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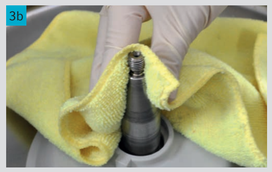
Maintenance of Centrifuges

Prevention is better than restoring. This poster does not replace the operating manual.

Cleaning and maintenance

Switch off centrifuge and wipe centrifuge housing. If required, clean with mild detergents.

Remove buckets and rotor. For refrigerated centrifuges:
> Defrost the ice on the rotor chamber surface.
> Empty and clean the water collection tray.



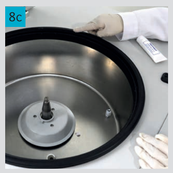
Wipe rotor chamber and motor shaft. If needed, wipe with mild neutral detergent or use 70 % alcohol for disinfection.
Note: UNPLUG centrifuge before using cleaning solutions.

Check rotor and buckets for corrosion. Take out of service if corroded or if any sign of damage is detected.

If needed, autoclave rotor, rotor lids and buckets at 121 °C, 20 min. (Never use UV, beta, gamma radiation, or any high-energy radiation source.) Clean rotor, rotor lid, rubber seal, buckets, and adapters with damp lint free cloth and diluted detergents, alcohol, or alcohol containing detergents. Afterwards, wipe seals with wet cloth and rinse thoroughly with distilled water. Use test-tube brush with non-metallic tip to clean the rotor bores.

Place parts on dry cloth upside down to dry. To prevent aerosol-tight caps and seals from getting worn out/ damaged, store lids/caps separately from the bucket/rotor.

Take a small amount of centrifuge lubricant onto your finger.

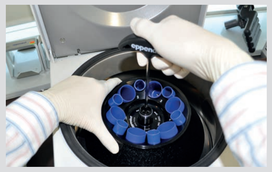


Lubricate bucket grooves **8a**, pivots **8b**, and rubber seal **8c**. Check if seals of aerosol tight lids/caps need to be replaced. Aerosol-tightness is limited to undamaged seals. Lubricate the threads of the fixed angle rotors after cleaning and autoclaving.

Leave centrifuge lid open overnight to let condensate evaporate.

Cleaning should be done at regular intervals (weekly/monthly, depending on use) and right after any spill!

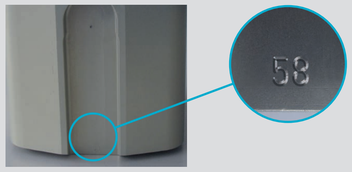
Guide for proper usage



Fasten rotor tightly
Prior to centrifugation, rotor must be tightened securely on drive shaft using a rotor key. For swing-bucket rotors, ensure that buckets are properly hooked onto the rotor. Perform a manual swing-out test to check that the buckets are moving freely.

Consider max. capacity
Note the weight specifications printed on the rotor (e.g., 4 × 1.1 kg means weights of each bucket + adapter + tubes filled with sample must not exceed 1.1 kg). Take note of the maximum g-force specified for the tubes you are using.

Apply correct buckets
Buckets with the same weight class must be on opposite positions. To check the weight class of the bucket, check the value on the side of the buckets.



Weight class inscription on bucket.

Choose correct adapter
Adapters must support tubes securely. The tube should fit tightly into the adapter.

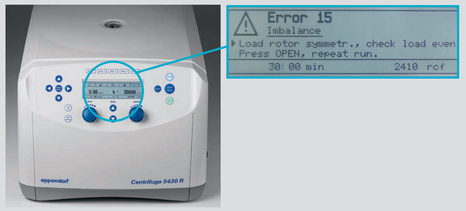
Wrong use of adapter
(no secure support of upper part)

Correct use of adapter

Conical tube adapter
> conical base

Round bottom tube adapter
> flat base with rubber mat

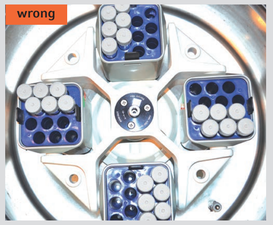
For your safety:
Automatic imbalance detection

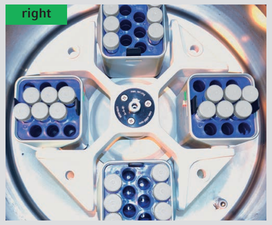


Eppendorf centrifuge families 58xx, 57xx, 5430/ R, and 5427 R have imbalance sensors to prevent spinning if the samples are not properly balanced. This protects device, sample, and user by preventing a rotor crash. Check with your provider for latest updates.

Load symmetrically and balanced

Fixed-angle rotors:
Load symmetrically and balance weights.





Swing-bucket rotors:
> Bucket and adapter loading must be symmetrical and balanced.
> Position tubes in buckets in such a way that rotor pivots are stressed evenly.
> Always have all 4 swing-buckets on rotor even though only 2 might be in use.

Smart tips for centrifugation

Lab requirements	Features/functions to use
Adapting protocols from journals or other centrifuges.	Make sure same RCF values are used instead of same RPM values. Use RCF-RPM converter key of centrifuge.
Fast cooling of refrigerated centrifuge.	Use centrifuge with »FastTemp™« function which speeds up cooling to set temperature very quickly.
Cooling of refrigerated centrifuge at a specific time and date.	FastTemp pro® allows for automated pre-cooling based on pre-programmable time and date. FastTemp pro can be set to a specific date or as a repetitive event during several days every week.
Keep centrifuge cool between spins or after run.	Use centrifuge with »Continuous cooling« which maintains temperature at all times when lid is closed. Eppendorf centrifuges have an optional ECO shut-off after 6–8 h of non-use to reduce energy consumption and to extend compressor life.
Need to maintain sample integrity e.g., live cells. Need to reduce remixing of samples. Need to keep phases distinct during density gradient centrifugation.	Use »SOFT« function for gentle acceleration and deceleration. The Eppendorf 58xx family has 10 acceleration and 10 deceleration ramps.
Spin samples for a defined time at a set speed.	Use »at set rpm« function where timer starts only when desired speed is reached. For large rotors, the acceleration time to get to the set speed can vary depending on rotor load. For maximum run-to-run reproducibility, use »at set rpm« function.
Special requirements	**Features/functions to use**
Working with corrosive chemicals.	Use PTFE-coated rotors.
Working with hazardous or infectious samples (e.g., virus, bacteria, blood).	Use aerosol-tight rotors or caps which are certified by independent and internationally recognized agencies such as Public Health England, Porton Down, UK. Be sure to open the rotor lid in a biosafety cabinet. Use Eppendorf Safe-Lock tubes (if sample volume fits) and aerosol-retaining tips like the ep Dualfilter T.I.P.S.®

Have an authorised service provider do a yearly preventative maintenance program to ensure safety and optimal performance of your centrifuge. Contact local Eppendorf organisation for details on installation qualification (IQ), operational qualification (OQ), and preventative maintenance (PM).

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