thermoscientific

# Thermo Scientific Hematocrit Rotor

## Instruction Manual

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ThermoFisher SCIENTIFIC

# Contents

# Preface

## Intended Use

Together with compatible centrifuges this hematocrit rotor (75003473 for Microliter centrifuges, 75005733 for small benchtop centrifuges) is intended to be used as an in-vitro diagnostics device to quantitatively determine the hematocrit levels in blood samples.

This applies only if the hematocrit rotor is used with approved accessories and items listed in the items supplied and accessories sections. [→ 9] [→ 11]

This rotor and its accessories should be operated by trained specialists only.

## Signal Words and Symbols

| Signal Word | Degree of Hazard |
|---|---|
| WARNING | Indicates a hazardous situation that, if not avoided, could result in death or serious injury. |
| CAUTION | Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury. |
| NOTICE | Indicates information considered important, but not hazard-related. |

### Symbols Used on Rotor

Observe the information contained in this instruction manual to keep yourself and your environment safe.

| | | | |
|---|---|---|---|
|  | General hazard |  | Manufacturer |
| IVD | In vitro diagnostic medical device | LOT | Batch code |

## Symbols Used in the Instruction Manual

Observe the information contained in the instruction manual to keep yourself and your environment safe.

| | | | |
|---|---|---|---|
|  | General hazard |  | Hazard caused by hot surface. |
|  | Biological hazard |  | Hazard caused by flammable materials |
|  | Indicates information considered important, but not hazard-related. | [→ 33] | This is a cross reference. The arrow stands for “refer to” or “see”. The symbol in the middle stands for “page”. The page number is stated at the end. In this example it is page 12. Page numbers are placed at each bottom of a page. |

# Safety Instructions

**WARNING**

Not following these safety instructions can lead to hazardous situations that, if not avoided, could result in death or serious injury.

Observe the safety instructions.

The rotor is to be used for its intended use only. Improper use can cause damages, contamination, and injuries with fatal consequences.

The rotor must be operated by trained personnel only.

It is the obligation of the operator to make sure that the proper protective clothing is used. Mind the “Laboratory Biosafety Manual” of the World Health Organization (WHO) and the regulations in your country.

Keep a safety zone of minimum 30 cm around the centrifuge. Persons and hazardous substances must be kept out of this safety zone while centrifuging.

Do not modify the centrifuge and its accessories in any unauthorized way.

**WARNING**

Risk from handling hazardous substances.

When working with corrosive samples (salt solutions, acids, bases), the accessories and the centrifuge have to be cleaned thoroughly.

Extreme care should be taken with highly corrosive substances that can cause damage and impair the mechanical stability of the rotor. These should only be centrifuged in fully sealed tubes.

The centrifuge is neither inert nor protected against explosion. Never use the centrifuge in an explosion-prone environment.

Do not centrifuge toxic or radioactive materials or any pathogenic micro-organisms without suitable safety precautions.

When centrifuging any hazardous materials mind the "Laboratory Biosafety Manual" of the World Health Organization (WHO) and any local regulations. When centrifuging microbiological samples from the Risk Group II (according to the "Laboratory Biosafety Manual" of the World Health Organization (WHO)), aerosol-tight biological seals have to be used. Visit the internet page of the World Health Organization (www.who.int) for the "Laboratory Biosafety Manual". For materials in a higher risk group, extra safety measures must be taken.

If toxins or pathogenic substances have contaminated the centrifuge or its parts, appropriate disinfection measures have to be taken. [→ 24]

If a hazardous situation occurs, turn off the power supply to the centrifuge and leave the area immediately.

Make sure to use the proper accessories for your applications to avoid hazardous contamination.

In any case of severe mechanical failure, such as rotor or bottle crash, personnel should be aware that the centrifuge is not aerosol-tight. Leave the room immediately.

Contact the customer service. Aerosols need time to settle before opening the centrifuge after a crash. Ventilated centrifuges bear a higher risk of being contaminated after a crash than refrigerated centrifuges.

