful space. Its ergonomic design allows easy access to the rotor as well as traceability of the positioning to balance the load, and easy identification. Its colour TFT touch screen offers performance that enables, in addition to controlling the equipment by operational parameters, the possibility of exporting data for analysis and timer programmed operations. The autonomy provided by this equipment facilitates the automation of work cycles and modes. This also ensures traceability of the process, not leaving any parameter uncontrolled.

It has a wide range of accessories for 750 ml. tubes, microplates, microtubes and a large number of positions for the most commonly used 15 ml. conical, 50 ml. conical, 15 ml., 10 ml. and 5 ml. tubes for clinical applications.

### Features

- TFT color touch screen, visible from more than 3 m.:
- Shows RPM and RCF, time, acceleration/deceleration values (PCBS) and unbalance location system (ULS).
- Speed programming in 10 RPM/10 xg steps.
- Real RCF values on screen based on accessories configuration.
- Count up/down from "0" or at "set RPM/RCF" for reproducible tests.
- Timer from 1 sec to 99 hours programmable in 1 sec. steps and hold position.
- PCBS: Progressive controlled acceleration and braking system up to 175 selectable ramps that prevents sample homogenization after separation.
- ULS: Unbalance location system indicating on the screen the number of the bucket which produces the unbalance switch off.
- Start delay: To program the time at which the cycle is to begin.
- Linked program: Permits the linking of up to 8 consecutive programmes without the need of user intervention.
- 100 programmable memories, with protection under password.
- Several acoustic and visual messages showing the situation of the device to the user.

### Easy to use

- Microprocessor controlled. Connectivity.
- Induction motor maintenance free (brushless).
- Rotors and adapters list in memory.
- Noise level: below 60 dB.
- Start, stop, open lid and short spin with adjustable speed buttons.
- Possibility to block or modify the speed during the cycle.
- Automatic lid opening, programmable.
- Last values remain in memory.
- Automatic rotor recognition. Over-speed protection.



**Max. Capacity**  
4 x 750 ml

**Max. Speed**  
21.948 xg / 14.300 RPM

**Screen Type**  
TFT

**Version**  
Ventilated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 98/79/EC.  
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

### Safety

- Lid provided with security systems:
  - Automatic lid lock system, motorized with double lock.
  - Emergency lid-lock release.
  - Locking and protection against opening along the run.
  - Lid dropping protection.
  - Port in the lid for calibration and operation checking.
- Unbalance detection and switch off.
- Protection safety ring between the centrifugation chamber and the housing.
- Chamber of centrifugation in stainless steel (easy cleaning).
- Rotors can be removed with the lid closed. Hermetic lids.
- Rotors and adapters autoclavable, easy to install by the user.
- Forced ventilation to reduce temperature increasing.
- Automatic disconnection for energy saving up to 8 h., with deactivation option.

### Versions

	Dimensions (mm) (w x d x h)				Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 230	530	640	870	116	220-230	50-60	1020	
CE 231	530	640	870	116	110-120	50-60	1020	





## MAGNUS 22 R



The refrigerated version of our floor standing equipment offers the maximum performance for your processes. Its design enables it to be installed in any space in the lab, avoiding the occupation of useful space. Its ergonomic design allows easy access to the rotor as well as traceability of the positioning to balance the load and easy identification.

With a wide range of accessories that offer capacities for tubes of 750 ml., microplates, microtubes and a great number of positions for the more common use tubes of 15 ml. conical, 50 ml. conical, 15 ml., 10 ml., and 5 ml. for clinical applications. It also has a specific rotor for blood bags and tubes extraction. Its powerful refrigeration system enables it to maintain the minimum temperature of the chamber below 4°C regardless of the type of rotor and the speed selected. This characteristic gives the user confidence in traceability during the centrifugation cycle.

