

A close-up photograph of a centrifuge rotor assembly. The rotor is black with several grey and red caps. In the foreground, a black cylindrical component is labeled '1' and 'ortoalresa Ns 220759/05'. To the right, several metal tubes are visible, each labeled 'ortoalresa Ns 220607/02'. The background shows more of the rotor and some red caps.

**orto  
alresa**  
About centrifugation

General applications | Series CONSUL 22





CONSUL 22



A great centrifuge, compact, high capacity and with the advantages of equipment in superior segments. The type of control provided, through its TFT colour touch screen, provides the user with features that enable, in addition to the control of the equipment by operating parameters, the possibility to export the data for subsequent analysis and future operation programming. The autonomy provided by this equipment enables the user to optimise working time in the lab, by automation of cycles and modes of operation. These features also ensure process traceability and that no parameter is uncontrolled.

The same as the rest of Ortoalresa centrifuges, it is designed to be versatile, therefore it has swing out rotors with volumes of 400 ml. per bucket, rotors for microplates 80 mm height, angle fixed rotors for high speed and microtubes as well as a wide range of adaptors for all of them.

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.

3 YEAR WARRANTY



Max. Capacity  
4 x 400 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 226	490	600	400	59	220-230	50-60	600
CE 227	490	600	400	59	110-120	50-60	600

\*IVD version available, please indicate it in your request



# CONSUL 22 R



A great refrigerated centrifuge, compact, high capacity and with the advantages of equipment in superior segments. Its TFT colour touch screen, provides the user with features that enable, in addition to the control of the equipment by operating parameters, the possibility to export the data for subsequent analysis and programming for future operations. Same as the rest of Ortoalresa centrifuges, it is designed to be versatile, therefore it has swing out rotors with volumes of 400 ml. per bucket, rotors for microplates of 80 mm height, angle fixed rotors for high speed and microtubes as well as a wide range of adaptors for all of them.

The autonomy that this equipment gives to the user optimises the laboratory routine by the personalization of the work cycles. These particularities also ensure process traceability and that no parameter is uncontrolled. Its refrigeration system allows it to maintain the minimum temperature of the chamber below 4°C regardless of the type of rotor and the speed selected.

## 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.

3 YEAR WARRANTY



<b>Max. Capacity</b> 4 x 400 ml		<b>Max. Speed</b> 21.948 xg / 14.300 RPM	
<b>Screen Type</b> TFT		<b>Version</b> 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.
- 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 232	670	730	400	98	220-230	50	800
CE 233	670	730	400	98	110-120	60	800







\*IVD version available, please indicate it in your request



Accessories centrifuge series Consul 22

- Rolling table (pag. 78)