**WARNING**

Risk of contamination.

Potential contaminations will not remain in the centrifuge while the device is operated.

Take appropriate protection measures to prevent spread of contaminations.

A centrifuge is no closed containment.

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**WARNING**

Damage to health from centrifuging explosive or flammable materials or substances.

Do not centrifuge explosive or flammable materials or substances.

---

**WARNING**

Serious injuries can occur if you touch a spinning rotor with your hands or tools.

A rotor can still be spinning after a power failure occurs.

Do not open the centrifuge before the rotor has stopped spinning. Do not touch a spinning rotor. Open the centrifuge only if the rotor has stopped spinning.

Never use your hands or tools to stop a spinning rotor.

The emergency lid release may be used in emergencies only to recover the samples from the centrifuge, for example, during a power failure.

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**CAUTION**

Safety can be impaired by wrong loading and worn accessories.

Always make sure that the load is as equally distributed as possible.

Do not use rotors and accessories which show any signs of corrosion or cracks.

Contact customer service for further information.

Do not operate the centrifuge with an unbalanced rotor. Use only rotors which have been loaded properly.

Never overload the rotor.

Make sure that rotors and accessories are installed properly before operating the centrifuge. [→ 13]

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**CAUTION**

Physical harm caused by ignoring operative basics.

Operate the centrifuge with a properly installed rotor.

Do not move the centrifuge while it is running.

Do not lean on the centrifuge.

Do not put anything on the centrifuge while it is running.

The centrifuge housing is not to be opened by the operator.

**CAUTION**

Due to air friction sample integrity may be affected.

The temperature of the rotor may rise significantly while the centrifuge is spinning.

Ventilated units lead to a heat up of the rotor above the ambient temperature.

Refrigerated units can have a deviation from displayed and set temperature to the sample temperature.

Make sure the centrifuge temperature control capabilities meet your application specification. If necessary make a test run.

**NOTICE**

Protection capability may be impaired due to using unapproved accessories.

Use only accessories for this rotor which have been approved by Thermo Fisher Scientific. [→ 9] [→ 11]

# 1. Technical Specifications

## Hematocrit Rotor for Microliter Centrifuges

### Items Supplied

| Item | Article No. | Quantity |
|---|---|---|
| Hematocrit rotor | 75003473 | 1 |
| Anti-corrosion oil | 70009824 | 1 |
| Reading graph | 76000938 | 1 |

**Table 1:** Items Supplied with Hematocrit Rotor

### Accessories

| Description | Article No. |
|---|---|
| Capillaries (pack of 100) | 76000923 |
| Sealing putty | 75000964 |
| Reading graph | 76000938 |
| Replacement rubber bands (set of 5) | 75003030 |

**Table 2:** Hematocrit Rotor Accessories

### General Technical Data

| | |
|---|---|
| Maximum permissible load | 24 x 0.2 g |
| Maximum number of cycles | 50 000 |
| Radius (min. / max.) | 2.0 cm / 8.5 cm |
| Angle | 90° |
| Aerosol-tight | No |
| Max. autoclaving temperature | 134 °C |

**Table 3:** Hematocrit Rotor General Technical Data

### Rotor Performance Data

| 17 Series Centrifuges – Hematocrit Rotor | | |
|---|---|---|
| **Voltage** | **230 V** | **120 V** |
| Maximum speed | 13300 | 13300 |
| Maximum RCF value | 16810 | 16810 |
| Acceleration / braking time | 10 s / 11 s | 10 s / 11 s |
| Sample heating at max speed, 23 °C ambient temperature, 60 min running time | 34 °C | 34 °C |

| 21 Series Centrifuges – Hematocrit Rotor | | |
|---|---|---|
| **Voltage** | **230 V** | **120 V** |
| Maximum speed | 14800 | 14800 |
| Maximum RCF value | 20815 | 20815 |
| Acceleration / braking time | 11 s / 12 s | 11 s / 12 s |
| Sample heating at max speed, 23 °C ambient temperature, 60 min running time | 35 °C | 35 °C |

