orto alresa

Centrifuges and laboratory products

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THE COMPANY

Ortoalresa was founded in Madrid, Spain, in 1949 as a local manufacture of laboratory equipment. Our effort, assurance and passion led us to be the dynamic and innovative company we are 65 years later. We export to more than 120 countries around the world. Our products are present in biotechnical, research, environmental and industrial laboratories. These facts have made us to be one of the leading manufacturers in Europe.

Compliance with standards and directives regarding centrifugal production processes, specialized assistance, Responsible technology and innovation are some of the main Ortoalresa's goals.

Ortoalresa engages in partnerships with Universities, official centers and representative companies in the field of laboratories. Our aim is to produce equipments which may adapt to any process of production or sample preparation. We bring innovation and usefulness closer since our products are innovative and functional due to our cutting-edge technology.

Ortoalresa represents the present and, specially, the future in centrifuges for laboratories which are focused on the integration of quality and reliability with simplicity and high-performance features.

Directives and standards

Ortoalresa meets the following standards, directives and regulations in accordance with the quality commitment of their products:

COMPANY:

Standards	
ISO 9001	Certified quality management system
ISO 13485	Certified quality management system for medical devices.

PRODUCTS:

Directives	
2011/65/EU	ROSH: on usage restrictions applied to certain hazardous substances in electrical and electronic devices.
2012/19/EU	WEE: on waste of electrical and electronic devices management.
2004/108/EC	On electromagnetic compatibility.
2006/95/EC	On voltage limits.
98/79/EC	On medical devices for in vitro diagnostic.
Regulation	
1005/2009	On ozone-depleting substances
842/2006	On certain fluorinated greenhouse gases.
Standards	
EN-61010-1	Security requirements for laboratory equipments.
EN-61010-2-020	Security requirements for equipments used in laboratories. Part 2-020: Special requirements for laboratory centrifuges.
EN-61010-2-010	Security requirements for equipments used in laboratories. Part 2-010: Special requirements for laboratory devices used for heating materials.
EN-61010-2-051	Special security requirements for laboratory equipments used for mechanical mixing and stirring.
EN-61326-1	Electrical material for laboratory use. Electromagnetic compatibility requirements (EMC). Part 1: General requirements.

PACKAGING:

ISPM 15	International standards for phytosanitary measures
Directives	
94/62/EC & 2004/12 EC	Packaging and packaging waste.

GOODS TRANSPORT:

Regulation	
300/2008	Common rules in the field of civil aviation security.

Specialized assistance

We excel in efficient **customer service** with which our team members have access to a range of tools adapted to the requirements of each of our customers, from technical support to sales support.

This specialization has led us to manufacturing **customized equipment** (OEM) in applications that, because of their nature, do not fit in the standard equipment.

Our products are subjected to a **risk analysis** in order to protect the sample, the user and their environment, and we are obliged to maintain a traceability that allows us to control the product from its source to the user.

Our activities are based upon our company **quality policy**, especially focused on the quality of customer service.

We follow EU Directive regarding customer **data protection**.

We are developing actions to remain in **KC** (Known consignee) **registry** and this simplifies and reduces the cost of exporting our equipment.

Our **technical department** leads the installation and setting up of our equipment and provides training aimed at a better understanding of our products and services, with telephone support for the resolution of questions regarding the equipment installation and handling, allowing performance optimization according to the requirements.

Procedures and certificates for calibration and accreditation on installation, operation, product, etc are available to our customers.

We offer a two-year **full guarantee** in all of our products, which reinforces the image of excellence Ortoalresa intends to reach from beginning to end of all our manufacturing processes.

Responsible technology

Respecting and protecting the environment is one of our main goals. So, how do we stay true to this principle of respect and protection?

By using materials consistent with this concept, which allows our equipment include more than 95% recyclable parts, according to the **WEEE Directives** for the management of electrical and electronic equipment waste and RosH Directive on the non-use of hazardous substances in manufacturing processes.

In this line of sustainable manufacturing, **fluorinated gases** are only used in the cooling systems integrated in the centrifuges of low impact on the ozone layer. We use gases that produce the least greenhouse effect, compared with the commonly used gases.

By selecting quality packaging that protects shipment while occupying minimal space, being certified according to international standards for **phytosanitary measures** and 100% recyclable.

By developing equipment such as **Gas Release System** that reduces aerosol emissions into the atmosphere.

By designing and producing accessories that reduce the impact on the user's health, with tight lids on the rotors and buckets, autoclavable materials, easy to identify, and by leading the process in order to ensure the user safety throughout the entire duty cycle.

And by using this same philosophy in all of our fields, as in the catalog you hold in your hands, which has been made using technology compatible with sustainable development.

This attitude is not meant to be an extra effort, but a way of positioning the company before the challenges that lie ahead.

Continued innovation

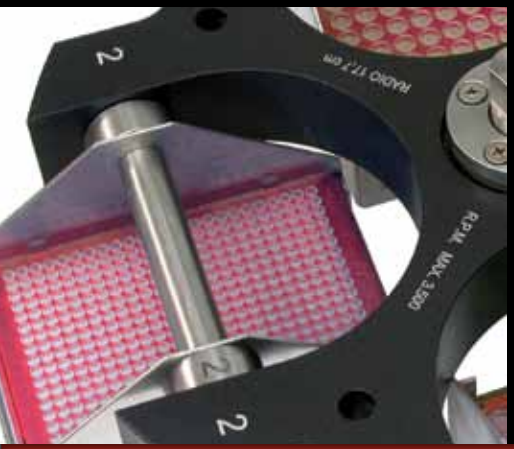
One of Ortoalresa's goals is producing equipment with a distinguishing feature: the equipment can be used intuitively by any type of user in order to reach the maximum performance. This effort has resulted in being the first centrifuge manufacturer incorporating revolutionary **TFT color touch screen**, which design is adapted to the field of centrifugation, and simple operation allows the equipment to reach maximum performance and productivity.

This line works offering alternatives with a high degree of technical specialization, allowing users to monitor the process carefully, depending on the sample's features. Ortoalresa has created a **progressively controllable braking system** that allows the user to maintain the integrity of the various layers after centrifugation, which is our main advantage. The 175 acceleration and braking ramps in Ortoalresa centrifuges allow to precisely select the time required depending on the properties of the sample.

The design of new accessories (rotors, reducers, tubes) that fit in the new laboratory processes are based on the user's proposals and we find solutions for them, as in the case of **multiple reducers** for conical tubes, which allow the use of tubes with or without a skirt according to the user's needs and not requiring to change the adapters.

The wide variety of applications where centrifuges are used, such as sample separation, leads to having to control the temperature rise thoroughly. In order to meet these requirements, Ortoalresa has developed two different types of equipment: non-refrigerated equipment, with ventilation systems that reduce the temperature increase, and refrigerated equipment which reaches values below 4 °C at maximum speed of any of its rotors.

Choose the right equipment | Tubes references | General applications | Special applications



Centrifuges

Choose the right equipment

Equipment selection for **general applications**

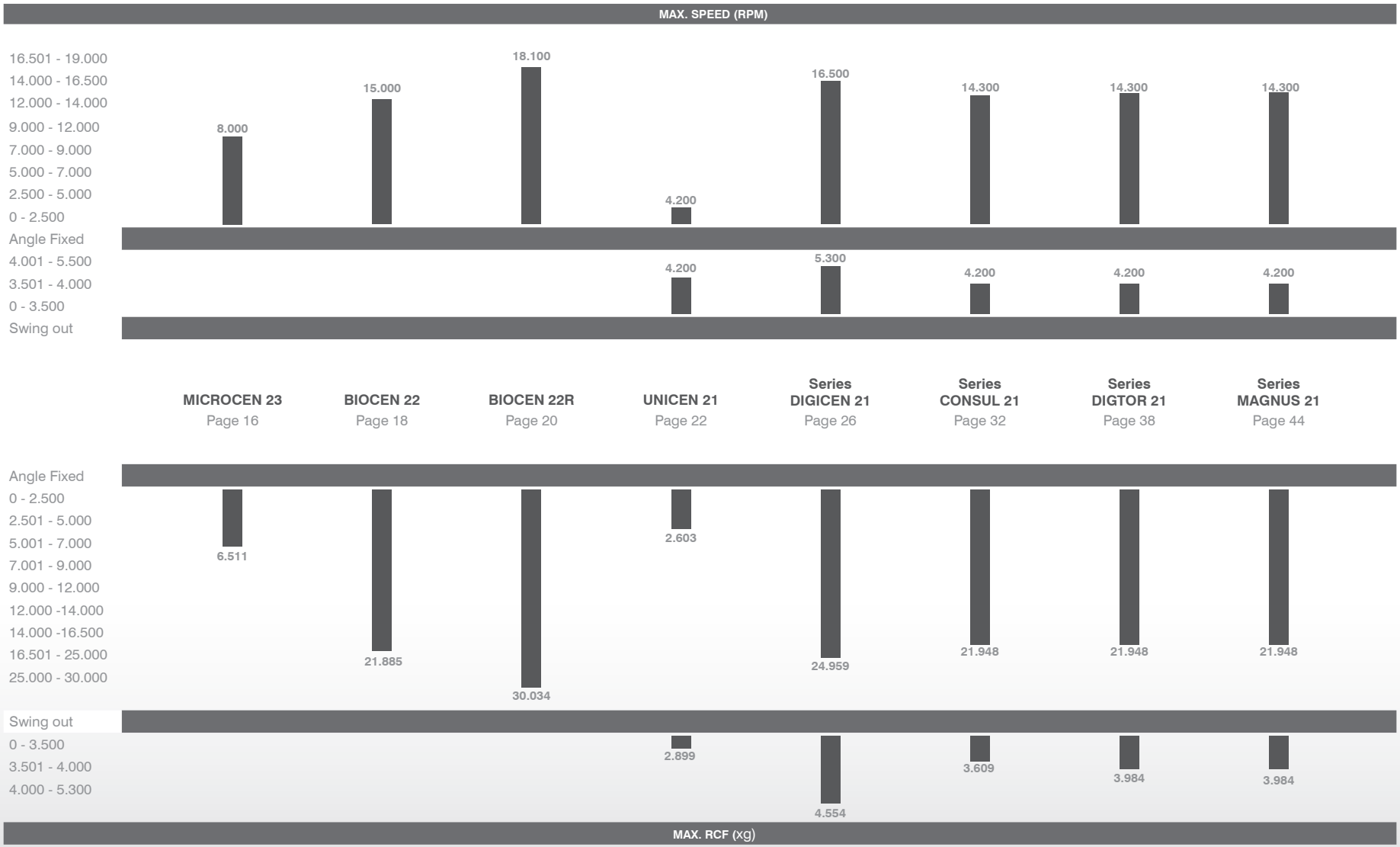
Applications	Dimensions of tubes (mm)	Microcen 23	Biocen 22	Biocen 22R	Unicen 21	Series Digicen 21	Series Consul 21	Series Digtor 21	Series Magnus 21
Cell cultures	86x128x22	-	-	-	-	4	8	8	8
Microtiter plates	86x128x15/21/45	-	-	-	-	6/4/2 (2)	12/8/4 (2)	12/8/4 (2)	12/8/4 (2)
Capillaries	1,5-3 x 75	-	24	-	-	24	-	-	-
PCR strips 0,2 ml.	6x21	-	32	32	-	32	-	-	-
0,2 - 0,4 ml	10x32	-	24	24	-	24	30	30	30
0,5 - 0,6 ml	8x30	-	24	24	-	24	30	30	30
1,5 - 2 ml	11x39	-	24	24	20	24	144	144	144
Cytocontainers	-	-	-	-	-	4	-	-	-
5 ml	13x75	12	-	8	24	24	72	104	104
5 ml blood sample	13x82	12	-	8	24	24	48	104	104
7/10 ml blood sample	13x107	10	-	8	24	24	48	104	104
10 ml	13x100	10	-	8	24	24	72	104	104
10 ml blood sample	16x107	10	-	8	24	24	48	72	72
10 ml hs (1)	16x80	10		8	24	24	48	72	72
15 ml conical	17x122	8	-	8	18	18	28	52	52
15 ml	16x100	10	-	8	24	24	48	72	72
30 ml	25x96	-	-	-	6	8	20	24	24
30 ml hs (1)	25x98	-	-	-	6	8	20	24	24
50 ml conical	29x117	-	-	-	6	6	12	20	20
50 ml	35x100	-	-	-	6	6	8	20	20
50 ml hs (1)	29x108	-	-	-	6	6	12	16	16
80 ml	44x100	-	-	-	4	4	6	8	8
85 ml	38x112	-	-	-	4	4	6	6	6
100 ml	48x95	-	-	-	4	4	4	4	4
200 ml	60x120	-	-	-	-	-	4	4	4
250 ml	61x129	-	-	-	-	-	4	4	4
350 ml	76x120	-	-	-	-	-	4	-	-
400 ml	80x118	-	-	-	-	-	4	4	4
500 ml	90x120	-	-	-	-	-	-	4	4
750 ml	96x130	-	-	-	-	-	-	4	4

(1) High speed tubes (2) Check plate dimensions

Dimensions of tubes and maximum capacity:

Some equipments apply a high RCF to the sample and its holders. We remind you that you should check the manufacturing specifications of the tubes. The maximum RCF which can be applied to glass tubes is 3000 xg.

For a proper selection of the suitable centrifuge, you must considered the RPM/RCF values

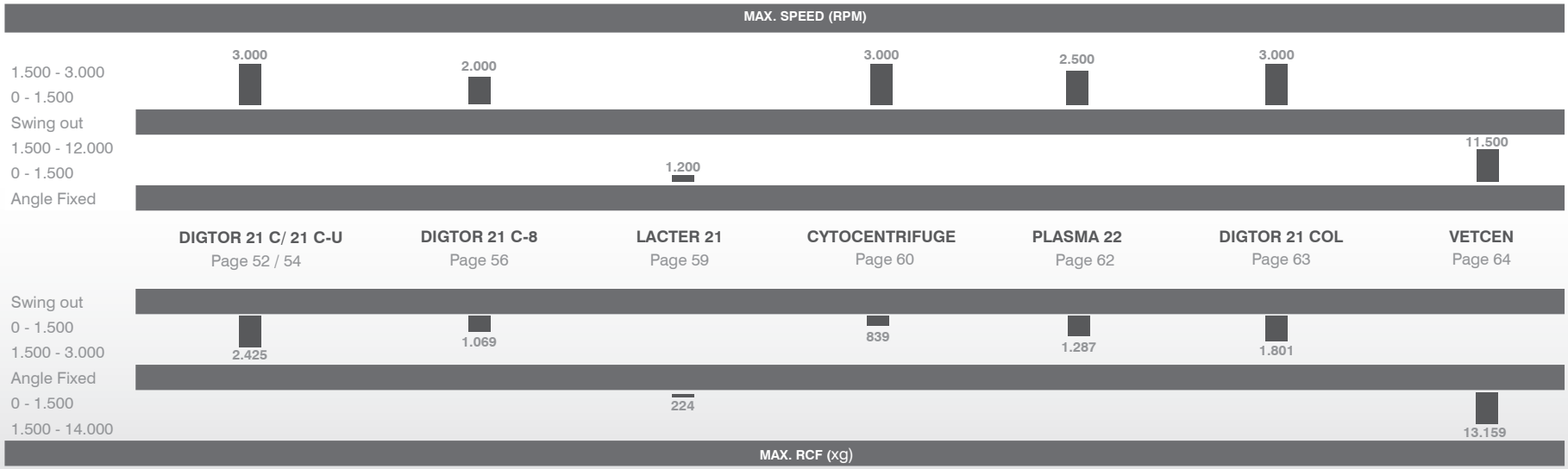


Equipment selection for **special applications**

Dimensions of tubes and maximum capacity: centrifuges apply a high RCF to the sample and its holders. Is highly recommended check the manufactuer´s specifications of tubes.

