

Instructions for use

Eppendorf Rotors

English (EN)

These instructions for use are a supplement to the manual of the centrifuge and do not replace it. Therefore, please also read the manual of the centrifuge before starting up the rotors for the first time. The current version of the manual can be found on the Internet under www.eppendorf.com/manuals.

1 Safety notes



WARNING! Risk of injury from improperly attached rotors, rotor lids and caps.

- ▶ Only centrifuge if the rotor, the rotor lid, and inserted buckets are firmly tightened, and caps are closed correctly.
- ▶ If any unusual noises occur when the centrifuge starts, the rotor, the rotor lid or a cap may not be secured properly. Stop centrifugation immediately by pressing the **start/stop** key.



WARNING! Risk of injury from chemically or mechanically damaged accessories.

Even minor scratches and cracks can lead to severe internal material damage.

- ▶ Protect all accessory parts from mechanical damage.
- ▶ Inspect the accessories for damage before each use. Replace any damaged accessories.
- ▶ Do not use rotors, rotor lids, buckets or caps showing any signs of corrosion or mechanical damage (e.g. deformations).
- ▶ Do not use any accessories which have exceeded their maximum service life.
- ▶ When inserting the buckets and rotors, ensure that they do not become scratched.



CAUTION! Risk of injury due to asymmetric loading of a rotor.

- ▶ Always load all positions of a swing-bucket rotor with buckets.
- ▶ Load rotors symmetrically with identical tubes and/or plates.
- ▶ Only load adapters with suitable tubes or plates.
- ▶ Always use vessels and plates of the same type (weight, material/density and volume). Always observe the max. *g*-force of the vessels and plates indicated by the manufacturer.
- ▶ Use a balance to check that the load is symmetrical by balancing the adapters and vessels and/or plates that are used.



CAUTION! Risk of injury from overloaded rotor.

The centrifuge is designed for the centrifugation of material with a maximum density of 1.2 g/mL at maximum speed and filling volume and/or load.

- ▶ Do not exceed the maximum load of the rotor.



CAUTION! Risk of injury when turning the rotor manually.

- ▶ When turning a swing-bucket rotor, ensure that your fingers do not get jammed or caught on the buckets.



CAUTION! Risk of injury due to chemically damaged rotor lids or caps.

Transparent rotor lids or caps made from PC, PP or PEI may lose their strength under the impact of organic solvents (e.g. phenol, chloroform).

- ▶ If rotor lids or caps have come into contact with any organic solvents, they should be cleaned immediately.
- ▶ Regularly check the rotor lids and caps for damage and cracks.
- ▶ Replace any rotor lids or caps showing any cracks or milky discolorations immediately.



NOTICE! Damage to rotors from aggressive chemicals.

Rotors are high-quality assemblies which withstand extreme stresses. This stability can be impaired by aggressive chemicals.

- ▶ Avoid using aggressive chemicals such as strong and weak alkalis, strong acids, solutions with mercury ions, copper ions and other heavy metal ions, halogenated hydrocarbons, concentrated saline solutions and phenol.
- ▶ If it is contaminated by aggressive chemicals, clean the rotor and especially the rotor bores immediately using a neutral cleaning agent.
- ▶ Due to the manufacturing process, color variations may occur on PTFE coated rotors. These color variations do not affect the service life or resistance to chemicals.



NOTICE! If handled incorrectly, the rotor may fall.

The swing-bucket rotor may fall if the buckets are used as handles.

- ▶ Remove the buckets before inserting and/or removing a swing-bucket rotor.
- ▶ Always use both hands to carry the rotor cross.



NOTICE! If handled incorrectly, the rotor may fall.

- ▶ Always use both hands to pick up the F-35-48-17, F-48x15 rotor.
- ▶ In order to hold the rotor safely, you may have to remove 3 to 4 sleeves from the opposite outer row.

2 Service life

Eppendorf states the maximum service life of rotors and accessories in cycles and years. The number of cycles is decisive. If determination of the number of cycles is not possible, the service life in years applies.

Each centrifugation run during which the rotor is accelerated and braked is counted as a cycle, independent of the speed and the duration of the centrifugation run.

Counting cycles is possible for the following centrifuges:

- 5910 R
- 5910 Ri
- 5920 R



For the centrifuges 5804/5804 R and 5810/5810 R, the number of cycles can be read out by Eppendorf Service.

For the following rotors, the service life is based on the following standard laboratory day: Use for 25 cycles per day on 5 days a week, 52 weeks a year.