| 17R Series Centrifuges – Hematocrit Rotor | | |
|---|---|---|
| **Voltage** | **230 V** | **120 V** |
| Maximum speed | 13300 | 13300 |
| Maximum RCF value | 16810 | 16810 |
| Acceleration / braking time | 9 s / 11 s | 9 s / 11 s |
| Min. temperature at max. speed, ambient temperature of 23 °C | ≤ 0 °C | ≤ 0 °C |

| 21R Series Centrifuges – Hematocrit Rotor | | |
|---|---|---|
| **Voltage** | **230 V** | **120 V** |
| Maximum speed | 14800 | 14800 |
| Maximum RCF value | 20815 | 20815 |
| Acceleration / braking time | 10 s / 12 s | 10 s / 12 s |
| Min. temperature at max. speed, ambient temperature of 23 °C | ≤ 0 °C | ≤ 0 °C |

# Hematocrit Rotor for Small Benchtop Centrifuges

## Items Supplied

| Item | Article No. | Quantity |
|---|---|---|
| Hematocrit rotor | 75005733 | 1 |
| Anti-corrosion oil | 70009824 | 1 |
| Reading graph | 76000938 | 1 |

**Table 4:** Items Supplied with Hematocrit Rotor

## Accessories

| Description | Article No. |
|---|---|
| Capillaries (pack of 100) | 76000923 |
| Sealing putty | 75000964 |
| Reading graph | 76000938 |
| Replacement rubber bands (set of 5) | 75003030 |

**Table 5:** Hematocrit Rotor Accessories

## General Technical Data

| | |
|---|---|
| Maximum permissible load | 24 x 0.2 g |
| Maximum number of cycles | 50000 |
| Radius (min. / max.) | 2.0 cm / 8.5 cm |
| Angle | 90° |
| Aerosol-tight | No |
| Max. autoclaving temperature | 134 °C |

**Table 6:** Hematocrit Rotor General Technical Data

## Rotor Performance Data

| 8 Series Centrifuges – Hematocrit Rotor | | | |
|---|---|---|---|
| **Voltage** | **230 V** | **120 V** | **100 V** |
| Maximum speed | 13300 | 13300 | 13300 |
| Maximum RCF value | 16810 | 16810 | 16810 |
| K-Factor at max speed | 2069 | 2069 | 2069 |
| Acceleration / braking time | 20 s / 30 s | 20 s / 30 s | 20 s / 30 s |
| Sample heating at max speed, 23 °C ambient temperature, 60 min running time | 16 °C | 16 °C | 16 °C |

| 8R / 8FR Series Centrifuges – Hematocrit Rotor | | | |
|---|---|---|---|
| **Voltage** | **230 V** | **120 V** | **100 V** |
| Maximum speed | 13300 | 13300 | 13300 |
| Maximum RCF value | 16810 | 16810 | 16810 |
| K-Factor at max speed | 2069 | 2069 | 2069 |
| Acceleration / braking time | 20 s / 25 s | 15 s / 30 s | 20 s / 30 s |
| Sample heating at max speed, 23 °C ambient temperature, 60 min running time | < 4 °C | < 4 °C | < 4 °C |

## Directives and Standards

This product is subject to the following regulation:

(EU) 2017/746* In Vitro Diagnostics Medical Devices Regulation

# 2. Operation

NOTICE Refer to standards DIN 58933-1 or CLSI H07-A3 for instructions on how to determine the hematocrit value.

## 2. 1. How to Install a Rotor

### Microliter Centrifuges

1. Press **Open** on the control panel to open the lid of the centrifuge.
2. Hold the rotor over the centrifuge spindle. The two bars in the labeling on the upper side of the rotor must be aligned with the retaining pin of the centrifuge spindle. The two bars indicate the position of the notch.