- Rotors & adapters

MICROTITER PLATES													
		RT 285		RT 286		RT 288		RT 297		RT 280		RT 281	
													
		(1)		(2)		(2)(3)							
ROTOR		SWING OUT		SWING OUT		SWING OUT		SWING OUT		ANGLE FIXED 45 °		ANGLE FIXED 45 °	
Max. capacity		4 x 250 ml.		4 x 400 ml.		12/8/4 microtiter		10/6/2/2 microtiter		8 x 50 ml.		4 x 100 ml.	
RPM Max.		4.200		4.000		3.500		4.500		6.000		5.600	
Radius (mm)		183		180		149		166		149		138	
RCF Max. (xg)		3.609		3.220		2.041		3.758		5.997		4.838	
Min. temp. at max. speed (°C)		-1		-2		-4		4		-2		-1	
SAMPLE VOLUME	Dim (mm) approx.	ADAPTERS		ADAPTERS		ADAPTERS		ADAPTERS		ADAPTERS		ADAPTERS	
		Tubes	Ref.	Tubes	Ref.	Tubes	Ref.	Tubes	Ref.	Tubes	Ref.	Tubes	Ref.
400 ml.	ø 80 x 118	-	-	4	RE 450	-	-	-	-	-	-	-	-
250 ml.	ø 60 x 135	4	RE 449	4	RE 430	-	-	-	-	-	-	-	-
250 ml. conical	ø 60 x 145	4	RE 593	-	-	-	-	-	-	-	-	-	-
200 ml.	ø 60 x 120	4	RE 449	4	RE 430	-	-	-	-	-	-	-	-
100 ml.	ø 48 x 100	4	RE 327	4	RE 412	-	-	-	-	-	-	4	RE 446
85 ml. (hs) / 80 ml. (hs)	ø 38 x 112	4	RE 498	4	RE 499	-	-	-	-	-	-	4	RE 380
80 ml.	ø 44 x 100	4	RE 422	4	RE 421	-	-	-	-	-	-	4	RE 338
50 ml.	ø 34 x 100	4	RE 334	12	RE 414	-	-	-	-	8	RE 448	4	RE 335
50 ml. conical	ø 29 x 117	4	RE 340	12	RE 413	-	-	-	-	8	RE 375	4	RE 341
30 ml. / 30 ml. (hs)	ø 25 x 98	12	RE 312	20	RE 415	-	-	-	-	8	RE 370	4	RE 332
25 ml. conical	ø 29 x 83	4	RE 612	12	RE 613	-	-	-	-	8	RE 599	4	RE 597
15 ml.	ø 16 x 100	28	RE 376	52	RE 623	-	-	-	-	8	RE 369	16	RE 316
15 ml. conical	ø 17 x 122	20	RE 321	32	RE 416	-	-	-	-	8	RE 369	4	RE 339
15 ml. blood sample	ø 16 x 132	28	RE 376	-	-	-	-	-	-	8	RE 369	-	-
10 ml.	ø 13 x 100	40	RE 343	72	RE 418	-	-	-	-	24	RE 366	20	RE 320
10 ml. blood sample	ø 16 x 107	28	RE 376	52	RE 623	-	-	-	-	8	RE 369	16	RE 316
7/10 ml. blood sample	ø 13 x 107	28	RE 324	68	RE 622	-	-	-	-	8	RE 373	20	RE 320
5 ml.	ø 13 x 75	40	RE 343	72	RE 418	-	-	-	-	24	RE 366	20	RE 320
5 ml. blood sample	ø 13 x 82	28	RE 324	68	RE 622	-	-	-	-	8	RE 373	20	RE 320
Microtubes 1,5-2 ml.	ø 11 x 42	24	RE 440	48	RE 431	144	RE 460	72	RE 401	24	RE 465	20	RE 408
Microtubes 0,5-0,6 ml.	ø 8 x 30	24	RE 523	48	RE 489	144	RE 584	72	RE 580	24	RE 535	20	RE 519
Microtubes 0,2-0,4 ml.	ø 6 x 45	24	RE 458	48	RE 525	144	RE 585	72	RE 581	24	RE 526	20	RE 473
Microtiter plates	128x86x15/21/45	-	-	-	-	12/8/4	-	10/6/2	-	-	-	-	-
Microtiter plates(h: 80mm)	128x86x80	-	-	-	-	-	-	2	-	-	-	-	-
Cell culture	128x86x22	-	-	-	-	8	-	6	-	-	-	-	-

(1) This rotor can be supplied with hermetic lids (RE 405)

(2) Allows different configurations depending of the microplates height.

(3) Only available for refrigerated models.

