orto alresa

About centrifugation

General catalogue

2025 Catalogue
Edited and printed in March 2025.
Subject to changes.

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orto alresa
About centrifugation

LABORATORIO DE ACÚSTICA
ACOUSTIC LABORATORY

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ORTOALRESA

Ortoalresa was born in 1.949 as centrifuges manufacturer. 70 years later, it is a pride for us to be a reference in European manufacturers scene, sharing experiences with our customers worldwide. Hard work, talent, commitment and enthusiasm have always been the life force driving the Ortoalresa name to be synonymous with expertise in centrifugation.

Our goal is not to be just another option, but to be a Company that stands out from the rest by going beyond the standard, constantly looking for solutions based on innovation and sustainability. This philosophy drives us year after year to be chosen by more and more customers as the best option for vanguard laboratories, avoiding stereotypes and creating custom environments based on real requirements.

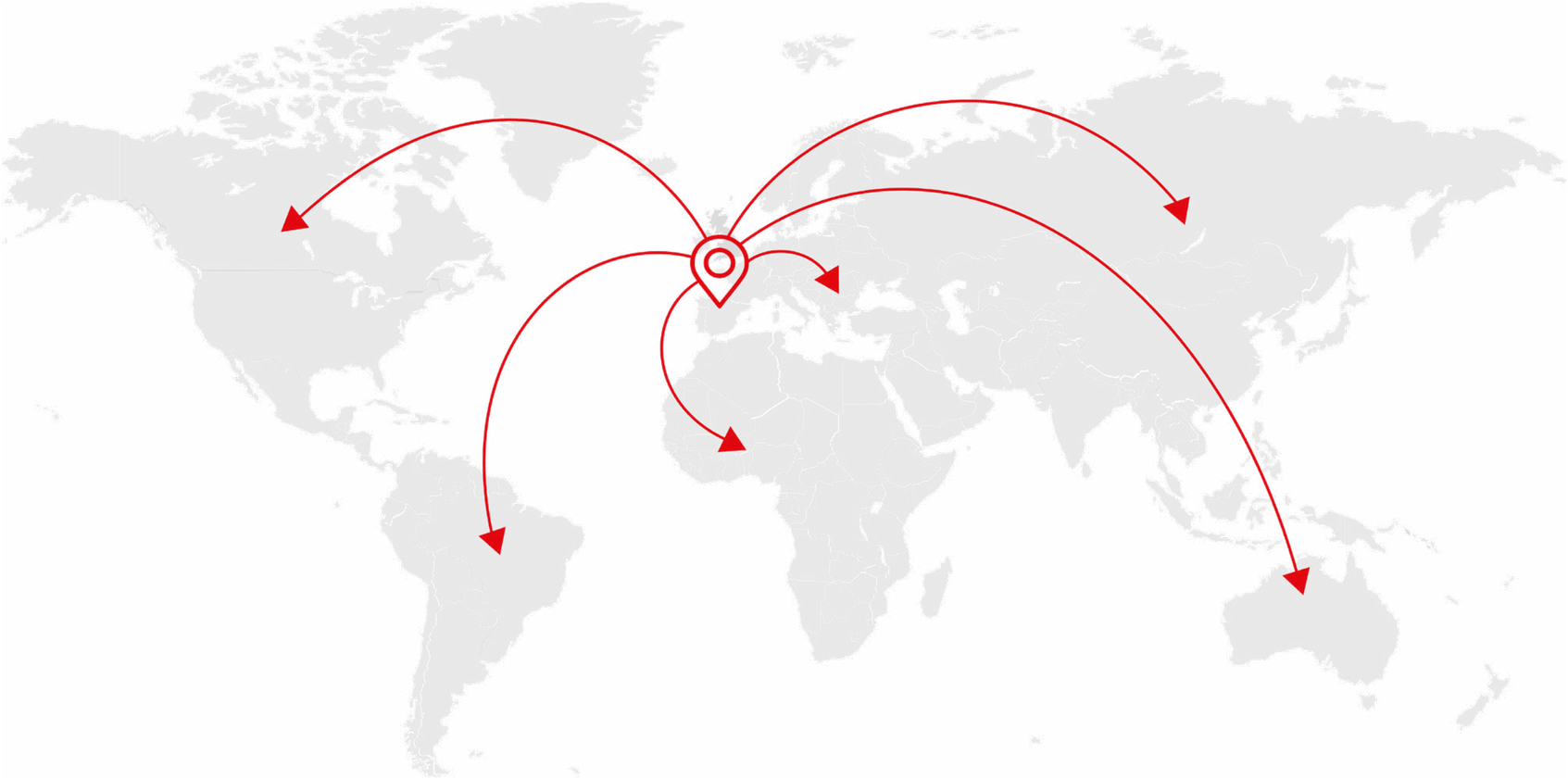
The company is characterized by its integrity, agility, perseverance, excellent service and continuous improvement, always in compliance with international standards for management system, being certified under ISO 9001, ISO 13485 and ISO 14001. In the same manner, we anticipate the entry into force of new regulations and standards, thus offering our users the maximum advantages for their safety and that of the processes, in a responsible way with the environment and people.

Communication is the key tool to the present and future, moving the lab concept over the lab walls, to to so Ortoalresa manufactures provide cutting-edge technology for communication between the user, the devices and the manufacturer.

Ortoalresa establishes partnerships worldwide being present in all market segments such as industry, research, biotechnology and environment labs. The resilience of the company moves it to be a pioneer in the introduction of the most sophisticated systems in the regular lab centrifuges redesigning the centrifugation concept beyond the separation.

A family business that aims to integrate our partners, users and associates to create a platform that allows us to offer real solutions.

Ortoalresa
AROUND THE WORLD



At Ortoalresa we have a network of specialized distributors that allows us to have worldwide presence. This structure allows us to offer solutions for all types of laboratories, in strategic fields such as biotechnology, research, environment, food, blood banks, industry, energy…

The principles on which we base our collaboration agreements: personalized advice, specialized training and excellent after-sales support, lead us to establish solid alliances in each country.

The company: Ortoalresa around the world

Directives and **STANDARDS**

COMPANY:

Standards

ISO 9001	Certified quality management system.
ISO 13485	Certified quality management system for medical devices.
ISO 14001	Certified environmental management system.

PRODUCTS:

Directives

2011/65/EU	(ROSH) Restriction of the use of certain hazardous substances in electrical and electronic equipment.
2012/19/EU	(WEE) On waste electrical and electronic equipment.
2014/30/EU	(EMC) On the harmonisation of the laws of the Member States relating to electromagnetic compatibility.
2014/35/EU	(LVD) On the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits.
2017/746/EU	(IVDR) On in vitro diagnostic medical devices.

Regulation nº

(EC) 1005/2009	On substances that deplete the ozone layer.
(EU) 517/2014	(F-gas) On fluorinated greenhouse gases.

Standards

EN-61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1: General requirements.
EN-61010-2-020	Part 2-020: Particular requirements for laboratory centrifuges.
EN-61010-2-010	Part 2-010: Particular requirements for laboratory equipment for the heating of materials.
EN-61010-2-051	Part 2-051: Particular requirements for laboratory equipment for mixing and stirring.
EN-61010-2-101	Part 2-101: Particular requirements for in vitro diagnostic (IVD)
EN-61326-1	Electrical equipment for measurement, control and laboratory use - EMC requirements. Part 1: General requirements.
EN-61326-2-6	Part 2-6: Particular requirements - In vitro diagnostic (IVD) medical equipment.

PACKAGING:

ISPM 15	International standards for phytosanitary measures.

Regulation

(UE) 2025/40	Packaging and packaging waste.

TRANSPORT OF GOODS:

Regulation nº

(EC) 300/2008	Common rules in the field of civil aviation security.

The company: Directives and standards

What makes us **DIFFERENT?**

Our eagerness to develop innovative equipment that increases safety, functionality and usability, adapting to the needs of each laboratory, establish a series of differences that make us stand out from the rest of the alternatives on the market.

What makes us different as a company?

Our corporate philosophy not only leads us to manufacture a line of products with their own characteristics, it also spurs us to offer services based on fluid communication with our clients:

- Personalised response and advice within 48h, both for commercial service and technical assistance.
- Commissioning, solution of incidents, repairs and online technical training.
- Specialists in foreign trade, we offer support to our clients during the entire procedure, as we are certified as KC (Known Consignor), which facilitates and reduces the cost of exporting our equipment.
- Continuous stock of products that allows us to offer fast delivery times.

TOTAL DELIVERY TIME: **7 DAYS**

Purchase order reception	4 days **Production**	2 days **Testing**	1 day **Packaging & delivery**

*Average based on real data from 2021 - 2022

What makes our products different?

As equipment that can be used intuitively by any type of user, it allows the process to be controlled based on the sample, obtaining maximum performance.
This performance is achieved thanks to exclusive innovations such as:

- TFT colour touchscreens, which in addition to standard functions, also enable alternative functions with a high degree of technical specialisation, such as programming the moment in which the cycle must begin (Start Delay), the linking of consecutive programs (Linked program) and the detection of imbalance, indicating the position where it occurred (ULS)
- Progressive controllable braking system (PCBS), precise control of the sample temperature, possibility of modifying the working parameters in operation, etc.
- Gas Release System, an accessory developed to provide greater security in processes, both for the user and for the lab environment.
- A wide range of rotors and adaptors, offering the possibility to develop accessories for specific techniques and needs.
- The REI (Rotor Easy to Install) System, for quick and easy exchange of rotors, that allows the rotor to be installed and locked securely without the need for tools, and unlocked by simply removing it from its position.
- "Multiple" adaptors that allow the use of different types of tubes, either flat or round-bottom.

At Ortoalresa, we also believe that is it not enough to be only differentiated by our products, we also stand by the philosophy that has led us to grow day by day, which is based on transparency, respect for the environment, teamwork and good internal and external communication.

The company: What makes us different?

SPECIALISED
Assistance

At Ortoalresa, we understand assistance as a wide-ranging process that encompasses from technical or commercial queries to the development of tools for our users and collaborators, including training and communication.

To achieve this specialised attention, we have developed two areas of action: one around our products and another around our services.

On one hand: the manufacturing of made to measure equipment (OEM) for applications, which due to their characteristics, are not found in standard equipment. Subjecting our products to risk analysis in order to protect the sample, the user and the environment, while maintaining a traceability that allows us to control the product from its origin until it reaches the user.

On the other hand, we offer specialised services, such as the installation and commissioning of our equipment, guided by our technical department at all times, training courses for greater knowledge about our products, and telephone technical assistance to solve queries about installation and operation of the equipment. We make procedures and certificates for calibration, the certification of installation, operation, product, etc. available to our clients and offer a comprehensive 3-year “no surprises” guarantee on our products, to reinforce the image of excellence we aim for in all our manufacturing processes.

We have a team of specialists in foreign trade, who control processes from the very beginning, to facilitate deliveries, documentation and adaptation to regulations of the destination country, including any post sales actions the client may require. Within this framework, we have created a process to remain on the KC (Known Consignor) records, thus facilitating and reducing the cost of exporting our equipment.

Uniting all these actions, we obtain products and services with high quality standards, exceptional levels of service, competitive prices, resolute performance in delivery, effective after-sales support and efficient supply chain management.

The company: Specialised assistance

Environmental **RESPONSIBILITY**

Our commitment to the environment implies a responsibility that can be seen at all levels: from production processes to management.

We use materials that are coherent with this concept, enabling our equipment to include more than 95% recyclable components, thus prolonging the life of raw materials and avoiding the exhaustion of natural resources.

We avoid the use of dangerous substances in the manufacturing processes, complying with the RoHS Directive, on the restriction of hazardous substances.

We have developed equipment such as the Gas Release System, which reduces the emission of aerosols into the atmosphere, and accessories that minimise impact on the health of the user, such as hermetic lids on rotors and vessels, with easily identifiable autoclavable materials.

We comply with WEEE Directives, for management of waste electrical and electronic equipment, belonging to the Foundation ECOASIMELEC, which as an integrated system for managing WEEE, offers our company, distribution chain and final user the necessary coverage for correct collection and recycling of the equipment at the end of its useful life.

In our sustainable manufacturing line, we only use fluorinated gases in the refrigeration systems integrated in the centrifuges, with a low impact on the ozone layer, using only those that produce the least greenhouse effect compared to those of regular use. In this sense, we anticipate the entry into force of the new gas regulations, incorporating them into our equipment before they become mandatory. Thus ensuring that the equipment manufactured before the new regulations can be easily maintained.

We select quality packaging that protects the equipment delivered, while at the same time occupies the least space possible, and is certified as compliant with international regulations on phytosanitary measures, as well as being 100% recyclable.

Regarding energy consumption, our equipment has an automatic disconnection system that is time adjustable, thus reducing its carbon footprint.

And this same philosophy is applied to all our activities, such as the catalogue you are reading, made with responsibly sourced paper using technology compatible with sustainable development.

The additional responsibility goes beyond the technical labels, Ortoalresa considers people as part of the process and takes special care to interact with their manufactures in a comfortable way, without impact on their health and with the peace of mind of having a product made by a manufacturer according corporate social responsibility.

This attitude is not taken as an extra effort, but rather as a way of positioning ourselves in view of future challenges.

CENTRIFUGES

Centrifuges

Guide for
SELECTING EQUIPMENT

The process of choosing a centrifuge can be complex, as there are many basic variables to consider if you want to make a good choice.

In Ortoalresa, we consider that it is essential to simplify this task, so the user can identify the equipment needed based on not just some variables, but also considering their preferences. To facilitate this work, we have defined this guide for choosing centrifuges, taking into consideration some of the characteristics of the equipment to serve as guides to refine the search based on manners of working.

The basic information needed to start is the following:

1. Characteristics and properties of the tubes to be processed: length, diameter and RCF tolerance.

The support of the sample must be able to bear the centrifugal force it will be subjected to. In general, there are materials that due to their properties are more resistant, such as some plastics (polypropylene, polyethylene, Teflon) and other materials that are less resistant, such as glass, which generally does not support RCF values above 4.000 xg.

The size of the tubes is totally decisive for choosing the centrifuge, as it will determine the choice of the equipment you need. The chart on page 22 gives more information about our tube references.

The versatility of a centrifuge comes from the configuration of its accessories. Each series of equipment has a chart of rotors containing information about the adaptors available for them. In addition, we can enlarge this feature even more by designing multiple adaptors to process tubes with different bottoms with a single set of adaptors.

2. Maximum required speed and max. RCF

A centrifuge operates by applying force to the sample that will produce separation of elements according to density. The different kinds of samples processed and their properties, as well as the different types of results needed by the users makes it indispensable to know this value in order to obtain the desired results.

When choosing equipment, it is necessary to consider the maximum RCF values, or lacking this, the RPM needed for the work.

To compare maximum RCF and RPM values of our equipment, please refer to the information on page 23.

3. Number of tubes to be processed per cycle.

One of the requirements in making the right choice is to know the number of samples to be processed per cycle. This value, combined with the volume of the tube required, will define the size of equipment needed.

As a guide, please refer to the chart on page 24, where you will find the maximum number of tubes that can be placed in each of our equipment according to their volume.

4. Type of centrifuge according to temperature control.

Temperature is one of the most relevant physical properties in centrifuges, even though not so much attention is given to it generally.

Nevertheless, due to its importance, it is mentioned specifically in the section on page 26 titled Temperature control: cooling and heating.

5. Type of rotor required.

The type of rotor chosen as well as its maximum speed will affect the type of sample separation. In this type of centrifuges, the most commonly used rotors are angle fixed and swing out.

In an angle fixed rotor, the tube remains in the same position during the entire centrifugation process. In general, for the same tube volume, they can spin faster than swing out rotors.
These rotors produce an oblique separation in the sample with regard to the mouth of the tube. Therefore, they are recommended for processes that require greater RCF or in cycles that require partial extraction of the supernatant.

Swing out rotors move the sample from vertical position up to 90º with regard to the rotation axis. They normally have a greater number of positions per rotor. They are chosen to provide separations that can be directly read from the tube, obtaining pellets and complete extraction of some of the bands.

After this first stage we can refine the search based on:

6. Other technical characteristics.

What will really define the equipment you need is the combination of all of them. To facilitate the choice, at pages 30 and 31 you can compare equipment based on the features considered more important to your processes.

7. Type of equipment control.

The type of screen the centrifuge has will define the user's interaction with the equipment.
Our centrifuges have three types of controls: LED, LCD and TFT, all of them display messages on routine operation as well as warnings regarding the operation and status of the equipment.

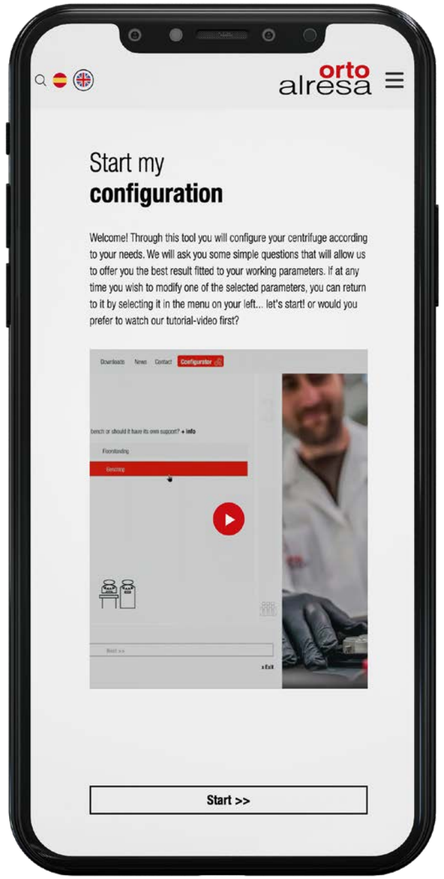
These screens can also be used to customise certain actions such as the opening of the lid at the end of the process, time to start, etc.

For more information on this, see pages 28 and 29.

USE OUR
EQUIPMENT CONFIGURATOR

We have developed this tool to help you configure your centrifuge based on your needs. We will ask you some simple questions that will allow us to offer you the best result adjusted to your work parameters.

Using this QR code you can directly access our online equipment configurator.