① Turn Allen wrench clockwise to tighten the rotor to the centrifuge spindle; ② Bars; ③ Notch; ④ Retaining pin

**Figure 1:** Rotor installation

3. Let the rotor slide down slowly.
4. Insert the Allen wrench (supplied with the centrifuge) into the centrifuge spindle and

tighten clockwise. Hold the rotor with the other hand.

5. Make sure that the rotor is properly installed by lifting it slightly on the handle. If the rotor can be pulled up, then it must be reclamped to the drive shaft.
6. Make sure the rotor spins freely by turning it manually.

## Small Benchtop Centrifuges

1. Press the **Open** button control panel to open the centrifuge door.
2. Place the rotor over the drive shaft and let it slide down slowly.

   The rotor clicks into place automatically.
3. Make sure that the rotor is properly installed by lifting it slightly on the handle. If the rotor can be pulled up, then it must be reclamped to the drive shaft.
4. Make sure the rotor spins freely by turning it manually.

**WARNING** If the rotor cannot be properly locked in place after several attempts, then the rotor fixation is defective and you are not permitted to operate the rotor. Check for any damage to the rotor: Damaged rotors must not be used. Keep the drive shaft area of the rotor clear of objects.

**CAUTION** Do not force the rotor onto the drive shaft. If the rotor is very light, it may be necessary to carefully press it onto the drive shaft with little force.

**CAUTION** Make sure that the rotor is properly locked on the drive shaft before each use by pulling at its handle.

**CAUTION** Risk of burning on hot surfaces. When installing or removing a rotor you may accidentally touch the spindle or motor surface. The centrifuge spindle and the motor may be hot (>55 °C). Be aware of this risk and proceed carefully when you change a rotor after a run or wait until the motor has cooled down.

## Before Installing a Rotor

- Remove any dust, foreign objects or residue from the chamber, if necessary.
- Inspect the thread and O-ring of the motor spindle. Both must be clean and undamaged.

- Inspect the Auto-Lock and O-ring; both must be clean and undamaged. Small benchtop centrifuges are equipped with a Thermo Scientific™ Auto-Lock™ locking feature that automatically locks the rotor to the drive shaft.

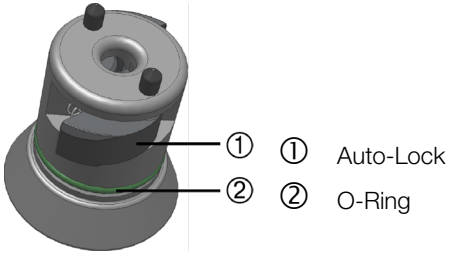



**Figure 2:** Auto-Lock on the drive shaft

CAUTION Do not install the rotor when the temperature difference between the shaft and the rotor lock is >20 °C. Otherwise the rotor might jam.

## 2. 2. How to Remove a Rotor

### Microliter Centrifuges

1. Press the **Open** button on the control panel to open the lid of the centrifuge.
2. Remove samples, if necessary.
3. Unscrew the rotor with the Allen wrench.
4. Grasp the rotor in the middle. Pull the rotor directly upwards and remove it from the centrifuge spindle. Make sure not to tilt the rotor while doing this.

### Small Benchtop Centrifuges

1. Press the **Open** button on the control panel to open the centrifuge door.
2. Remove samples, adapters or buckets.
3. Grasp the rotor handle.
4. Press the Auto-Lock key and, at the same time, pull the rotor directly upwards and away from the drive shaft. Make sure you do not tilt the rotor while lifting it.

CAUTION Be careful when you change a rotor after a run. The centrifuge spindle and motor may be hot (>55 °C) and burn your skin.

## 2. 3. Rotor Lid

The rotor can be removed with the lid closed.

WARNING The rotor cannot be used for aerosol-tight applications.

### Open

The rotor lid is screwed to the rotor body.