Applications	Dimensions of tubes (mm)	Series Digtor 21 C	Lacter 21	Plasma 22	Cytocentrifuge	Digtor 21 Col	Vetcen
Capillaries	1.5-3 x 75	-	-	-	-	-	12
Microtubes	11 x 42					-	6
Cytocontainers	-	-	-	-	4	-	-
5 ml.	13 x 82		-	8		-	
9 ml.	16 x 107	-	-	8	-	-	-
12,5 ml.	16 x 105	28	-	-	-	-	-
Butyrometers	25 x 212	-	12	-	-	-	-
60 ml. Syringes	29.5 x 162					4	-
100 ml. 6” conical	44-46 x 162-167	8	-	-	-	-	-
100 ml. 8” conical	36-38 x 195-203	8		-	-	-	-
100 ml. pear	58-59 x 157-160	4	-	-	-	-	-

For a proper selection of the suitable centrifuge, you must considered the RPM/RCF values



Tubes references

Offering a large range of tubes for our **general applications** centrifuges:

Code	Capacity ml	Shape	Raw material	Dimensions mm	Cap	Scale
TU 048	750	flat bottom	plastic	96x131	yes	no
TU 041	500	cylindrical	glassware	90x120	no	no
TU 045	500	flat bottom	plastic	78x131	yes	no
TU 040	400	cylindrical	glassware	80x118	no	no
TU 046	400	flat bottom	plastic	74X124	yes	no
TU 039	350	cylindrical	glassware	75x118	no	no
TU 036	250	cylindrical	plastic	60x130	no	no
TU 037	250	cylindrical	glassware	60x129	no	yes
TU 038	250	cylindrical	glassware	60x130	no	no
TU 007	250	cylindrical	plastic	62x120	yes	no
TU 035	200	cylindrical	glassware	60x120	no	no
TU 034	150	cylindrical	plastic	60x130	yes	no
TU 049	125	flat bottom	plastic	48x108	yes	no
TU 043	125	cylindrical	plastic	48x100	no	no
TU 044	120	cylindrical	plastic	40x115	yes	no
TU 029	100	cylindrical	glassware	48x105	yes	no
TU 030	100	cone-shaped	glassware	36-38x195-203	no	yes
TU 031	100	cylindrical	glassware	44x130	yes	no
TU 032	100	cylindrical	glassware	48x100	no	no
TU 033	100	pear-shaped	glassware	58-59x157-160	no	yes
TU 042	100	cone-shaped	glassware	44-46x162-165	no	yes
TU 027	80	cylindrical	glassware	44x100	no	no
TU 028	80	cylindrical	plastic	38x112	yes	no
TU 020	50	cylindrical	plastic	34x96	no	no
TU 022	50	cylindrical	glassware	34x110	yes	no
TU 023	50	cylindrical	glassware	34x100	no	no
TU 024	50	conical	plastic	29x117	yes	yes
TU 025	50	cylindrical	plastic	34x100	no	no
TU 026	50	cylindrical	plastic	29x108	yes	no
TU 021	30	cylindrical	plastic	25x98	yes	no
TU 019	25	cylindrical	glassware	24x100	no	no
TU 014	15	cylindrical	plastic	16x100	yes	no
TU 015	15	cylindrical	glassware	16x110	no	no
TU 016	15	conical	glassware	17x115	no	yes
TU 017	15	cylindrical	plastic	16x100	no	no
TU 018	15	conical	plastic	17x122	yes	yes
TU 010	10	conical	glassware	16x105	no	yes
TU 011	10	cylindrical	plastic	13x100	no	no
TU 055	10	cylindrical	glassware	16x110	yes	no
TU 013	10	cylindrical	plastic	16x80	yes	no
TU 006	5	cylindrical	plastic	13x84	yes	no
TU 008	5	cylindrical	glassware	12x100	no	no
TU 009	5	cylindrical	plastic	13x75	no	no
TU 005	4	cylindrical	glassware	10x100	no	no
TU 003	1,5-2	conical	plastic	11x42	yes	yes
TU 002	0,5	conical	plastic	8x30	yes	yes
TU 001	0,2	conical	plastic	6x21	yes	yes

We also have different supports for our **special applications** selection:

Code	Capacity ml	Aplication	Raw material	Dimensions mm	Cap	Scale
TU 054	-	Capillaries	glassware	1,5 - x 75 mm	no	no
TU 003	1.5-2.2	Microtubes	plastic	11 x 42	yes	no
PV 114	2.2	Cytocontainer	plastic	-	yes	yes
TU 006	5	Plaquellet concen.	plastic	13 x 82	yes	no
TU 012	9	Plaquellet concen.	plastic	16 x 107	yes	no
TU 010	12,5	Petro-API	glassware	16 x 105	no	yes
-	25	Dairy	glassware	25 x 212	no	yes
TU 050	100	Petro-Conical 6	glassware	44-46 x 162-167	no	yes
TU 030	100	Petro-Conical 8	glassware	36-38 x 195-203	no	yes
TU 033	100	Petro-pear 6	glassware	58-59 x 157-160	no	yes

General applications

Centrifuges are part of the basic equipment essential in most laboratories. Since centrifugation is a process that does not alter the physical properties of the sample, it is one of the most commonly used separation processes.

In this sense, Ortoalresa products are present in biotechnology, research, hospital, quality control, pharmaceutical and food industry laboratories, among others.

General applications are those for laboratory exclusive use, which largely follow defined procedures and require standardized and commonly used sample holders (for any questions regarding this please visit our tube guide on page 13 of this catalog).

For this type of applications, the distinguishing factors are parameters such as RPM, RCF, volume or number of tubes, the need for temperature control, additionally critical when selecting equipment (see tables on pages 10 and 11 for relative values of different equipment).

Throughout this section find the equipment sorted by size, from largest to smallest. The product information sheet contains a table with the accessories for the corresponding equipment series.

The equipment with greater capacity has **TFT color touch screen**, which gives this range of equipment versatility by graphic representation of the entire process, easily entering data on the value.

Every centrifuge contained in this section shares a number of common features mentioned below.

Common features:

- Induction motor, maintenance free.
- Timer 1 to 99 min and hold position.
- Rotor list on memory.
- Microprocessor controlled.
- Acceleration and deceleration controllable by user.
- Automatic lid lock.
- Short spin key.
- Blocking/modification selectable of RPM/RCF along the run.

Safety features:

- Port of vie on lid.
- Lid locking along the run..
- Safety ring around chamber of centrifugation.
- Manual overriding.
- Lid dropping protection.
- Unbalance switch off.
- Tracking messages on screen.
- Chamber of centrifugation in stainless steel.

Common features on refrigerated:

- Precooling program.
- Temperature regulation -20°C (-4°F) to 40°C (104°F).
- Temperature sensor inside the chamber of centrifugation.

SMALL

MICROCEN 23

MICRO

BIOCEN 22

BIOCEN 22R

UNIVERSAL

UNICEN 21

DIGICEN 21

DIGICEN 21R

HIGH CAPACITY

CONSUL 21

CONSUL 21R

DIGTOR 21

DIGTOR 21R

FLOOR STANDING

MAGNUS 21

MAGNUS 21R

General applications

MICROCEN 23

IVD CE

Why a small centrifuge must not be provided of mandatory standards about safety?

The centrifuge **Microcen 23** is a compact and practical device which meets the essential requirements that demand a reliable result in a short space of time.

Operator can choose three different rotors for 8x15 ml., 10x15 ml. and 12x5 ml., reaching 8.000 RPM/6.511 xg.

It's provided of safety systems essentials for a safety processing, with brushless engine maintenance free, unbalance switch off, chamber in stainless steel, lid lock motorized…

Ideal for run a reduced number of samples, it's undoubtedly the most appropriated choice for emergency labs, due to its reduce the time on sample preparation.

Simplifies sample preparation.

User friendliness

- LED screen shown RPM/RCF (on steps of 100 RPM/10 xg) and time.
- Intuitive handling through start, stops, short spin and play keys.
- Rotor list on memory.
- Timer count up/down, from 0 or at "set RPM/RCF" for test reproducibility.
- Short spin key with speed adjustable.
- Acceleration and deceleration control in 2 steps.
- Automatic open lid.
- Last values remain on memory.
- Lid latch lock.
- Microprocessor controlled.
- Option: free or locked adjustment of RPM/RCF along the run.

Features

- Induction motor maintenance free
- Max. capacity: 10 x 15 ml.
- Speed up to 6.511 xg/8.000 RPM.
- Quiet: noise level < 60 dB.

Safety

- Lid locking and holding as well as lid dropping protection.
- Imbalance switch off.
- Manual overriding.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration port in the lid.
- Several messages keep the operator informed about the device situation.
- Guard ring between the chamber of centrifugation and the housing.
- Forced ventilation which reduces the temperature increase.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm) (w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CE 180	276	390	272	17	220-240	50-60	140
CE 181	276	390	272	17	110-120	50-60	140

Accessories



ROTOR		RT 246 ANGLE FIXED 30 °		RT 247 ANGLE FIXED 30 °		RT 248 ANGLE FIXED 30 °	
Max. capacity		8x15 ml.		12x5 ml.		10x15 ml.	
RPM		8.000		8.000		8.000	
Radius (mm)		91		72		89	
RCF Max. (xg)		6.511		5.152		6.368	
Braking time (s)		15		15		15	
SAMPLE VOLUME	**Dim (mm) approx**	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.
15 ml	Ø 16x100	8	-	-	-	10	-
15 ml conical	Ø 17x122	8	RE 459	-	-	-	-
10 ml blood sample	Ø 16x107	8	RE 371	-	-	10	-
10 ml	Ø 13x100	8	RE 371	-	-	10	RE 470
7/10 ml blood sample	Ø 13x107	8	RE 371	-	-	10	RE 470
5 ml	Ø 13x75	8	RE 377	12	-	10	RE 471
5 ml blood sample	Ø 13x82	8	RE 377	12	-	10	RE 471

Centrifuges: Micro: Biocen 22

BIOCEN 22

IVD CE

Very often the microcentrifuge user must consider the interactions between the tube and the sample, but ... What about the interaction between the tube and the centrifuge?

The **Biocen 22** is designed to prevent contamination by interaction with the centrifuge and temperature increasing by:
- Chamber stainless steel centrifuge easily sterilized.
- Rotors with tight lids.
- Ventilation system that helps reduce the temperature.

Designed for small volume, allows 24 microtubes of 2.2 ml, 32 of 0.2 ml, and up to 24 tubes of 1.5 x 75 mm, reaching 15.000 RPM / 21.885 xg.

Reduce spin time by controlling the different stages, allowing braking according to the type of sample.

Optimizing the samples separation on a safe environment.

User friendliness

- LCD screen shown RPM/RCF (on steps 100 RPM/10xg) and time.
- Intuitive handling through start, stops, short spin and lid keys.
- Rotor list on memory.
- Timer count up/down, from 0 or at “set RPM/RCF” for test reproducibility.
- Short spin key with speed adjustable.
- Acceleration and braking selectable by operator
- Automatic open lid.
- Last values remain on memory.
- Lid latch lock.
- Microprocessor controlled.
- Option: free or locked adjustment of RPM/RCF along the run.

Features

- Induction motor maintenance free.
- Max. capacity: 24 x 2.2 ml.
- Speed, up to 21.885 xg/15.000 RPM
- Quiet: noise level < 60 dB.

Safety

- Lid locking and holding.
- Imbalance switch off.
- Manual overriding.
- Chamber of centrifugation in stainless steel.
- Lid dropping protection.
- Viewing and calibration port in the lid.
- Several messages keep the operator informed about the device situation.
- Guard ring between the chamber of centrifugation and the housing.
- Forced ventilation which reduces the temperature increase.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm) (w x d x h)			Net weight(Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CE 146	276	390	272	17	220-240	50-60	180
CE 147	276	390	272	17	110-120	50-60	180

Accessories


RT 227


RT 228 (1)


RT 229

ROTOR		ANGLE FIXED 45°		HORIZONTAL		ANGLE FIXED 45°	
Max. capacity		24 of 1,5x2 ml.		24 of 1,5x75 mm.		32 of 0,2 ml	
RPM		15.000		15.000		15.000	
Radius (mm)		82		87		55	
RCF Max. (xg)		20.627		21.885		13.835	
Braking time (s)		15		15		15	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.
1,5x75 mm. capillaries	1,5x75	-	-	24	-	-	-
microtubes 1,5-2 ml.	11x39	24	-	-	-	-	-
microtubes 0,5-0,6 ml.	8x30	24	RE 305	-	-	-	-
microtubes 0,2-0,4 ml.	6x45	24	RE 304	-	-	32 de 0,2	-

(1) Includes microhaematocrit reader caps

Centrifuges: Micro: Biocen 22 R

BIOCEN 22 R

IVD CE

The **Biocen 22 R** can reach up to 30.034 xg , becoming the necessary tool for most demanding labs. Allows 24 microtubes of 2.2 ml, 32 of 0.2 ml and 8x15 ml, conical.

Usually microcentrifuges work with samples sensitive, valuables, or dangerous (toxic, radioactive, infectious). Ortoalresa has built the Biocen 22 R with several advantages which allow a safe analysis, without interaction of centrifuge, as:
- Cooling system which maintains the sample temperature at 4°C at max speed, regardless of the rotor.
- Chamber of centrifugation in stainless steel, allowing an easy disinfection on samples leakages, avoiding contamination form the centrifuge.
- Rotors with hermetic lids.
- Accessories sterilizables.

User friendliness

- LCD screen shown RPM/RCF (on steps 100 RPM/10xg),time, temperature (1°C steps) and braking (1 second steps).
- Intuitive handling through start, stop, short spin and lid keys.
- Rotor list on memory.
- Timer count up/down, from 0 or at “set RPM/RCF” for test reproducibility.
- Short spin key with speed adjustable.
- Automatic rotor recognition.
- Acceleration and braking selectable by operator.
- 15 memories and pre-cooling program.
- Automatic open lid.
- Lid latch lock.
- Microprocessor controlled.
- Option: free or locked adjustment of RPM/RCF along the run.

