

GAS RELEASE SYSTEM

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

Centrifugation processes for the determination of water and sediment in oil, require an organic solvent which, reacting with the sample and heating of the equipment, generates aerosols. In order to remove this gas from the centrifuge and take it to a safe area, Ortoalresa has designed **GRS (Gas Release System)** as an accessory for all of the Digtor 22 C series centrifuges. This accessory creates inside the centrifuge chamber, on its top when it is locked, through a pressure intake, allowing suction from atmosphere high in aerosols. This atmosphere is piped through the GRS up to its exit, where it can be treated in isolation. The whole circuit is continuously monitored by the equipment, which will lead the right moment to operate the system. Moreover, it is only required the presence of a compressed air supply of 2 bar pressure, in order to create a 10l/min suction, sufficient to perform the suction of the centrifuge inside chamber volume every 5 min.

GRS main functions are:

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

User friendliness

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

Features

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

Safety

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

Versions

| Code   | Dimensions<br>(mm)(w x d x h) |     |     | Net weight<br>(Kg) | Voltage<br>(V) | Frecuency<br>(Hz) | Consumption<br>(W) |
|--------|-------------------------------|-----|-----|--------------------|----------------|-------------------|--------------------|
| CP 001 | 140                           | 220 | 120 | 2                  | 220-240        | 50-60             | 20                 |
| CP 004 | 140                           | 220 | 120 | 2                  | 110-120        | 50-60             | 20                 |

\* The GRS must be fitted only on those centrifuges provided of pre-installation



info@ortoalresa.com

www.ortoalresa.com

Tel.: +34 91 884 40 16



Tubes references for our centrifuges for oil/petrol applications:

| Code       | Capacity ml | Shape           | Material  | Dimensions mm   | Cap | Scale |
|------------|-------------|-----------------|-----------|-----------------|-----|-------|
| 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     | 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 this tubes: ref. PV 156

Directives & standards for series Digtor 22 C

COMPANY:

Standards

ISO 9001

ISO 13485

ISO 14971

PRODUCTS:

Directives

2011/65/EU

2012/19/EU

2014/30/EU

2014/35/EU

PACKAGING:

ISPM 15

Directives

94/62/EC & 2004/12/EC

GOODS TRANSPORT:

Regulation

(EC) 300/2008

Standards

EN-61010-1

EN-61010-2-020

EN-61010-2-010

EN-61326-1

EN 61326-2-6



Versions

Digtor 22 C-U

| Code   | Dimensions<br>(mm)(w x d x h) |     |     | Net weight<br>(Kg) | Voltage<br>(V) | Frecuency<br>(Hz) | Consumption<br>(W) | Heating |
|--------|-------------------------------|-----|-----|--------------------|----------------|-------------------|--------------------|---------|
| CE 242 | 530                           | 640 | 400 | 73                 | 220-230        | 50-60             | 440                | NO      |
| CE 243 | 530                           | 640 | 400 | 73                 | 110-120        | 50-60             | 460                | NO      |

Digtor 22 C

| Code   | Dimensions<br>(mm)(w x d x h) |     |     | Net weight<br>(Kg) | Voltage<br>(V) | Frecuency<br>(Hz) | Consumption<br>(W) | Heating |
|--------|-------------------------------|-----|-----|--------------------|----------------|-------------------|--------------------|---------|
| CE 238 | 530                           | 640 | 400 | 76                 | 220-230        | 50-60             | 1.260              | YES     |
| CE 239 | 530                           | 640 | 400 | 76                 | 110-120        | 50-60             | 1.260              | YES     |

Digtor 22 C-8

| Code   | Dimensions<br>(mm)(w x d x h) |     |     | Net weight<br>(Kg) | Voltage<br>(V) | Frecuency<br>(Hz) | Consumption<br>(W) | Heating |
|--------|-------------------------------|-----|-----|--------------------|----------------|-------------------|--------------------|---------|
| CE 240 | 530                           | 640 | 420 | 77                 | 220-230        | 50-60             | 1.260              | YES     |
| CE 241 | 530                           | 640 | 420 | 77                 | 110-120        | 50-60             | 1.220              | YES     |

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About centrifugation

Subject to modifications

info@ortoalresa.com

www.ortoalresa.com

Tel.: +34 91 884 40 16

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Centrifuges for oil/petrol use

Series Digtor 22C



Centrifuges  
Rotors  
Adapters  
Accesories

Digtor 22 C-U  
Digtor 22 C  
Digtor 22 C-8



## About series Digtor 22 C



Centrifuges on oil/petrol lab can be used for several applications as sediment & water on oils, fuel oils and middle distillate fuels, precipitation on lubricating oils, characterization of bio fuels... Ortoalresa has expanded its Series Digtor 21 C, thinking about all user, now formed by three centrifuges:

- Digtor 22 C-U: Centrifuge for oil/petrol **without heating** for 4 tubes of 8 “.
- Digtor 22 C: Centrifuge for oil/petrol with heating **for 4 tubes 8”**.
- Digtor 22 C-8: Centrifuge for oil/petrol with heating **for 8 tubes of 8”**.