TUBE
References

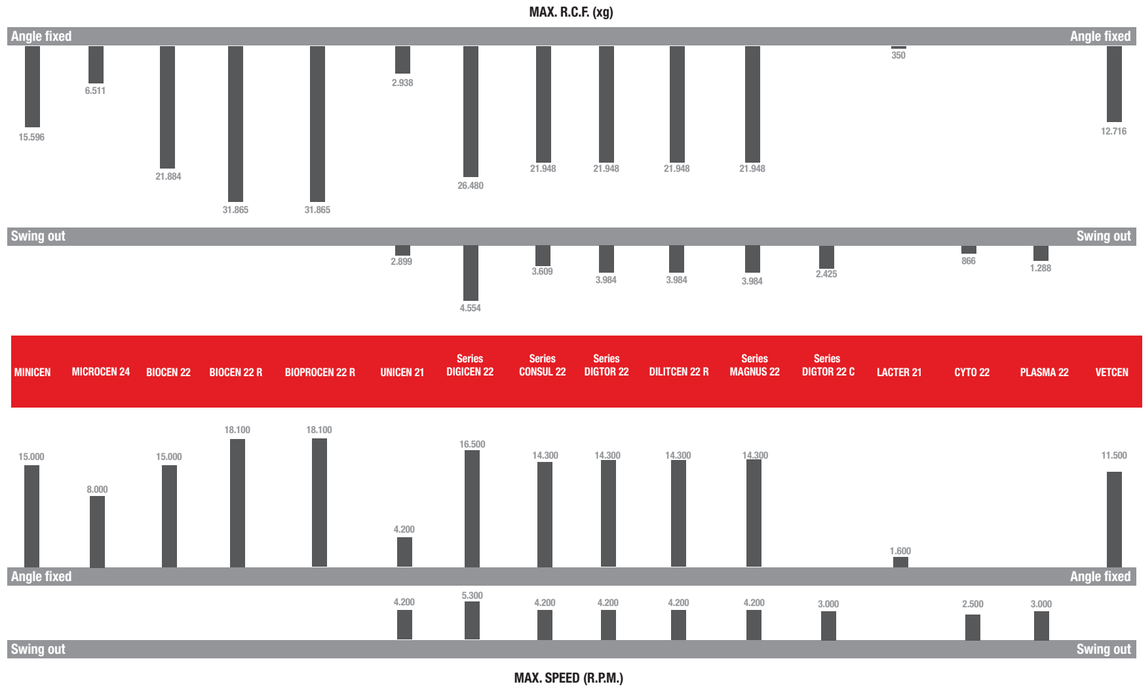
Reference	Capacity (ml)	Shape	Material	Dimensions (mm)	Cap	Scale
TU 080	1.000	flat bottom	plastic	111x128	yes	no
TU 048	750	flat bottom	plastic	96x130	yes	no
TU 045	500	flat bottom	plastic	80x131	yes	no
TU 040	400	round bottom	glassware	80x118	no	no
TU 046	400	flat bottom	plastic	74x124	yes	no
TU 038	250	round bottom	glassware	60x135	no	no
TU 007	250	round bottom	plastic	60x120	yes	no
TU 047	250	flat bottom	plastic	60x120	yes	no
TU 034	150	round bottom	plastic	60x130	yes	no
TU 043	125	round bottom	plastic	48x100	no	no
TU 032	100	round bottom	glassware	48x100	no	no
TU 072	100	flat bottom	plastic	48x108	yes	no
TU 029	100	round bottom	glassware	48x113	yes	no
TU 028	80	round bottom	plastic	38x112	yes	no
TU 024	50	conical	plastic	29x117	yes	yes
TU 022	50	round bottom	glassware	34x110	yes	no
TU 023	50	round bottom	glassware	34x100	no	no
TU 025	50	round bottom	plastic	34x100	no	no
TU 026	50	round bottom	plastic	29x108	yes	no
TU 021	30	round bottom	plastic	25x98	yes	no
TU 016	15	conical	glassware	17x115	no	yes
TU 018	15	conical	plastic	17x122	yes	yes
TU 014	13	round bottom	plastic	16x100	yes	no
TU 010	10	conical	glassware	16x105	no	yes
TU 011	10	round bottom	plastic	13x100	no	no
TU 015	10	round bottom	glassware	16x110	no	no
TU 013	10	round bottom	plastic	16x80	yes	no
TU 006	5	round bottom	plastic	13x82	yes	no
TU 075	5	conical	plastic	17x60	yes	yes
TU 069	1,5-2	conical	plastic	11x42	yes	yes
TU 054	-	Capillaries	glassware	1,5 x 75 mm	no	no

Check the max.RCF allowed for your tubes. Max. RCF supported for glassware tubes 4.000 xg,under standard DIN 58.970/2.

Reference	Capacity (ml)	Application	Material	Dimensions (mm)	Cap	Scale
PV 248	0,1-0,5	EZ Single Cytofunnel™	plastic	-	-	-
PV 253	up to 6	EZ Megafunnel™	plastic	-	-	-
PV 249	-	Cyto-Clips™	plastic	-	-	-
TU 010	12,5	API-Finger	glassware	16 x 105	no	yes
TU 050 (1)	100	ASTM-Conical 6"	glassware	44-46 x 162-167	no	yes
TU 030 (1)	100	ASTM-Conical 8"	glassware	36-38 x 195-203	no	yes
TU 033 (1)	100	ASTM-Pear 6"	glassware	58-59 x 157-160	no	yes
TU 056 (1)	100	ASTM-Trace 8"	glassware	36-38 x 195-203	no	yes

(1) Available caps for these tubes: Ref. PV 156.
Check the max. RCF allowed for your ASTM tubes. Max. RCF supported by our ASTM tubes 850 xg.

Maximum
SPEED



Tubes dimensions and **MAXIMUM CAPACITIES**

Centrifuges for general applications

Sample Volume	Dim (mm) approx.	Minicen	Microcen 24	Biocen 22	Biocen 22 R	Bioprocen 22 R	Unicen 21	Digicen 22/22 R	Consul 22/22 R	Digtor 22/22 R	Dilitcen 22 R	Magnus 22 / 22 R
Microtiter plates	128x86x15/21/45	-	-	-	-	4/2 (2)	-	6/4/2 (2)	12/8/4 (2)	12/8/4 (2)	12/8/4 (2)	12/8/4 (2)
Microtiter plates (h:80mm)	128x86x15/21/45/80	-	-	-	-	-	-	-	10/6/2/2 (2)	10/6/2/2 (2)	10/6/2/2(2)	10/6/2/2 (2)
Capillaries	ø1,5x75	-	-	24	24	24	-	24	-	-	-	-
PCR strips 0,2 ml.	ø6x21	2	-	4	4	4	-	4	-	-	-	-
0,2-0,4 ml. / 0,5-0,6 ml.	ø6x45/ø8x30	16/12	10/10	32/24	32/24	72/72	28/28	72/72	144/144	144/144	144/144	144/144
1,5-2 ml.	ø11x42	12	10	24	24	72	28	72	144	144	144	144
5 ml.	ø13x75	-	12	-	8	6	32	32	72	104	168	104
5 ml. conical/ screw cap	ø17x60/68	-	-	12/6	12/6	12/6	-	12/6	-	-	-	-
5 ml. blood sample	ø13x82	-	12	-	8	6	32	32	68	104	128	104
7/10 ml. blood sample	ø13x107	-	10	-	8	6	32	32	68	104	128	104
10 ml.	ø13x100	-	10	-	8	6	32	32	72	104	168	104
10 ml. blood sample	ø16x107	-	10	-	8	6	32	32	52	80	112	80
10 ml. (hs) (1)	ø16x80	-	-	-	-	6	32	32	48	72	104	72
15 ml.	ø16x100	-	10	-	8	6	32	32	52	80	112	80
15 ml. conical	ø17x122	-	8	-	8	6	32	32	28	52	76	52
25 ml. conical	ø29x83	-	-	-	-	6	6	6	12	20	32	20
30 ml. / 30 ml. (hs) (1)	ø25x98	-	-	-	-	6	6	8	20	24	40	24
50 ml.	ø34x100	-	-	-	-	-	6	6	8	16	24	16
50 ml. conical	ø29x117	-	-	-	-	6	6	6	12	20	32	20
50 ml. (hs) (1)	ø29x108	-	-	-	-	6	6	6	12	20	32	20
80 ml.	ø44x100	-	-	-	-	-	4	4	6	8	12	8
80 ml. (hs)/ 85 ml. (hs) (1)	ø38x112	-	-	-	-	-	4	4	6	12	12	12
100 ml. / 125 ml.	ø48x100	-	-	-	-	-	4	4	4	6	12	6
200 ml.	ø60x120	-	-	-	-	-	-	-	4	6	6	6
250 ml.	ø60x135	-	-	-	-	-	-	-	4	6	6	6
400 ml.	ø80x118	-	-	-	-	-	-	-	4	4	4	4
500 ml.	ø90x120	-	-	-	-	-	-	-	-	4	4	4
750 ml.	ø96x130	-	-	-	-	-	-	-	-	4	4	4
1.000 ml.	ø111x128	-	-	-	-	-	-	-	-	-	4	-
Blood bags	(3)	-	-	-	-	-	-	-	-	4	4	4
EZ Single Cytofunnel™	0,1-0,5 ml	-	-	-	-	-	-	-	-	-	-	-
EZ Megafunnel™	up to 6 ml	-	-	-	-	-	-	-	-	-	-	-
Cyto-Clips™	-	-	-	-	-	-	-	-	-	-	-	-
9/15 ml.	ø16x107	-	-	-	-	-	-	-	-	-	-	-
Butyrometers	ø25x212	-	-	-	-	-	-	-	-	-	-	-
12,5 ml. finger	ø16x105	-	-	-	-	-	-	-	-	-	-	-
100 ml. 6" conical	ø44-46x162-167	-	-	-	-	-	-	-	-	-	-	-
100 ml. 8" conical	ø36-38x195-203	-	-	-	-	-	-	-	-	-	-	-
100 ml. pear	ø58-59x157-160	-	-	-	-	-	-	-	-	-	-	-

(1) High speed tubes.
(2) Allows different configurations depending on the microplates height.
(3) Check the bags features.

Tubes dimensions and **MAXIMUM CAPACITIES**

Centrifuges for special applications

Sample Volume	Dim (mm) approx.	Series Digtor 22 C	Lacter 21	Plasma 22	Cyto 22	Vetcen
Microtiter plates	128x86x15/21/45	-	-	-	-	-
Microtiter plates (h:80mm)	128x86x15/21/45/80	-	-	-	-	-
Capillaries	ø1,5x75	-	-	-	-	12
PCR strips 0,2 ml.	ø6x21	-	-	-	-	-
0,2-0,4 ml. / 0,5-0,6 ml.	ø6x45/ø8x30	-	-	-	-	-
1,5-2 ml.	ø11x42	-	-	-	-	6
5 ml.	ø13x75	-	-	-	-	-
5 ml. conical/ screw cap	ø17x60/68	-	-	-	-	-
5 ml. blood sample	ø13x82			8		
7/10 ml. blood sample	ø13x107	-	-	-	-	-
10 ml.	ø13x100	-	-	-	-	-
10 ml. blood sample	ø16x107	-	-	-	-	-
10 ml. (hs) (1)	ø16x80	-	-	-	-	-
15 ml.	ø16x100	-	-	-	-	-
15 ml. conical	ø17x122	-	-	-	-	-
25 ml. conical	ø29x83	-	-	-	-	-
30 ml. / 30 ml. (hs) (1)	ø25x98	-	-	-	-	-
50 ml.	ø34x100	-	-	-	-	-
50 ml. conical	ø29x117	-	-	-	-	-
50 ml. (hs) (1)	ø29x108	-	-	-	-	-
80 ml.	ø44x100	-	-	-	-	-
80 ml. (hs)/ 85 ml. (hs) (1)	ø38x112	-	-	-	-	-
100 ml. / 125 ml	ø48x100	-	-	-	-	-
200 ml.	ø60x120	-	-	-	-	-
250 ml.	ø60x135	-	-	-	-	-
400 ml.	ø80x118	-	-	-	-	-
500 ml.	ø90x120	-	-	-	-	-
750 ml.	ø96x130	-	-	-	-	-
1.000 ml.	ø110x135	-	-	-	-	-
Blood bags	(3)	-	-	-	-	-
EZ Single Cytofunnel™	0,1-0,5 ml	-	-	-	12	-
EZ Megafunnel™	up to 6 ml	-	-	-	12	-
Cyto-Clips™		-	-	-	12	-
9/15 ml.	ø16x107	-	-	8	-	-
Butyrometers	ø25x212	-	12	-	-	-
12,5 ml. finger	ø16x105	28	-	-	-	-
100 ml. 6" conical	ø44-46x162-167	8	-	-	-	-
100 ml. 8" conical	ø36-38x195-203	8	-	-	-	-
100 ml. pear	ø58-59x157-160	4	-	-	-	-

Centrifuges: Max. tube dimensions & capacities

Leading the
TEMPERATURE CONTROL

Centrifugation is an exothermic process which produces heat by friction with the air in the centrifuge chamber and the different parts of the rotor. This heat depends on multiple factors such as the type of rotor, room temperature or set speed. Thus meaning, the sample can be affected by temperature changes.

As experts in centrifugation Ortoalresa provides all its refrigerated centrifuges with an efficient cooling system that permits:

- Improving the turn on - turn off to reduce the consumption.
- Using only the gases allowed according to regulation for F-gas 517/2014, for your peace of mind.
- Reaching a very low temperature even at max speed, with values bellow 0ºC, because not all samples must be frozen below 4ºC.
- Reaching the max accuracy, in steps of 0,5ºC.
- Assuring the stability of temperature along your process.
- Preparing the device at working temperature bellow room temperature, by applying the pre-cooling program.

But not everything is cold. Ortoalresa also manufactures centrifuges with heating, for those processes that require heating supply. The heated centrifuges can reach up to 80ºC with a high temperature precision.

Even without any cooling or heating, the temperature can increase due to the centrifugation process. Despite the lack of temperature regulation, our centrifuges are provided with a ventilation system that avoids the accumulation of heat within the chamber of centrifugation, thus reducing the temperature increase.

Types of **SCREENS**

LED

- Speed programing RPM / RCF in 50 RPM /10 xg steps.
- Acceleration control in 2 steps and deceleration in 3 steps.
- Timer: 1 - 99 minutes and indefinite time, programmable in 1 min intervals.
- Programmed values maintained in the memory.
- Possibility to block or modify the speed during the cycle.
- Timer from 0 or "at set RPM", count up or countdown.
- Acoustic and optical warnings showing the status of the equipment.
- Available in models: Microcen 24, Biocen 22, Unicen 21 and Vetcen.

LCD

- Speed programing RPM /RCF in 10 RPM /10 xg steps.
- Timer: from 5 sec. to 99 minutes or from 1 min. to 99 hours and indefinite time.
- Possibility to block or modify the speed during the cycle.
- Timer from 0 or "at set RPM", count up or countdown.
- 16 memories.
- Acoustic and optical warnings showing the status of the equipment.
- PCBS: Progressive controlled braking system up to 175 selectable ramps that prevents sample homogenization after separation.
- Temperature control: range -20°C - 40°C (only refrigerated models) and up to 80°C (only in heated models).
- Available in models: Biocen 22 R, Bioprocen 22 R, Lacter 21 and Plasma 22.

TFT color touch screen

- Easy reading, selection and programming of values in an intuitive way thanks to the screen dimensions (7").*
- R.P.M. and R.C.F. speed programming in steps of 10 R.P.M./10 xg
- Timer from 1 sec. to 99 hours and indefinite time, programmable in 1 sec. intervals.
- Possibility to block or modify the speed during the cycle.
- Timer from 0 or "at set RPM", count up or countdown.
- 100 memories.
- PCBS: Progressive controlled acceleration and braking system up to 175 selectable ramps that prevents sample homogenization after separation.
- Acoustic and optical warnings showing the status of the equipment.
- Connect the centrifuge, via WiFi, with a PC, tablet or mobile phone, showing all the working information of the equipment through the Ortoalresa SmartConnect app.*
- Linked program: Permits the linking of up to 8 consecutive programmes without the need of user intervention.
- ULS: System for locating imbalance, indicating the area of the imbalance on screen.*
- Start delay: To program the time at which the cycle is to begin.
- Temperature control: Range -20°C to 40°C (only refrigerated models) and 5°C - 80°C (only in heated models).
- Available in models: series Digicen 22, series Consul 22, series Digtor 22, Dilitcen 22 R, series Magnus 22, series Digtor 22 C, Digtor 22 Col and Cyto 22.