Features

- Induction motor maintenance free
- Max. capacity 8 x 15 ml.
- Speed, up to 30.034 xg/18.100 RPM.
- Quiet: noise level < 60 dB.

Safety

- Lid locking and holding.
- Imbalance switch off.
- Manual overriding.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration port in the lid.
- Several messages keep the operator informed about the device situation.
- Guard ring between the chamber of centrifugation and the housing.
- Lid dropping protection.

Cooling

- Precooling program with rotor spinning and temperature selectable by operator.
- 4°C at Max speed as higher.
- Temperature range from -20°C (-4°F) to 40°C (104°F).
- Temperature sensor inside the chamber, gas R 404A HFC.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU
Regulation: 1005/2009 & 842/2006.
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm) (w x d x h)			Net weight(Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CE 148	276	640	272	34	220-240	50-60	540
CE 149	276	640	272	34	110-120	50-60	540

Accessories

RT 222

RT 223

RT 224

ROTOR		ANGLE FIXED 45 °		ANGLE FIXED 30°		ANGLE FIXED 45 °	
Max. capacity		24 de 1,5 x 2 ml.		8 x 15 ml. conical		32 de 0,2 ml	
RPM		18.100		8.000		18.100	
Radius (mm)		82		91		55	
RCF Max. (xg)		30.034		6.511		20.145	
Min.temp. max speed(°C)		0		-2		0	
SAMPLE VOLUME	**Dim(mm) approx.**	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.
15 ml	16 x 100	-	-	8	-	-	-
10 ml	13 x 100	-	-	8	RE 371	-	-
5 ml blood sample	13 x 82	-	-	8	RE 377	-	-
1,57x75 mm. capillaries	1,5 x 75	-	-	-	-	-	-
Microtubes 1,5 -2 ml	11 x 39	24	-	-	-	-	-
Microtubes 0,5 -0,6 ml	8 x 30	24	RE 305	-	-	-	-
Microtubes 0,2 -0,4 ml	6 x 45	24	RE 304	-	-	32 of 0,2	-

UNICEN 21

IVD CE

Universal, compact, versatile and quiet, are concepts which define the **Unicen 21**. Essential on demanding labs which need a reliable result on a short time, without scarifying the number of samples.

Max capacity 4 tubes of 100 ml, reach up to 4.200 RPM/ 2.899 xg, with 9 interchangeable rotors and up to 40 set of different adapters, covering the basical requirement on separation of clinics, industries, research centers, …

Speed and time are shown on digital displays easily readable, and lid can be open automatically at the end of the run, allowing to the operator a higher autonomy on routine process.

It's provided of safety systems essentials for a safety processing, with brushless engine maintenance free, unbalance switch off, chamber in stainless steel, lid lock motorized…

Ideal for run a reduced number of samples, it's undoubtedly the most appropriated choice for emergency labs, due to its reduce the time on sample preparation.

Simplifying separation.

User friendliness

- LCD screen shown RPM/RCF (on steps 100 RPM/10xg) and time.
- Intuitive handling through start, stops, short spin and play keys.
- Rotor list on memory.
- Timer count up/down, from 0 or at "set RPM/RCF" for test reproducibility.
- Short spin key with speed adjustable.
- Acceleration and braking selectable by operator
- Automatic open lid.
- Last values remain on memory.
- Lid latch lock.
- Microprocessor controlled.
- Option: free or locked adjustment of RPM/RCF along the run.

Features

- Induction motor maintenance free.
- Max. capacity 4 x 100 ml.
- Speed, up to 4.200 RPM / 2.899 xg.
- Quiet: noise level < 60 dB.

Safety

- Lid locking and holding.
- Imbalance switch off.
- Manual overriding.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration port in the lid.
- Several messages keep the operator informed about the device situation.
- Guard ring between the chamber of centrifugation and the housing.
- Forced ventilation which reduces the temperature increase.
- Lid dropping protection.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1

Versions

Code	Dimensions (mm)(w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CE 126	410	530	320	36	220-240	50-60	200
CE 127	410	530	320	36	110-120	50-60	200

Accessories

Centrifuges Unicen 21

		RT 177 		RT 175 		RT 173 (1) 		RT 172 		RT 226 		RT 160 		RT 161 	
ROTOR		**SWING OUT**		**SWING OUT**		**SWING OUT**		**SWING OUT**		**ANGLE FIXED 30 °**		**ANGLE FIXED 35 °**		**ANGLE FIXED 35 °**	
Max. capacity		8 x 15 ml.		4 x 50 ml.		4 x 100 ml.		2. KEROSENO		8 x 15 ml.		12 x 15 ml.		18 x 15 ml.	
RPM		4.200		4.200		4.200		4.200		4.200		4.200		4.200	
Radius(mm)		145		145		147		136		91		106		132	
RCF Max. (xg)		2.860		2.860		2.899		2.682		1.795		2.090		2.603	
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.
100ml	ø48 x 95	-	-	-	-	4	RE 446	-	-	-	-	-	-	-	-
80 ml. hs	ø38 x 112	-	-	-	-	4	RE 380	-	-	-	-	-	-	-	-
80 ml.	ø44 x 100	-	-	-	-	4	RE 338	-	-	-	-	-	-	-	-
50 ml. hs	ø29 x 108			4	RE 378	4	RE 381	-	-	-	-	-	-	-	-
50 ml.	ø35 x 100	-	-	4	RE 445	4	RE 335	-	-	-	-	-	-	-	-
50 ml. conical	ø29 x 117	-	-	4	RE 342	4	RE 341	-	-	-	-	-	-	-	-
30 ml. hs	ø25 x 98	-	-	4	RE 379	4	RE 382	-	-	-	-	-	-	-	-
30 ml.	ø25 x 98	-	-	4	RE 333	4	RE 332	-	-	-	-	-	-	-	-
15 ml.	ø16 x 100	8	-	4	RE 329	16	RE 316	-	-	8	-	12	-	18	-
15 ml. conical	ø17 x 122	-	-	4	RE 329	4	RE 339	-	-	8	-	12	-	18	-
10 ml. hs	ø16 x 80	8	RE 398	4	RE 329	16	RE 316	-	-	8	RE 398	12	RE 399	18	RE 383
10 ml.	ø13 x 100	8	RE 371	12	RE 313	20	RE 320	-	-	8	RE 371	12	RE 400	18	RE 359
10 ml. blood sample	ø16 x 107	8	-	4	RE 329	16	RE 316	-	-	8	-	12	-	18	-
7/10 ml. blood sample	ø13 x 107	8	RE 371	4	RE 337	20	RE 320	-	-	8	RE 371	12	RE 400	18	RE 359
5 ml.	ø13 x 75	8	RE 377	12	RE 313	20	RE 320	-	-	8	RE 377	12	RE 302	18	RE 303
5 ml. blood sample	ø13 x 82	8	RE 377	4	RE 337	20	RE 320	-	-	8	RE 377	12	RE 302	18	RE 303
Microtubes 1,5-2ml	ø11 x 39	-	-	18	RE 463	20	RE 408	--	-	-	-	-	-	-	-

(1) This rotor can be supplied with hermetic lids (RE 355)

		RT 163		RT 167	
					
ROTOR		**ANGLE FIXED 35 °**		**ANGLE FIXED 35 °**	
Max. capacity		24 x 15 ml.		6 x 50 ml.	
RPM		4.200		4.200	
Radius(mm)		132/114		132	
RCF Max. (xg)		2.603/2.248		2.603	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.
100 ml	ø48 x 95	-	-	-	-
80 ml. hs	ø38 x 112	-	-	-	-
80 ml.	ø44 x 100	-	-	-	-
50 ml. hs	ø29 x 108	-	-	6	RE 386
50 ml.	ø35 x 100	-	-	6	RE 447
50 ml.conical	ø29 x 117	-	-	6	RE 365
30 ml. hs	ø25 x 98	-	-	6	RE 387
30 ml.	ø25 x 96	-	-	6	RE 362
15 ml.	ø16 x 100	24	-	6	RE 361
15 ml. conical	ø17 x 122	12	-	6	RE 361
10 ml. hs	ø16 x 80	24	RE 384	6	RE 361
10 ml.	ø13 x 100	24	RE 385	18	RE 360
10 ml. blood sample	ø16 x 107	24	-	6	RE 361
7/10 ml. blood sample	ø13 x 107	24	RE 385	6	RE 364
5 ml.	ø13 x 75	24	RE 306	18	RE 360
5 ml. blood sample	ø13 x 82	24	RE 306	6	RE 364
Microtubes 1,5-2 ml	ø11 x 39	-	-	18	RE 464

Centrifuges: Universal: Series Digicen 21

DIGICEN 21

IVD CE

The centrifuge **Digicen 21** highlights for its versatility among the universal centrifuges and it's provided of:
- Swing out rotors for max 4 x 100 ml for tubes , microplates as well as microtubes.
- Angle fixed low speed up to 24 tubes of 15ml.
- Angle fixed high speed for microtubes up to 50 ml conical.

It´s controlled through LCD screen showing centrifugation values as time, RPM/RCF, as well as braking time, graphic for open lid, progress bar , messages and acoustic signals for error or end of program , which provides the user the process monitoring.

Thinking on centrifugation.

User friendliness

- LCD screen shown RPM/RCF (on steps 100 RPM/10xg),time, temperature (1°C steps) and acceleration/deceleration (1 second steps).
- Intuitive handling through start, stop, short spin and lid keys.
- Rotor list on memory.
- Timer count up/down, from 0 or at "set RPM/RCF" for test reproducibility.
- Short spin key with speed adjustable.
- Automatic rotor recognition.
- Progresive acceleration and braking selectable by operator up to 175 ramps.
- 16 memories.
- Automatic open lid (non-refrigerated)
- Lid latch lock.
- Microprocessor controlled.
- Option: free or locked adjustment of RPM/RCF along the run.

Features

- Induction motor maintenance free
- Max. capacity. 4 x 100 ml.
- Speed, up to 24.959 xg/16.500 RPM
- Quiet: noise level < 60 dB.

Safety

- Lid locking and holding.
- Imbalance switch off.
- Manual overriding.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration port in the lid.
- Several messages keep the operator informed about the device situation.
- Guard ring between the chamber of centrifugation and the housing.
- Lid dropping protection.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm)(w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CE 110	410	530	320	36	220-240	50-60	280
CE 116	410	530	320	36	110-120	50-60	280

Centrifuges: Universal: Series Digicen 21

DIGICEN 21R

IVD CE

The centrifuge refrigerated **Digicen 21 R** can reach up to 24.959 xg with a wide range of rotors:
- Swing out rotors, with a max volume of 4 x 100 ml which can fit several set of adapters for tubes with or without caps, microtubes, microplates.
- Angle fixed low speed for routine purposes.
- Angle fixed high speed from microtubes to 50 ml conical tubes.

On LCD screen shown the selectable values as time, RPM, RCF, temperature and braking time as well as graphics for lid open, progress bar, and acoustic signals for a better control about the process by operator.

The powerful refrigeration system, enhanced by the pre-cooling program, keep the samples at stable and controlled temperature, avoiding sample´s temperature fluctuations at introducing into the device.

Stabilizing sample preparation.

User friendliness

- LCD screen shown RPM/RCF (on steps 100 RPM/10xg),time, temperature (1°C steps) and acceleration/deceleration (1 second steps).
- Intuitive handling through start, stop, short spin and lid keys.
- Rotor list on memory.
- Timer count up/down, from 0 or at “set RPM/RCF” for test reproducibility.
- Short spin key with speed adjustable.
- Automatic rotor recognition.
- Acceleration and braking selectable by operator.
- 15 memories and pre-cooling program.
- Lid latch lock.
- Microprocessor controlled.
- Option: free or locked adjustment of RPM/RCF along the run.

Features

- Induction motor maintenance free
- Max. capacity 4 x 100 ml.
- Speed, up to 24.959 xg/16.500 RPM.
- Quiet: noise level < 60 dB.

Safety

- Lid locking and holding.
- Imbalance switch off.
- Manual overriding.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration port in the lid.
- Several messages keep the operator informed about the device situation.
- Guard ring between the chamber of centrifugation and the housing.
- Lid dropping protection.

Cooling

- Precooling program with rotor spinning and temperature selectable by operator.
- 4°C at Max speed as higher.
- Temperature range -20°C (-4 °F) to 40°C (104 °F)
- Temperature sensor inside the chamber, gas R 404A HFC.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU
Regulation: 1005/2009 & 842/2006.
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm)(w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)	Z max Advisable(Hz)
CE 113	590	680	320	67	220-240	50-60	700	<|0.446|
CE 119	590	680	320	67	110-120	50-60	700	<|0.446|

Centrifuges Series Digicen 21







ROTOR		RT 143 SWING OUT		RT 138 (1) SWING OUT		RT 150 SWING OUT		RT 183 ANGLE FIXED		RT 128 HORIZONTAL		RT 151 (3) ANGLE FIXED 45 °		RT 110 ANGLE FIXED 35 °	
Max. capacity		4 x 50 ml.		4 x 100 ml.		2,4 o 6 Microtiter		32 de 0,2 ml.		24 de 1,5x 75 mm.		24 de 1,5-2 ml.		24 x 5 ml.	
RPM		5.300		5.000		4.000		16.500		13.000		16.500		6.500	
Radius(mm)		145		147		122 (4)		55 (4)		87		82		113	
RCF Max. (xg)		4.554		4.109		2.182		16.741		16.438		24.959		5.338	
Min. temp. max speed (°C)		-4		-4		0		2		1		2		1	
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.
100 ml.	ø48 x 95	-	-	4	RE 446	-	-	-	-	-	-	-	-	-	-
80 ml. hs	ø38 x 112	-	-	4	RE 380	-	-	-	-	-	-	-	-	-	-
80 ml.	ø44 x 100	-	-	4	RE 338	-	-	-	-	-	-	-	-	-	-
50 ml. hs	ø29 x 108	4	RE 378	4	RE 381	-	-	-	-	-	-	-	-	-	-
50 ml.	ø35 x 100	4	RE 445	4	RE 335	-	-	-	-	-	-	-	-	-	-
50 ml. conical	ø29 x 117	4	RE 342	4	RE 341	-	-	-	-	-	-	-	-	-	-
30 ml. hs	ø25 x 98	4	RE 379	4	RE 382	-	-	-	-	-	-	-	-	-	-
30 ml.	ø25 x 96	4	RE 333	4	RE 332	-	-	-	-	-	-	-	-	-	-
15 ml.	ø16 x 100	4	RE 329	16	RE 316	-	-	-	-	-	-	-	-	-	-
15 ml. conical	ø17 x 122	4	RE 329	4	RE 339	-	-	-	-	-	-	-	-	-	-
10 ml. hs	ø16 x 80	4	RE 329	16	RE 316	-	-	-	-	-	-	-	-	-	-
10 ml.	ø13 x 100	12	RE 313	20	RE 320	-	-	-	-	-	-	-	-	-	-
10 ml. blood sample	ø16 x 107	4	RE 329	16	RE 316	-	-	-	-	-	-	-	-	-	-
7/10 ml. blood sample	ø13 x 107	4	RE 337	20	RE 320	-	-	-	-	-	-	-	-	-	-
5 ml.	ø13 x 75	12	RE 313	20	RE 320	-	-	-	-	-	-	-	-	24	-
5 ml. blood sample	ø13 x 82	4	RE 337	20	RE 320	-	-	-	-	-	-	-	-	24	-
1,5 x 75 mm. capillaries	ø1,5x75	-	-	-	-	-	-	-	-	24	-	-	-	-	-
Microtubes 1,5-2 ml.	ø11x39	12	RE 463	20	RE 408	72	RE 401	-	-	-	-	24	-	-	-
Microtubes 0,5-0,6 ml.	ø8x30	-	-	-	-	-	-	-	-	-	-	24	RE 305	-	-
Microtubes 0,2-0,4 ml.	ø6x45	-	-	-	-	-	-	32 de 0,2 ml.	-	-	-	24	RE 304	-	-
Microtiter	128x86x15	-	-	-	-	6	-	-	-	-	-	-	-	-	-
Microtiter	128x86x21	-	-	-	-	4	-	-	-	-	-	-	-	-	-
Microtiter	128x86x45	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Cell culture	128x86x22	-	-	-	-	4	-	-	-	-	-	-	-	-	-

(1) This rotor includes hermetic lids. | (2) Fitting this tubes rotor lid can not be closed. | (3) Please, check tubes feature. | (4) Medium radio on bucket.