1. Turn the rotor handle counter-clockwise to remove the lid.
2. Lift the rotor lid.

### Close

The rotor lid is screwed to the rotor body.

1. Put the rotor lid onto the rotor.
2. Turn the rotor handle clockwise to install the lid.

## 2. 4. Loading the Rotor

### 2. 4. 1. Before Loading a Rotor

1. Inspect the rotor and all accessory parts for damage, such as cracks, scratches, or traces of corrosion.
2. Inspect the centrifugation chamber and drive shaft for damage, such as cracks, scratches, or traces of corrosion.

### 2. 4. 2. Filling the Hematocrit Capillaries

1. Shake up the blood sample before filling the capillary.
2. Hold the capillary slanted with one end into the blood sample.
3. Fill the hematocrit capillary (76000923) with a blood column of approximately 65 mm.

   Make sure that the second opening remains dry.
4. Close the dry end of the hematocrit capillary with sealing putty (75000964). To do this, push the hematocrit capillary vertically into the sealing putty until its rim touches the sealing putty's plate.

Tilt it slightly and pull the hematocrit capillary carefully out of the putty. Make sure that the capillaries are well sealed with the sealing putty.

**WARNING**

Broken glass may cause loss of sample, incorrect results, risk of cuts and infections. Handle the hematocrit capillaries with care and, if necessary, use protective equipment. Use only the specified hematocrit capillaries (76000923. [→ 9]

**CAUTION**

Incorrect results will be generated if capillary is filled with pre-separated fraction of blood. Before filling the capillaries shake up the blood sample.

**NOTICE**

Capillaries are for single use. They are to be disposed after use. Follow regulations for proper disposal.

## 2. 4. 3. Rotor Temperature Range

**CAUTION**

Operate the rotor in a temperature range between -9 °C and +40 °C only. Pre-tempering in a freezer below -9 °C is not permitted.

**CAUTION**

Due to air friction sample integrity may be affected.

The temperature of the rotor may rise significantly while the centrifuge is running. In ventilated units the rotor may heat up well beyond the ambient temperature. In refrigerated units the set temperature shown on the display may deviate from the sample temperature.

Make sure the temperature control capabilities of your centrifuge meet your application specification. If necessary make a test run.

## 2. 4. 4. Duration

The duration depends on the RCF-value. For a clear separation the run should last at least 5 minutes.

The following values are suggested for reproducible results.

| Speed (rpm) | Duration (min) |
|---|---|
| 13300 | 8 |

### RCF Value Explained

The relative centrifugal force (RCF) is given as a multiple of the force of gravity (g). It is a unitless numerical value which is used to compare the separation or sedimentation capacity of various centrifuges, since it is independent of the type of device. Only the centrifuging radius and the speed are used for calculation:

$$RCF = 11,18 \times \left(\frac{n}{1000}\right)^2 \times r$$

r = centrifuging radius in cm

n = rotational speed in rpm

The maximum RCF value is related to the maximum radius of the tube opening.

Remember that this value is reduced depending on the tubes, buckets and adapters used.

This can be accounted for in the calculation above if required.

## 2. 5. Using the Reading Graph

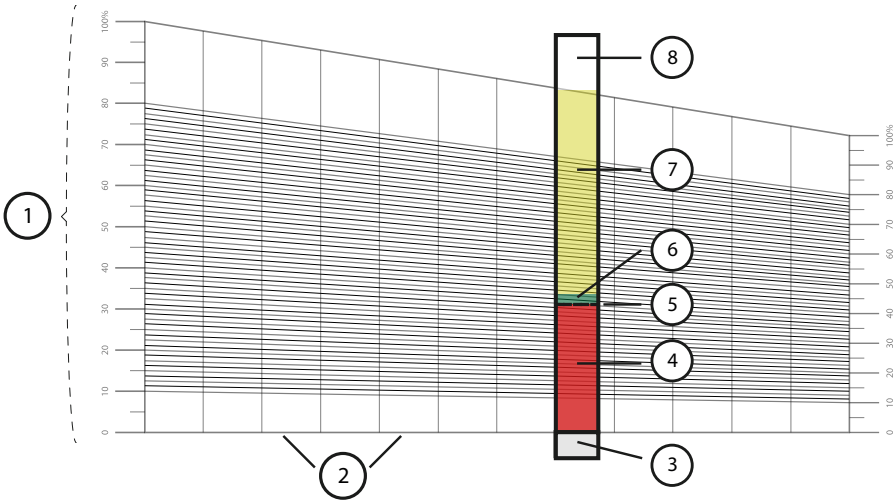
The reading graph (76000938) is supplied with the rotor. To read the values, proceed as follows:

1. Remove the hematocrit capillaries one by one from the rotor.

   CAUTION Be careful not to shake up the sample while removing. If the samples have been shaken up accidentally during removal, they should be centrifuged again.

2. Place the bottom end of the blood column on the zero line with the top end of the plasma column on the 100 % line of the graph.

   The dividing line between the Buffy coat and the erythrocytes sediment indicates the percentage of packed cells.




① Linear scale reading graph; ② Zero line; ③ Sealing putty; ④ Erythrocytes; ⑤ Dividing line between erythrocytes and buffy coat; ⑥ Buffy coat (leukocoytes and platelets); ⑦ Plasma; ⑧ Air

**Figure 3:** Using the Reading Graph

CAUTION Be careful to place the hematocrit capillary at a right angle to the zero line.

## 2. 6. Rotor Life Time

| Rotor | Lifetime |
|---|---|
| Hematocrit 75003473 | 50 000 cycles |
| Hematocrit 75005733 | 50 000 cycles |

For safety reasons please bear the following in mind:

- UV rays reduce the stability of plastics. Do not subject the centrifuge, rotors and plastic accessories to direct sunlight.
- If the rotor shows signs of corrosion, decoloration, deformation, wear or imbalance it must be replaced.
- At the advised parameters for centrifugation of maximum speed 13 300 rpm for 8 minutes the rubber band will last for at least 30 cycles before it has to be replaced or shifted.

# 3. Maintenance and Care

## 3. 1. Cleaning Intervals

For the sake of personal, environmental, and material protection, you must clean and, if necessary, disinfect the rotor and its accessories on a regular basis.

| Maintenance | Recommended Interval |
|---|---|
| Clean rotor chamber | Daily or when polluted |
| Clean rotor | Daily or when polluted |
| Accessories | Daily or when polluted |

## 3. 2. Replace Sealing

1. Remove the old sealing.
2. Form the rubber band to a ring. Make sure, that the rubber band is not twisted.
3. Place the touching ends into the rotor groove. Make sure, that they are placed between two capillary slots.
4. Press the rubber band completely into the groove, avoiding creases or waves.


① Touching ends

**Figure 4:** Replace Sealing

NOTICE To extend the useful lifetime of the rubber band, shift the rubber band as soon as there are pressure marks from the capillaries on it. Make sure that the touching ends are always placed between two capillary slots.

## 3. 3. How to Deal with Broken Hematocrit Capillary Tubes

1. Remove the lid of the Hematocrit Rotor carefully.
2. Remove the larger pieces of the capillary tubes with tweezers.
3. Remove the rotor.
4. Remove the sealing slowly and carefully with the tweezers.
5. Clean and disinfect the rotor as described below.
6. Place a new sealing.

**WARNING**

Infectious material can get into the centrifuge when a tube breaks or as a result of spills. Keep in mind the risk of infection when touching the rotor and take all necessary precautions.

Broken capillary tubes have sharp edges and are a risk of injury.