Centrifuges: Types of screens

Comparative chart
OF EQUIPMENT

Centrifuges for general applications

	Minicen	Microcen 24	Biocen 22	Biocen 22 R	Bioprocen 22 R	Unicen 21	Digicen 22	Digicen 22 R	Consul 22	Consul 22 R	Digtor 22	Digtor 22 R	Dilitcen 22 R	Magnus 22	Magnus 22 R
Max. capacity	12 x 1,5-2 ml.	10 x 15 ml.	24 x 1,5-2 ml.	8 x 15 ml.	6 x 50 ml.	4 x 100 ml.	4 x 125 ml.	4 x 125 ml.	4 x 400 ml.	4 x 400 ml.	4 x 750 ml.	4 x 750 ml.	4 x 1000 ml.	4 x 750 ml.	4 x 750 ml.
Refrigerated/Heated	Ventilated	Ventilated	Ventilated	❄	❄	Ventilated	Ventilated	❄	Ventilated	❄	Ventilated	❄	❄	Ventilated	❄
Pre-cooling program	-	-	-	✓	✓	-	-	✓	-	✓	-	✓	-	-	✓
Pre-heating program	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Type of screen	LCD	LED	LED	LCD	LCD	LED	TFT	TFT	TFT	TFT	TFT	TFT	TFT	TFT	TFT
Automatic rotor recognition	-	-	-	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	✓
Braking programmable	-	3 steps	3 steps	175 steps	175 steps	3 steps	175 steps	175 steps	175 steps	175 steps	175 steps	175 steps	175 steps	175 steps	175 steps
PCBS (1)	-	-	-	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	✓
Programmable memories	(*)	1	1	16	16	1	100	100	100	100	100	100	100	100	100
Acoustic and visual messages	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Induction motor, brushless	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Microprocessor controlled	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Connectivity	✓	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rotor list in memory	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Automatic lid opening, programmable	✓	✓	✓	-	-	✓	✓	-	✓	-	✓	-	✓	✓	-
Unbalance detection and switch off	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ULS (2)	-	-	-	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓
Port in the lid for calibration	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Automatic lid lock system, motorized	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chamber of centrigugation in stainless steel	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GRS (3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Linked program (4)	-	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓
Start Delay (5)	-	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓

(*) 10 memories under PC connection.
(1) PCBS: Progressive controlled braking system
(2) ULS: Unbalance location system

(3) GRS: Gas release system
(4) Linked program: Permits the linking of up to 8 consecutive programmes
(5) Start delay: To program the moment the cycle should begin

Comparative chart
OF EQUIPMENT

Centrifuges for special applications

	Digtor 22 C	Digtor 22 C-U	Digtor 22 C-8	Lacter 21	Cyto 22	Plasma 22	Vetcen
Max. capacity	4 x 100 ml. (8/6")	4 x 100 ml. (8/6")	8 x 100 ml. (8/6")	12 butyrometers	12 x 6 ml.	8 x 9/15 ml.	6+6
Refrigerated/Heated	☼	Ventilated	☼	☼	Ventilated	Ventilated	Ventilated
Pre-cooling program	-	-	-	-	-	-	-
Pre-heating program	✓	-	✓	✓	-	-	-
Type of screen	TFT	TFT	TFT	LCD	TFT	LCD	LED
Automatic rotor recognition	✓	✓	✓	✓	✓	✓	-
Braking programmable	175 steps	175 steps	175 steps	175 steps	175 steps	175 steps	3 steps
PCBS (1)	✓	✓	✓	✓	✓	✓	-
Programmable memories	100	100	100	16	100	16	1
Acoustic and visual messages	✓	✓	✓	✓	✓	✓	✓
Induction motor, brushless	✓	✓	✓	✓	✓	✓	✓
Microprocessor controlled	✓	✓	✓	✓	✓	✓	✓
Connectivity	✓	✓	✓	-	✓	-	-
Rotor list in memory	✓	✓	✓	✓	✓	✓	✓
Automatic lid opening, programmable	-	✓	-	-	✓	✓	✓
Unbalance detection and switch off	✓	✓	✓	✓	✓	✓	✓
ULS (2)	✓	✓	✓	-	-	-	-
Port in the lid for calibration	✓	✓	✓	✓	✓	✓	✓
Automatic lid lock system, motorized	✓	✓	✓	✓	✓	✓	✓
Chamber of centrigugation in stainless steel	✓	✓	✓	✓	✓	✓	✓
GRS (3)	✓	✓	✓	-	-	-	-
Linked program (4)	✓	✓	✓	-	✓	-	-
Start Delay (5)	✓	✓	✓	-	✓	-	-

Centrifuges for
GENERAL APPLICATIONS

Ortoalresa has a wide range of centrifuges for all applications. Our users are from a very wide range of laboratories, from the most elementary, for hospital applications and clinical analysis labs, to microbiology departments, research centres, quality control labs for drinks, food and different production processes, etc.

This wide range of users has led us to segment our line of centrifuges starting with an essential criterion: The tubes. Thus, we define the section of centrifuges for “general applications” such as those that use standard and commonly used tubes. For any query about tubes considered frequently used, please refer to the chart on page 22.

For this type of applications, the differentiating elements are parameters such as RPM, RCF, volume or number of tubes and the need for temperature control. These parameters are decisive when choosing equipment. In the “guide for choosing equipment” section on page 20, you will find more information on this issue.

In the next page can find our centrifuges for “general applications” organized according to equipment size, as well as the two versions (force ventilated and refrigerated) if available. After their datasheet, you will find a chart with the accessories available in each series.

All centrifuges in this section have these characteristics in common:

- Microprocessor control.
- Maintenance-free induction motor (brushless).
- List of rotors in memory.
- Noise level: less than 60 dB.
- Buttons for controlling on/off, lid opening and short cycle with adjustable speed.
- Possibility to block or modify the speed during the cycle.
- Programmable automatic opening of lid (non-refrigerated models).
- Low height for easy acces.
- Last used parameters maintained in memory.
- Protection against excess speed.
- Lid with security system:
  - Automatic lid lock system, motorized, and emergency lid-lock release.
  - Locked and protected against opening while in operation.
  - Lid dropping protection.
  - Port in the lid for calibration and operation checking.
- Ergonomic design that allows closing the lid effortlessly.
- Unbalance detection and switch off.
- Protection safety ring between the centrifugation chamber and the housing.
- Stainless steel centrifugation chamber (easy to clean).
- Rotors removable with the lid closed.
- Autoclavable rotors and reducers, easy to install by the user.

MINI

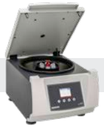
MINICEN

SMALL

MICROCEN 24

MICRO

BIOCEN 22 BIOCEN 22 R



UNIVERSAL

BIOPROCEN 22 R UNICEN 21 DIGICEN 22 DIGICEN 22 R

HIGH CAPACITY

CONSUL 22 CONSUL 22 R DIGTOR 22 DIGTOR 22 R DILITCEN 22 R

FLOOR STANDING

MAGNUS 22 MAGNUS 22 R

Centrifuges: General applications

MINICEN

Your personal centrifuge for the most demanding laboratory. Compact, quick, reliable and with precise control of operating parameters. Indispensable in separation processes for microvolumes, in which the relative centrifugal force must be high. The Minicen centrifuge includes a rotor for twelve 1.5-2 ml. tubes, able to reach 15,000 RPM and up to 15.596 xg. Also supplied with reducers for 0.5-0.6 ml. and 0.2-0.4 ml. tubes, thus covering needs as regards an equipment for all types of microtubes.

The smallest in the family, offering the performance of biggest ones.

Features

- Small footprint: 5 kg. of weight.

LCD screen:
- Shows RPM/ RCF, time, rotor spinning and lid status.
- Speed programming in 100 RPM/100 xg steps.
- Timer from 30 sec. to 999 min. programmable in 1 sec. steps or hold position.
- Timer with countdown at set time.
- Several acoustic and visual messages showing the equipment status to the user.

Easy to use

- Microprocessor controlled.
- PC connection by USB.
- Induction motor maintenance free (brushless).
- Noise level: below 60 dB.
- Start, short spin, stop, open lid, speed, time and RPM/RCF switch buttons.
- Possibility to modify the speed during the cycle.
- Automatic lid opening.
- Last values remain in memory.

Safety

- Lid provided with security systems:
  - Automatic lid lock system, motorized.
  - Emergency lid-lock release.
  - Locking and protection against opening along the run.
  - Lid dropping protection.
  - Port in the lid for calibration and operation checking.
- Unbalance detection and switch off.
- Rotors can be removed with the lid closed. Hermetic lids.
- Rotors and adapters autoclavable, easy to install by the user.
- Ventilation system to reduce temperature increasing.

CE

Max. Capacity
12 x 1,5 - 2 ml

Max. Speed
15.596 xg /15.000 RPM

Screen Type
LCD

Version
Ventilated

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 182	230	270	130	5	230-110	50-60	180

This code includes the next configuration:

Centrifuge Minicen + **angle fixed rotor RT 255** with capacity for **12 x 1,5-2 ml.** and adapters for **12 x 0,5-0,6 ml. (RE 509) and 12 x 0,2-0,4 ml. (RE 510).**

In the next chart you can find a range of accessories (rotors and adapters) that will increase the versatility of this configuration.

Accessories

	INCLUDED		OPTIONAL	
	RT 255		RT 263	
ROTOR	ANGLE FIXED 30 °		ANGLE FIXED 45 °	
Max. capacity	12 x 1,5-2 ml.		16 x 0,2 ml.	
RPM Max.	15.000		15.000	
Radius (mm)	62		52	
RCF Max. (xg)	15.596		13.080	
SAMPLE VOLUME	ADAPTERS Tubes	Ref.	ADAPTERS Tubes	Ref.
Microtubes 1,5-2 ml.	12	-	-	-
Microtubes 0,5-0,6 ml.	12	RE 509	-	-
Microtubes 0,2-0,4 ml.	12	RE 510	16	-

MICROCEN 24

3 YEAR WARRANTY

IVD CE

The new Microcen 24 emerges as the solution for all those laboratories which are looking for high performance and versatility in a small centrifuge. It allows working with up to 8 conical tubes of 15 ml. as well as other configurations, as its available rotors can be exchanged easily.
This equipment includes a rotor with capacity for 8 tubes of 15 ml. round bottom and has an optional range of rotors and adapters.

Features

LED screen:
- Shows RPM/ RCF and time.
- Speed programming in 50 RPM/ 10 xg steps.
- Count up/down from "0" or at "set RPM/RCF" for reproducible tests.
- Timer from 1 to 99 min. programmable in 1 min. steps and hold position.
- Deceleration control in 3 steps: fast, soft and free.
- Acoustic and visual messages on screen showing the equipment status to the user.

Easy to use

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

Safety

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

Max. Capacity 10 x 15 ml

Max. Speed 6.511 xg / 8.000 RPM

Screen Type LED

Version Ventilated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 2017/746/EU.
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 202	270	380	270	16	220-230	50-60	250
CE 203	270	380	270	16	110-120	50-60	250

*IVD version available, please indicate it in your request

This code includes the next configuration:

Centrifuge Microcen 24 + **angle fixed rotor RT 246** with capacity for **8x15 ml.**

In the next chart you can find a range of accessories (rotors and adapters) that will increase the versatility of this configuration.

Accessories

	INCLUDED		OPTIONAL			
	RT 246		RT 247		RT 248	
ROTOR	ANGLE FIXED 30 °		ANGLE FIXED 30 °		ANGLE FIXED 30 °	
Max. capacity	8x15 ml.		12x5 ml.		10x15 ml.	
RPM Max.	8.000		8.000		8.000	
Radius (mm)	88		72		89	
RCF Max. (xg)	6.511		5.151		6.368	
SAMPLE VOLUME	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.	**ADAPTERS** Tubes	Ref.
15 ml. /10 ml. blood sample	8	-	-	-	10	-
15 ml conical	8	RE 459	-	-	-	-
10 ml. / 7/10 ml. blood sample	8	RE 371	-	-	10	RE 470
5 ml. / 5 ml. blood sample	8	RE 377	12	-	10	RE 471
Microtubes 1,5-2 ml.	8	RE 513	-	-	10	RE 574
Microtubes 0,5-0,6 ml.	8	RE 514	-	-	10	RE 586
Microtubes 0,2-0,4 ml.	8	RE 515	-	-	10	RE 587

BIOCEN 22

3 YEAR WARRANTY

IVD CE

The Biocen 22 centrifuge is our offer for users that require a microcentrifuge with possible applications for microhematocrit and microtubes. Its small size, good performance and great versatility make it an essential tool. It gives the user complete control from the beginning of the process and many values can be customised according to the processes. Built to ensure the minimum increase of temperature inside the chamber due to the high-speed centrifugation process.

Features

LED screen:
- Shows RPM/ RCF and time.
- Speed programming in 50 RPM/ 10 xg steps.
- Count up/down from "0" or at "set RPM/RCF" for reproducible tests.
- Timer from 1 to 99 min. programmable in 1 min. steps and hold position.
- Deceleration control in 3 steps: fast, soft and free.
- Acoustic and visual messages on screen showing the equipment status to the user.

Easy to use

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

Safety

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

Max. Capacity
24 x 2 ml / 12 x 5 ml

Max. Speed
21.885 xg / 15.000 RPM

Screen Type
LED

Version
✓ Ventilated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 2017/746/EU.
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

Versions

	Dimensions (mm) (w x d x h)			Net weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 146	270	380	270	16	220-230	50-60	220
CE 147	270	380	270	16	110-120	50-60	220

*IVD version available, please indicate it in your request

Accessories

	RT 227	RT 228	RT 229	RT 254
		(1)		(2)
ROTOR	ANGLE FIXED 45 °	HORIZONTAL	ANGLE FIXED 45 °	ANGLE FIXED 45 °
Max. capacity	24x1,5-2 ml	24x1,5x75 mm	32x0,2 ml	12 x 5 ml
RPM Max.	15.000	15.000	15.000	15.000
Radius (mm)	82	87	55	87
RCF Max. (xg)	20.627	21.885	13.835	21.884

SAMPLE VOLUME	ADAPTERS		ADAPTERS		ADAPTERS		ADAPTERS	
	Tubes	Ref.	Tubes	Ref.	Tubes	Ref.	Tubes	Ref.
5 ml. conical / screw cap	-	-	-	-	-	-	12/6	-
1,5x75 mm. Capillaries	-	-	24	-	-	-	-	-
Microtubes 1,5-2 ml.	24	-	-	-	-	-	12	RE 506
Microtubes 0,5-0,6 ml.	24	RE 305	-	-	-	-	12	RE 507
Microtubes 0,2-0,4 ml.	24	RE 304	-	-	32x0,2	-	12	RE 508

(1) Includes microhematocrit reader card.
(2) Available adapters for cryotubes.

BIOCEN 22 R

3 YEAR WARRANTY

IVD CE

One of the best options when high speed and different tube formats are required. This refrigerated microcentrifuge, which has a wide range of rotors for a cooled centrifuge, can work with conical type tubes from 0,2 ml. to 15 ml. Dynamic cooling equipment keeps the desired temperature, reaching it in a short period of time and maintaining it stable throughout the whole cycle, regardless of the operation speed. Customisation of equipment options through the software enables you to adapt the work cycles to the process, as well as the user preferences, thus optimising performance in your laboratory.

For Ortoalresa, the Biocen 22 R centrifuge is the culmination of its know-how in centrifugation, materialised for the user in a robust, versatile and efficient piece of equipment that integrates perfectly into any lab, highlighting its application in research and biotechnology.

Features

LCD screen:
- Shows RPM and RCF, time, temperature and acceleration/deceleration (PCBS).
- Speed programming in 10 RPM/ 10 xg steps.
- Count up/down from "0" or at "set RPM/RCF" for reproducible tests.
- Timer: from 5 sec. to 99 minutes or from 1 min. to 99 hours and indefinite time.
- PCBS: Progressive controlled braking system up to 175 selectable ramps that prevents sample homogenization after separation.
- 16 programmable memories.
- Several acoustic and visual messages showing the situation of the device to the user.

Easy to use

- Microprocessor controlled.
- Induction motor maintenance free (brushless).
- Rotors list in memory.
- Noise level: below 65 dB.
- Start, stop, open lid and short spin with adjustable speed buttons.
- Possibility to block or modify the speed during the cycle.
- Low height for easy access.
- Last values remain in memory.
- Automatic rotor recognition. Over-speed protection.

Max. Capacity
8 x 15 ml

Max. Speed
31.865 xg / 18.100 RPM

Screen Type
LCD

Version
✓ Refrigerated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 2017/746/EU.
Regulation n°: (EC) 1005/2009, (EU) 517/2014.
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

Safety

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

Refrigeration

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 148	270	650	280	41	220-230	50	580
CE 149	270	650	280	41	110-120	60	580

*IVD version available, please indicate it in your request

Accessories centrifuge Biocen 22 R
- Rolling table (pag. 78)
- Rotors & adapters

		MICROTUBES							
		RT 224		RT 222		RT 252		RT 223	
ROTOR		ANGLE FIXED 45 °		ANGLE FIXED 45 °		ANGLE FIXED 45 °		ANGLE FIXED 30 °	
Max. capacity		32 x 0,2 ml		24x1,5-2 ml		12 x 5 ml		8x15 ml	
RPM Max.		18.100		18.100		18.100		8.000	
Radius (mm)		55		82		87		91	
RCF Max. (xg)		20.145		30.034		31.865		6.511	
Min. temp. at max. speed (°C)		-1		0		4		-3	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS**		**ADAPTERS**		**ADAPTERS**		**ADAPTERS**	
		Tubes	**Ref.**	**Tubes**	**Ref.**	**Tubes**	**Ref.**	**Tubes**	**Ref.**
15 ml.	ø16 x 100	-	-	-	-	-	-	8	-
15 ml. conical	ø17 x 122	-	-	-	-	-	-	8	-
10 ml.	ø13 x 100	-	-	-	-	-	-	8	RE 371
10 ml. blood sample	ø16 x 107	-	-	-	-	-	-	8	-
10 ml. (hs)	ø16 x 80	-	-	-	-	-	-	8	RE 398
7/10 ml. blood sample	ø13 x 107	-	-	-	-	-	-	8	RE 371
5 ml.	ø13 x 75	-	-	-	-	-	-	8	RE 377
5 ml. conical	ø17 x 60	-	-	-	-	12	-	-	-
5 ml. conical screw cap	ø17 x 68	-	-	-	-	6	-	-	-
5 ml. blood sample	ø13 x 82	-	-	-	-	-	-	8	RE 377
Microtubes 1,5 - 2 ml.	ø11 x 42	-	-	24	-	12	RE 506	8	RE 513
Microtubes 0,5 - 0,6 ml.	ø8 x 30	-	-	24	RE 305	12	RE 507	8	RE 514
Microtubes 0,2 - 0,4 ml.	ø6 x 45	32 x 0,2	-	24	RE 304	12	RE 508	8	RE 515
Cryotubes	ø12,5 x 52	-	-	-	-	12	RE 537	-	-

RT 128: Available rotor for capillaries (includes microhematocrit reader card).

Micro centrifuges: Accessories Biocen 22 R

BIOPROCEN 22 R

3 YEAR WARRANTY

IVD CE

The bioprocessing requires a versatile centrifuge which covers different types of assays and therefore different configuration for the same centrifuge. The centrifuge Bioprocen 22 R is provided with high-speed rotors for microtubes from 1,5 to 5 ml, as well as 50 ml conical tubes. Its accessories for microplates offer the chance to spin in swing out rotors.
The refrigeration system has been designed for temperature stability that allows keeping it even at high speed and along the run.
The different options for customization through the software, make the centrifuge become a tailor-made tool for your lab. Increase your lab output with the new Bioprocen 22 R.

Features

LCD screen:
- Shows RPM and RCF, time, temperature and acceleration/deceleration (PCBS).
- Speed programming in 10 RPM/ 10 xg steps.
- Count up/down from "0" or at "set RPM/RCF" for reproducible tests.
- Timer: from 5 sec. to 99 minutes or from 1 min. to 99 hours and indefinite time.
- PCBS: Progressive controlled braking system up to 175 selectable ramps that prevents sample homogenization after separation.
- 16 programmable memories.
- Several acoustic and visual messages showing the equipment status to the user.