		RT 106		RT 108		RT 121 (3)		RT 152 (3)		RT 153 (3)		RT 154 (3)	
													
ROTOR		**ANGLE FIXED 35 °**		**ANGLE FIXED 35 °**		**ANGLE FIXED 45 °**		**ANGLE FIXED 30 °**		**ANGLE FIXED 30 °**		**ANGLE FIXED 28 °**	
Max. capacity		18 x 15 ml.		24 x 15 ml.		6 x 50 ml.		12 x 10ml. Hermét		8 x 30 ml. Hermét		6 x 50 ml. Hermét	
RPM		5.000		5.000		6.000		15.000		13.500		9.000	
Radius(mm)		132		132/114		132		78		92		101	
RCF Max. (xg)		3.689		3.689/3.186		5.313		19.621		18.746		9.146	
Min. temp. max speed (°C)		0		-1		1		4		4		1	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.
100 ml.	ø48 x 95	-	-	-	-	-	-	-	-	-	-	-	-
80 ml. hs	ø38 x 112	-	-	-	-	-	-	-	-	-	-	-	-
80 ml.	ø44 x 100	-	-	-	-	-	-	-	-	-	-	-	-
50 ml. hs	ø29 x 108	-	-	-	-	6	RE 386	-	-	-	-	6	-
50 ml.	ø35 x 100	-	-	-	-	6	RE 447	-	-	-	-	-	-
50 ml. conical	ø29 x 117	-	-	-	-	6	RE 365	-	-	-	-	6	-
30 ml. hs	ø25 x 98	-	-	-	-	6	RE 387	-	-	8	-	6	RE 392
30 ml.	ø25 x 95	-	-	-	-	6	RE 362	-	-	8	-	6	RE 393
15 ml.	ø16 x 100	18	-	24	-	6	RE 361	-	-	8	RE 406	6	RE 394
15 ml. conical	ø17 x 122	18	-	12	-	6	RE 361	-	-	-	-	6	RE 394 (2)
10 ml. hs	ø16 x 80	18	RE 383	24	RE 384	6	RE 361	12	-	8	RE 391	6	RE 395
10 ml.	ø13 x 100	18	RE 359	24	RE 385	18	RE 360	-	-	8	RE 407	6	RE 396
10 ml. blood sample	ø16 x 107	18	-	24	-	6	RE 361	-	-	-	-	6	RE 394
7/10 ml. blood sample	ø13 x 107	18	RE 359	24	RE 385	6	RE 364	-	-	-	-	6	RE 396
5 ml.	ø13 x 75	18	RE 303	24	RE 306	18	RE 360	12	RE 389	8	RE 390	6	RE 397
5 ml. blood sample	ø13 x 82	18	RE 303	24	RE 306	6	RE 364	12	RE 389	8	RE 390	6	RE 397
1,5 x 75 mm. capillaries	ø1,5 x 75	-	-	-	-	-	-	-	-	-	-	-	-
Microtubes 1,5-2 ml.	ø11 x 39	-	-	-	-	18	RE 464	-	-	-	-	18	RE 433
Microtubes 0,5-0,6 ml.	ø8 x 30	-	-	-	-	-	-	-	-	-	-	-	-
Microtubes 0,2-0,4 ml.	ø6x45	-	-	-	-	-	-	-	-	-	-	-	-
Microtiter	128x86x15	-	-	-	-	-	-	-	-	-	-	-	-
Microtiter	128x86x21	-	-	-	-	-	-	-	-	-	-	-	-
Microtiter	128x86x45	-	-		-	-	-	-	-	-	-	-	-
Cell culture	128x86x22	-	-	-	-	-	-	-	-	-	-	-	-

Centrifuges: High capacity: Series Consul 21

CONSUL 21

IVD CE

High capacity on a bench top offering several advantages to the operator, until now exclusively available on devices for research.

The **TFT touch screen** made easy the value selection, including in only one screen timer, RPM, RCF, acceleration and braking.

The user menu, allows the customization of several values as open lid, RPM/RCF locking along centrifugation, countdown, etc.

Along centrifugation a graphic shown the operator the current status as well as time to end of program.

The devices included on series **Consul 21** are highly functionals they can spin up to 4 x 400 ml, 48 tubes of 15 ml, 50 ml and 15 ml conical, rotor for microplates, microtubes, as well as a wide set of adapters for each one.

Innovating about centrifugation.

User friendliness

- TFT touch screen easy to read and values selection (RPM on steps of 100, RCF on steps of 10xg), time, temperature (1°C steps), acceleration/deceleration (1 second steps).
- The screen which indicates the status can be seen from more than 3 m.
- Rotor and adapters list on memory.
- Real values on screen of RCF based on accessories configuration.
- Timer count up/down, from 0 or at “set RPM/RCF” for test reproducibility.
- Short spin key with speed adjustable.
- Progressive acceleration and braking selectable by operator up to 175 ramps.
- Program data protection through password selectable.
- Automatic open lid (only non-refrigerated).
- Automatic rotor recognition.
- Automatic lid latch lock.
- Microprocessor controlled.
- Option: free or locked adjustment of RPM/RCF along the run.

Features

- Induction motor maintenance free
- High capacity: Max. Volume 4 x 400 ml.
- High Speed, up to 20.804 xg /14.300 RPM.
- Quiet: noise level < 60 dB.
- 16 memories for programs.

Safety

- Lid locking and holding.
- Imbalance switch off.
- Manual overriding.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration prot in the lid.
- Several messages keep the operator informed about the device situation.
- Guard ring between the chamber of centrifugation and the housing.
- Forced ventilation which reduces the temperature increase (only non-refrigerated).
- Lid dropping protection.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm) (w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CE 111	490	620	390	47	220-240	50-60	600
CE 117	490	620	390	47	110-120	50-60	600

Centrifuges: High capacity: Series Consul 21

CONSUL 21R

IVD CE

High capacity on a bench top centrifuge which offer to their users several advantages, up to now only available on devices dedicated to research.The **TFT touch screen** simplifies the parameter selection; main values appear only in one screen as time, RPM, RCF, acceleration and braking.

The operator menu allows other values adjustment as open lid once the rotor stops, locking RPM/RCF along the run, selection of time from 0 or at set RPM/RCF

Along centrifugation it showed on screen a graphic indicating its status as well as the stage of centrifugation, time to end of process.

The devices included on series **Consul 21R** are highly functionalsthey can spi up to 4 x 400 ml, 48 tubes of 15 ml, 12 conical tubes of 50 ml and 28 of 15 ml conical, rotor for microplates, microtubes, as well as a wide set of adapters for each one.

Innovating about centrifugation.

User friendliness

- TFT touch screen easy to read and values selection (RPM on steps of 100, RCF on steps of 10xg), time, temperature (1°C steps), acceleration/deceleration (1 second steps).
- The screen which indicates the status can be seen from more than 3 m.
- Rotor and adapters list on memory.
- Real values on screen of RCF based on accessories configuration.
- Timer count up/down, from 0 or at “set RPM/RCF” for test reproducibility.
- Short spin key with speed adjustable.
- Progressive acceleration and braking selectable by operator up to 175 ramps.
- Program data protection through password selectable.
- Automatic rotor recognition.
- Automatic lid latch lock.
- Microprocessor controlled.
- Option: free or locked adjustment of RPM/RCF along the run.

Features

- Induction motor maintenance free
- High capacity: Max. Volume 4 x 400 ml.
- High speed, up to 20.804 xg./14.300 RPM.
- Quiet: noise level < 60 dB.
- 15 memories + pre-cooling program.

Safety

- Lid locking and holding.
- Imbalance switch off.
- Manual overriding.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration prot in the lid.
- Several messages keep the operator informed about the device situation.
- Guard ring between the chamber of centrifugation and the housing.
- Lid dropping protection.

Cooling

- Precooling program with rotor spinning and temperature selectable by operator.
- 4°C at least at max speed with any rotor.
- Range of temperature -20°C (-4°F) to 40°C (104°F)
- Scale Celsius or Fahrenheit.
- Temperature sensor inside the chamber.
- Gas R 404A HFC.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU
Regulation: 1005/2009 & 842/2006.
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm) (w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)	Z max. Advisable (Hz)
CE 114	670	770	390	72	220-240	50-60	1200	< | 0,446 |
CE 120	670	770	390	72	110-120	50-60	1200	< | 0,446 |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Centrifuges Series Consul 21

		RT 197		RT 199		RT 238		RT 206		RT 203		RT 205 (1)		RT 219	
															
ROTOR		**ANGLE FIXED 45 °**		**ANGLE FIXED 30 °**		**ANGLE FIXED 30 °**		**ANGLE FIXED 45 °**		**SWING OUT**		**SWING OUT**		**SWING OUT**	
Max. capacity		8 x 50 ml.		4 x 250 ml.		6 x 85 ml		30 x 1,5-2 ml.		4 x 250 ml.		4 x 400 ml.		12 microplacas	
RPM		6.000		4.700		9.000		14.300		4.200		4.000		3.500	
Radius(mm)		149		153		112		96		183		180		149	
RCF Max. (xg)		5.997		3.779		10.142		21.948		3.609		3.220		2.041	
Min. temp. max speed (°C)		-2		-3		0		-3		-1		-2		-4	
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.
400ml.	ø 80 x 118	-	-	-	-	-	-	-	-	-	-	4	RE 450	-	-
350 ml.	ø76 x 120	-	-	-	-	-	-	-	-	-	-	4	RE 423	-	-
250ml.	ø 62 x 120	-	-	4	RE 449	-	-	-	-	4	RE 449	4	RE 457	-	-
200 ml.	ø 60 x 120	-	-	4	RE 449	-	-	-	-	4	RE 449	4	RE 430	-	-
100 ml.	ø 48 x 95	-	-	4	RE 327	-	-	-	-	4	RE 327	4	RE 412	-	-
85 ml.	ø 38 x 112	-	-	4	RE 498	6	-	-	-	4	RE 498	4	RE 499	-	-
50 ml.	ø 35 x 100	8	RE 448	4	RE 334	6	RE 490	-	-	4	RE 334	8	RE 414	-	-
50 ml. conical	ø 29 x 117	8	RE 375	4	RE 340	6	RE 483	-	-	4	RE 340	12	RE 413	-	-
30 ml.	ø 25 x 96	8	RE 370	12	RE 312	6	RE 493	-	-	12	RE 312	20	RE 415	-	-
15 ml.	ø 16 x 100	8	RE 369	28	RE 376	18	RE 485	-	-	28	RE 376	48	RE 417	-	-
15 ml. conical	ø 17 x 122	8	RE 369	20	RE 321	6	RE 484	-	-	20	RE 321	28	RE 416	-	-
15 ml. blood sample	ø 16 x 132	8	RE 369	28	RE 376	-	-	-	-	-	-	-	-	-	-
10 ml.	ø 13 x 100	24	RE 366	40	RE 343	30	RE 497	-	-	40	RE 343	72	RE 418	-	-
10 ml. blood sample	ø 16 x 107	8	RE 369	28	RE 376	18	RE 485	-	-	28	RE 376	48	RE 417	-	-
7/10 ml. blood sample	ø 13 x 107	8	RE 373	28	RE 324	18	RE 503	-	-	28	RE 324	48	RE 419	-	-
5 ml.	ø 13 x 75	24	RE 366	40	RE 343	30	RE 501	-	-	40	RE 343	72	RE 418	-	-
5 ml. blood sample	ø 13 x 82	8	RE 373	28	RE 324	18	RE 492	-	-	28	RE 324	48	RE 419	-	-
10 x 10 mm.	ø 10 x 100	24	RE 367	52	RE 346	-	-	-	-	52	RE 346	76	RE 420	-	-
Microtubes 1,5-2 ml.	ø 11 x 39	24	RE 465	24	RE 440	24	RE 494	30	-	24	RE 440	48	RE 431	144	RE 460
Microtubes 0,5-0,6 ml.	ø 8 x 30	-	-	-	-	24	RE 495	30	RE 428	-	-	-	-	-	-
Microtubes 0,2-0,4 ml.	ø 6 x 45	-	-	-	-	24	RE 496	30	RE 427	-	-	-	-	-	-
Microtiter	ø 128x86x15	-	-	-	-	-	-	-	-	-	-	-	-	12	-

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

Centrifuges: High capacity: Series Digtor 21

DIGTOR 21

IVD CE

The centrifuge **Digtor 21** is a versatile device, allowing be present on routine labs, research, biotechnology, quality control, hospitals, etc.

It is provided of several advantages as:
- Innovation: with a TFT touch screen allowing operator the highest autonomy, controlling the separation, as well as a save energy system selectable.
- Versatility: since 4 x 750 ml, 52 conical tubes of 15 ml, rotor for microplates, microtubes, and a wide range of adapters.
- Safety: always shown on screen real values of RCF, based on accessories selection, automatically, no data introduction is required. Accessories for bio containment.
- Efficiency: Max RCF 20.804 xg, selection of acceleration and braking time, depending of sample performances.

Your best partner on lab.

User friendliness

- TFT touch screen easy to read and values selection (RPM on steps of 100, RCF on steps of 10xg), time, temperature (1°C steps), acceleration/deceleration (1 second steps).
- The screen which indicates the status can be seen from more than 3 m.
- Rotor and adapters list on memory.
- Real values on screen of RCF based on accessories configuration.
- Timer count up/down, from 0 or at “set RPM/RCF” for test reproducibility.
- Short spin key with speed adjustable.
- Progressive acceleration and braking selectable by operator up to 175 ramps.
- Program data protection through password selectable.
- Automatic open lid (only non-refrigerated).
- Automatic rotor recognition.
- Automatic lid latch lock.
- Microprocessor controlled.
- Option: free or locked adjustment of RPM/RCF along the run.