## 3. 4. Basics

- Use warm water with a neutral detergent that is suitable for use with the materials. If in doubt contact the manufacturer of the cleaning agent.
- Use a soft cloth for cleaning.
- Never use caustic cleaning agents such as soap suds, phosphoric acid, bleaching solutions or scrubbing powder.
- Remove rotor and clean centrifugation chamber with a small amount of cleaning agent on a clean cloth.
- Use a soft brush without metal bristles to remove stubborn residue.
- Afterwards rinse with a small amount of distilled water and remove any remains with absorbent towels.
- Use only cleaning and disinfecting agents with a pH of 6-8.
- After thoroughly cleaning the rotors, they must be inspected for damage, wear and corrosion.

**CAUTION**

Not rated procedures or agents could deteriorate the materials of the centrifuge and lead to malfunction. Refrain from using any other cleaning or decontamination procedure, if you are not entirely sure that the intended procedure is safe for the equipment. Use only cleaning agents that will not damage the equipment. In doubt contact the manufacturer of the cleaning agent. If still in doubt, contact Thermo Fisher Scientific.

| | |
|---|---|
| CAUTION | Do not run any rotor or accessories with sign of damage. Ensure that the rotor and accessories are within their expected maximum number of cycles. It is recommend that you have rotors and accessories inspected yearly as part of your routine service to ensure safety. |

| | |
|---|---|
| NOTICE | Capillaries are for single use. They are to be disposed after being used. Follow regulations for proper disposal. |

## 3. 5. Cleaning

Clean as follows:

1. Clean rotor and accessories outside of the centrifugation chamber.
2. Separate rotor, lids, tubes and O-rings to allow thorough cleaning.
3. Rinse rotor and all accessories with warm water and a neutral detergent that is suitable for use with the materials. If in doubt contact the manufacturer of the cleaning agent.
4. Use a soft brush without metal bristles to remove stubborn residue.
5. Rinse rotor and all accessories with distilled water.
6. Place the rotor on a plastic grate with his cavities pointing down, to enable the cavities to fully drain and dry.
7. Dry the rotor and accessories after cleaning with a cloth or in a warm air cabinet at a maximum temperature of 50 °C. If drying boxes are used, the temperature must never exceed 50 °C. Higher temperatures could damage the material and shorten the lifetime of the parts.
8. Inspect the rotor and accessories for signs of damages.
9. After cleaning, treat the entire surface of aluminum parts including the cavities with corrosion protection oil (70009824).

| | |
|---|---|
| CAUTION | Before using any cleaning methods, users should check with the manufacturer of the cleaning agents that the proposed method will not damage the equipment. |

| | |
|---|---|
| CAUTION | Drive and door lock can be damaged by entering liquids. Do not allow liquids, especially organic solvents, to get on the drive shaft, the drive bearings or the centrifuge door locks. Organic solvents break down the grease in the motor bearing. The drive shaft could lock up. |

| NOTICE | Capillaries are for single use. They are to be disposed after being used. Follow regulations for proper disposal. |
|---|---|

## 3. 6. Disinfection

Disinfect the rotor immediately whenever infectious material has spilled during centrifugation.

The rotor chamber and the rotor should be treated preferably with a neutral disinfectant.

You are responsible that the level of disinfection is achieved according to your requirements.

### After disinfection:

1. Rinse the centrifuge and all affected accessories with water.
2. Allow to fully drain and dry.
3. After disinfecting, treat the entire surface of aluminum parts including the cavities with corrosion protection oil (70009824).

| WARNING | Do not touch infected parts. Hazardous infection is possible when touching the contaminated rotor and centrifuge parts. Infectious material can get into the centrifuge when a tube breaks or as a result of spills. In case of contamination, make sure that no one is put at risk. Disinfect the affected parts immediately. |
|---|---|

| CAUTION | Equipment can be damaged by inappropriate disinfection methods or agents. Make sure that the disinfection agent or the method will not damage the equipment. In doubt contact the manufacturer of the disinfection agent. Observe the safety precautions and handling instructions for the disinfection agents used. |
|---|---|

## 3. 7. Decontamination

Decontaminate rotor and centrifuge immediately whenever radioactive material has spilled during centrifugation.