Easy to use

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

Max. Capacity 6 x 50 ml

Max. Speed 31.865 xg / 18.100 RPM

Screen Type LCD

Version ✓ Refrigerated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 2017/746/EU.
Regulation n°: (EC) 1005/2009, (EU) 517/2014.
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

Safety

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

Refrigeration

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 223	410	690	320	59	220-230	50	500
CE 224	410	690	320	59	110-120	60	500

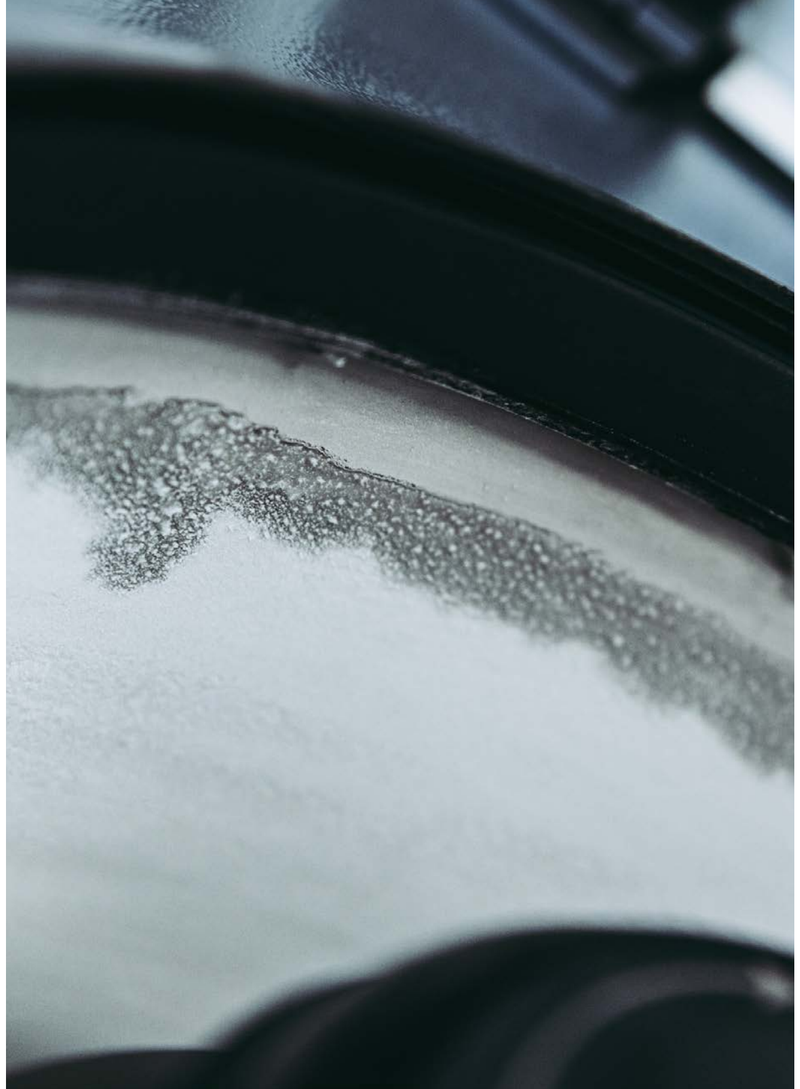
*IVD version available, please indicate it in your request

Universal centrifuges: Bioprocen 22 R

Experts in
REFRIGERATION

As experts in centrifugation, Ortoalresa provides all its refrigerated centrifuges with an extremely efficient refrigeration system that allows:

- Improving the turn on - turn off to reduce the consumption.
- Using only the gases allowed according to regulation for F-gas 517/2014.
- Reaching a very low temperature even at max speed, with values bellow 0ºC, because not all samples must be frozen below 4ºC.
- Reaching max accuracy, in steps of 0,5ºC.
- Assuring the stability of temperature along your process.
- Preparing the device at working temperature bellow room temperature, by applying the pre-cooling program.



Accessories centrifuge Bioprocen 22 R
- Rolling table (pag. 78)
- Rotors & adapters

		RT 291		RT 274		RT 276		RT 306		RT 307		RT 275		RT 308	
				(1)		(2)									
ROTOR		ANGLE FIXED 45 °		ANGLE FIXED 28 °		SWING OUT 30 °		ANGLE FIXED 45 °		ANGLE FIXED 45 °		ANGLE FIXED 45 °		ANGLE FIXED 45 °	
Max. capacity		12 x 5 ml		6 x 50 ml		4/2 microtiter		32 x 0,2 ml		24 x 1,5 - 2 ml.		30 x 1,5-2 ml.		48 x 1,5 - 2 ml.	
RPM Max.		18.100		8.300		4.500		18.100		18.100		15.000		14.500	
Radius (mm)		87		101		86		55		82		96		95	
RCF Max. (xg)		31.865		7.778		1.947		20.145		30.034		24.148		22.330/19.274	
Min. temp. at max. speed (°C)		3		-3		-5		-1		0		2		2	
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.**
50 ml. (hs)	ø29 x 108	-	-	6	-	-	-	-	-	-	-	-	-	-	-
50 ml. conical	ø29 x 117	-	-	6	-	-	-	-	-	-	-	-	-	-	-
30 ml. / 30 ml. (hs)	ø25 x 98	-	-	6	RE 392	-	-	-	-	-	-	-	-	-	-
25 ml. conical	ø29 x 83	-	-	6	RE 617	-	-	-	-	-	-	-	-	-	-
15 ml.	ø16 x 100	-	-	6	RE 394	-	-	-	-	-	-	-	-	-	-
15 ml. conical	ø17 x 122	-	-	6	RE 394 (3)	-	-	-	-	-	-	-	-	-	-
10 ml.	ø13 x 100	-	-	6	RE 396	-	-	-	-	-	-	-	-	-	-
10 ml. blood sample	ø16 x 107	-	-	6	RE 394	-	-	-	-	-	-	-	-	-	-
10 ml. (hs)	ø16 x 80	-	-	6	RE 395	-	-	-	-	-	-	-	-	-	-
7/10 ml. blood sample	ø13 x 107	-	-	6	RE 396	-	-	-	-	-	-	-	-	-	-
5 ml.	ø13 x 75	-	-	6	RE 397	-	-	-	-	-	-	-	-	-	-
5 ml. conical	ø17 x 60	12	-	-	-	-	-	-	-	-	-	-	-	-	-
5 ml. conical screw cap	ø17 x 60/68	6	-	-	-	-	-	-	-	-	-	-	-	-	-
5 ml. blood sample	ø13 x 82	-	-	6	RE 397	-	-	-	-	-	-	-	-	-	-
Microtubes 1,5 - 2 ml.	ø11 x 42	12	RE 506	18	RE 433	72	RE 401	-	-	24	-	30	-	48	-
Microtubes 0,5 - 0,6 ml.	ø8 x 30	12	RE 507	18	RE 575	72	RE 580	-	-	24	RE 305	30	RE 428	48	RE 358
Microtubes 0,2 - 0,4 ml.	ø6 x 45	12	RE 508	18	RE 576	72	RE 581	32x0,2	-	24	RE 304	30	RE 427	48	RE 357
Cryotubes	ø12,5 x 52	12	RE 537	-	-	-	-	-	-	-	-	-	-	-	-
Microtiter plates: 128x86x15/21 mm	128x86x15/21	-	-	-	-	4/2	-	-	-	-	-	-	-	-	-

(1) Please check tubes features.
(2) Allows different configurations depending of the microplates height.
(3) Fitting these tubes will not allow the rotor lid to be be closed.

RT 312: Available rotor for capillaries (includes microhematocrit card).

UNICEN 21

3 YEAR WARRANTY

IVD CE

The word that best defines and determines its characteristics is, without doubt, universal. It has multiple rotors with a wide range of reducers, which enables it to work with volumes from 0.2 ml. to 100 ml., with angle fixed and swing out options. This equipment covers all types of needs of the users and offers a range of medium speeds for routine processes. To optimise the performance of the equipment in this range, we have increased its capacity with a swing out rotor for up to 28 x 15 ml. tubes and an angle fixed rotor for 32 to 15 ml./15 ml. conical tubes.

It has a control that defines the functions beyond the operation values, thus becoming a piece of equipment perfectly integrated into your processes. Versatile, functional, simple and indispensable in your lab.

Features

LED screen:
- Shows RPM/ RCF and time.
- Speed programming in 50 RPM/ 10 xg steps.
- Count up/down from "0" or at "set RPM/RCF" for reproducible tests.
- Timer from 1 to 99 min. programmable in 1 min. steps and hold position.
- Deceleration control in 3 steps: fast, soft and free.
- Acoustic and visual messages on screen showing the equipment status to the user.

Easy to use

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

Max. Capacity
4 x 100 ml

Screen Type
LED

Max. volume
480 ml

Max. Speed
2.938 xg / 4.200 RPM

Version
✓ Ventilated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 2017/746/EU.
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

Safety

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 126	410	520	320	35	220-230	50-60	250
CE 127	410	520	320	35	110-120	50-60	250

*IVD version available, please indicate it in your request

Accessories centrifuge Unicen 21
- Rolling table (pag. 78)
- Rotors & adapters

		RT 177		RT 260		RT 175		RT 173 (1)		RT 226		RT 163		RT 256		RT 167	
ROTOR		SWING OUT		SWING OUT		SWING OUT		SWING OUT		ANGLE FIXED 30 °		ANGLE FIXED 35 °		ANGLE FIXED 35 °		ANGLE FIXED 45 °	
Max. capacity		8 x 15 ml.		28 x 15 ml.		4 x 50 ml.		4 x 100 ml.		8 x 15 ml.		24 x 15 ml.		32 x 15 ml.		6 x 50 ml.	
RPM Max.		4.200		4.200		4.200		4.200		4.200		4.200		4.200		4.200	
Radius (mm)		145		147		145		147		91		132/114		149/130		132	
RCF Max. (xg)		2.860		2.899		2.860		2.899		1.795		2.603/2.248		2.938/2.563		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.**	**ADAPTERS Tubes**	**Ref.**
100 ml.	ø48 x 100	-	-	-	-	-	-	4	RE 446	-	-	-	-	-	-	-	-
80 ml.	ø44 x 100	-	-	-	-	-	-	4	RE 338	-	-	-	-	-	-	-	-
50 ml.	ø34 x 100	-	-	-	-	4	RE 445	4	RE 335	-	-	-	-	-	-	6	RE 447
50 ml. conical	ø29 x 117	-	-	-	-	4	RE 342	4	RE 341	-	-	-	-	-	-	6	RE 365
30 ml.	ø25 x 98	-	-	-	-	4	RE 333	4	RE 332	-	-	-	-	-	-	6	RE 387
25 ml. conical	ø29 x 83	-	-	-	-	4	RE 596	4	RE 597	-	-	-	-	-	-	6	RE 598
15 ml.	ø16 x 100	8	-	28	-	4	RE 329	16	RE 316	8	-	24	-	32	-	6	RE 361
15 ml. conical	ø17 x 122	8	-	4	-	4	RE 329	4/8	RE 339/579	8	-	12	-	32	-	6	RE 361
10 ml.	ø13 x 100	8	RE 371	28	RE 516	12	RE 313	20	RE 320	8	RE 371	24	RE 385	32	RE 518	18	RE 360
10 ml. blood sample	ø16 x 107	8	-	28	-	4	RE 329	16	RE 316	8	-	24	-	32	-	6	RE 361
7/10 ml. blood sample	ø13 x 107	8	RE 371	28	RE 516	4	RE 337	20	RE 320	8	RE 371	24	RE 385	32	RE 518	6	RE 364
5 ml.	ø13 x 75	8	RE 377	28	RE 512	12	RE 313	20	RE 320	8	RE 377	24	RE 306	32	RE 517	18	RE 360
5 ml. blood sample	ø13 x 82	8	RE 377	28	RE 512	4	RE 337	20	RE 320	8	RE 377	24	RE 306	32	RE 517	6	RE 364
Microtubes 1,5-2 ml.	ø11 x 42	8	RE 513	28	RE 578	12	RE 463	20	RE 408	8	RE 513	24	RE 601	32	RE 602	18	RE 464
Microtubes 0,5-0,6 ml.	ø8 x 30	8	RE 514	28	RE 582	12	RE 531	20	RE 519	8	RE 514	24	RE 603	32	RE 604	18	RE 533
Microtubes 0,2-0,4 ml.	ø6 x 45	8	RE 515	28	RE 583	12	RE 532	20	RE 473	8	RE 515	24	RE 605	32	RE 606	18	RE 534

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

DIGICEN 22

PULL to **Remove**

3 YEAR WARRANTY

IVD CE

Universal by design. With a wide range of rotors for microplates, cryotubes, microtubes, tubes from 100 ml., with options as versatile as con 28 x 15 ml. tubes in a swing out rotor and 32 x 15 ml. conical tubes in an angle fixed rotor, and rotors for high speed 85 ml., 80 ml., 50 ml., 30 ml. and 10 ml. tubes.

Its accessories, provided with the REI system (Rotor Easy to Install) are securely installed on the rotor without the need for tools, and are unlocked by simply removing them from their position.

We have a device with which we can process a wide range of samples, offering the most exhaustive control of the equipment, as thanks to the free Ortoalresa SmartConnect application, you can access the centrifuge from the device of your choice; PC, tablet and mobile phone.

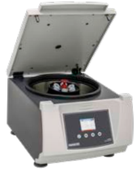
Just connect it to your lab's WiFi network and you will be able to manage and monitor your equipment from our app (+ info on page 58).

Features

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

Easy to use

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



Max. Capacity 4 x 125 ml

Max. Speed 26.480 xg / 16.500 RPM

Screen Type TFT

Version ✓ Ventilated

Max. Volume 500 ml.

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 2017/746/EU.
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

Safety

- Lid provided with security systems:
  - Automatic lid lock system, motorized with double lock.
  - Emergency lid-lock release.
  - Locking and protection against opening along the run.
  - Lid dropping protection.
  - Port in the lid for calibration and operation checking.
- Unbalance detection and switch off.
- Protection safety ring between the centrifugation chamber and the housing.
- Chamber of centrifugation in stainless steel (easy cleaning).
- Rotors can be removed with the lid closed. Hermetic lids.
- Rotors and adapters autoclavable, easy to install without tools (REI System)
- Forced ventilation to reduce temperature increasing.
- Automatic disconnection for energy saving up to 8 h., with deactivation option.

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 257	410	520	320	35	220-230	50-60	400
CE 258	410	520	320	35	110-120	50-60	400

*IVD version available, please indicate it in your request

DIGICEN 22 R

PULL to **Remove**

3 YEAR WARRANTY

IVD CE

Versatility fused with effectiveness. The centrifuge Digicen 22 R has a wide range of angle fixed rotors, both for low revolutions, with capacity up to 32 tubes of 15 ml./15 ml. conical, and for microtubes, cryotubes and high speed tubes. For the swing out versions, it has rotors for 4 tubes of 100 ml. and up to 28 positions for 15 ml. tubes. All its rotors are provided with the REI system (Rotor Easy to Install), which allows them to be securely installed on the rotor without the need for tools, and to be unlocked by simply removing them from their position.

Its powerful refrigeration system allows it to keep the minimum chamber temperature below 4°C regardless of the type of rotor and the selected speed.

For improved traceability, it has a connectivity system that allows the user to access the centrifuge from the device of their choice; PC, tablet and mobile phone thanks to the free Ortoalresa SmartConnect app.

Just connect it to your laboratory's WiFi network and you will be able to manage and monitor your equipment from our app. (+ info on page 58).

Features

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

Easy to use

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

Max. Capacity 4 x 125 ml

Max. Speed 26.480 xg / 16.500 RPM

Screen Type TFT

Version Refrigerated

Max. Volume 500 ml

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 2017/746/EU.
Regulation n°: (EC) 1005/2009, (EU) 517/2014.
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

Safety

- Lid provided with security systems:
  - Automatic lid lock system, motorized with double lock.
  - Emergency lid-lock release.
  - Locking and protection against opening along the run.
  - Lid dropping protection.
  - Port in the lid for calibration and operation checking.
- Unbalance detection and switch off.
- Protection safety ring between the centrifugation chamber and the housing.
- Chamber of centrifugation in stainless steel (easy cleaning).
- Rotors can be removed with the lid closed. Hermetic lids.
- Rotors and adapters autoclavable, easy to install without tools (REI System)
- Automatic disconnection for energy saving up to 8 h.

Refrigeration

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 259	590	620	320	65	220-230	50	700
CE 260	590	620	320	65	110-120	60	700

*IVD version available, please indicate it in your request

Universal centrifuges: Series Digicen 22

Accessories centrifuge series Digicen 22
- Rolling table (pag. 78)
- Rotors & adapters

MICROTUBES

		RT 315		RT 316		RT 317		RT 318		RT 319		RT 320		RT 321	
						(1)		(2)						(4)	
ROTOR		SWING OUT		SWING OUT		SWING OUT		SWING OUT		ANGLE FIXED 45 °		ANGLE FIXED 45 °		ANGLE FIXED 45 °	
Max. capacity		28 x 15 ml.		4 x 50 ml.		4 x 100 ml.		6/4/2 microtiter		32 x 0,2 ml.		24 x 1,5-2 ml.		12 x 5 ml	
RPM Max.		5.000		5.300		5.000		4.000		16.500		16.500		16.500	
Radius (mm)		147		145		147		122 (3)		55 (3)		82		87	
RCF Max. (xg)		4.108		4.554		4.109		2.182		16.741		24.959		26.480	
Min. temp. at max. speed (°C)		-6		-7		-7		-9		-6		-4		-2	
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.
125 ml.	ø48 x 100	-	-	-	-	4	RE 446	-	-	-	-	-	-	-	-
85 ml. (hs) / 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 342	4	RE 341	-	-	-	-	-	-	-	-
50 ml.	ø34 x 100	-	-	4	RE 445	4	RE 335	-	-	-	-	-	-	-	-
50 ml. conical	ø29 x 117	-	-	4	RE 342	4	RE 341	-	-	-	-	-	-	-	-
30 ml. / 30 ml. (hs)	ø25 x 98	-	-	4	RE 333	4	RE 332	-	-	-	-	-	-	-	-
25 ml. conical	ø29 x 83	-	-	4	RE 596	4	RE 597	-	-	-	-	-	-	-	-
15 ml.	ø16 x 100	28	-	4	RE 329	16	RE 316	-	-	-	-	-	-	-	-
15 ml. conical	ø17 x 122	4	-	4	RE 329	4/8	RE 339/579	-	-	-	-	-	-	-	-
10 ml. (hs)	ø16 x 80	28	RE 621	4	RE 329	16	RE 316	-	-	-	-	-	-	-	-
10 ml.	ø13 x 100	28	RE 516	12	RE 313	20	RE 320	-	-	-	-	-	-	-	-
10 ml. blood sample	ø16 x 107	28	-	4	RE 329	16	RE 316	-	-	-	-	-	-	-	-
7/10 ml. blood sample	ø13 x 107	28	RE 516	4	RE 337	20	RE 320	-	-	-	-	-	-	-	-
5 ml.	ø13 x 75	28	RE 512	12	RE 313	20	RE 320	-	-	-	-	-	-	-	-
5 ml. conical / screw cup	ø17 x 60/ 68	-	-	-	-	-	-	-	-	-	-	-	-	12/6	-
5 ml. blood sample	ø13 x 82	28	RE 512	4	RE 337	20	RE 320	-	-	-	-	-	-	-	-
Microtubes 1,5-2 ml.	ø11 x 42	28	RE 578	12	RE 463	20	RE 408	72	RE 401	-	-	24	-	12	RE 506
Microtubes 0,5-0,6 ml.	ø8 x 30	28	RE 582	12	RE 531	20	RE 519	72	RE 580	-	-	24	RE 305	12	RE 507
Microtubes 0,2-0,4 ml.	ø6 x 45	28	RE 583	12	RE 532	20	RE 473	72	RE 581	32 x 0,2	-	24	RE 304	12	RE 508
Microtiter plates	128x86x15/21/45	-	-	-	-	-	-	6/4/2	-	-	-	-	-	-	-
Cell culture	128x86x22	-	-	-	-	-	-	4	-	-	-	-	-	-	-

(1) This rotor includes hermetic lids.
(2) Allows different configurations depending of the microplates height.
(3) Medium radius.
(4) Available adapters for cryotubes.
(5) Please check tubes features.
(6) Fitting these tubes will not allow the rotor lid to be be closed.