Features

- Induction motor maintenance free
- High capacity: Max. Volume 4 x 750 ml.
- High speed, up to 20.804 xg/14.300 RPM.
- Quiet: noise level < 60 dB.
- 16 memories for programs.

Safety

- Lid locking and holding.
- Imbalance switch off.
- Manual overriding.
- Lid dropping protection.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration prot in the lid.
- Several messages keep the operator informed about the device situation.
- Guard ring between the chamber of centrifugation and the housing.
- Forced ventilation which reduces the temperature increase (only non-refrigerated).

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm) (w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CE 112	540	650	390	50	220-240	50-60	980
CE 118	540	650	390	50	110-120	50-60	980

Centrifuges: High capacity: Series Digtor 21

DIGTOR 21R

IVD CE

The series **Digtor 21R** is formed for devices highly functional, so that allow be present on routine labs, research, biotechnology, quality control …

The Digtor 21 R centrifuge is defined by several attributes as:

- Innovation: its provided of TFT touch screen allowing higher automony to the operator as well as control the separation stages,and save energy system selectable.
- Versatility: from 4 x 750 ml, 52 conical tubes of 15 ml, rotor for microplates, microtubes, and a wide range of adapter for each one.
- Safety: It shows the real value of RCF based on accessories configuration, without introduce any parameter, as well as is provided of biocontainment accesories.
- Efficiency: Max RCF 20.804 xg, acceleration and deceleration time selectables, depending of sample features, dynamic cooling system which reduces the time to reach the selected temperature.

Your best help in your lab.

User friendliness

- TFT touch screen easy to read and values selection (RPM on steps of 100, RCF on steps of 10xg), time, temperature (1°C steps), acceleration/deceleration (1 second steps).
- The screen which indicates the status can be seen from more than 3 m.
- Rotor and adapters list on memory.
- Real values on screen of RCF based on accessories configuration.
- Timer count up/down, from 0 or at “set RPM/RCF” for test reproducibility.
- Short spin key with speed adjustable.
- Progressive acceleration and braking selectable by operator up to 175 ramps.
- Program data protection through password selectable.
- Automatic rotor recognition.
- Automatic lid latch lock.
- Microprocessor controlled.
- Option: free or locked adjustment of RPM/RCF along the run.

Features

- Induction motor maintenance free
- High capacity: Max. Volume 4 x 750 ml.
- High Speed, up to 20.804xg./14.300 RPM.
- Quiet: noise level < 60 dB.
- 15 memories + pre-cooling program.

Safety

- Lid locking and holding.
- Imbalance switch off.
- Lid dropping protection.
- Manual overriding.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration prot in the lid.
- Several messages keep the operator informed about the device situation.
- Guard ring between the chamber of centrifugation and the housing.

Cooling

- Precooling program with rotor spinning and temperature selectable by operator.
- 4°C at least at max speed with any rotor.
- Range of temperature -20°C (-4°F) to 40°C (104°F)
- Scale Celsius or Fahrenheit.
- Temperature sensor inside the chamber.
- Gas R 404A HFC.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU
Regulation: 1005/2009 & 842/2006.
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm)(w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)	Z max Advisable(Hz)
CE 115	720	805	390	95	220-240	50-60	1500	< 0.446
CE 121	720	805	390	95	110-120	50-60	1500	< 0.446

Centrifuges Series Digtor 21

	RT 195	RT 192	RT 191 (1)	RT 238	RT 197	RT 198	RT 199
							
ROTOR	**SWING OUT**	**SWING OUT**	**SWING OUT**	**ANGLE FIXED 30 °**	**ANGLE FIXED 45 °**	**ANGLE FIXED 45 °**	**ANGLE FIXED 30 °**
Max. capacity	104 x 5 ml.	4 x 250 ml.	4 x 750 ml.	6 x 85 ml	8 x 50 ml.	4 x 100 ml.	4 x 250 ml.
RPM	3.800	4.200	3.700	9.000	6.000	5.600	4.700
Radius(mm)	185	202	204	112	149	138	153
RCF Max. (xg)	2.987	3.984	3.122	10.142	5.997	4.838	3.779
Min. temp. max speed (°C)	0	1	0	1	0	-1	-4

SAMPLE VOLUME	Dim (mm) approx.	ADAPTERS Tubes	Ref.	Tubes	Ref.	Tubes	Ref.	Tubes	Ref.	Tubes	Ref.	Tubes	Ref.	Tubes	Ref.
750 ml.	ø96 x 130	-	-	-	-	4	RE 434	-	-	-	-	-	-	-	-
500 ml.	ø90 x 120	-	-	-	-	4	RE 310	-	-	-	-	-	-	-	-
250 ml.	ø61 x 129	-	-	4	RE 449	4	RE 330	-	-	-	-	-	-	4	RE 449
100 ml.	ø48 x 95	-	-	4	RE 327	4	RE 409	-	-	-	-	4	RE 446	4	RE 327
85 ml.	ø38 x 112	-	-	4	RE 498	12	RE 500	6	-	-	-	4	RE 502	4	RE 498
50 ml.	ø35 x 100	-	-	4	RE 334	16	RE 317	6	RE 490	8	RE 448	4	RE 335	4	RE 334
50 ml. conical	ø29 x 117	-	-	4	RE 340	20	RE 472	6	RE 483	8	RE 375	4	RE 341	4	RE 340
30 ml.	ø25 x 96	-	-	12	RE 312	24	RE 322	6	RE 493	8	RE 370	4	RE 332	12	RE 312
15 ml.	ø16 x 100	-	-	28	RE 376	72	RE 348	18	RE 485	8	RE 369	16	RE 316	28	RE 376
15 ml. conical	ø17 x 122	-	-	20	RE 321	52	RE 347	6	RE 484	8	RE 369	4	RE 339	20	RE 321
15 ml. blood sample	ø16 x 132	-	-	28	RE 376	32	RE 441	-	-	8	RE 369	-	-	28	RE 376
10 ml.	ø13 x 100	104	RE 309	40	RE 343	84	RE 354	30	RE 497	24	RE 366	20	RE 320	40	RE 343
10 ml. blood sample	ø16 x 107	-	-	28	RE 376	72	RE 348	18	RE 485	8	RE 369	16	RE 316	28	RE 376
7/10 ml. blood sample	ø13 x 107	104	RE 309	28	RE 324	72	RE 349	18	RE 503	8	RE 373	20	RE 320	28	RE 324
5 ml.	ø13 x 75	104	RE 388	40	RE 343	84	RE 354	30	RE 501	24	RE 366	20	RE 320	40	RE 343
5 ml. blood sample	ø13 x 82	104	RE 388	28	RE 324	72	RE 349	18	RE 492	8	RE 373	20	RE 320	28	RE 324
10 x 100 mm	ø10 x 100	-	-	52	RE 346	144	RE 315	-	-	24	RE 367	36	RE 326	52	RE 346
128x86x15 microtiter	ø128x86x15	-	-	-	-	12	RE 307	-	-	-	-	-	-	-	-
Microtubes 1,5-2 ml.	ø11x39	-	-	24	RE 440	72	RE 426	24	RE 494	24	RE 465	20	RE 408	24	RE 440
Microtubes 0,5-0,6 ml.	ø8x30	-	-	-	-	-	-	24	RE 495	-	-	-		-	-
Microtubes 0,2-0,4 ml.	ø6x45	-	-	-	-	-	-	24	RE 496	-	-	-		-	-

(1) Availables lids for that buckets (RE 356) | (2) This rotor can fit adapters for blood bags (RE 308). | (3) Medium radius on bucket.

		RT 206		RT 201 (1) (2)		RT 202	
							
ROTOR		**ANGLE FIXED 30 °**		**SWING OUT**		**SWING OUT**	
Max. capacity		30 x 1,5-2 ml.		4 blood bags		12 Microtiter plates	
RPM		14.300		3.700		3.700	
Radius(mm)		96		204		182 (3)	
RCF Max. (xg)		21.948		3.122		2.786	
Min. temp. max speed (°C)		-1		0		-4	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.
750 ml.	ø96 x 130	-	-	4	RE 434	-	-
500 ml.	ø90 x 120	-	-	4	RE 310	-	-
250 ml.	ø61 x 129	-	-	4	RE 330	-	-
100 ml.	ø48 x 95	-	-	4	RE 409	-	-
85 ml.	ø38 x 112	-	-	12	RE 500	-	-
50 ml.	ø35 x 100	-	-	16	RE 317	-	-
50 ml. conical	ø29 x 117	-	-	20	RE 472	-	-
30 ml.	ø25 x 96	-	-	24	RE 322	-	-
15 ml.	ø16 x 100	-	-	72	RE 348	-	-
15 ml. conical	ø17 x 122	-	-	52	RE 347	-	-
15 ml. blood sample	ø16 x 132	-	-	32	RE 441	-	-
10 ml.	ø13 x 100	-	-	84	RE 354	-	-
10 ml. blood sample	ø16 x 107	-	-	72	RE 348	-	-
7/10 ml. blood sample	ø13 x 107	-	-	72	RE 349	-	-
5 ml.	ø13 x 75	-	-	84	RE 354	-	-
5 ml. blood sample	ø13 x 82	-	-	72	RE 349	-	-
10 x 100 mm	ø10 x 100	-	-	144	RE 315	-	-
Microtiter	ø128x86x15	-	-	12	RE 307	12	-
Microtubes 1,5-2 ml.	ø11x39	30	-	72	RE 426	144	RE 460
Microtubes 0,5-0,6 ml.	ø8x30	30	RE 428	-	-	-	-
Microtubes 0,2-0,4 ml.	ø6x45	30	RE 427	-	-	-	-

Centrifuges: Floor standing: Series Magnus 21

MAGNUS 21

IVD CE

High capacity on a underfloor centrifuge which offer to their users several advantages, up to now only available on devices dedicated to research.

The **TFT touch screen** simplify the parameter selection; main values appear only in one screen as time, RPM, RCF, acceleration and braking.

The operator menu allows other values adjustment as open lid once the rotor stops, locking RPM/RCF along the run, selection of time from 0 or at set RPM/RCF

Along centrifugation it showed on screen a graphic indicating its status as well as the stage of centrifugation, time to end of process, with graphi and values easily seeable from long distances, increasing the operator autonomy.

The **Magnus 21** can spin up to 4 x 750 ml, 4 blood bags, 72 tubes of 15 ml, 20 tubes of 50 ml conical and 52 tubes of 15 ml conical, rotor for microplates, microtubes, as well as a wide set of adapters for each one.

User friendliness

- TFT touch screen easy to read and values selection (RPM on steps of 100, RCF on steps of 10xg), time, temperature (1°C steps), acceleration/deceleration (1 second steps).
- The screen which indicates the status can be seen from more than 3 m.
- Rotor and adapters list on memory.
- Real values on screen of RCF based on accessories configuration.
- Timer count up/down, from 0 or at “set RPM/RCF” for test reproducibility.
- Short spin key with speed adjustable.
- Progressive acceleration and braking selectable by operator up to 175 ramps.
- Program data protection through password selectable.
- Automatic open lid (only non-refrigerated).
- Automatic rotor recognition.
- Automatic lid latch lock.
- Microprocessor controlled.
- Option: free or locked adjustment of RPM/RCF along the run.

Features

- Induction motor maintenance free.
- High capacity: Max. Volume 4 x 750 ml.
- High speed, up to 20.804 xg/14.300 RPM.
- Quiet: noise level < 60 dB.
- 16 memories for programs.

Safety

- Lid locking and holding.
- Imbalance switch off.
- Lid dropping protection.
- Manual overriding.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration prot in the lid.
- Several messages keep the operator informed about the device situation.
- Guard ring between the chamber of centrifugation and the housing.
- Forced ventilation which reduces the temperature increase (only non-refrigerated).

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm) (w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CE 128	540	650	930	113	220-240	50-60	980
CE 130	540	650	930	113	110-120	50-60	980

Centrifuges: Floor standing: Series Magnus 21

MAGNUS 21R

IVD CE

High capacity on a underfloor centrifuge which offer to their users several advantages, up to now only available on devices dedicated to research. The **TFT touch screen** simplifies the parameter selection; main values appear only in one screen as time, RPM, RCF, acceleration and braking.

The operator menu allows other values adjustment as open lid once the rotor stops, locking RPM/RCF along the run, selection of time from 0 or at set RPM/RCF

Along centrifugation it showed on screen a graphic indicating its status as well as the stage of centrifugation, time to end of process.

The devices included on series **Magnus 21R** are highly functionals, they can spin up to 4 x 750 ml, 4 blood bags, 72 tubes of 15 ml, 20 tubes of 50 ml conical and 52 tubes of 15 ml conical, rotor for microplates, microtubes, as well as a wide set of adapters for each one.

Devoted to centrifugation.

User friendliness

- TFT touch screen easy to read and values selection (RPM on steps of 100, RCF on steps of 10xg), time, temperature (1°C steps), acceleration/deceleration (1 second steps).
- The screen which indicates the status can be seen from more than 3 m.
- Rotor and adapters list on memory.
- Real values on screen of RCF based on accessories configuration.
- Timer count up/down, from 0 or at “set RPM/RCF” for test reproducibility.
- Short spin key with speed adjustable.
- Progressive acceleration and braking selectable by operator up to 175 ramps.
- Program data protection through password selectable.
- Automatic rotor recognition.
- Automatic lid latch lock.
- Microprocessor controlled.
- Option: free or locked adjustment of RPM/RCF along the run.

Features

- Induction motor maintenance free
- High capacity: Max. Volume 4 x 750 ml.
- High Speed, up to 20.804 xg/14.300 RPM.
- Quiet: noise level < 60 dB.
- 15 memories + pre-cooling program.

Safety

- Lid locking and holding.
- Imbalance switch off.
- Lid dropping protection.
- Manual overriding.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration prot in the lid.
- Several messages keep the operator informed about the device situation.
- Guard ring between the chamber of centrifugation and the housing.