You are responsible that the level of decontamination is achieved according to your requirements.

### After decontamination:

1. Rinse the centrifuge and all affected accessories with water.
2. Allow to fully drain and dry.
3. After decontaminating, treat the entire surface of aluminum parts including the cavities with corrosion protection oil (70009824).

| | |
|---|---|
| WARNING | Do not touch contaminated parts. Exposure to radiation is possible when touching the contaminated rotor and centrifuge parts. Contaminated material can get into the centrifuge when a tube breaks or as a result of spills. In case of contamination, make sure that no one is put at risk. Decontaminate the affected parts immediately. |
| CAUTION | Equipment can be damaged by inappropriate decontamination methods or agents. Make sure that the decontamination agent or the method will not damage the equipment. In doubt contact the manufacturer of the decontamination agent. Observe the safety precautions and handling instructions for the decontamination agents used. |

## 3. 8. Autoclaving

As preparation always separate rotor, lid, capillaries and sealing rings to allow thorough cleaning. If installed, remove lids from rotors.

If not stated otherwise on the parts themselves, all parts can be autoclaved at 121 °C for 20 min. The only exception is the hematocrit rotor at 134 °C for 20 min. [→ 9]

Make sure that the necessary sterility is achieved according to your requirements.

After autoclaving, treat the entire surface of aluminum parts including the cavities with corrosion protection oil (70009824).

| | |
|---|---|
| CAUTION | Never exceed the permitted temperature and duration when autoclaving. |
| NOTICE | No chemical additives are permitted in the steam. |

## 3. 9. Service

Thermo Fisher Scientific recommends having the centrifuge and accessories serviced once a year by an authorized service technician. The service technician checks the following:

- electrical equipment and connections
- suitability of set-up site
- centrifuge lid lock and safety system
- rotor
- fixation of rotor and drive shaft of the centrifuge
- protective casing

Before service, centrifuge and rotors should be thoroughly cleaned and decontaminated to ensure full and safe inspection can be completed.

Thermo Fisher Scientific offers inspection and service contracts for this work. Any necessary repairs are performed for free during the warranty period and afterwards for a charge. That is only valid if the centrifuge has only been maintained by an authorized Thermo Fisher Scientific service technician.

A validation of the centrifuge is recommended and can be ordered from customer service.

## 3. 10. Shipping

Before shipping the centrifuge:

- The centrifuge must be clean and decontaminated.
- You must confirm the decontamination with a decontamination certificate.

**WARNING**

**Before shipping the centrifuge and accessories you must clean and, if necessary, disinfect or decontaminate the full system. If you are not sure what to do, consult with Thermo Fisher Scientific customer service.**

## 3. 11. Storage

- Before storing the centrifuge and the accessories it must be clean and if necessary disinfected and decontaminated.

  Centrifuge, rotors, buckets and accessories have to be fully dry before storage.
- Keep the centrifuge in a clean, dry and dust-free location.
- Do not store the centrifuge in direct sunlight.

**WARNING**

**When you remove the centrifuge and accessories from use, clean and if necessary disinfect or decontaminate the full system. If you are not sure what to do, consult with Thermo Fisher Scientific customer service.**

## 3. 12. Disposal

For the disposal of the centrifuge mind the regulations in your country. Contact the Thermo Fisher Scientific Customer Service for the disposal of the centrifuge. For contact information check the backpage of this manual or visit www.thermofisher.com/centrifuge

For the countries of the European Union the disposal is regulated by the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2012/19/EC.

Mind the information on shipping. [→ 🗎 26]

**WARNING**

When removing the centrifuge and accessories from use for disposal you have to clean and if necessary disinfect or decontaminate the entire system. If you are not sure what to do, consult with Thermo Fisher Scientific customer service.

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Thermo Electron LED GmbH
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Thermo Scientific
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IVD

50165242 is the original instruction manual.

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Shown pictures within the manual are examples and may differ considering the set parameters and language.

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