RT 329: Available rotor for capillaries (includes microhematocrit reader card).

HIGH SPEED

		RT 322		RT 323		RT 324		RT 325		RT 326		RT 327		RT 328	
										(5)		(5)		(5)	
ROTOR		ANGLE FIXED 35 °		ANGLE FIXED 35 °		ANGLE FIXED 35 °		ANGLE FIXED 45 °		ANGLE FIXED 30 °		ANGLE FIXED 30 °		ANGLE FIXED 28 °	
Max. capacity		24 x 5 ml.		24 x 15 ml.		32 x 15 ml.		6 x 50 ml.		12 x 10ml. Hermet		8 x 30 ml. Hermet		6 x 50 ml. Hermet	
RPM Max.		6.500		5.000		4.200		6.000		15.000		13.500		9.000	
Radius (mm)		113		132/114		149/130		132		78		92		101	
RCF Max. (xg)		5.338		3.689/3.186		2.938/2.563		5.313		19.621		18.746		9.146	
Min. temp. at max. speed (°C)		-4		-6		-5		-4		-5		-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.
125 ml.	ø48 x 100	-	-	-	-	-	-	-	-	-	-	-	-	-	-
85 ml. (hs) / 80 ml. (hs)	ø38 x 112	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80 ml.	ø44 x 100	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50 ml. (hs)	ø29 x 108	-	-	-	-	-	-	6	RE 365	-	-	-	-	6	-
50 ml.	ø34 x 100	-	-	-	-	-	-	6	RE 447	-	-	-	-	-	-
50 ml. conical	ø29 x 117	-	-	-	-	-	-	6	RE 365	-	-	-	-	6	-
30 ml. / 30 ml. (hs)	ø25 x 98	-	-	-	-	-	-	6	RE 387	-	-	8	-	6	RE 392
25 ml. conical	ø29 x 83	-	-	-	-	-	-	6	RE 598	-	-	-	-	6	RE 617
15 ml.	ø16 x 100	-	-	24	-	32	-	6	RE 361	-	-	8	RE 406	6	RE 394
15 ml. conical	ø17 x 122	-	-	12	-	32	-	6	RE 361	-	-	-	-	6	RE 394 (6)
10 ml. (hs)	ø16 x 80	-	-	24	RE 384	32	RE 529	6	RE 361	12	-	8	RE 391	6	RE 395
10 ml.	ø13 x 100	-	-	24	RE 385	32	RE 518	18	RE 360	-	-	8	RE 407	6	RE 396
10 ml. blood sample	ø16 x 107	-	-	24	-	32	-	6	RE 361	-	-	-	-	6	RE 394
7/10 ml. blood sample	ø13 x 107	-	-	24	RE 385	32	RE 518	6	RE 364	-	-	-	-	6	RE 396
5 ml.	ø13 x 75	24	-	24	RE 306	32	RE 517	18	RE 360	12	RE 389	8	RE 390	6	RE 397
5 ml. conical / screw cup	ø17 x 60/68	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5 ml. blood sample	ø13 x 82	24	-	24	RE 306	32	RE 517	6	RE 364	12	RE 389	8	RE 390	6	RE 397
Microtubes 1,5-2 ml.	ø11 x 42	-	-	24	RE 601	32	RE 602	18	RE 464	-	-	-	-	18	RE 433
Microtubes 0,5-0,6 ml.	ø8 x 30	-	-	24	RE 603	32	RE 604	18	RE 533	-	-	-	-	18	RE 575
Microtubes 0,2-0,4 ml.	ø6 x 45	-	-	24	RE 605	32	RE 606	18	RE 534	-	-	-	-	18	RE 576
Microtiter plates	128x86x15/21/45	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cell culture	128x86x22	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CONNECTIVITY

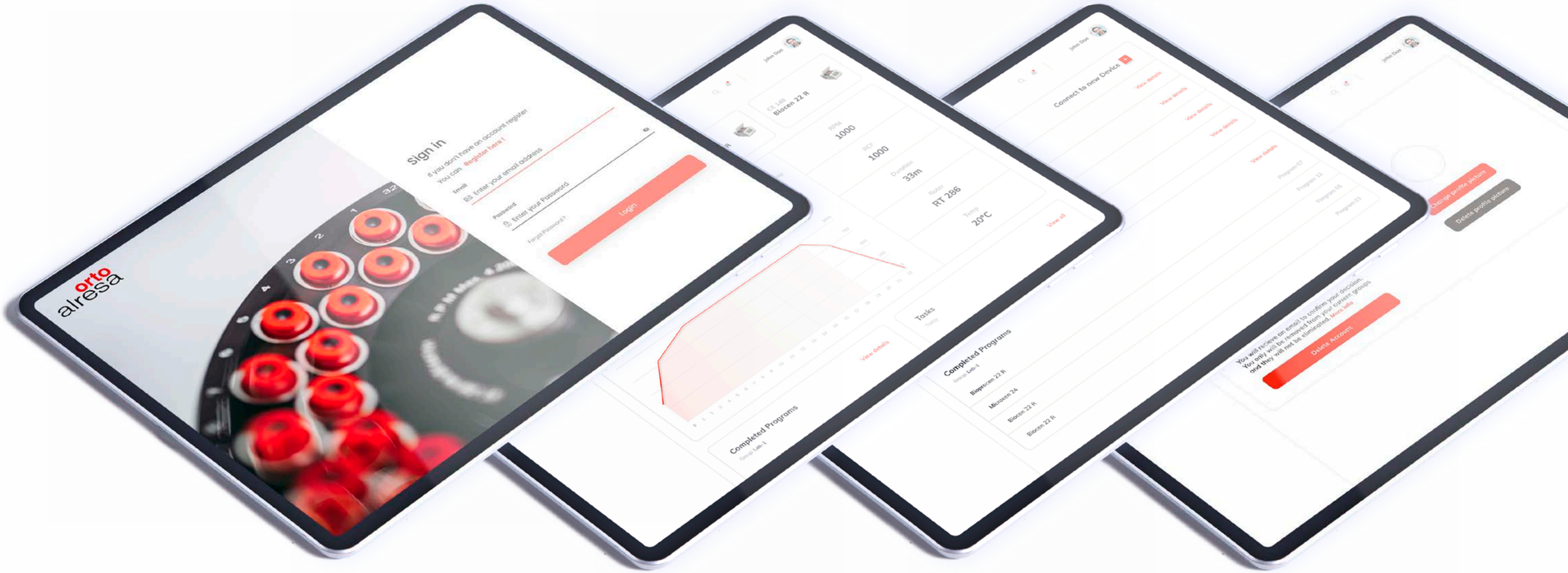
Being able to manage the information and performance of our centrifuge from a device with an Internet connection is now a reality.

Thanks to the free Ortoalresa SmartConnect application, you can access it from the device of your choice PC, tablet, or mobile phone.

Simply connect it to your laboratory's WiFi network and you will be able to manage and monitor your equipment from our app..

Ortoalresa SmartConnect allows:

- Monitoring of equipment.
- Adding multiple OA centrifuges to your control panel.
- Tracing the history of the executed programs and their results.
- Consulting the programmed work parameters: RPM, RCF, temperature, time, accessories...
- Notifications:
  - Informing and detailing any type of action and notice.
  - Security notifications, related to the maintenance of the centrifuge.
- Consulting the information related to the equipment: number of work cycles of its rotors, working hours of the centrifuge, calibration and maintenance of the equipment programming.
- Registering different users with different levels of accessibility and control.
- Technical service panel access, which allows quick and remote access for the resolve of interventions and diagnosis of the equipment by our qualified technicians.
- Complete traceability of the executed interactions identifying the user.
- Availability of technical documentation of the equipment.
- Downloading data and work cycles in csv (xls) format.



REI SYSTEM
(Rotor Easy to Install)

Our new REI (Rotor Easy to Install) system for quick and easy exchange of rotors, allows the rotor to be installed and locked securely without the need for tools, as well as unlocked by simply removing it from its position.

Thanks to its ergonomic design, it can be operated comfortably with one hand. The rotor can be removed and replaced in just a few seconds, without rotating the hand, or pressing buttons. It just needs to be positioned on the motor axis and it will be automatically anchored thanks to the REI system.

For greater security, the equipment screen warns the user if the rotor is not properly installed.

To remove it, gently lift the red handle, which will release the REI system allowing the rotor to be removed.

CONSUL 22

3 YEAR WARRANTY

IVD CE

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

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

Features

TFT color touch screen, visible from more than 3 m.:

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

Easy to use

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

Max. Capacity
4 x 400 ml

Max. Speed
21.948 xg / 14.300 RPM

Screen Type
TFT

Version
Ventilated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 2017/746/EU.
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

Safety

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 226	490	600	400	59	220-230	50-60	600
CE 227	490	600	400	59	110-120	50-60	600

*IVD version available, please indicate it in your request

High capacity centrifuges: Series Consul 22

CONSUL 22 R

3 YEAR WARRANTY

IVD CE

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

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

Features

TFT color touch screen, visible from more than 3 m.:

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

Easy to use

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

Max. Capacity 4 x 400 ml

Max. Speed 21.948 xg / 14.300 RPM

Screen Type TFT

Version Refrigerated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 2017/746/EU.
Regulation nº: (EC) 1005/2009, (EU) 517/2014.
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

Safety

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

Refrigeration

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 232	670	730	400	98	220-230	50	800
CE 233	670	730	400	98	110-120	60	800

*IVD version available, please indicate it in your request

High capacity centrifuges: Series Consul 22

Accessories centrifuge series Consul 22
- Rolling table (pag. 78)
- Rotors & adapters

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

(1) This rotor can be supplied with hermetic lids (RE 405)
(2) Allows different configurations depending of the microplates height.
(3) Only available for refrigerated models.

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

High capacity centrifuges: Accessories series Consul 22

DIGTOR 22

3 YEAR WARRANTY

IVD CE

Benchtop centrifuge with large capacity and high performance. With a wide range of accessories to process tubes from 750 ml. to 0,2 ml. in more than 12 rotors, both angle fixed and swing out. It has more than 50 different sets of adaptors, giving it great versatility. This equipment is the culmination of the merger of high capacity and high speed equipment, resulting in a routine use centrifuge with specific characteristics of superior level models. Its colour TFT touch screen offers performance that permits, in addition to controlling the equipment by operational parameters, the possibility of exporting data for analysis and timer programmed operation.

The autonomy provided by this equipment enables the user to optimise working time in the lab, by automation of cycles and modes of operation. These features also ensure process traceability and that no parameter is uncontrolled.

Features

TFT color touch screen, visible from more than 3 m.:

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

Easy to use

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

Max. Capacity
4 x 750 ml

Max. Speed
21.948 xg / 14.300 RPM

Screen Type
TFT

Version
✓ Ventilated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 2017/746/EU.
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

Safety

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 228	530	640	400	71	220-230	50-60	700
CE 229	530	640	400	71	110-120	50-60	700

*IVD version available, please indicate it in your request

High capacity centrifuges: Series Digtor 22

DIGTOR 22 R

3 YEAR WARRANTY

IVD CE

The largest of our refrigerated benchtop centrifuges that offers the maximum performance. With an ergonomic design that enables easy loading of the rotor, as well as traceability of the position of the samples for easy identification of the charge balance. It has a wide range of accessories that offer capacity for tubes of 750 ml., microplates, microtubes and a great number of positions for the more common use tubes of 15 ml. conical, 50 ml. conical, 15 ml., 10 ml., and 5 ml.

Its colour TFT touch screen offers performance that enables, in addition to controlling the equipment by operational parameters, the possibility of exporting data for analysis and timer programmed operation. The autonomy that this equipment gives to the user reduces the work time, by automating the cycles and work modes, ensuring the process traceability. It has a refrigeration system that enables it to maintain the minimum temperature of the chamber below 4°C regardless of the type of rotor and the speed selected.

Features

TFT color touch screen, visible from more than 3 m.:

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

Easy to use

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

Max. Capacity
4 x 750 ml

Max. Speed
21.948 xg / 14.300 RPM

Screen Type
TFT

Version
✓ Refrigerated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 2017/746/EU.
Regulation n°: (EC) 1005/2009, (EU) 517/2014.
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

Safety

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

Refrigeration

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 234	720	780	400	113	220-230	50	1000
CE 235	720	780	400	113	110-120	60	1000

*IVD version available, please indicate it in your request

High capacity centrifuges: Series Digtor 22

Accessories centrifuge Digtor 22
- Rolling table (pag. 78)
- Rotors & adapters

MICROTITER PLATES

		RT 279		RT 278		RT 299		RT 277		RT 284		RT 297		RT 283	
		(6)						(1)(4)		(4)		(4)(5)		(1)(2)(4)(5)	
ROTOR		SWING OUT		SWING OUT		SWING OUT		SWING OUT		SWING OUT		SWING OUT		SWING OUT	
Max. capacity		104 x 5 ml.		4 x 250 ml.		6 x 250 ml.		4 x 750 ml.		12/8/4 microtiter		10/6/2/2 microtiter		4 blood bags	
RPM Max.		3.800		4.200		2.500		3.700		3.700		4.500		3.700	
Radius (mm)		160		202		212		204		182 (3)		166		204	
RCF Max. (xg)		2.583		3.984		1.481		3.122		2.786		3.758		3.122	
Min. temp. at max. speed (°C)		0		1		-5		0		-4		4		0	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**
750 ml.	ø96 x 130	-	-	-	-	-	-	4	RE 434	-	-	-	-	4	RE 434
500 ml.	ø90 x 120	-	-	-	-	-	-	4	RE 310	-	-	-	-	4	RE 310
250 ml.	ø60 x 135	-	-	4	RE 449	6	RE 530	4	RE 330	-	-	-	-	4	RE 330
250 ml. conical	ø 60 x 145	-	-	4	RE 593	6	RE 608	4	RE 592	-	-	-	-	4	RE 592
100 ml.	ø48 x 100	-	-	4	RE 327	6	RE 558	4	RE 409	-	-	-	-	4	RE 409
85 ml. (hs) / 80 ml. (hs)	ø38 x 112	-	-	4	RE 498	6	RE 559	12	RE 500	-	-	-	-	12	RE 500
80 ml.	ø44 x 100	-	-	4	RE 422	6	RE 560	8	RE 352	-	-	-	-	8	RE 352
50 ml.	ø34 x 100	-	-	4	RE 334	6	RE 561	16	RE 317	-	-	-	-	16	RE 317
50 ml. conical	ø29 x 117	-	-	4	RE 340	6	RE562	20	RE 472	-	-	-	-	20	RE 472
30 ml. / 30 ml. (hs)	ø25 x 98	-	-	12	RE 312	18	RE 563	24	RE 322	-	-	-	-	24	RE 322
25 ml. conical	ø29 x 83	-	-	4	RE 612	6	RE 616	20	RE 614	-	-	-	-	20	RE 614
15 ml.	ø16 x 100	-	-	28	RE 376	42	RE 564	80	RE 625	-	-	-	-	80	RE 625
15 ml. conical	ø17 x 122	-	-	20	RE 321	30	RE 565	52	RE 347	-	-	-	-	52	RE 347
15 ml. blood sample	ø16 x 132	-	-	28	RE 376	42	RE 564	32	RE 441	-	-	-	-	32	RE 441
10 ml.	ø13 x 100	104	RE 309	40	RE 343	60	RE 566	100	RE 354	-	-	-	-	100	RE 354
10 ml. blood sample	ø16 x 107	-	-	28	RE 376	42	RE 564	80	RE 625	-	-	-	-	80	RE 625
7/10 ml. blood sample	ø13 x 107	104	RE 309	28	RE 324	42	RE 567	92	RE 624	-	-	-	-	92	RE 624
5 ml.	ø13 x 75	104	-	40	RE 343	60	RE 566	100	RE 354	-	-	-	-	100	RE 354
5 ml. blood sample	ø13 x 82	104	-	28	RE 324	42	RE 567	92	RE 624	-	-	-	-	92	RE 624
Microtubes 1,5-2 ml.	ø11x42	-	-	24	RE 440	36	RE 569	72	RE 426	144	RE 460	72	RE 401	72	RE 426
Microtubes 0,5-0,6 ml.	ø8x30	-	-	24	RE 523	36	RE 570	72	RE 466	144	RE 584	72	RE 580	72	RE 466
Microtubes 0,2-0,4 ml.	ø6x45	-	-	24	RE 458	36	RE 571	72	RE 524	144	RE 585	72	RE 581	72	RE 524
Microtiter plates	128x86x15/21/45	-	-	-	-	-	-	12/8/4	RE 307	12/8/4	-	10/6/2	-	12/8/4	RE 307
Microtiter plates (h:80 mm)	128x86x80	-	-	-	-	-	-	-	-	-	-	2	-	-	-