Cooling

- Precooling program with rotor spinning and temperature selectable by operator.
- 4°C at least at max speed with any rotor.
- Range of temperature -20°C (-4 °F) to 40°C (104 °F)
- Scale Celsius or Fahrenheit.
- Temperature sensor inside the chamber.
- Gas R 404A HFC.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU
Regulation: 1005/2009 & 842/2006
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm) (w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)	Z max Advisable (Hz)
CE 129	540	650	930	145	220-240	50-60	1500	< | 0.446 |
CE 131	540	650	930	145	110-120	50-60	1500	< | 0.446 |

Centrifuges Series Magnus 21

		RT 195		RT 192		RT 191 (1)		RT 238		RT 197		RT 198		RT 199	
															
ROTOR		**SWING OUT**		**SWING OUT**		**SWING OUT**		**ANGLE FIXED 30 °**		**ANGLE FIXED 45 °**		**ANGLE FIXED 45 °**		**ANGLE FIXED 30 °**	
Max. capacity		104 x 5 ml.		4 x 250 ml.		4 x 750 ml.		6 x 85 ml		8 x 50 ml.		4 x 100 ml.		4 x 250 ml.	
RPM		3.800		4.200		3.700		9.000		6.000		5.600		4.700	
Radius(mm)		185		202		204		112		149		138		153	
RCF Max. (xg)		2.987		3.984		3.122		10.142		5.997		4.838		3.779	
Min. temp. max speed (°C)		0		1		0		1		0		-1		-4	
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	-	-	-	-	-	-	-	-
500 ml.	ø90 x 120	-	-	-	-	4	RE 310	-	-	-	-	-	-	-	-
250 ml.	ø61 x 129	-	-	4	RE 449	4	RE 330	-	-	-	-	-	-	4	RE 449
100 ml.	ø48 x 95	-	-	4	RE 327	4	RE 409	-	-	-	-	4	RE 446	4	RE 327
85 ml.	ø38 x 112	-	-	4	RE 498	12	RE 500	6	-	-	-	4	RE 502	4	RE 498
50 ml.	ø35 x 100	-	-	4	RE 334	16	RE 317	6	RE 490	8	RE 448	4	RE 335	4	RE 334
50 ml. conical	ø29 x 117	-	-	4	RE 340	20	RE 472	6	RE 483	8	RE 375	4	RE 341	4	RE 340
30 ml.	ø25 x 96	-	-	12	RE 312	24	RE 322	6	RE 493	8	RE 370	4	RE 332	12	RE 312
15 ml.	ø16 x 100	-	-	28	RE 376	72	RE 348	18	RE 485	8	RE 369	16	RE 316	28	RE 376
15 ml. conical	ø17 x 122	-	-	20	RE 321	52	RE 347	6	RE 484	8	RE 369	4	RE 339	20	RE 321
15 ml. blood sample	ø16 x 132	-	-	28	RE 376	32	RE 441	-	-	8	RE 369	-	-	28	RE 376
10 ml.	ø13 x 100	104	RE 309	40	RE 343	84	RE 354	30	RE 497	24	RE 366	20	RE 320	40	RE 343
10 ml. blood sample	ø16 x 107	-	-	28	RE 376	72	RE 348	18	RE 485	8	RE 369	16	RE 316	28	RE 376
7/10 ml. blood sample	ø13 x 107	104	RE 309	28	RE 324	72	RE 349	18	RE 503	8	RE 373	20	RE 320	28	RE 324
5 ml.	ø13 x 75	104	RE 388	40	RE 343	84	RE 354	30	RE 501	24	RE 366	20	RE 320	40	RE 343
5 ml. blood sample	ø13 x 82	104	RE 388	28	RE 324	72	RE 349	18	RE 492	8	RE 373	20	RE 320	28	RE 324
10 x 100 mm	ø10 x 100	-	-	52	RE 346	144	RE 315	-	-	24	RE 367	36	RE 326	52	RE 346
Microtiter	ø128x86x15	-	-	-	-	12	RE 307	-	-	-	-	-	-	-	-
Microtubes 1,5-2 ml.	ø11x39	-	-	24	RE 440	72	RE 426	24	RE 494	24	RE 465	20	RE 408	24	RE 440
Microtubes 0,5-0,6 ml.	ø8x30	-	-	-	-	-	-	24	RE 495	-	-	-		-	-
Microtubes 0,2-0,4 ml.	ø6x45	-	-	-	-	-	-	24	RE 496	-	-	-		-	-

(1) Availables lids for that buckets (RE 356) | (2) This rotor can fit adapters for blood bags (RE 308). | (3) Medium radius on bucket.

		RT 206		RT 201 (1) (2)		RT 202	
							
ROTOR		**ANGLE FIXED 45°**		**SWING OUT**		**SWING OUT**	
Max. capacity		30 x 1,5-2 ml.		4 blood bags		12 Microtiter plates	
RPM		14.300		3.700		3.700	
Radius(mm)		96		204		182 (3)	
RCF Max. (xg)		21.948		3.122		2.786	
Min. temp. max speed (°C)		-1		0		-4	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.
750 ml.	ø96 x 130	-	-	4	RE 434	-	-
500 ml.	ø90 x 120	-	-	4	RE 310	-	-
250 ml.	ø61 x 129	-	-	4	RE 330	-	-
100 ml.	ø48 x 95	-	-	4	RE 409	-	-
85 ml.	ø38 x 112	-	-	12	RE 500	-	-
50 ml.	ø35 x 100	-	-	16	RE 317	-	-
50 ml. conical	ø29 x 117	-	-	20	RE 472	-	-
30 ml.	ø25 x 96	-	-	24	RE 322	-	-
15 ml.	ø16 x 100	-	-	72	RE 348	-	-
15 ml. conical	ø17 x 122	-	-	52	RE 347	-	-
15 ml. blood sample	ø16 x 132	-	-	32	RE 441	-	-
10 ml.	ø13 x 100	-	-	84	RE 354	-	-
10 ml. blood sample	ø16 x 107	-	-	72	RE 348	-	-
7/10 ml. blood sample	ø13 x 107	-	-	72	RE 349	-	-
5 ml.	ø13 x 75	-	-	84	RE 354	-	-
5 ml. blood sample	ø13 x 82	-	-	72	RE 349	-	-
10 x 100 mm	ø10 x 100	-	-	144	RE 315	-	-
Microtiter	ø128x86x15	-	-	12	RE 307	12	-
Microtubes 1,5-2 ml.	ø11x39	30	-	72	RE 426	144	RE 460
Microtubes 0,5-0,6 ml.	ø8x30	30	RE 428	-	-	-	-
Microtubes 0,2-0,4 ml.	ø6x45	30	RE 427	-	-	-	-

Special applications

Until now, the quintessential location for centrifuges has been the laboratory, as part of the core equipment in most of them, but in recent years centrifuges have crossed this barrier, becoming an essential part in various production processes.

In this regard, Ortoalresa products are present as part of multiple manufacturing lines such as dairy products, quality control, operating theaters, etc.

This diversification in the use of centrifuges has made those applications developed outside the laboratory setting, which largely follow specific procedures, standardized in some cases, and which require special sample holders, be referred to as special applications.

These applications are so diverse that they have been classified according to their use. Taking into account both, use and sample's special features, in some occasions it might be required a temperature control for the sample above room temperature, reaching up to 80ºC

For the equipment selection, based on general criteria such as RPM, RCF, volume, or number of tubes, see tables on page 12 for relative values on each equipment.

Every Ortoalresa centrifuge for special applications has the same security devices as the rest of its centrifuges.

Moreover, the equipment with applications for petroleum have been manufactured, as standard production, with pre-installation for adaptation to a new safety device: the GRS (Gas Release System) which removes the aerosols formed during the spinning process as a result of the sample reaction with different agents (physical and chemical).

Centrifuges in this section can be classified based on the application field they are used for

For industry use:

- **Digtor 21 C:** Centrifuge for petrol with heating for 4 tubes 8"
- **Digtor 21 C-U:** Centrifuge for petrol without heating for 4 tubes of 8 ".
- **Digtor 21 C-8:** Centrifuge for petrol with heating for 8 tubes of 8".
- **Lacter 21:** For fat determination in dairy products.

For life sciences:

- **Citocentrifuge:** centrifugation on thin layer.
- **Plasma 22:** Platelet concentration for tissue regeneration.
- **Digtor Col:** Fat concentration for aesthetic applications.
- **Vetcen:** Analysis on small veterinary.

FOR INDUSTRY USE

LACTER 21

DIGTOR 21 C-U

DIGTOR 21 C-8

DIGTOR 21 C

FOR LIFE SCIENCES

VETCEN

PLASMA 22

CYTOCENTRIFUGE

DIGTOR 21 COL

Special applications

Centrifuges: Industry use: Series Digtor 21 C

DIGTOR 21C

CE

Digtor 21 C centrifuge has been specially designed for the determination of water and sediment in petrol and used oils, as well as precipitation and demulsification features.

It has been equipped with accessories for run 6 and 8 inches, pear shaped tubes, traces and 12,5 ml tubes.

Its proper for processing samples according following standards: ASTM D 91, D 96, D 893, D 1796, D 2273, D 2709, D 2711, D 4007, D 5546, API 2542, API 2548, BS 4385, ISO 3734, ISO 9030, IP75, IP 359, NF M07-020.

User friendliness

- TFT touch screen easy to read and values selection (RPM on steps of 100, RCF on steps of 10xg), time, temperature (1°C steps), acceleration/deceleration (1 second steps).
- The screen which indicates the status can be seen from more than 3 m.
- Rotor and adapters list on memory.
- Real values on screen of RCF (x g) based on accessories configuration.
- Timer count up/down, from 0 or at "set RPM/RCF" for test reproducibility.
- Short spin key with speed adjustable.
- Progressive acceleration and braking selectable by operator up to 175 ramps.
- Automatic rotor recognition.
- Automatic lid latch lock.
- Microprocessor controlled.
- Option: free or locked adjustment of RPM/RCF along the run.
- Program data protection through password selectable.
- Tubes on upright on rest.

Features

- Induction motor maintenance free.
- Max. speed 3.000 RPM/2.425 RCF(on steps 100 RPM/10 xg)
- Quiet: noise level < 60 dB.
- 15 memories + pre-heating program: it allows warm the chamber to test temperature before spin the sample.
- Device and accessories specially designed for petrol applications.

Safety

- Optional Gas Release System: all devices include pre-installation.
- Isolated avoiding heat lost.
- Lid locking and holding and lid dropping protection.
- Overheating protection.
- Imbalance switch off.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration port in the lid.
- Several messages keep the operator informed about the device situation.
- Guard ring between the chamber of centrifugation and the housing.

Heating

- Preheating program with rotor spinning and temperature selectable by operator.
- Temperature from room + 5°C to 80°C (176°F).
- Scale Celsius or Fahrenheit.
- Temperature sensor inside the chamber.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1

Versions

Code	Dimensions (mm)(w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CE 136	540	650	400	77	220-240	50-60	1.400
CE 138	540	650	400	77	110-120	50-60	1.400

Accessories

ROTOR		RT 239 SWING OUT		RT 220 SWING OUT	
Max. capacity		4x100 ml. (8/6")		4x100 ml. (8")	
RPM		3.000		3.000	
Radius(mm)		241		241	
RCF Max. (xg)		2.425		2.425	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.
ASTM cone shape 6"	Ø 44x162	4	RE 475	-	-
ASTM pear shape	Ø 58x157	4	RE 477	-	-
ASTM cone shape 8"	Ø 36x203	4	RE 476	4	-
Finger tubes 12,5 ml	Ø 16x105	28	RE 456	4	RE 455
Finger tubes 12,5 ml	Ø 16x105	-	-	16	RE 454

Centrifuges: Industry use: Series Digtor 21 C

DIGTOR 21C-U

CE

The centrifuge **Digtor 21 C-U** is designed for the determination of water and sediments in oils, and characteristics of precipitation and demulsibility and the characterization of waste oils, in process that do not require heating.

It is provided with accessories for spin cylinder-conical tubes of 6 and 8 inches, pear-shaped tubes of 6 inches and tubes for trace elements and 12,5ml.

Its proper for processing samples according following standards: ASTM D 91, D 96, D 893, D 2273, D 2709, D 2711, D 5546, API 2542, API 2548, BS 4385, ISO 3734, IP75.

User friendliness

- TFT touch screen easy to read and values selection (RPM on steps of 100, RCF on steps of 10xg), time, acceleration/deceleration (1 second steps).
- The screen which indicates the status can be seen from more than 3 m.
- Rotor and adapters list on memory.
- Real values on screen of RCF (xg) based on accessories configuration.
- Timer count up/down, from 0 or at “set RPM/RCF” for test reproducibility.
- Progressive acceleration and braking selectable by operator up to 175 ramps.
- Automatic rotor recognition.
- Automatic lid latch lock.
- Microprocessor controlled.
- Option: free or locked adjustment of RPM/RCF along the run.
- Program data protection through password selectable.
- Tubes on upright on rest.

Features

- Induction motor maintenance free
- Max. speed 3.000 RPM/2.425 RCF(on steps 100 RPM/10 xg)
- Quiet: noise level < 60 dB.
- 16 memories.

Safety

- Optional Gas Release System: all devices include pre-installation.
- Isolated avoiding heat lost.
- Lid locking and holding and lid dropping protection.
- Imbalance switch off.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration port in the lid.
- Several messages keep the operator informed about the device situation.
- Guard ring between the chamber of centrifugation and the housing.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU.
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm)(w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CE 166	540	650	400	77	220-240	50-60	600
CE 172	540	650	400	77	110-120	50-60	600

Accessories

ROTOR		RT 239 SWING OUT		RT 220 SWING OUT	
Max. capacity		4x100 ml. (8/6”)		4x100 ml. (8”)	
RPM		3.000		3.000	
Radius(mm)		241		241	
RCF Max. (xg)		2.425		2.425	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.
ASTM cone shape 6”	Ø 44x162	4	RE 475	-	-
ASTM pear shape	Ø 58x157	4	RE 477	-	-
ASTM cone shape 8”	Ø 36x203	4	RE 476	4	-
Finger tubes 12,5 ml	Ø 16x105	28	RE 456	4	RE 455
Finger tubes 12,5 ml	Ø 16x105	-	-	16	RE 454

Centrifuges: Industry use: Series Digtor 21 C

DIGTOR 21C-8

CE

The centrifuge **Digtor 21 C-8** is designed for the determination of water and sediments in oils, and characteristics of precipitation and demulsibility and the characterization of waste oils, on labs with a high number of samples, due to it can spin up to **8 tubes of 8" at once.**

It is provided with accessories for spin cylinder-conical tubes of 6 and 8 inches, pear-shaped tubes of 6 inches and tubes for trace elements and 12,5ml.

Its proper for processing samples according following standards : ASTM D 91, D 96, D 893, D 1796, D 2273, D 2709, D 2711, D 4007, D 5546, API 2542, API 2548, BS 4385, ISO 3734, ISO 9030, IP75, IP 359, NF M07-020.

User friendliness

- TFT touch screen easy to read and values selection (RPM on steps of 100, RCF on steps of 10xg), time, temperature (1°C steps), acceleration/deceleration (1 second steps).
- The screen which indicates the status can be seen from more than 3 m.
- Rotor and adapters list on memory.
- Real values on screen of RCF (xg) based on accessories configuration.
- Timer count up/down, from 0 or at "set RPM/RCF" for test reproducibility.
- Short spin key with speed adjustable.
- Progressive acceleration and braking selectable by operator up to 175 ramps
- Automatic rotor recognition.
- Automatic lid latch lock.
- Microprocessor controlled.
- Option: free or locked adjustment of RPM/RCF along the run.
- Program data protection through password selectable.
- Tubes on upright on rest.

Features

- Induction motor maintenance free.
- Max. speed 3.000 RPM/2.425 RCF (on steps 100 RPM/10 xg)
- Quiet: noise level < 60 dB.
- 15 memories + pre-heating program: it allows warm the chamber to test temperature before spin the sample.
- Device and accessories specially designed for petrol applications.

