

# orto alresa

Centrifuges and laboratory products

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General applications: Centrifuges high capacity

## DILITCEN 22 R

# DILITCEN 22 R

TFT



IVD CE

Centrifuges high capacity: Accessories Dilitcen 22 R

**Max. capacity:** 4 x 1000 ml.

**Max. speed:** 21.948 xg / 14.300 RPM

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 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, acceleration/deceleration values (PCBS) and unbalancing location system (ULS).
- Speed programming in 10 RPM/10 xg steps.
- Real RCF values on screen based in accessories configuration.
- Count up/down from "0" or at "set RPM/RCF" for test reproducibility.
- Timer countdown/up from "0" or at "set RPM/ RCF" for reproducible tests.
- Timer from 1 min 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: Unbalancing location system indicating on the screen the number of the bucket which produces the unbalance switch off.
- 40 programmable memories, with protection under password.
- Several acoustic and visual messages warning the user the device situation.

## Easy to use

- Microprocessor controlled. PC connection.
- Induction motor maintenance free (brushless).
- Rotors and adapters list on memory.
- Noise level: below 60 dB.
- Start, stop, open lid and short spin with adjustable speed buttons.
- Option of free/locked adjustment of RPM/ RCF along the run.
- Automatic open lid, programmable.
- 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 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

- Remains the refrigeration after centrifugation process.
- Precooling program with rotor spinning and temperature selectable.
- Guarantee 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).

**EU Directives:** 2011/65/EU, 2012/19/EU, 2014/30/EU, 2014/35/EU, 98/79/EC.

**Regulation n°:** (EC) 1005/2009, (EU) 517/2014.




**Standards:** EN 61010-1, EN 61010-2-101, EN 61010-2-020, EN 61326-2-6, EN 61326-1.

## Versions







|        | Dimensions<br>(mm)(w x d x h) |     |     | Net<br>weight<br>(Kg) | Voltage<br>(V) | Frecuency<br>(Hz) | Consumption<br>(W) | Z max<br>advisable<br>(Hz) |
|--------|-------------------------------|-----|-----|-----------------------|----------------|-------------------|--------------------|----------------------------|
| CE 221 | 720                           | 780 | 430 | 122                   | 220-230        | 50                | 1420               | <  0.446                   |
| CE 222 | 720                           | 780 | 430 | 122                   | 110-120        | 60                | 1050               | <  0.446                   |

## Accessories

### Centrifuge Dilicen 22 R

|                                  |                     | RT 279  |        | RT 278  |        | RT 299  |        | RT 277   |        | RT 265  |        | MICROTITER PLATES   |        |   |        |
|----------------------------------|---------------------|---|--------|---|--------|---|--------|--|--------|---|--------|---|--------|---|--------|
|                                  |                     |  (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 10 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)                      |                     | 185   |        | 202   |        | 212   |        | 204  |        | 205   |        | 182 (3)   |        | 166   |        |
| RCF Max. (xg)                    |                     | 2.987   |        | 3.984   |        | 1.481   |        | 3.122  |        | 3.667   |        | 2.786   |        | 3.758   |        |
| Min. temp.<br>at max. speed (°C) |                     | 0   |        | 1   |        | -5  |        | 0  |        | 2   |        | -4  |        | 4   |        |
| SAMPLE VOLUME                    | Dim (mm)<br>approx. | ADAPTERS<br>Tubes Ref.  |        | ADAPTERS<br>Tubes Ref.  |        | ADAPTERS<br>Tubes Ref.  |        | ADAPTERS<br>Tubes Ref.   |        | ADAPTERS<br>Tubes Ref.  |        | ADAPTERS<br>Tubes Ref.  |        | ADAPTERS<br>Tubes Ref.  |        |
| 1.000 ml.                        | ø110 x 135          | -   | -      | -   | -      | -   | -      | -  | -      | 4   | -      | -   | -      | -   | -      |
| 750 ml.                          | ø96 x 130           | -   | -      | -   | -      | -   | -      | 4  | RE 434 | 4   | RE 522 | -   | -      | -   | -      |
| 500 ml.                          | ø90 x 120           | -   | -      | -   | -      | -   | -      | 4  | RE 310 | 4   | (5)    | -   | -      | -   | -      |
| 250 ml.                          | ø62 x 135           | -   | -      | 4   | RE 449 | 6   | RE 530 | 4  | RE 330 | 4   | RE 543 | -   | -      | -   | -      |
| 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 | -   | -      | -   | -      |
| 15 ml.                           | ø16 x 100           | -   | -      | 28  | RE 376 | 42  | RE 564 | 72   | RE 348 | 112   | RE 551 | -   | -      | -   | -      |
| 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 | -   | -      | 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 | 72   | RE 348 | 104   | RE 549 | -   | -      | -   | -      |
| 7/10 ml. blood sample            | ø13 x 107           | 104   | RE 309 | 28  | RE 324 | 42  | RE 567 | 72   | RE 349 | 104   | RE 550 | -   | -      | -   | -      |
| 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 | 72   | RE 349 | 104   | RE 550 | -   | -      | -   | -      |
| 10 x 100 mm                      | ø10 x 100           | -   | -      | 52  | RE 346 | 78  | RE 568 | 144  | RE 315 | 168   | RE 553 | -   | -      | -   | -      |
| 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 y 10 ml. (7) This rotor can be supplied with hermetic lids (RE 572).

|                               |                  | RT 283  |        | RT 280  |        | RT 281   |        | RT 282  |        | HIGH SPEED  |        |   |        |
|-------------------------------|------------------|---|--------|---|--------|--|--------|---|--------|---|--------|---|--------|
|                               |                  |  |        |  |        |  |        |  |        |  |        |  |        |
|                               |                  | (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  |        | ADAPTERS  |        | ADAPTERS   |        | ADAPTERS  |        | ADAPTERS  |        | ADAPTERS  |        |
|                               |                  | Tubes   | Ref.   | Tubes   | Ref.   | Tubes  | Ref.   | Tubes   | Ref.   | Tubes   | Ref.   | 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.                       | ø62 x 120        | 4   | RE 330 | -   | -      | -  | -      | 4   | RE 449 | -   | -      | -   | -      |
| 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 |
| 15 ml.                        | ø16 x 100        | 72  | RE 348 | 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        | 72  | RE 348 | 8   | RE 369 | 16   | RE 316 | 28  | RE 376 | -   | -      | 18  | RE 485 |
| 7/10 ml. blood sample         | ø13 x 107        | 72  | RE 349 | 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         | 72  | RE 349 | 8   | RE 373 | 20   | RE 320 | 28  | RE 324 | -   | -      | 18  | RE 492 |
| 10 x 100 mm                   | ø10 x 100        | 144   | RE 315 | 24  | RE 367 | 36   | RE 326 | 52  | RE 346 | -   | -      | -   | -      |
| 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        | -   | -      | -   | -      | -  | -      | -   | -      | -   | -      | -   | -      |



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About centrifugation

**Álvarez Redondo S.A.**  
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