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

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

HIGH SPEED

		RT 280		RT 281		RT 282		RT 287		RT 292	
ROTOR		ANGLE FIXED 45 °		ANGLE FIXED 45 °		ANGLE FIXED 30 °		ANGLE FIXED 45 °		ANGLE FIXED 30 °	
Max. capacity		8 x 50 ml.		4 x 100 ml.		4 x 250 ml.		30 x 1,5-2 ml.		6 x 85 ml	
RPM Max.		6.000		5.600		4.700		14.300		9.000	
Radius (mm)		149		138		153		96		112	
RCF Max. (xg)		5.997		4.838		3.779		21.948		10.142	
Min. temp. at max. speed (°C)		0		-1		-4		-1		1	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**
750 ml.	ø96 x 130	-	-	-	-	-	-	-	-	-	-
500 ml.	ø90 x 120	-	-	-	-	-	-	-	-	-	-
250 ml.	ø60 x 135	-	-	-	-	4	RE 449	-	-	-	-
250 ml. conical	ø 60 x 145	-	-	-	-	4	RE 593	-	-	-	-
100 ml.	ø48 x 100	-	-	4	RE 446	4	RE 327	-	-	-	-
85 ml. (hs) / 80 ml. (hs)	ø38 x 112	-	-	4	RE 380	4	RE 498	-	-	6	-
80 ml.	ø44 x 100	-	-	4	RE 338	4	RE 422	-	-	-	-
50 ml.	ø34 x 100	8	RE 448	4	RE 335	4	RE 334	-	-	6	RE 490
50 ml. conical	ø29 x 117	8	RE 375	4	RE 341	4	RE 340	-	-	6	RE 483
30 ml. / 30 ml. (hs)	ø25 x 98	8	RE 370	4	RE 332	12	RE 312	-	-	6	RE 493
25 ml. conical	ø 29 x 83	8	RE 599	4	RE 597	4	RE 612	-	-	6	RE 600
15 ml.	ø16 x 100	8	RE 369	16	RE 316	28	RE 376	-	-	18	RE 485
15 ml. conical	ø17 x 122	8	RE 369	4	RE 339	20	RE 321	-	-	6	RE 484
15 ml. blood sample	ø16 x 132	8	RE 369	-	-	28	RE 376	-	-	-	-
10 ml.	ø13 x 100	24	RE 366	20	RE 320	40	RE 343	-	-	30	RE 497
10 ml. blood sample	ø16 x 107	8	RE 369	16	RE 316	28	RE 376	-	-	18	RE 485
7/10 ml. blood sample	ø13 x 107	8	RE 373	20	RE 320	28	RE 324	-	-	18	RE 503
5 ml.	ø13 x 75	24	RE 366	20	RE 320	40	RE 343	-	-	30	RE 501
5 ml. blood sample	ø13 x 82	8	RE 373	20	RE 320	28	RE 324	-	-	18	RE 492
Microtubes 1,5-2 ml.	ø11x42	24	RE 465	20	RE 408	24	RE 440	30	-	24	RE 494
Microtubes 0,5-0,6 ml.	ø8x30	24	RE 535	20	RE 519	24	RE 523	30	RE 428	24	RE 495
Microtubes 0,2-0,4 ml.	ø6x45	24	RE 526	20	RE 473	24	RE 458	30	RE 427	24	RE 496
Microtiter plates	128x86x15/21/45	-	-	-	-	-	-	-	-	-	-
Microtiter plates (h:80 mm)	128x86x80	-	-	-	-	-	-	-	-	-	-

DILITCEN 22 R

3 YEAR WARRANTY

IVD CE

The largest of our benchtop machines, with a capacity of up to 4 litres and an ergonomic design that enables easy loading of the rotor, as well as traceability of the positioning of the samples so as to balance the load and for easy identification. It has a wide range of accessories with capacity for four 1.000 ml. bottles, microplates, microtubes and a large number of positions for the most commonly used 15 ml. conical, 50 ml. conical, 15 ml., 10 ml. and 5 ml. tubes for clinical as well as biotechnology applications.

Its colour TFT touch screen offers performance that enables, in addition to controlling the equipment by operational parameters, the possibility of exporting data for analysis and timer programmed operation. The autonomy provided by this equipment facilitates the automation of work cycles and modes. This also ensures traceability of the process, not leaving any parameter uncontrolled and maintaining the process at all times.

It has a refrigeration system that enables it to maintain the minimum temperature of the chamber below 4°C regardless of the type of rotor and the speed selected.

Features

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

Easy to use

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

Max. Capacity
4 x 1000 ml

Max. Speed
21.948 xg / 14.300 RPM

Screen Type
TFT

Version
Refrigerated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 2017/746/EU.
Regulation n°: (EC) 1005/2009, (EU) 517/2014.
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

Safety

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

Refrigeration

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 221	720	800	430	118	220-230	50	1100
CE 222	720	800	430	118	110-120	60	1100

*IVD version available, please indicate it in your request

Accessories centrifuge Dilitcen 22 R
- Rolling table (pag. 78)
- Rotors & adapters

												MICROTITER PLATES			
		RT 279		RT 278		RT 299		RT 277		RT 265		RT 284		RT 297	
		(6)						(1) (4)		(7)		(4)		(4)	
ROTOR		SWING OUT		SWING OUT		SWING OUT		SWING OUT		SWING OUT		SWING OUT		SWING OUT	
Max. capacity		104 x 5 ml.		4 x 250 ml.		6 x 250 ml.		4 x 750 ml.		4 x 1.000 ml.		12/8/4 microtiter		10/6/2/2 microtiter	
RPM Max.		3.800		4.200		2.500		3.700		4.000		3.700		4.500	
Radius (mm)		160		202		212		204		205		182 (3)		166	
RCF Max. (xg)		2.583		3.984		1.481		3.122		3.667		2.786		3.758	
Min. temp. at max. speed (°C)		0		1		-5		0		2		-4		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.
1.000 ml.	ø111x128	-	-	-	-	-	-	-	-	4	-	-	-	-	-
750 ml.	ø96 x 130	-	-	-	-	-	-	4	RE 434	4	RE 522	-	-	-	-
500 ml.	ø90 x 120	-	-	-	-	-	-	4	RE 310	4	(5)	-	-	-	-
250 ml.	ø60 x 135	-	-	4	RE 449	6	RE 530	4	RE 330	4	RE 543	-	-	-	-
250 ml. conical	ø 60 x 145	-	-	4	RE 593	6	RE 608	4	RE 592	4	RE 607	-	-	-	-
100 ml.	ø48 x 100	-	-	4	RE 327	6	RE 558	4	RE 409	12	RE 544	-	-	-	-
85 ml. (hs) / 80 ml. (hs)	ø38 x 112	-	-	4	RE 498	6	RE 559	12	RE 500	20	RE 590	-	-	-	-
80 ml.	ø44 x 100	-	-	4	RE 422	6	RE 560	8	RE 352	12	RE 557	-	-	-	-
50 ml.	ø34 x 100	-	-	4	RE 334	6	RE 561	16	RE 317	24	RE 545	-	-	-	-
50 ml. conical	ø29 x 117	-	-	4	RE 340	6	RE562	20	RE 472	32	RE 546	-	-	-	-
30 ml. / 30 ml. (hs)	ø25 x 98	-	-	12	RE 312	18	RE 563	24	RE 322	40	RE 547	-	-	-	-
25 ml. conical	ø29 x 83	-	-	4	RE 612	6	RE 616	20	RE 614	32	RE 615	-	-	-	-
15 ml.	ø16 x 100	-	-	28	RE 376	42	RE 564	80	RE 625	112	RE 627	-	-	-	-
15 ml. conical	ø17 x 122	-	-	20	RE 321	30	RE 565	52	RE 347	76	RE 548	-	-	-	-
15 ml. blood sample	ø16 x 132	-	-	28	RE 376	42	RE 564	32	RE 441	48	RE 591	-	-	-	-
10 ml.	ø13 x 100	104	RE 309	40	RE 343	60	RE 566	100	RE 354	168	RE 552	-	-	-	-
10 ml. blood sample	ø16 x 107	-	-	28	RE 376	42	RE 564	80	RE 625	112	RE 627	-	-	-	-
7/10 ml. blood sample	ø13 x 107	104	RE 309	28	RE 324	42	RE 567	92	RE 624	128	RE 626	-	-	-	-
5 ml.	ø13 x 75	104	-	40	RE 343	60	RE 566	100	RE 354	168	RE 552	-	-	-	-
5 ml. blood sample	ø13 x 82	104	-	28	RE 324	42	RE 567	92	RE 624	128	RE 626	-	-	-	-
Microtubes 1,5-2 ml.	ø11x42	-	-	24	RE 440	36	RE 569	72	RE 426	132	RE 554	144	RE 460	72	RE 401
Microtubes 0,5-0,6 ml.	ø8x30	-	-	24	RE 523	36	RE 570	72	RE 466	132	RE 555	144	RE 584	72	RE 580
Microtubes 0,2-0,4 ml.	ø6x45	-	-	24	RE 458	36	RE 571	72	RE 524	132	RE 556	144	RE 585	72	RE 581
Microtiter plates	128x86x15/21/45	-	-	-	-	-	-	12/8/4	RE 307	20/12/4	RE 589	12/8/4	-	10/6/2	-
Microtiter plates (h:80 mm)	128x86x80	-	-	-	-	-	-	-	-	4	RE 589	-	-	2	-

(1) This rotor can be supplied with hermetic lids (RE 356)
(2) This rotor can fit adapters for blood bags (RE 308)
(3) Medium radius on bucket.
(4) Allows different configurations depending of the microplates height.
(5) RE 541 for 4 x 500 ml. (80x131 mm), only for plastic bottles.
(6) Available **RT 301** for 104 x 7/10 ml. bs and 10 ml.
(7) This rotor can be supplied with hermetic lids (RE 572).

												HIGH SPEED			
		RT 283		RT 280		RT 281		RT 282		RT 287		RT 292			
		(1)(2)	(4)												
ROTOR		SWING OUT		ANGLE FIXED 45 °		ANGLE FIXED 45 °		ANGLE FIXED 30 °		ANGLE FIXED 45 °		ANGLE FIXED 30 °			
Max. capacity		4 blood bags		8 x 50 ml.		4 x 100 ml.		4 x 250 ml.		30 x 1,5-2 ml.		6 x 85 ml			
RPM Max.		3.700		6.000		5.600		4.700		14.300		9.000			
Radius (mm)		204		149		138		153		96		112			
RCF Max. (xg)		3.122		5.997		4.838		3.779		21.948		10.142			
Min. temp. at max. speed (°C)		0		0		-1		-4		-1		1			
SAMPLE VOLUME	Dim (mm) approx.	ADAPTERS Tubes	Ref.	ADAPTERS Tubes	Ref.	ADAPTERS Tubes	Ref.	ADAPTERS Tubes	Ref.	ADAPTERS Tubes	Ref.	ADAPTERS Tubes	Ref.		
1.000 ml.	ø110 x 122	-	-	-	-	-	-	-	-	-	-	-	-		
750 ml.	ø96 x 130	4	RE 434	-	-	-	-	-	-	-	-	-	-		
500 ml.	ø90 x 120	4	RE 310	-	-	-	-	-	-	-	-	-	-		
250 ml.	ø60 x 135	4	RE 330	-	-	-	-	4	RE 449	-	-	-	-		
250 ml. conical	ø 60 x 145	4	RE 592	-	-	-	-	4	RE 593	-	-	-	-		
100 ml.	ø48 x 100	4	RE 409	-	-	4	RE 446	4	RE 327	-	-	-	-		
85 ml. (hs) / 80 ml. (hs)	ø38 x 112	12	RE 500	-	-	4	RE 380	4	RE 498	-	-	6	-		
80 ml.	ø44 x 100	8	RE 352	-	-	4	RE 338	4	RE 422	-	-	-	-		
50 ml.	ø34 x 100	16	RE 317	8	RE 448	4	RE 335	4	RE 334	-	-	6	RE 490		
50 ml. conical	ø29 x 117	20	RE 472	8	RE 375	4	RE 341	4	RE 340	-	-	6	RE 483		
30 ml. / 30 ml. (hs)	ø25 x 98	24	RE 322	8	RE 370	4	RE 332	12	RE 312	-	-	6	RE 493		
25 ml. conical	ø29 x 83	20	RE 614	8	RE 599	4	RE 597	4	RE 612	-	-	6	RE 600		
15 ml.	ø16 x 100	80	RE 625	8	RE 369	16	RE 316	28	RE 376	-	-	18	RE 485		
15 ml. conical	ø17 x 122	52	RE 347	8	RE 369	4	RE 339	20	RE 321	-	-	6	RE 484		
15 ml. blood sample	ø16 x 132	32	RE 441	8	RE 369	-	-	28	RE 376	-	-	-	-		
10 ml.	ø13 x 100	100	RE 354	24	RE 366	20	RE 320	40	RE 343	-	-	30	RE 497		
10 ml. blood sample	ø16 x 107	80	RE 625	8	RE 369	16	RE 316	28	RE 376	-	-	18	RE 485		
7/10 ml. blood sample	ø13 x 107	92	RE 624	8	RE 373	20	RE 320	28	RE 324	-	-	18	RE 503		
5 ml.	ø13 x 75	100	RE 354	24	RE 366	20	RE 320	40	RE 343	-	-	30	RE 501		
5 ml. blood sample	ø13 x 82	92	RE 624	8	RE 373	20	RE 320	28	RE 324	-	-	18	RE 492		
Microtubes 1,5-2 ml.	ø11x42	72	RE 426	24	RE 465	20	RE 408	24	RE 440	30	-	24	RE 494		
Microtubes 0,5-0,6 ml.	ø8x30	72	RE466	24	RE 535	20	RE 519	24	RE 523	30	RE 428	24	RE 495		
Microtubes 0,2-0,4 ml.	ø6x45	72	RE 524	24	RE 526	20	RE 473	24	RE 458	30	RE 427	24	RE 496		
Microtiter plates	128x86x15/21/45	12/8/4	RE 307	-	-	-	-	-	-	-	-	-	-		
Microtiter plates (h:80 mm)	128x86x80	-	-	-	-	-	-	-	-	-	-	-	-		

ROLLING TABLE

Centrifuges accessories

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

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

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

A solution for each type of need.

References

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

Centrifuges accessories: Rolling table

MAGNUS 22

3 YEAR WARRANTY

IVD CE

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

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

Features

TFT color touch screen, visible from more than 3 m.:

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

Easy to use

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

Max. Capacity
4 x 750 ml

Max. Speed
21.948 xg / 14.300 RPM

Screen Type
TFT

Version
✓ Ventilated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 2017/746/EU.
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

Safety

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 230	530	640	870	116	220-230	50-60	700
CE 231	530	640	870	116	110-120	50-60	700

*IVD version available, please indicate it in your request

MAGNUS 22 R

3 YEAR WARRANTY

IVD CE

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

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

Features

TFT color touch screen, visible from more than 3 m.:

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

Easy to use

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

Max. Capacity 4 x 750 ml

Max. Speed 21.948 xg / 14.300 RPM

Screen Type TFT

Version ✓ Refrigerated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 2017/746/EU.
Regulation n°: (EC) 1005/2009, (EU) 517/2014.
Standards: EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

Safety

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

Refrigeration

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 236	530	640	870	137	220-230	50	1000
CE 237	530	640	870	137	110-120	60	1000