### Features

- TFT color touch screen, visible from more than 3 m.:
- Shows RPM and RCF, time, temperature, acceleration/deceleration values (PCBS) and unbalance location system (ULS).
- Speed programming in 10 RPM/10 xg steps.
- Real RCF values on screen based on accessories configuration.
- Count up/down from "0" or at "set RPM/RCF" for reproducible tests.
- Timer from 1 sec to 99 hours programmable in 1 sec. steps and hold position.
- PCBS: Progressive controlled acceleration and braking system up to 175 selectable ramps that prevents sample homogenization after separation.
- ULS: Unbalance location system indicating on the screen the number of the bucket which produces the unbalance switch off.
- Start delay: To program the time at which the cycle is to begin.
- Linked program: Permits the linking of up to 8 consecutive programmes without the need of user intervention.
- 100 programmable memories, with protection under password.
- Several acoustic and visual messages showing the situation of the device to the user.

### Easy to use

- Microprocessor controlled. Connectivity.
- Induction motor maintenance free (brushless).
- Rotors and adapters list in memory.
- Noise level: below 60 dB.
- Start, stop, open lid and short spin with adjustable speed buttons.
- Possibility to block or modify the speed during the cycle.
- Last values remain in memory.
- Automatic rotor recognition. Over-speed protection.



**Max. Capacity**  
4 x 750 ml

**Max. Speed**  
21.948 xg / 14.300 RPM

**Screen Type**  
TFT

**Version**  
Refrigerated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 98/79/EC.  
Regulation n°: (EC) 1005/2009, (EU) 517/2014.  
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

### Safety

- Lid provided with security systems:
  - Automatic lid lock system, motorized with double lock.
  - Emergency lid-lock release.
  - Locking and protection against opening along the run.
  - Lid dropping protection.
  - Port in the lid for calibration and operation checking.
- Unbalance detection and switch off.
- Protection safety ring between the centrifugation chamber and the housing.
- Chamber of centrifugation in stainless steel (easy cleaning).
- Rotors can be removed with the lid closed. Hermetic lids.
- Rotors and adapters autoclavable, easy to install by the user.
- Automatic disconnection for energy saving up to 8 h.






### Refrigeration

- Maintains the refrigeration after the centrifugation process.
- Precooling program with rotor spinning and selectable temperature.
- Guarantees 4 °C at maximum RPM.
- Temperature range from -20°C (-4°F) to 40°C (104°F) in 1°C/1°F steps. Programmable in °C o °F.
- Temperature sensor inside the chamber.
- Gas R 449A HFO (CFC free).

### Versions






	Dimensions (mm) (w x d x h)				Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 236	530	640	870		137	220-230	50	1450
CE 237	530	640	870		137	110-120	60	1450