HIGH SPEED									
		RT 282		RT 292		RT 287			
									
ROTOR		ANGLE FIXED 30 °		ANGLE FIXED 30 °		ANGLE FIXED 45 °			
Max. capacity		4 x 250 ml.		6 x 85 ml		30 x 1,5-2 ml.			
RPM Max.		4.700		9.000		14.300			
Radius (mm)		153		112		96			
RCF Max. (xg)		3.779		10.142		21.948			
Min. temp. at max. speed (°C)		-3		0		-3			
SAMPLE VOLUME	Dim (mm) approx.	ADAPTERS		ADAPTERS		ADAPTERS			
		Tubes	Ref.	Tubes	Ref.	Tubes	Ref.		
400 ml.	ø 80 x 118	-	-	-	-	-	-		
250 ml.	ø 60 x 135	4	RE 449	-	-	-	-		
250 ml. conical	ø 60 x 145	4	RE 593	-	-	-	-		
200 ml.	ø 60 x 120	4	RE 449	-	-	-	-		
100 ml.	ø 48 x 100	4	RE 327	-	-	-	-		
85 ml. (hs) / 80 ml. (hs)	ø 38 x 112	4	RE 498	6	-	-	-		
80 ml.	ø 44 x 100	4	RE 422	-	-	-	-		
50 ml.	ø 34 x 100	4	RE 334	6	RE 490	-	-		
50 ml. conical	ø 29 x 117	4	RE 340	6	RE 483	-	-		
30 ml. / 30 ml. (hs)	ø 25 x 98	12	RE 312	6	RE 493	-	-		
25 ml. conical	ø 29 x 83	4	RE 612	6	RE 600	-	-		
15 ml.	ø 16 x 100	28	RE 376	18	RE 485	-	-		
15 ml. conical	ø 17 x 122	20	RE 321	6	RE 484	-	-		
15 ml. blood sample	ø 16 x 132	28	RE 376	-	-	-	-		
10 ml.	ø 13 x 100	40	RE 343	30	RE 497	-	-		
10 ml. blood sample	ø 16 x 107	28	RE 376	18	RE 485	-	-		
7/10 ml. blood sample	ø 13 x 107	28	RE 324	18	RE 503	-	-		
5 ml.	ø 13 x 75	40	RE 343	30	RE 501	-	-		
5 ml. blood sample	ø 13 x 82	28	RE 324	18	RE 492	-	-		
Microtubes 1,5-2 ml.	ø 11 x 42	24	RE 440	24	RE 494	30	-		
Microtubes 0,5-0,6 ml.	ø 8 x 30	24	RE 523	24	RE 495	30	RE 428		
Microtubes 0,2-0,4 ml.	ø 6 x 45	24	RE 458	24	RE 496	30	RE 427		
Microtiter plates	128x86x15/21/45	-	-	-	-	-	-		
Microtiter plates(h: 80mm)	128x86x80	-	-	-	-	-	-		
Cell culture	128x86x22	-	-	-	-	-	-		

# ROLLING TABLE

Centrifuges accessories

With the aim of offering an alternative to those laboratories that need to increase their equipment, but do not have enough space, we have designed these rolling tables for our centrifuges.

This accessory allows the equipment to be positioned and moved easily thanks to its four 360° rotating wheels. Once the rolling table is located, and before starting to work with the centrifuge, the wheels can be fixed with the brake system that will prevent involuntary displacement during the centrifugation process. The robust design supports the weight of the equipment and prevents vibration transfer.

We offer two types of tables, one with height to locate the equipment at the same height as if they were on the laboratory table and another, that enables you to place your centrifuge under the table of your laboratory, saving even more space.

A solution for each type of need.

## References

	Dimensions (mm) (w x d x h)			Net weight (kg)	Centrifuge model
CP 007	560	590	580	65	Biocen 22 R, Bioprocen 22 R, Digicen 22 R, Consul 22 and Digtor 22
CP 008	440	500	690	65	Unicen 21 and Digicen 22
CP 009	750	730	350	70	Consul 22 R, Digtor 22 R and Dilitcen 22 R - to place under table
CP 010	750	730	580	90	Consul 22 R, Digtor 22 R and Dilitcen 22 R





**orto**  
**alresa**  
About centrifugation

**Álvarez Redondo S.A.**



Los frailes, 121  
Pol. Ind. Los Frailes  
28814 Daganzo | Madrid

[www.ortoalresa.com](http://www.ortoalresa.com)



(+34) 91 884 40 16



[info@ortoalresa.com](mailto:info@ortoalresa.com) to ask for information



[sat@ortoalresa.com](mailto:sat@ortoalresa.com) to contact our technical service

[sales@ortoalresa.com](mailto:sales@ortoalresa.com) to contact our comercial department

[marketing@ortoalresa.com](mailto:marketing@ortoalresa.com) to contact our marketing department