*IVD version available, please indicate it in your request

Floor standing centrifuges: Series Magnus 22

Accessories centrifuge Series Magnus 22
- Rotors & adapters

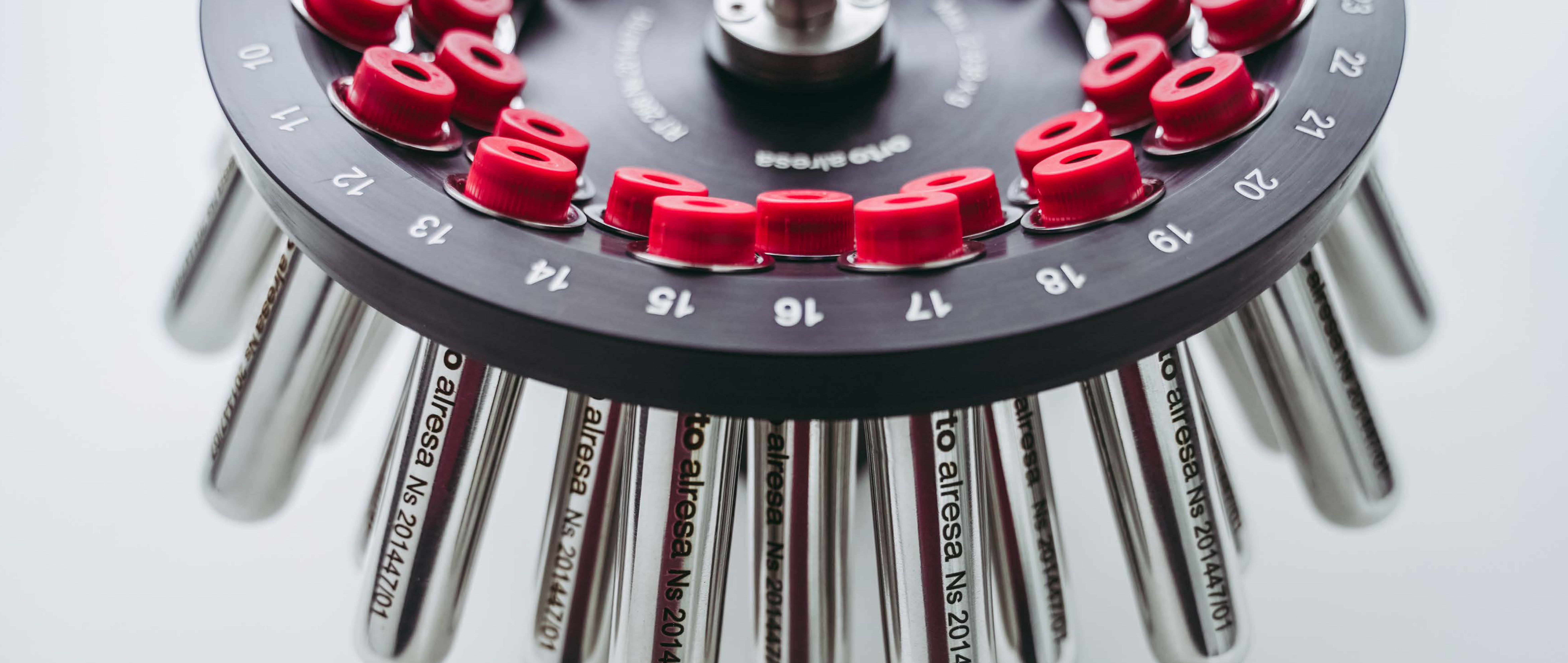
MICROTITER PLATES

		RT 279		RT 278		RT 299		RT 277		RT 284		RT 297		RT 283	
		(6)						(1)(4)		(4)		(4)(5)		(1)(2)(4)(5)	
ROTOR		SWING OUT		SWING OUT		SWING OUT		SWING OUT		SWING OUT		SWING OUT		SWING OUT	
Max. capacity		104 x 5 ml.		4 x 250 ml.		6 x 250 ml.		4 x 750 ml.		12/8/4 microtiter		10/6/2/2 microtiter		4 blood bags	
RPM Max.		3.800		4.200		2.500		3.700		3.700		4.500		3.700	
Radius (mm)		160		202		212		204		182 (3)		166		204	
RCF Max. (xg)		2.583		3.984		1.481		3.122		2.786		3.758		3.122	
Min. temp. at max. speed (°C)		0		1		-5		0		-4		4		0	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**
750 ml.	ø96 x 130	-	-	-	-	-	-	4	RE 434	-	-	-	-	4	RE 434
500 ml.	ø90 x 120	-	-	-	-	-	-	4	RE 310	-	-	-	-	4	RE 310
250 ml.	ø60 x 135	-	-	4	RE 449	6	RE 530	4	RE 330	-	-	-	-	4	RE 330
250 ml. conical	ø 60 x 145	-	-	4	RE 593	6	RE 608	4	RE 592	-	-	-	-	4	RE 592
100 ml.	ø48 x 100	-	-	4	RE 327	6	RE 558	4	RE 409	-	-	-	-	4	RE 409
85 ml. (hs) / 80 ml. (hs)	ø38 x 112	-	-	4	RE 498	6	RE 559	12	RE 500	-	-	-	-	12	RE 500
80 ml.	ø44 x 100	-	-	4	RE 422	6	RE 560	8	RE 352	-	-	-	-	8	RE 352
50 ml.	ø34 x 100	-	-	4	RE 334	6	RE 561	16	RE 317	-	-	-	-	16	RE 317
50 ml. conical	ø29 x 117	-	-	4	RE 340	6	RE562	20	RE 472	-	-	-	-	20	RE 472
30 ml. / 30 ml. (hs)	ø25 x 98	-	-	12	RE 312	18	RE 563	24	RE 322	-	-	-	-	24	RE 322
25 ml. conical	ø29 x 83	-	-	4	RE 612	6	RE 616	20	RE 614	-	-	-	-	20	RE 614
15 ml.	ø16 x 100	-	-	28	RE 376	42	RE 564	80	RE 625	-	-	-	-	80	RE 625
15 ml. conical	ø17 x 122	-	-	20	RE 321	30	RE 565	52	RE 347	-	-	-	-	52	RE 347
15 ml. blood sample	ø16 x 132	-	-	28	RE 376	42	RE 564	32	RE 441	-	-	-	-	32	RE 441
10 ml.	ø13 x 100	104	RE 309	40	RE 343	60	RE 566	100	RE 354	-	-	-	-	100	RE 354
10 ml. blood sample	ø16 x 107	-	-	28	RE 376	42	RE 564	80	RE 625	-	-	-	-	80	RE 625
7/10 ml. blood sample	ø13 x 107	104	RE 309	28	RE 324	42	RE 567	92	RE 624	-	-	-	-	92	RE 624
5 ml.	ø13 x 75	104	-	40	RE 343	60	RE 566	100	RE 354	-	-	-	-	100	RE 354
5 ml. blood sample	ø13 x 82	104	-	28	RE 324	42	RE 567	92	RE 624	-	-	-	-	92	RE 624
Microtubes 1,5-2 ml.	ø11x42	-	-	24	RE 440	36	RE 569	72	RE 426	144	RE 460	72	RE 401	72	RE 426
Microtubes 0,5-0,6 ml.	ø8x30	-	-	24	RE 523	36	RE 570	72	RE 466	144	RE 584	72	RE 580	72	RE 466
Microtubes 0,2-0,4 ml.	ø6x45	-	-	24	RE 458	36	RE 571	72	RE 524	144	RE 585	72	RE 581	72	RE 524
Microtiter plates	128x86x15/21/45	-	-	-	-	-	-	12/8/4	RE 307	12/8/4	-	10/6/2	-	12/8/4	RE 307
Microtiter plates (h:80 mm)	128x86x80	-	-	-	-	-	-	-	-	-	-	2	-	-	-

(1) This rotor can be supplied with hermetic lids (RE 356).
(2) This rotor can fit adapters for blood bags (RE 308).
(3) Medium radius on bucket.
(4) Allows different configurations depending on the microplates height.
(5) Only available for refrigerated models.
(6) Available **RT 301** for 104 x 7/10 ml. bs and 10 ml.

HIGH SPEED

		RT 280		RT 281		RT 282		RT 287		RT 292	
ROTOR		ANGLE FIXED 45 °		ANGLE FIXED 45 °		ANGLE FIXED 30 °		ANGLE FIXED 45 °		ANGLE FIXED 30 °	
Max. capacity		8 x 50 ml.		4 x 100 ml.		4 x 250 ml.		30 x 1,5-2 ml.		6 x 85 ml	
RPM Max.		6.000		5.600		4.700		14.300		9.000	
Radius (mm)		149		138		153		96		112	
RCF Max. (xg)		5.997		4.838		3.779		21.948		10.142	
Min. temp. at max. speed (°C)		0		-1		-4		-1		1	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**	**ADAPTERS Tubes**	**Ref.**
750 ml.	ø96 x 130	-	-	-	-	-	-	-	-	-	-
500 ml.	ø90 x 120	-	-	-	-	-	-	-	-	-	-
250 ml.	ø60 x 135	-	-	-	-	4	RE 449	-	-	-	-
250 ml. conical	ø 60 x 145	-	-	-	-	4	RE 593	-	-	-	-
100 ml.	ø48 x 100	-	-	4	RE 446	4	RE 327	-	-	-	-
85 ml. (hs) / 80 ml. (hs)	ø38 x 112	-	-	4	RE 380	4	RE 498	-	-	6	-
80 ml.	ø44 x 100	-	-	4	RE 338	4	RE 422	-	-	-	-
50 ml.	ø34 x 100	8	RE 448	4	RE 335	4	RE 334	-	-	6	RE 490
50 ml. conical	ø29 x 117	8	RE 375	4	RE 341	4	RE 340	-	-	6	RE 483
30 ml. / 30 ml. (hs)	ø25 x 98	8	RE 370	4	RE 332	12	RE 312	-	-	6	RE 493
25 ml. conical	ø 29 x 83	8	RE 599	4	RE 597	4	RE 612	-	-	6	RE 600
15 ml.	ø16 x 100	8	RE 369	16	RE 316	28	RE 376	-	-	18	RE 485
15 ml. conical	ø17 x 122	8	RE 369	4	RE 339	20	RE 321	-	-	6	RE 484
15 ml. blood sample	ø16 x 132	8	RE 369	-	-	28	RE 376	-	-	-	-
10 ml.	ø13 x 100	24	RE 366	20	RE 320	40	RE 343	-	-	30	RE 497
10 ml. blood sample	ø16 x 107	8	RE 369	16	RE 316	28	RE 376	-	-	18	RE 485
7/10 ml. blood sample	ø13 x 107	8	RE 373	20	RE 320	28	RE 324	-	-	18	RE 503
5 ml.	ø13 x 75	24	RE 366	20	RE 320	40	RE 343	-	-	30	RE 501
5 ml. blood sample	ø13 x 82	8	RE 373	20	RE 320	28	RE 324	-	-	18	RE 492
Microtubes 1,5-2 ml.	ø11x42	24	RE 465	20	RE 408	24	RE 440	30	-	24	RE 494
Microtubes 0,5-0,6 ml.	ø8x30	24	RE 535	20	RE 519	24	RE 523	30	RE 428	24	RE 495
Microtubes 0,2-0,4 ml.	ø6x45	24	RE 526	20	RE 473	24	RE 458	30	RE 427	24	RE 496
Microtiter plates	128x86x15/21/45	-	-	-	-	-	-	-	-	-	-
Microtiter plates (h:80 mm)	128x86x80	-	-	-	-	-	-	-	-	-	-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Centrifuges for
SPECIAL APPLICATIONS

Centrifuges came out of laboratories and are now part of the production processes. This has resulted in them being present in highly different environments such as kitchens, operating rooms, power plants or in recovery centers of endangered and threatened species.

In this section, you will find equipment for these types of applications that have a common characteristic: They follow specific standardised processes and the type of sample support is defined in the regulations they follow For any question about the tubes considered frequent, please refer to our chart on page 22.

Thus, we find applications that require butyrometers, such as for determination of fat in dairy products, others that require capillary tubes, such as for the determination of the microhematocrit values, others that require tubes compliant with ASTM regulations for cylindrical-conical tubes measuring 6", 8", etc.

Nevertheless, this diversity of applications still allows us to make a second division in our line of "special applications": centrifuges for industrial applications and centrifuges for life sciences applications.

Centrifuges for industrial applications:

- Digtor 22 C, Digtor 22 C-U (unheated) and Digtor 22 C-8: designed for determining water and sediments in oil.
- Lacter 21: determination of fat in dairy products by the Gerber method.

Centrifuges for life sciences applications:

- Cyto 22: fine layered centrifugation.
- Plasma 22: platelet concentrates for tissue regeneration.
- Digtor 22 Col: adipose tissue concentrates for aesthetic applications.
- Vetcen: analysis in small veterinary clinics.

LACTER 21

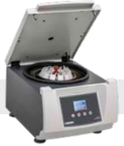
DIGTOR 22 C

DIGTOR 22 C-U

DIGTOR 22 C-8

INDUSTRIAL APPLICATIONS

VETCEN



CYTO 22

PLASMA 22

DIGTOR 22 COL

LIFE SCIENCES APPLICATIONS

LACTER 21

3 YEAR WARRANTY

CE

The centrifuge Lacter has been designed for the handling of dairy products such as milk, cheese, cream, yogurt and its derivates easily and accurately

Its design allows it to process Gerber or solubility tubes. It has 16 programs that allow to store the parameters to analyse samples of different types of animals reducing the processing time.

The smooth operation prolongs the tubes life and prevents their breakage. The simultaneous and automatic conversion of RPM/FCR values eliminates additional calculations and the heating system ensures temperature traceability throughout the process.

Features

LCD screen:
- Shows RPM and RCF, time, temperature and acceleration/deceleration (PCBS).
- Speed programming in 10 RPM/ 10 xg steps.
- Count up/down from "0" or at "set RPM/RCF" for reproducible tests.
- Timer: from 5 sec. to 99 minutes or from 1 min. to 99 hours and indefinite time.
- PCBS: Progressive controlled braking system up to 175 selectable ramps that prevents sample homogenization after separation.
- 16 programmable memories.
- Acoustic and visual messages showing the status of the equimpent to the user.

Easy to use

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

Safety

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

Max. Capacity
12 Butyrometers

Max. Speed
398 xg / 1.600 RPM

Screen Type
LCD

Version
✓ Heated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU.
Standards: EN 61010-1, EN 61010-2-020, EN 61010-2-101, EN 61326-2-6, EN 61326-1, EN 61010-2-010.

Heating

- Preheating program with rotor spinning and selectable temperature. It allows keeping the chamber at working temperature before starting the process.
- Regulation of the room temperature +5°C (41°F) to 80°C (176°F) in 1°C/1°F steps. Programmable in °C o °F.
- Temperature sensor inside the chamber. Overheating protection.
- Internal isolated avoiding heat loss.

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 158	410	520	380	41	220-230	50-60	500
CE 159	410	520	380	41	110-120	50-60	500

Accessories:

		RT 240	RT 241
ROTOR		ANGLE FIXED 20 °	ANGLE FIXED 20 °
Max. capacity		8 tests	12 tests
RPM Max.		1600	1600
Radius (mm)		139	139
RCF Max. (xg)		398	398
Butyrometers	Butyrometers max. dimensions (mm) are 25 x 212	8	12

Industrial appl. centrifuges: Lacter 21

DIGTOR 22 C

3 YEAR WARRANTY

With capacity for 4 tubes of 8", 6", trace and 28 "finger" tubes. Versatile and effective, the best option out of all the centrifuges for oil applications.

Features

- Designed for oil/petrol applications according the standards: ASTM D 91, D96, D 893, D 1796, D2273, D2709, D 2711, D 4007, D 5546, API 2542, API 2548, BS 4385, ISO 3734, ISO 9030, IP75, IP 359, NF M07-020, DIN 51793. Fits Babcock bottles.
- Tubes upright on rest.
- GRS: Gas release system (optional); pre-installation included.

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

Easy to use

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

Safety

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

Max. Capacity 4 x 100 ml (8"/6")

Max. Speed 2.425 xg / 3.000 RPM

Screen Type TFT

Version Heated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU.
Standards: EN 61010-1, EN 61010-2-020, EN 61010-2-101, EN 61326-2-6, EN 61326-1, EN 61010-2-010.

Heating

- Preheating program with rotor spinning and selectable temperature. It allows keeping the chamber at working temperature before starting the process.
- Regulation of the room temperature +5°C (41°F) to 80°C (176°F) in 1°C/1°F steps. Programmable in °C o °F.
- Temperature sensor inside the chamber. Overheating protection.
- Internally isolated avoiding heat loss.

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 238	530	640	420	77	220-230	50-60	1.200
CE 239	530	640	420	77	110-120	50-60	1.200

Accessories

		RT 293		RT 289	
ROTOR		SWING OUT		SWING OUT	
Max. capacity		4x100 ml. (8/6")		4x100 ml. (8")	
RPM Max.		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 44-46x162-167	4	RE 475	-	-
ASTM pear shape	Ø 58-59x157-160	4	RE 477	-	-
ASTM trace/cone 8"	Ø 36-38x195-203	4	RE 476	4	-
API finger 12,5 ml	Ø 16x105	28	RE 456	4	RE 455
API finger 12,5 ml	Ø 16x105	-	-	16	RE 454

Available tubes, check tube features at pag. 22 of the general catalogue.
Check the max. RCF allowed for your ASTM tubes. Max. RCF supported by our ASTM tubes 850 xg.

Industrial appl. centrifuges: Series Digtor 22 C

DIGTOR 22 C-U

3 YEAR WARRANTY

The most affordable option in the range of centrifuges for oil laboratories that, due to regulations, do not require heating. It has the same accessories as the heated models, all of them are especially designed for working with oily substances as well as the reagents used in regulations applicable with oil.

Effective, quick, versatile, allowing you to work with 6" and 8" conical profile tubes, pear type tubes and "finger" type tubes for small volumes. It has a pre-installation for incorporating a gas release system at any time during the life of the equipment.

Features

- Designed for oil/petrol applications according the standards: ASTM D 91, D 893, D 2273, D 2709, D 5546, API 2542, API 2548, BS 4385, DIN 51793.
- Tubes upright on rest.
- GRS: Gas release system (optional); pre-installation included.

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

Easy to use

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

Max. Capacity
4 x 100 ml (8/6")

Max. Speed
2.425 xg / 3.000 RPM

Screen Type
TFT

Version
Ventilated

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

Safety

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 242	530	640	420	74	220-230	50-60	440
CE 243	530	640	420	74	110-120	50-60	440

Accessories

		RT 293		RT 289	
ROTOR		SWING OUT		SWING OUT	
Max. capacity		4x100 ml. (8/6")		4x100 ml. (8")	
RPM Max.		3.000		3.000	
Radius (mm)		241		241	
RCF Max. (xg)		2.425		2.425	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS**		**ADAPTERS**	
		Tubes	**Ref.**	**Tubes**	**Ref.**
ASTM cone shape 6"	Ø 44-46x162-167	4	RE 475	-	-
ASTM pear shape	Ø 58-59x157-160	4	RE 477	-	-
ASTM trace/cone 8"	Ø 36-38x195-203	4	RE 476	4	-
API finger 12,5 ml	Ø 16x105	28	RE 456	4	RE 455
API finger 12,5 ml	Ø 16x105	-	-	16	RE 454

Available tubes, check tube features at pag. 22 of the general catalogue.

Check the max. RCF allowed for your ASTM tubes. Max. RCF supported by our ASTM tubes 850 xg.

Industrial appl. centrifuges: Series Digtor 22 C

DIGTOR 22 C-8

3 YEAR WARRANTY

The largest of our centrifuges for oil, with capacity for 8 tubes of 8", the best option for centres that carry out a large number of tests every day.

Features

- Designed for oil/petrol applications according the standards: ASTM D 91, D96, D 893, D 1796, D2273, D2709, D 2711, D 4007, D 5546, API 2542, API 2548, BS 4385, ISO 3734, ISO 9030, IP75, IP 359, NF M07-020, DIN 51793. Fits Babcock bottles.
- Tubes upright on rest.
- GRS: Gas release system (optional); pre-installation included.

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

Easy to use

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

Safety

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

Max. Capacity
8 x 100 ml (8/6")

Max. Speed
2.425 xg / 3.000 RPM

Screen Type
TFT

Version
Heated

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU.
Standards: EN 61010-1, EN 61010-2-020, EN 61010-2-101, EN 61326-2-6, EN 61326-1, EN 61010-2-010.

Heating

- Preheating program with rotor spinning and selectable temperature. It allows keeping the chamber at working temperature before starting the process.
- Regulation of the room temperature +5°C (41°F) to 80°C (176°F) in 1°C/1° F steps. Programmable in °C o °F.
- Temperature sensor inside the chamber. Overheating protection.
- Internally isolated avoiding heat loss.

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 240	530	640	420	77	220-230	50-60	1.450
CE 241	530	640	420	77	110-120	50-60	1.450

Accessories

		RT 293		RT 289		RT 294	
ROTOR		SWING OUT		SWING OUT		SWING OUT	
Max. capacity		4x100 ml. (8/6")		4x100 ml. (8")		8x100 ml. (8/6")	
RPM Max.		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 44-46x162-167	4	RE 475	-	-	8	-
ASTM pear shape	Ø 58-59x157-160	4	RE 477	-	-	-	-
ASTM trace/cone 8"	Ø 36-38x195-203	4	RE 476	4	-	8	RE 478
API finger 12,5 ml	Ø 16x105	28	RE 456	4	RE 455	-	-
API finger 12,5 ml	Ø 16x105	-	-	16	RE 454	16	RE 454

Available tubes, check tube features at pag. 22 of the general catalogue.
Check the max. RCF allowed for your ASTM tubes. Max. RCF supported by our ASTM tubes 850 xg.

Industrial appl. centrifuges: Series Digtor 22 C

GAS RELEASE SYSTEM

Accessories for centrifuge series Digtor 22 C

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

Centrifugation processes for the determination of water and sediment in petroleum, require an organic solvent which, reacting with the sample and the 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 the GRS (Gas Release System) as an accessory for all of the Digtor 22 C series centrifuges. This accessory creates low pressure intake or vacuum suction, inside the centrifuge chamber, concretely on its top, when locked, that allows the suction of the 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, that will manage the right moment to operate the system. Moreover, it only requires 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.