**Accessories centrifuge Series Magnus 22**  
- Rotors & adapters

MICROTITER PLATES															
		RT 279		RT 278		RT 299		RT 277		RT 284		RT 297		RT 283	
															
		(6)						(1) (4)		(4)		(4)(5)		(1)(2)(4)(5)	
ROTOR		SWING OUT		SWING OUT		SWING OUT		SWING OUT		SWING OUT		SWING OUT		SWING OUT	
Max. capacity		104 x 5 ml.		4 x 250 ml.		6 x 250 ml.		4 x 750 ml.		12/8/4 microtiter		10/6/2/2 microtiter		4 blood bags	
RPM Max.		3.800		4.200		2.500		3.700		3.700		4.500		3.700	
Radius (mm)		160		202		212		204		182 (3)		166		204	
RCF Max. (xg)		2.583		3.984		1.481		3.122		2.786		3.758		3.122	
Min. temp. at max. speed (°C)		0		1		-5		0		-4		4		0	
SAMPLE VOLUME	Dim (mm) approx.	ADAPTERS Tubes Ref.		ADAPTERS Tubes Ref.		ADAPTERS Tubes Ref.		ADAPTERS Tubes Ref.		ADAPTERS Tubes Ref.		ADAPTERS Tubes Ref.		ADAPTERS Tubes Ref.	
750 ml.	ø96 x 130	-	-	-	-	-	-	4	RE 434	-	-	-	-	4	RE 434
500 ml.	ø90 x 120	-	-	-	-	-	-	4	RE 310	-	-	-	-	4	RE 310
250 ml.	ø60 x 135	-	-	4	RE 449	6	RE 530	4	RE 330	-	-	-	-	4	RE 330
100 ml.	ø48 x 100	-	-	4	RE 327	6	RE 558	4	RE 409	-	-	-	-	4	RE 409
85 ml. (hs) / 80 ml. (hs)	ø38 x 112	-	-	4	RE 498	6	RE 559	12	RE 500	-	-	-	-	12	RE 500
80 ml.	ø44 x 100	-	-	4	RE 422	6	RE 560	8	RE 352	-	-	-	-	8	RE 352
50 ml.	ø34 x 100	-	-	4	RE 334	6	RE 561	16	RE 317	-	-	-	-	16	RE 317
50 ml. conical	ø29 x 117	-	-	4	RE 340	6	RE 562	20	RE 472	-	-	-	-	20	RE 472
30 ml. / 30 ml. (hs)	ø25 x 98	-	-	12	RE 312	18	RE 563	24	RE 322	-	-	-	-	24	RE 322
25 ml. conical	ø29 x 83	-	-	4	RE 612	6	RE 616	20	RE 614	-	-	-	-	20	RE 614
15 ml.	ø16 x 100	-	-	28	RE 376	42	RE 564	72	RE 348	-	-	-	-	72	RE 348
15 ml. conical	ø17 x 122	-	-	20	RE 321	30	RE 565	52	RE 347	-	-	-	-	52	RE 347
15 ml. blood sample	ø16 x 132	-	-	28	RE 376	-	-	32	RE 441	-	-	-	-	32	RE 441
10 ml.	ø13 x 100	104	RE 309	40	RE 343	60	RE 566	100	RE 354	-	-	-	-	100	RE 354
10 ml. blood sample	ø16 x 107	-	-	28	RE 376	42	RE 564	72	RE 348	-	-	-	-	72	RE 348
7/10 ml. blood sample	ø13 x 107	104	RE 309	28	RE 324	42	RE 567	72	RE 349	-	-	-	-	72	RE 349
5 ml.	ø13 x 75	104	-	40	RE 343	60	RE 566	100	RE 354	-	-	-	-	100	RE 354
5 ml. blood sample	ø13 x 82	104	-	28	RE 324	42	RE 567	72	RE 349	-	-	-	-	72	RE 349
10 x 100 mm	ø10 x 100	-	-	52	RE 346	78	RE 568	144	RE 315	-	-	-	-	144	RE 315
Microtubes 1,5-2 ml.	ø11x42	-	-	24	RE 440	36	RE 569	72	RE 426	144	RE 460	72	RE 401	72	RE 426
Microtubes 0,5-0,6 ml.	ø8x30	-	-	24	RE 523	36	RE 570	72	RE 466	144	RE 584	72	RE 580	72	RE 466
Microtubes 0,2-0,4 ml.	ø6x45	-	-	24	RE 458	36	RE 571	72	RE 524	144	RE 585	72	RE 581	72	RE 524
Microtiter plates	128x86x15/21/45	-	-	-	-	-	-	12/8/4	RE 307	12/8/4	-	10/6/2	-	12/8/4	RE 307
Microtiter plates (h:80 mm)	128x86x80	-	-	-	-	-	-	-	-	-	-	2	-	-	-

(1) This rotor can be supplied with hermetic lids (RE 356).  
 (2) This rotor can fit adapters for blood bags (RE 308).  
 (3) Medium radius on bucket.

(4) Allows different configurations depending on the microplates height.  
 (5) Only available for refrigerated models.  
 (6) Available **RT 301** for 104 x 7/10 ml. bs and 10 ml.