Safety

- Optional Gas Release System: all devices include pre-installation.
- Isolated avoiding heat lost.
- Lid locking and holding and lid dropping protection.
- Overheating protection.
- Imbalance switch off.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration port in the lid.
- Several messages keep the operator informed about the device situation.
- Guard ring between the chamber of centrifugation and the housing.

Heating

- Preheating program with rotor spinning and temperature selectable by operator.
- Temperature from room + 5°C to 80°C (176°F).
- Scale Celsius or Fahrenheit.
- Temperature sensor inside the chamber.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU.
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm)(w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CE 161	540	650	400	77	220-240	50-60	1.400
CE 162	540	650	400	77	110-120	50-60	1.400

Accessories



ROTOR		RT 239 SWING OUT		RT 220 SWING OUT		RT 242 SWING OUT	
Max. capacity		4x100 ml. (8/6")		4x100 ml. (8")		8x100 ml. (8/6")	
RPM		3.000		3.000		2.000	
Radius(mm)		241		241		239	
RCF Max. (xg)		2.425		2.425		1.069	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.
ASTM cone shape 6"	Ø 44x162	4	RE 475	-	-	8	-
ASTM pear shape	Ø 58x157	4	RE 477	-	-	-	-
ASTM cone shape 8"	Ø 36x203	4	RE 476	4	-	8	RE 478
Finger tubes 12,5 ml	Ø 16x105	28	RE 456	4	RE 455	-	-
Finger tubes 12,5 ml	Ø 16x105	-	-	16	RE 454	16	RE 454

GAS RELEASE SYSTEM

The petroleum testing laboratories environment presents a number of risks inherent to the type of sample. The devices for the analysis of samples should ensure minimal risk conditions at work, critical premise in the development of devices for this application in Ortoalresa.

Centrifugation processes for the determination of water and sediment in petroleum, require an organic solvent which, reacting with the sample and caloric intake of the equipment, generates aerosols. In order to remove this gas from the centrifuge and take it to a safe area, Ortoalresa has designed GRS (Gas Release System) as an accessory for all of the Digtor 21 C series centrifuges. This accessory creates inside the centrifuge chamber, on its top when it is locked, low pressure intake or vacuum suction, allowing suction from atmosphere high in aerosols. This atmosphere is piped through the GRS up to its exit, where it can be treated in isolation. The whole circuit is continuously monitored by the equipment, which will lead the right moment to operate the system. Moreover, it is only required the presence of a compressed air supply of 2 bar pressure, in order to create a 10l/min suction, sufficient to perform the suction of the centrifuge inside chamber volume every 5 min.

GRS main functions are:
- Decreasing gas concentration during operation, and therefore the risk of explosion.
- Eliminating the user's health risk by inhalation of produced vapors
- Avoiding gas dispersion into laboratory environment.

User friendliness

- It only requires a compressed air supply.
- It has 4 connections: A compressed air inlet, an air inlet for air removed from the equipment, an atmosphere outlet to a safe area, and the control input from the equipment.
- Operation pilot light.
- Air inlet pressure regulator.
- Inlet pressure gauge.
- Operation controlled by core equipment.

Features

- Setting up at a 2 bar pressure, creates a 10 l/min suction.
- 0.2 bar gauge accuracy.
- Max 8 bar inlet pressure.
- Fast inlet and outlet connections.
- Suction capacity: minimum twice total chamber volume in 10 min.

Safety

-Hazardous gases input is not required.
-Low noise level <40 dB.
-Powered only by rotor in motion and lid blocked.
-Low power.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU.
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm)(w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CP 001	139	214	125	3	220-240	50-60	20
CP 004	139	214	125	3	110-120	50-60	20

LACTER 21

The centrifuge **Lacter 21** is designed to determine fat in dairy products (cheese, milk, cream, yogurt, butter...) following the procedure of Gerber method.

It is provided with heating. It eases the separation of fat of the aqueous phase. It is also provided with two rotors for different types of 8 or 12 butyrometers, which allows a direct reading on the tube.

User friendliness

- LCD screen which shows RPM and RCF, time, temperature.
- Acceleration control and up to 175 ramps for a progressive deceleration.
- Automatic rotor recognition.
- Automatic lid lock.
- Controlled by microprocessor.
- 16 memories.

CE

Features

- Working temperature to 80°C (176°F).
- Induction motor, maintenance free.
- Noiseless <60 dB.
- Speed max. 1.200 RPM.
- Capacity: Max. 12 butyrometers.

Safety

- Lid block and protection against the opening while operating.
- Manual overriding for emergency.
- Unbalance switch off.
- Chamber of centrifugation in stainless steel.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU.
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm)(w x d x h)			Net weight(kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)	Heating
CE 158	365	300	450	23	220-240	50-60	480	YES
CE 159	365	300	450	23	110-120	50-60	480	YES

Accessories

		RT 240 	RT 241 
ROTOR		ANGLE FIXED 20 °	ANGLE FIXED 20 °
Max. capacity		8 tests	12 tests
RPM		1200	1200
Radius(mm)		139	139
RCF Max. (xg)		224	224
Butyrometers	butyrometers max. dimensions in mm. are 25 x 212	8	12

Centrifuges: Life science: Cytocentrifuge

CYTOCENTRIFUGE

IVD CE

The **cytocentrifuge** is designed for the concentration of biological samples on a surface which can be seen with a microscope and its subsequent identification and characterization.

Its easy use reduces the handling time, which is essential in oncology, cytology, hematology, virology and microbiology services.

It is provided with a swing out rotor for 4 holders which can recover the strain for its processing depending on the position of the containers. Another advantage is that some rotor for tubes, microtubes or plates can be adapted.

User friendliness

- User friendly sealed holders which prevent the leak of the sample.
- Fast identification of microorganisms.
- Detection of cells even in low-concentrated liquids.
- Processing time < 15 minutes.
- LDC screen which shows RPM/RCF, time, temperature and deceleration.
- Intuitive use with start, stop, lid opener and short centrifugation buttons.
- Automatic rotor recognition.
- Automatic lid lock.
- Controlled by microprocessor.
- 16 memories.
- Blocking/modifying option of RPM/RCF while operating.
- Acceleration control and up to 175 ramps for a progressive deceleration.

Features

- Induction motor, maintenance free.
- Noiseless <60 dB.
- Rotor list on memory.
- Short spin key, with adjustable speed.
- Open lid automaticaly selectable.
- Possibility for adapted some rotor for tubes (check Digicen 21 accessories, page 30)

Safety

- Alarm to prevent the drying of the samples every 20 seconds.
- Lid lock and protection against the opening while operating.
- Manual overriding for emergency.
- Unbalance switch off.
- Chamber of centrifugation in stainless steel.
- Port of view on lid for calibration and check the operation.
- Continuous check of the equipment, shown by messages on the screen.
- Guard ring between the chamber of centrifugation and the housing.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU.
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm)(w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CE 110	410	530	320	36	220-240	50-60	280
CE 116	410	530	320	36	110-120	50-60	280

Accessories

RT 207

ROTOR	SWING OUT
Max. capacity	4x2.2 ml
RPM	2.500
Radius(mm)	120
RCF Max. (xg)	839
Cytocontainers	4

Surface on slide:6,2 or 8.7 mm diameter

PLASMA 22

The centrifuge **Plasma 22** is an essential tool for production of platelet derivates, which have been positionated as a requisite in tissue regeneration for several applications. So we will find that too in every kind of surgery as on dentist , trauma- tology , diabetics units, burns units, ...

The centrifuge Plasma 22 allows the use of open or closed systems as well, based on operator needs.

User friendliness

- LCD screen which shows RPM /RCF(on steps 100 RPM/10 xg)time,acceleration/deceler.
- Intuitive use with start, stop, lid opener and short centrifugation buttons
- Output: 8 samples in 8 minutes. Adapters and rotors autoclavables.
- Timer countdown/countup from 0 or from ‘’set RPM/RCF’’”.16 memories.
- Acceleration control in 2 steps and up to 175 ramps for a progressive deceleration.

CE

- Automatic lid lock. Open lid automatically selectable.
- Controlled by microprocessor. Induction motor, maintenance free.
- Blocking/modifying option of RPM/RCF while operating.

Features

- Capacity: Max. 8 x 9/15 ml (16 x 107 mm).
- Speed max. 3.000 RPM
- Noiseless <60 dB.

Safety

- Lid block and protection against the opening while operating.
- Manual overriding for emergency. Unbalance switch off.
- Lid dropping protection. Safety ring.
- Chamber of centrifugation in stainless steel. Automatic rotor recognition
- Port of view on lid for calibration and check the operation.
- The continuous check of the equipment is shown by messages on the screen.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU.
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm)(w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CE 156	280	275	410	17	220-240	50-60	120
CE 165	280	275	410	17	110-120	50-60	120

Accessories

RT 237

ROTOR		SWING OUT	
Max. capacity		8 x 9/15 ml.	
RPM		3.000	
Radius(mm)		128	
RCF Max. (xg)		1.288	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS** Tubes	Ref.
9/15 ml	16x107	8	-
5 ml	13x82	8	RE 474

Human fat has the highest concentration of stem cells on peripheral tissues. Its extraction and concentration is made directly on a syringe of 50-60 ml just in 5 min.

The success of this procedure is based in its extreme simplicity, lack of rejection and immediate results just after the surgery. The centrifuge **Digtor 21 Col** is an essential tool for fat processing in aesthetic surgery liposculture and lipofilling.

User friendliness

- TFT touch screen which shows RPM/RCF (on steps 100 RPM/10 xg) time, acceleration/ deceler.
- Intuitive use with start, stop, lid opener and short cycle buttons.
- Timer count up/down, from 0 or at “set RPM/RCF” for test reproducibility. 16 memories.
- Automatic rotor recognition. Adapters and rotors autoclavables.
- Acceleration control in 2 steps and up to 175 ramps for a progressive deceleration.
- Automatic lid lock. Open lid automatically selectable.
- Controlled by microprocessor. Induction motor, maintenance free.
- Blocking/modifying option of RPM/RCF while operating.

CE

DIGTOR 21 COL

Features

- Capacity: Max. 4 x 60 ml.
- Speed max. 3.000 RPM.
- Noiseless <60 dB.

Safety

- Lid block and protection against the opening while operating.
- Manual overriding for emergency. Lid dropping protection. Unbalance switch off.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration port in the lid. Guard ring.
- Several messages keep the operator informed about the device situation.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU.
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

Versions

Code	Dimensions (mm)(w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CE 178	540	650	400	50	220-240	50-60	980
CE 179	540	650	400	50	110-120	50-60	980

Accessories

RT 210

ROTOR		SWING OUT	
Max. capacity		4x60 ml	
RPM		3.000	
Radius(mm)		179	
RCF Max. (xg)		1.801	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS** Tubes	Ref.
Syringes 10 ml	16x118	16	RE 438

VETCEN

Small veterinaries need versatile equipment, friendly to use and efficient. The centrifuge **Vetcen** has two rotors which allow run samples on Capillaries tubes, microtubes of 1,5 to 2,2 and 5, 10 and 15 ml tubes.

The versatility of this equipment is given by its multi rotor tubes of different volume can in one run , spin capillary tubes and microtubes. Optimal for processing a small number of samples is undoubtedly the most appropriate choice for emergency laboratories, and getting shortened preparation time, simplifying the separation of samples.

User friendliness

- LED screen shown (RPM on steps of 100, RCF on steps of 10xg) time and deceleration.
- Intuitive use with start, stop, lid opener and short centrifugation buttons. Blocking/modifying option of RPM/RCF while operating.
- Timer count up/down, from 0 or at “set RPM/RCF” for test reproducibility. Rotor list on memory.
- Last values remain on memory. Acceleration and braking selectable by operator.
- Microprocessor controlled. Induction motor maintenance free.
- Automatic lid latch lock. Open lid automatically selectable.

Features

- Capacity: Max. 6 x 1.5-2.2 ml + 6 x 1.5 x 75 ml.
- Speed max. 11.500 RPM/12.716 xg.
- Noiseless <60 dB.

Safety

- Lid locking and holding.
- Manual overriding. Lid dropping protection. Imbalance switch off.
- Chamber of centrifugation in stainless steel. Adapters and rotors autoclavables.
- Viewing and calibration port in the lid. Guard ring.
- Several messages keep the operator informed about the device situation.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU.
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1.

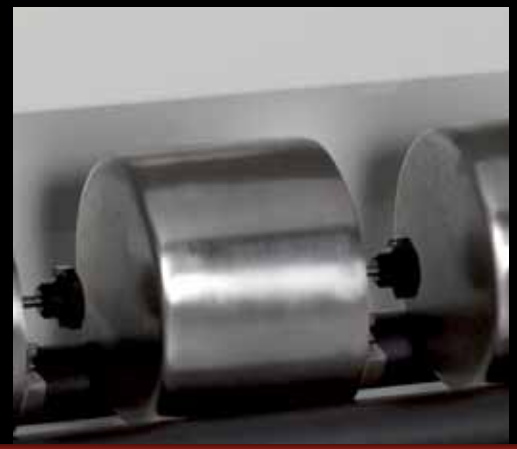
Versions

Code	Dimensions (mm)(w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Consumption (W)
CE 160	276	390	272	16	220-240	50-60	140
CE 177	276	390	272	16	110-120	50-60	140

Accessories

		RT 126		RT 130	
					
ROTOR		**ANGLE FIXED 30 °**		**MIXTO**	
Max. capacity		12x1,5x75 mm.		6x1,5x75+6x1,5/2 ml.	
RPM		11.500		11.500	
Radius(mm)		86		86	
RCF Max. (xg)		12.716		12.716	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.
1.5-2.2 ml	Ø 11x39	-	-	6	-
Capillaries	1,5 x 75 mm.	12	-	6	-

Ecoclave | Distiller | Ball mill | Sieve shaker



Other laboratory products

ECOCLAVES S Y B

CE

Ortoalresa's **ecoclaves class S y B** are versatile devices easy to use. They have 12 programs on memory pre-fixed in factory for a smooth processing. They include: trays holder, 4 trays, door key/clamp, 2 hoses, sponge and funnel. Include standard printer.

Features

- Volume 18 & 23 litres.
- Continuos control over the cycle phases.
- Instantaneous vaporizer inside the chamber.
- Provided with connection to demineralizer
- Humidity <2%.

User friendliness

- Ecoclave S: 2 Test Cycles: Bowie & Dick, Vacuum Test ,Pre and Post Vacuum.
- Ecoclave B: 3 Test Cycles: Bowie & Dick, Hellix test, Vacuum Test.
- Cycles with clean water full tank: Class S: 10 for 18 l, 8 for 23 l. Class B: 8 for 18 l and 6 for 23 l.
- Weight of wrapped materials 18 l 3 Kg, 23 l 4,5 Kg. Unwrapped: 18 l 4 Kg, 23 l 6 Kg. Porous: 18 l 1Kg (B) /0,5 Kg (S) ,23 l 1,5 Kg (B)/1 Kg (S).
- Multi-language graphic display with temperature, Sterilization and drying time, chamber pressure, program and stage of cycle.
- Night cycle.
- Initial checking and tracking through messages.
- Stainless steel chamber made of thick one-piece molded steel.
- Loading with self-priming pump.
- Electronic drying in vacuum
- Memory Test System (MTS): store and print 10 cycles.