Easy to use

- 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 consumption.

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU.
Standards: EN 61010-1, EN 61010-2-020, EN 61326-1,EN 61010-2-010.

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CP 001	140	220	120	2	220-240	50-60	20
CP 004	140	220	120	2	110-120	50-60	20

ROLLING TABLE

Accessories for centrifuge series Digtor 22 C

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

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

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

A solution for each type of need.

References

	Dimensions (mm) (w x d x h)			Net weight (kg)	Centrifuge model
CP 007	560	590	580	65	Series Digtor 22 C

VETCEN

3 YEAR WARRANTY

CE

Small, compact and ideal for applications in veterinary laboratories where the number of samples is small and different types of tubes need to be processed simultaneously. It has a rotor for microtubes and capillary tubes in the same cycle.

Features

• Multitubes rotor that allows spin capillary tubes and microtubes in the same run.
LED screen:
• Shows RPM/ RCF and time.
• Speed programming in 50 RPM/ 10 xg steps.
• Count up/down from "0" or at "set RPM/RCF" for reproducible tests.
• Timer from 1 to 99 min. programmable in 1 min. steps and hold position.
• Deceleration control in 3 steps: fast, soft and free.
• Acoustic and visual messages on screen showing the status of the equipment to the user.

Easy to use

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

Safety

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

Max. Capacity
6 x 1,5-2 ml + 6 x 1,5x75 mm

Max. Speed
12.716 xg / 11.500 RPM

Screen Type
LED

Version
✓ Ventilated

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 160	270	400	270	16	220-230	50-60	320
CE 177	270	400	270	16	110-120	50-60	320

Accessories

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

CYTO 22

PULL to **Remove**

3 YEAR WARRANTY

IVD CE

Our cytocentrifuge is designed for the concentration of biological samples on a visible surface for the microscope and its subsequent identification and characterisation.
Its accessories, provided with the REI system (Rotor Easy to Install) are securely installed on the rotor without the need for tools, and are unlocked by simply removing them from their position.

For improved traceability, it has a connectivity system that allows the user to access the centrifuge from the device of their choice; PC, tablet and mobile phone thanks to the free Ortoalresa SmartConnect app. Just connect it to your laboratory's WiFi network and you will be able to manage and monitor your equipment from our app. (+ info on page 58).

Easy to handle, it reduces the operating time, an indispensable feature in oncology, cytology and microbiology services.

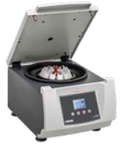
Features

- Sealed holders which prevent the leak of the sample, easy to use.
- Fast identification of microorganism.
- Allows cells detection even in low concentrated liquids.
- Processing time <15 min.
- Alarm to prevent the drying of the samples every 20 seconds.
- Available rotors for tubes (check Digicen 22 accessories, pag. 56-57)

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

Easy to use

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



Max. Capacity 12 x 6 ml

Max. Speed 866 xg / 2.500 RPM

Screen Type TFT

Version ✓ Ventilated

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

Safety

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 261	410	530	320	35	220-230	50-60	400
CE 262	410	530	320	35	110-120	50-60	400

*IVD version available, please indicate it in your request

Accessories

RT 331

ROTOR	ANGLE FIXED
Max. capacity	12
RPM Max.	2.500
Radius (mm)	87
RCF Max. (xg)	607
EZ Single Cytofunnel™	12 x 0,1-0,5 ml
EZ Megafunnel™	12 x up to 6 ml
Cyto-Clips™	12

Rotors for tubes, microtubes, or plates available; check them on page 56.

Life sciences appl. centrifuges: Cyto 22

PLASMA 22

3 YEAR WARRANTY

IVD CE

The plasma concentration processes to obtain from fibrin clot to platelets by means of PRP (platelet-rich plasma) techniques, PRF (platelet-rich fibrin) and derivatives, make the Plasma 22 centrifuge indispensable. The simplicity of these processes erroneously gives the impression that the performance of the technique is not affected by the centrifugation process. Nothing could be more wrong; maximum performance will only be obtained with equipment that has been validated, and for which the operational parameters, beyond RPM, RCF and time, have been calculated for these processes. The Plasma 22 centrifuge has been developed together with experts in the development of these techniques and has approval for its development.

It maintains the cell structure of the phases for the application of each of the alternatives, ensuring its efficacy in the destination environment and avoiding interference of particles that impede adhesion.

Features

LCD screen:
- Shows RPM and RCF, time and acceleration/deceleration (PCBS).
- Speed programming in 10 RPM/ 10 xg steps.
- Count up/down from "0" or at "set RPM/RCF" for reproducible tests.
- Timer: from 5 sec. to 99 minutes or from 1 min. to 99 hours and indefinite time.
- PCBS: Progressive controlled braking system up to 175 selectable ramps that prevents sample homogenization after separation.
- 16 programmable memories.
- Several acoustic and visual messages showing the situation of the device to the user.

Easy to use

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

Max. Capacity 8 x 9/15 ml

Max. Speed 1.288 xg / 3.000 RPM

Screen Type LCD

Version ✓ Ventilated

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

Safety

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 156	270	400	270	19	220-240	50-60	120
CE 165	270	400	270	19	110-120	50-60	120

*IVD version available, please indicate it in your request

Accessories

RT 237

ROTOR		SWING OUT
Max. capacity		8 x 9/15 ml.
RPM Max.		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 blood sample	13x82	8	RE 474
7/10 ml blood sample	13x107	8	RE 620

DIGTOR 22 COL

3 YEAR WARRANTY

CE

Essential tool for fat processing, where the highest concentration of stem cells can be found, for liposculpture techniques and reparative surgery.

Features

- Available rotors for tubes (check Digtor 22 accessories, pag. 72-73)

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

Easy to use

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

Max. Capacity 4 x 60 ml

Max. Speed 1.801 xg / 3.000 RPM

Screen Type TFT

Version Ventilated

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

Safety

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

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
CE 204	530	640	400	73	220-230	50-60	460
CE 205	530	640	400	73	110-120	50-60	460

Accessories

RT 302

ROTOR		SWING OUT	
Max. capacity		4x60 ml	
RPM Max.		3.000	
Radius (mm)		179	
RCF Max. (xg)		1.801	
SAMPLE VOLUME	**Dim (mm) approx.**	**ADAPTERS** Tubes	Ref.
Syringes 60 ml. / 10 ml.	31x165 / 16x118	4 / 16	- / RE 438

Life sciences appl. centrifuges: Digtor 22 COL

Other
LABORATORY PRODUCTS

Other laboratory products

DISTILLERS

Ortoalresa's distillers allow obtaining distilled water from the water supply, with ideal characteristics for its use in other equipment and appropriate for laboratory use: reagents preparation, bacteriological cultures, final cleaning of glassware, etc.

Designed for applications according the standard: ASTM D 1193

Features

- Automatic distillers of continuous production and with water flow control.
- Stainless steel for the inner and the inner heater, stainless steel painted with epoxy for housing.
- Reduced size.
- Easily removable for its cleaning.
- High quality of distillation: obtains water of types III and IV (laboratory degree water)
- Conductivity at 20ºC: 1,5 microsiemens/ cm.
- Resistivity at 20ºC: 0,67 megaohms/ cm.
- PH outcoming water between 5-8 (DA 006) at 25º C.

Easy to use

- Control panel with general switch and light signals.
- Water in-put connection adjustable to the feed tube.
- Cooling water drain outlet connector adaptable to containers.

Safety

- Safety mechanism that disconnects the resistances in case of cooling water failure and connects them again when the cooling water recovers.
- Electric: earthed.
- Sealed with a silicone gasket.
- Safety system with hydraulic manager of temperature that protects the distiller in case of overheating.
- Optional accessory for limiting the flow of water optimizing the flow down to the necessary minimum.

EU Directives: 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/UE.
Standards: EN 61326-1, EN 61010-1.

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Power (W)	Capacity (l/h)	Refrigeration water (l/h)
DA 005	370	220	440	8	220	50-60	3.000	4	60
DA 006	370	260	640	14	220	50-60	6.000	8	84
DA 007	370	220	440	8	110	50-60	3.000	4	60

Accessories

	Description
PP 354	Plastic tank for 30 litres with tap.
PV 192	Flow water limiter DA 005/007
PV 193	Flow water limiter DA 006

Water purification

After the distillation process we obtain water with quality type III and IV, this depends directly on incoming water quality and other environmental factors.

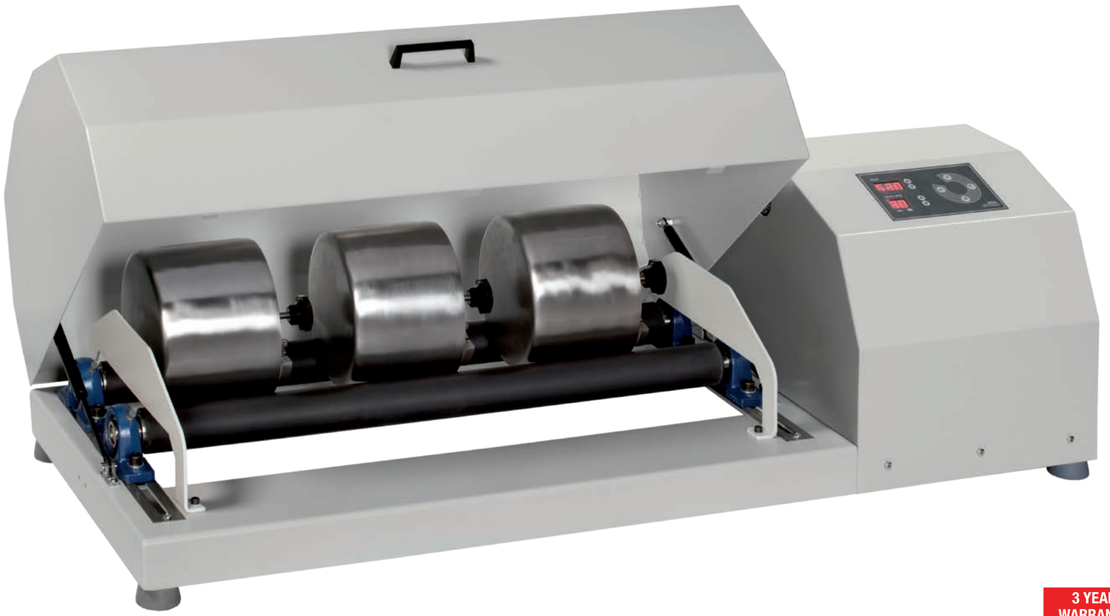
Below we show the effectiveness of the distillation process against different compounds and organisms:

Destillation

Pyrogen and virus	💧💧💧
Bacteria	💧💧💧
Particles	💧💧💧
Dissolved inorganic solutes	💧💧
Dissolved inorganic gases	💧💧
Dissolved organic	💧💧

💧💧💧 **Excelent** 💧💧 **Good** 💧 **Low**

BALL MILL



3 YEAR WARRANTY

CE

The ball mill splits the sample by using repeated 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 causing damage.
- Metal cover which has been proved to have high resistance.
- Light button of on/off.
- Stop plate.
- Timer from 1 to 99 min., programmable in 1 min. steps or hold position.

Easy to use

- Stop emergency button.
- Adjustable cylinders to adapt jars with different diameters.
- Useful length of the cylinders: 730mm
- Capacity: 1 jar of 15 liters, 2 jars of 5 liters, 3 jars of 3 liters, 4 jars of 1 liter.
- Jars available in alumina (92% purity) or stainless steel (AISI 304).
- 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: 2014/30/EU, 2014/35/UE , 2011/65/EU, 2012/19/UE.
Standards: EN 61010-1, EN 61010-2-051, EN 61010-2-101, EN 61326-1.

Accessories

Stainless steel jars (AISI 304)				Alumina jars (92% purity)		
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

Stainless steel balls (AISI 304)		Alumina balls (92% purity)	
	Diameter		Diameter
PI 058	15 mm. (1 kg. approx.)	PV 040	20 mm. (1 kg. approx.)
PI 059	20 mm. (1 kg. approx.)	PV 042	30 mm. (1 kg. approx.)
PI 060	30 mm. (1 kg. approx.)	-	-
PI 061	9 mm. (1 kg. approx.)	-	-

For an optimum milling, we recommend to fill the jars with the following proportions: leave 50% of the capacity empty, 25% of the capacity with balls and the remaining 25% with the product to be milled.

Versions

	Dimensions (mm) (w x d x h)			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
ML 007	1230	490	350	72	230 - 220	50-60	150
ML 008	1230	490	350	72	120 - 110	50-60	150

SIEVE SHAKER & SIEVES

3 YEAR WARRANTY

CE

The analytic sieve shaker OASS203 is designed to obtain reproducible results in accordance with the standard ISO 9001 for measurement and control equipment. It is an essential device for research laboratories and for quality assessment in any type of industries for 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.

Our sieve shakers comply with the UNE-EN 932-5 standard regarding tests to determine the general properties of aggregates.

Features

- LCD Screen.
- Capacity up to 6 kg of sample.
- Three-dimensional movement, vibrating sieve shaker.
- Maximum movement amplitude 3 mm.
- It allows wet and dry sieving.
- It is controlled by a microprocessor.
- Max. capacity: 8 sieves of 50 mm of high or 15 of 25 mm of high.
- Includes standard lock system and cover, easy to assemble.

Easy to use

- Adjustment of the sieve power (100% corresponds to 7.500 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.
- Timer from 10 sec. to 99 min. programmable in 10 sec. steps and hold position.
- Adjustable by intervals from 1 to 99 seconds.

Safety

- Extremely silent. It has the least noise level on the market.
- Metal cover. It is tough and stable.
- Electric protection with ground connection and fuses.

Accessories

- Sieves of stainless steel AISI 304 for the ring, AISI 316 for mesh and AISI 304 for perforated plate. With sealing gasket and marked with indelible laser.
- Sieves diameters available: check accessories table.
- Max. capacity: 8 sieves of 50 mm of high or 15 of 25 mm of high.
- Range of particle sizes which can be analyzed: from 40 µ to 125 mm .
- The calibration certificate is available.

EU Directives: 2014/30/UE, 2014/35/UE, 2011/65/UE, 2012/19/UE.
Standards: EN 61010-1, EN 61326-1.

Versions

	Dimensions (mm) (w x d x h)*			Net Weight (Kg)	Voltage (V)	Frequency (Hz)	Consumption (W)
TA 005	270	380	270	19	220-240	50-60	120
TA 006	270	380	270	19	110-120	50-60	120

*Sieve shaker height with maximum sieves capacity: 750 mm

Other laboratory products: Sieve Shaker

Accessories
Sieves

Available dimensions: Ø 200 x 50 mm; Ø 200 x 25 mm; Ø 100 x 50 mm; 8" x 2" (Ø 203 x 50 mm); 8" x 1" (Ø 203 x 25 mm). For further mesh dimensions, you can consult us at telf. +34 91 884 40 16 or at info@ortoalresa.com. Sieves of stainless steel AISI 304 for the frame, AISI 316 for the mesh and AISI 304 for the perforated plates.

Sieves of stainless steel of Ø 200 x 50 mm

Standard ISO 3310-2: Perforated plates sieves (AISI 304)	
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: Mesh sieves (AISI 316)	
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 435	0.025
*PI 384	0.020
PI 066	Receiver
PI 067	Cover
PI 351	Receiver for wet processing
PI 350	Cover for wet processing

Sieves of stainless steel of 8" x 2" (Ø 203 x 50 mm)

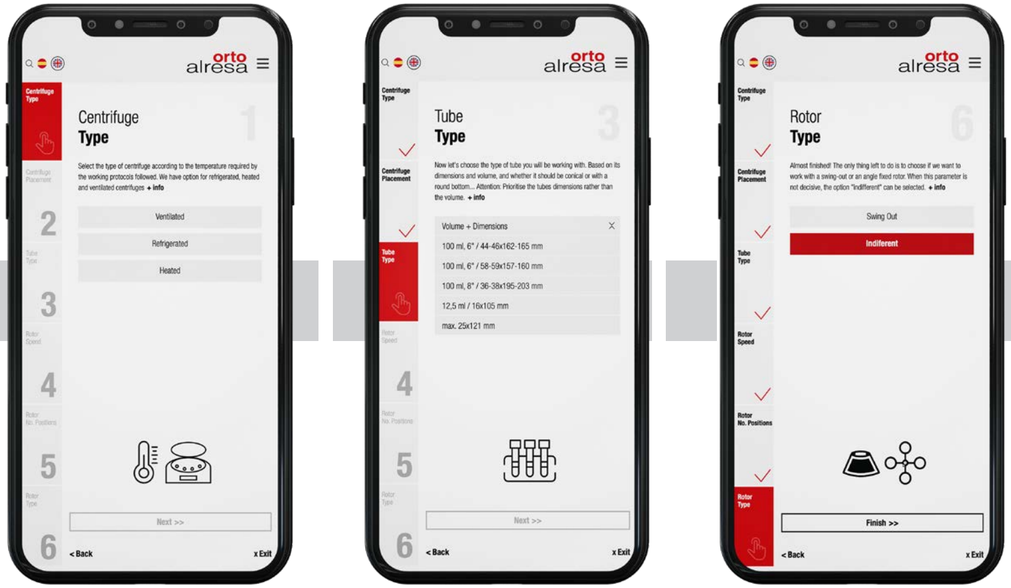
Standard ASTM E323: Perforated plates sieves (AISI 304)	
Code	Mesh
PI 150	5"
PI 151	4,24"
PI 152	4"
PI 153	3 ½"
PI 154	3"
PI 155	2 ½"
PI 156	2.12 "
PI 157	2"
PI 158	1 ¾"
PI 159	1 ½"
PI 160	1 ¼"
PI 161	1.06"
PI 162	1"
PI 163	7/8"
PI 164	¾"
PI 165	5/8"
PI 166	0.53"
PI 167	½"
PI 168	7/16"

Standard ASTM E11: Mesh sieves (AISI 316)	
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: Mesh sieves (AISI 316)	
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	Receiver
PI 221	Cover for wet processing
PI 235	Receiver for wet processing

*Sieves for air jet sieve shakers.

Equipment
CONFIGURATOR



We have developed this tool to help you configure your centrifuge based on your needs. We will ask you some simple questions that will allow us to offer you the best result adjusted to your work parameters.

Using this QR code you can directly access our online equipment configurator

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About centrifugation

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