HIGH SPEED													
		RT 280		RT 281		RT 282		RT 287		RT 292			
													
		ANGLE FIXED 45 °		ANGLE FIXED 45 °		ANGLE FIXED 30 °		ANGLE FIXED 45 °		ANGLE FIXED 30 °			
ROTOR		ANGLE FIXED 45 °		ANGLE FIXED 45 °		ANGLE FIXED 30 °		ANGLE FIXED 45 °		ANGLE FIXED 30 °			
Max. capacity		8 x 50 ml.		4 x 100 ml.		4 x 250 ml.		30 x 1,5-2 ml.		6 x 85 ml			
RPM Max.		6.000		5.600		4.700		14.300		9.000			
Radius (mm)		149		138		153		96		112			
RCF Max. (xg)		5.997		4.838		3.779		21.948		10.142			
Min. temp. at max. speed (°C)		0		-1		-4		-1		1			
SAMPLE VOLUME	Dim (mm) approx.	ADAPTERS Tubes Ref.		ADAPTERS Tubes Ref.		ADAPTERS Tubes Ref.		ADAPTERS Tubes Ref.		ADAPTERS Tubes Ref.			
750 ml.	ø96 x 130	-	-	-	-	-	-	-	-	-	-		
500 ml.	ø90 x 120	-	-	-	-	-	-	-	-	-	-		
250 ml.	ø60 x 135	-	-	-	-	4	RE 449	-	-	-	-		
100 ml.	ø48 x 100	-	-	4	RE 446	4	RE 327	-	-	-	-		
85 ml. (hs) / 80 ml. (hs)	ø38 x 112	-	-	4	RE 380	4	RE 498	-	-	6	-		
80 ml.	ø44 x 100	-	-	4	RE 338	4	RE 422	-	-	-	-		
50 ml.	ø34 x 100	8	RE 448	4	RE 335	4	RE 334	-	-	6	RE 490		
50 ml. conical	ø29 x 117	8	RE 375	4	RE 341	4	RE 340	-	-	6	RE 483		
30 ml. / 30 ml. (hs)	ø25 x 98	8	RE 370	4	RE 332	12	RE 312	-	-	6	RE 493		
25 ml. conical	ø29 x 83	8	RE 599	4	RE 597	4	RE 612	-	-	6	RE 600		
15 ml.	ø16 x 100	8	RE 369	16	RE 316	28	RE 376	-	-	18	RE 485		
15 ml. conical	ø17 x 122	8	RE 369	4	RE 339	20	RE 321	-	-	6	RE 484		
15 ml. blood sample	ø16 x 132	8	RE 369	-	-	28	RE 376	-	-	-	-		
10 ml.	ø13 x 100	24	RE 366	20	RE 320	40	RE 343	-	-	30	RE 497		
10 ml. blood sample	ø16 x 107	8	RE 369	16	RE 316	28	RE 376	-	-	18	RE 485		
7/10 ml. blood sample	ø13 x 107	8	RE 373	20	RE 320	28	RE 324	-	-	18	RE 503		
5 ml.	ø13 x 75	24	RE 366	20	RE 320	40	RE 343	-	-	30	RE 501		
5 ml. blood sample	ø13 x 82	8	RE 373	20	RE 320	28	RE 324	-	-	18	RE 492		
10 x 100 mm	ø10 x 100	24	RE 367	36	RE 326	52	RE 346	-	-	-	-		
Microtubes 1,5-2 ml.	ø11x42	24	RE 465	20	RE 408	24	RE 440	30	-	24	RE 494		
Microtubes 0,5-0,6 ml.	ø8x30	24	RE 535	20	RE 519	24	RE 523	30	RE 428	24	RE 495		
Microtubes 0,2-0,4 ml.	ø6x45	24	RE 526	20	RE 473	24	RE 458	30	RE 427	24	RE 496		
Microtiter plates	128x86x15/21/45	-	-	-	-	-	-	-	-	-	-		
Microtiter plates (h:80 mm)	128x86x80	-	-	-	-	-	-	-	-	-	-		





**orto**  
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About centrifugation

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