These three centrifuges include the all standards on safety and also include the pre-installation for GRS (Gas Release System) for aerosols’ extraction formed along centrifugation, that could affect to the user and lab environment.

**A complete & safety solution for oil and bio fuel labs.**

## DIGTOR 22 C-U

Digtor 22 C–U is the **unheated version** of Series Digtor 22C, its provided of several memories which allow the user to store up to 16 programs according different centrifugation parameters following several standards.

It has been equipped with accessories, rotors RT 293 and RT 289 for run 6 and 8 inches, pear shaped tubes, traces and 12,5 ml tubes, all of them specially designed for oil/petrol applications, so they are easy to clean, made in high resistance materials, allow a quick identification of samples on the rotor position.

Its proper for processing samples according following standards:

**ASTM D 91, D 893, D 2273, D 2709, D 5546, API 2542, API 2548, BS 4385, DIN 51793** (it can be used for several other standard, please ask us in info@ortoalresa.com).

## Accessories

| ROTOR              |                  | RT 293            |        | RT 289         |        |
|--------------------|------------------|-------------------|--------|----------------|--------|
| Max. capacity      |                  | 4x100 ml. (8”/6”) |        | 4x100 ml. (8”) |        |
| RPM                |                  | 3.000             |        | 3.000          |        |
| Radius(mm)         |                  | 241               |        | 241            |        |
| RCF Max. (xg)      |                  | 2.425             |        | 2.425          |        |
| SAMPLE VOLUME      | Dim (mm) approx. | ADAPTERS          |        | 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 |

\* Please check your tubes specifications.

## Features

- 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 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.

## DIGTOR 22 C

Digtor 22 C has been equipped with accessories, rotors RT 293 and RT 289 for run 6 and 8 inches, pear shaped tubes, traces and 12,5 ml tubes, all of them specially designed for oil/petrol applications, so they are easy to clean, made in high resistance materials, allow a quick identification of samples on the rotor position.

The centrifuge is provided of 40 memories which allow the user to introduce programs with selectable centrifugation parameters following different standards.

It’s provided of a pre-heating program which allows the operator a constant temperature along the run.

Its proper for processing samples according following standards:

**ASTM D 91, D 96, D 893, D 1796, D 2273, D 2709, D 2711, D 4007, D 5546, API 2542, API 2548, BS 4385, ISO 3734, ISO 9030, IP75, IP 359, NF M07-020, DIN 51793** (it can be used for several other standard, please ask us in info@ortoalresa.com).

## Heating

- Preheating program with rotor spinning and temperature selectable. Allows keep 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 lost.



## for series Digtor 22 C



## User friendliness

- 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.
- Last values remain in memory.
- Automatic rotor recognition. Over-speed protection.

## Safety

- Optional **Gas Release System**: all devices include **pre-installation**.
- Isolated avoiding heat lost. Overheating protection.
- Lid locking and holding and lid dropping protection.
- Imbalance switch off.
- Chamber of centrifugation in stainless steel.
- Viewing and calibration port in the lid.
- Messages about progress on TFT.
- Guard ring between the chamber of centrifugation and the housing.
- Tubes on **upright on rest**.

## DIGTOR 22 C-8

Digtor 22 C-8 is has the highest capacity of Series Digtor 22C, it can fit up to **8 tubes of 8 inches at once**. Its provided of several memories which allow the user to introduce different programs according different centrifugation parameters following different standards.

It’s provided of a pre-heating program which allows the operator a constant temperature along the run.

It has been equipped with accessories, rotors RT 293 , RT 289 , RT 294 (**exclusive for this model**) for run up to 8 tubes of 6 and 8 inches, pear shaped tubes, traces and 12,5 ml tubes, all of them specially designed for oil applications, so they are easy to clean, made in high resistance materials, allow a quick identification of samples on the rotor position.

Its proper for processing samples according following standards:

**ASTM D 91, D 96, D 893, D 1796, D 2273, D 2709, D 2711, D 4007, D 5546, API 2542, API 2548, BS 4385, ISO 3734, ISO 9030, IP75, IP 359, NF M07-020, DIN 51793** (it can be used for several other standard, please ask us in info@ortoalresa.com).

## Heating

- Preheating program with rotor spinning and temperature selectable. Allows keep 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 lost.

## 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                |                  | 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          |        | ADAPTERS       |        | ADAPTERS          |        |
|                    |                  | Tubes             | Ref.   | Tubes          | Ref.   | 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 |

\* Please check your tubes specifications.