Safety

- Electrical: fuses and earthed.
- Motor-operated closure with triple-protection,
- Safety valve.
- Several messages keep the operator informed about the device situation.
- Air entry through bacteriological filter.
- Double-stage vacuum pump release the air avoiding air bubbles.

EU Directives: 98/79/EC, 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU.
Standards: EN 61010-1, EN 61010-2, EN 61326-1, EN 13060.

Versions

Code	Dimensions (mm) (w x d x h)			Net weight (Kg)	Trays dimensions (mm)	Class	Consumption (W)	Chamber volume (l)	Test cycles
AU 005	505	610	400	56	185 x 285	B	2400	18	B+V+H
AU 006	505	695	400	60	185 x 440	B	2400	23	B+V+H
AU 007	450	610	400	45	185 x 285	S	2400	18	B+V
AU 008	450	695	400	50	185 x 440	S	2400	23	B+V

ATTENTION: for 23 litres models drying time lasts 5 minutes, total time 15 min.
THIS AUTOCLAVE CAN NOT STERILIZIE LIQUIDS. B=Bowie & Dick / V=Vacuum Test / H=Helix

Programs

Instruments & materials	Cycle	Ecoclave B		Ecoclave S		Wrapped
		Total time (min)	No. vaccum	Total time (min)	No. vaccum	
Delicate holow and stainless steel	121°C hollow wrapped	26	4	30	2	si
Stainless steel hollow	134° Hollow wrapped	14	4	22	2	si
Solid rubber / delicate	121°Solid wrapped	26	2	28	2	si
Stainless steel solid	134° Solid wrapped	14	2	15	2	Si
Solid and stainless steel hollow	134° Prion	30	4	35	2	Si
Delicated, hollow and porous	121°Porous	31	4	33	2	si
Solid stainless steel, hollow, small aorous	134° Porous	19	4	20	2	Si
Soldid rubber and delicate	121°Rapid	20	2	23	2	no
Solid stainless steel	134°Rapid	8	2	10	2	No
Hollow rubber and stainless steel	134° Hollow unwrapped	8	4	11	2	No
Ciclo Test Helix / Bowie &Dick	134° Helix/ B&D Test	7.5	4	-/7.5	-/2	-
Test cycle vacuum	<40° Vacuum Test	15	1	15	1	-

DISTILLER

Ortoalresa's **distiller** allows to obtain distilled water with ideal characteristics for its use in other equipments, preparation of dissolutions, etc, from running water.

It saves great quantities of water by means of the management of the volume of water from cooling.

Features

- Stainless steel interior, Steel painted with epoxy exterior.
- Reduced size.
- High quality distillation.
- Conductivity: 2.5 Microsiemens/ cm.
- Resistivity: 0.4 megaohms/ cm (both of them obtained at 20º C).

User friendliness

- Control panel with general switch and temperature selector.
- Water in-put connection adjustable to the feed tube.
- Drainage of cooling water out-put connection adjustable to containers.

Safety

- Liquid level device which activates the stop of the distiller because of lack of water.
- Electric: ground power.
- Sealed with a silicone gasket.
- Safety system with hydraulic manager of temperature.

EU Directives: 2006/95/CE, 2004/108/CE, 2011/65/UE, 2002/96/CE, 2003/108/CE.
Standards: EN 61010-1, EN 50081-2 y EN 50082-1.

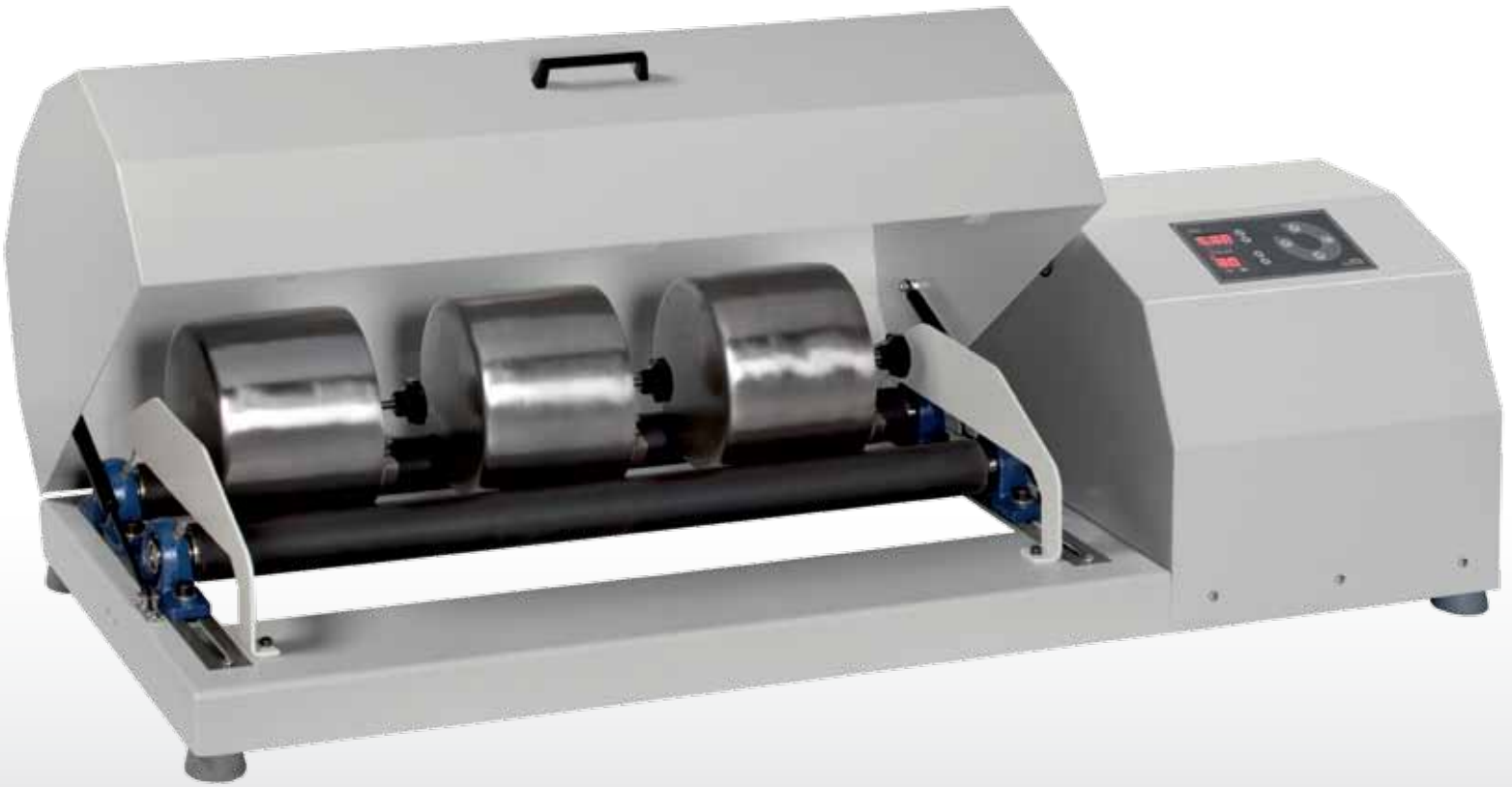
Versions

Code	Dimensions (mm) (w x d x h)			Net weight (Kg)	Voltage (V)	Frecuency (Hz)	Power (W)	Capacity (l)	Refrigeration water (l)
DA 005	370	220	440	12	220	50-60	3.000	4	60
DA 006	370	260	640	14	220	50-60	6.000	8	60
DA 007	370	220	440	12	110	50-60	3.000	4	60

Accessories

Code	Description
PP 354	Tank for 30 litres made in plastic.

BALL MILL



CE

The **ball mill** splits the sample because of the hits against the balls. It moves along an arc of a semi-circle due to the dragging of the pitcher in the cylinder motor.
Isolated jars prevent the contamination of samples.

Its function and design makes it suitable for mill works in laboratories of public works, manufacture of paints, ceramic, milling of raw materials for the manufacture of pharmaceutical and food products.

Features

- High resistance cylinders: solid steel interiors and tough and flexible cover which enables the turn of the jars without damages.
- Metal cover which has been proved to have high resistance.
- Light button of on/off.
- Stop plate.

The operating time is also adjustable up to 99 hours or hold position.

User friendliness

- Stop emergency button.
- Adjustable cylinders to adapt jars with different diameters.
- Useful length of the cylinders: 700mm
- Capacity: 1 jar of 15 liters, 1 jar of 11 liters, 2 jars of 5 liters, 3 jars of 3 liters, 4 jars of 1 liter.
- Jars available in aluminum of stainless steel.
- It is controlled by a microprocessor.
- Drive roller speed can be regulated (between 50 and 300 RPM) or jar speed (depending on the diameter).

Safety

- Electric: ground power and fuses.
- Main switch.
- Cylinders cover with window and interior lighting.
- Safety system in the cover: when it is open the cylinders stop moving.

EU Directives: 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU.
Standards: EN 61010-1, EN 61326-1.

Versions

Code	Monophasic Voltage (V)	Outer dimensions (w x d x h)			Consumption (W)	Frecuency (Hz)	Net weight (Kg)
ML 007	230/220	1250	490	340	150	50/60	72
ML 008	120/110	1250	490	340	150	50/60	72

Accessories

Stainless steel jars				Aluminum jars		
15 litres	5 litres	3 litres	1 litre	1 litre	3 litres	5 litres
PI 226	PI 064	PI 063	PI 062	PV 035	PV 036	PV 037

SIEVE SHAKER & SIEVES

CE

The analytic **sieve shaker OASS203** is designed to obtain reproducible results in accordance with the standard ISO 9001 for measuring and control equipment. It is an essential device for research laboratories and for quality assessment of any type of industries during the analysis of the production process. It allows to define mechanic characteristics of particles, concentration by joining forces, miscibility, performance with regard to stress, organoleptic characteristics, etc.

Features

- Capacity up to 6 kg of sample.
- Three-dimensional movement.
- It can fit wet and dry sieves.
- It is controlled by a microprocessor.

User friendliness

- Standard lock system easy to program provided with the sieve.
- Adjustment of the sieve power (100% corresponds to 6400 RPM). This allows better spread of the sample through the sieve and better efficiency in the sieve process.
- It is programmable up to 16 memories. Time can be adjusted from 10 seconds to 99 minutes and hold position.
- Adjustable by intervals from 1 to 99 seconds.

Safety

- Extremely silent. It has the least noise level of those available.
- Metal cover. It is tough and stable.
- Electric protection with ground power and fuses.

Accessories

- Stainless steel sieves AISI 316 for chain mails and AISI 304 made of perforated plate with sealing gasket which is marked with indelible laser.
- Sieves diameters: 203 mm (8”), 200 mm .
- Capacity up to 8 of 50 mm height or 16 of 25mm, total width of the fall 400 mm.
- Range of particle sizes which can be analyzed: from 20 μ to 125 mm .
- The calibration certificate is available.

EU Directives: 2006/95/EC, 2004/108/EC, 2011/65/EU, 2012/19/EU.
Standards: EN 61010-1, EN 61326-1, EN 61010-2-51

Versions

Code	External dimensions (w x d x h)			Consumption (W)	Voltage (V)	Frecuency (Hz)	Net weight (Kg)
TA 005	280	370	765	120	220-240	50-60	14,5
TA 006	280	370	765	120	110-120	50-60	14,5

Accessories

Sieves

Available dimensions: 200 mm Ø x 50 mm (h), 200 mm Ø x 25 mm (h), 203 (8") mm Ø x 50 mm (h) , 203 mm (8") Ø x 25 mm (h).
Stainless steel AISI 316 for chain mails sieves and AISI 304 for those made of perorated plate.

Sieves made stainless steell 200 x 50 mm

Standard ISO 3310-2: Perforated plates	
Code	Mesh (mm)
PI 065	125.00
PI 069	100.00
PI 070	80.00
PI 071	63.00
PI 072	50.00
PI 073	40.00
PI 074	25.00
PI 075	20.00
PI 076	16.00
PI 077	12.50
PI 078	10.00

Standard ISO 3310-1: Metalic mesh	
Code	Mesh (mm)
PI 079	8.00
PI 080	6.30
PI 081	5.00
PI 082	4.00
PI 297	3.15
PI 083	2.50
PI 348	2.36
PI 084	2.00
PI 321	1.7
PI 085	1.6
PI 086	1.25
PI 087	1.00
PI 088	0.80
PI 089	0.63
PI 090	0.50
PI 091	0.40
PI 146	0.315
PI 092	0.25
PI 093	0.20
PI 094	0.16
PI 095	0.125
PI 096	0.100
PI 097	0.080
PI 098	0.063
PI 099	0.050
PI 100	0.040
PI 066	Reciver
PI 067	Cover
PI 350	Cover for wet processing
PI 351	Reciver for wet processing

Sieves made in stainless steel 8´´ (203 x 50 mm)

Standard ASTM E323: Perforated plates	
Code	Mesh
PI 150	5"
PI 151	4,24"
PI 152	4"
PI 153	3 ½"
PI 154	3"
PI 155	2 ½"
PI 156	2.12 "
PI 157	2"
PI 158	1 ¾"
PI 159	1 ½"
PI 160	1 ¼"
PI 161	1.06"
PI 162	1"
PI 163	7/8"
PI 164	¾"
PI 165	5/8"
PI 166	0.53"
PI 167	½"
PI 168	7/16"

Standard ASTM E11: Metalic mesh	
Code	Mesh
PI 169	3/8"
PI 170	5/16"
PI 171	0.265"
PI 172	¼"
PI 173	3 ½"
PI 174	No. 4
PI 175	No. 5
PI 176	No. 6

Standard ASTM E11: Metalic mesh	
Code	Mesh
PI 177	No. 7
PI 178	No. 8
PI 179	No. 10
PI 180	No. 12
PI 182	No.16
PI 181	No. 14
PI 183	No.18
PI 184	No. 20
PI 185	No.25
PI 186	No. 30
PI 187	No. 35
PI 188	No. 40
PI 189	No. 45
PI 190	No. 50
PI 191	No. 60
PI 192	No.70
PI 193	No.80
PI 194	No.100
PI 195	No.120
PI 196	No.140
PI 197	No.170
PI 198	No.200
PI 199	No.230
PI 200	No. 270
PI 201	No.325
PI 250	No.400
PI 202	Cover
PI 203	Reciver
PI 221	Cover for wet processing
PI 235	Reciver for wet processing

You can consult us for other dimensions on telf.: 91 884 40 16 o by e-mail: info@ortoalresa.com.

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About centrifugation