Fixed-angle rotor	Centrifuge	Max. service from the first commissioning onward	
		in cycles	in years
F-34-6-38	5804/5804 R, 5810/5810 R	75 000	10
F-35-6-30	5430/5430 R	75 000	10
F-35-48-17	5804/5804 R, 5810/5810 R	100 000	15
F-45-64-5-PCR	5430/5430 R	75 000	10
F-48x15	5910 R, 5910 Ri	100 000	15
FA-6x50	5910 R, 5910 Ri, 5920 R	100 000	15
FA-10x5	5425	180 000	25
FA-20x5	5910 R, 5910 Ri, 5920 R	100 000	15
FA-30x2	5910 R, 5910 Ri	100 000	15

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Fixed-angle rotor	Centrifuge	Max. service from the first commissioning onward	
		in cycles	in years
FA-45-6-30	5804/5804 R, 5810/5810 R	100 000	15
FA-45-12-17	5427 R	100 000	15
FA-45-16-17	5430/5430 R	100 000	15
FA-45-20-17	5804/5804 R, 5810/5810 R	100 000	15
FA-45-24-11-Kit	5430/5430 R	100 000	15
FA-45-30-11	5430/5430 R	100 000	15
FA-45-48-11	5430/5430 R, 5804/5804 R, 5810/5810 R	100 000	15
FA-45-48-11	5427 R	100 000	15
FA-48x2	5910 R, 5910 Ri, 5920 R	100 000	15
T-60-11	5804/5804 R, 5810/5810 R	n/a	7

Service life of swing-bucket rotors: Unless specified otherwise, the service life stated applies to both the rotor cross and the buckets.

Swing-bucket rotor	Centrifuge	Max. service from the first commissioning onward	
		In cycles (decisive criterion)	Years (if the number of cycles cannot be documented, the following service life in years applies)
A-2-DWP	5804/5804 R, 5810/5810 R	34 000	7
A-2-DWP-AT	5810/5810 R	100 000	15
A-2-MTP	5430/5430 R	100 000	15
A-4-38	5702/5702 R, 5702 RH	100 000	10
A-4-44	5804/5804 R, 5810/5810 R	34 000	7

Swing-bucket rotor	Centrifuge	Max. service from the first commissioning onward	
		In cycles (decisive criterion)	Years (if the number of cycles cannot be documented, the following service life in years applies)
A-4-62	5810/5810 R	40 000	7
A-4-81	5810/5810 R	100 000	15
A-8-17	5202/5702 R/ 5702 RH	75 000	7
S-4-72	5804/5804 R, 5810/ 5810 R	100 000	15
S-4-104	5810/5810 R	100 000	15
S-4x400	5910 R, 5910 Ri	100 000	15
S-4x500	5910 R, 5910 Ri	100 000	15
S-4x750	5910 R, 5910 Ri, 5920 R	100 000	15
S-4x1000	5920 R	100 000	15
S-4x1000 with High-Capacity Bucket	5920 R	75 000	10
S-4xUniversal	5910 R, 5910 Ri	50 000	7
S-4xUniversal-Large	5920 R	50 000	7
S-24-11-AT	5430/5430 R	100 000	15
S-24-11-AT	5427 R	100 000	7
S-96x0.2-PCR	5425	100 000	7

Service life of swing-bucket rotors in case of deviations from the standard laboratory day: Unless specified otherwise, the service life stated applies to both the rotor cross and the buckets.

Deviating from the standard calculation, the following rotors have different numbers of cycles:

Rotor	Centrifuge	Max. service from the first commissioning onward	
		In cycles (decisive criterion)	In years (if the number of cycles cannot be documented, the following service life in years applies)
A-2-DWP	5804/5804 R/5810/5810 R	34 000	7
A-4-44	5804/5804 R/5810/5810 R	34 000	7
A-4-62	5810/5810 R	40 000	7
T-60-11	5804/5804 R/5810/5810 R	n/a	7

Unless stated otherwise (in the manual of the centrifuge, indication of the number of cycles on the rotor, in the instructions for use of the rotor), all other rotors and rotor lids can be used over the entire service life of the centrifuge if the following prerequisites are met:

- proper use
- recommended maintenance
- undamaged condition

Accessories	Max. service from the first commissioning onward
Aerosol-tight rotor lids with exchangeable seal (e.g., QuickLock rotor lids)	3 years (replace seals every 50 autoclaving cycles)
Aerosol-tight rotor lids without exchangeable seal	3 years or 50 autoclaving cycles, whichever occurs first
Non-aerosol-tight rotor lids	3 years
Aerosol-tight caps made of PP, PC, PEI	3 years or 50 autoclaving cycles, whichever occurs first
Adapters	1 year

The date of manufacture is stamped on the rotors in the format *03/15* or *03/2015* (= March 2015). On the inside of the plastic rotor lid, the date of manufacture is stamped in the form of a clock .

To ensure aerosol tightness, the following applies:

- ▶ Replace aerosol-tight rotor lids without exchangeable seal and cap after 50 autoclaving cycles.
- ▶ Replace the seal of aerosol-tight rotor lids with exchangeable seal (e.g., QuickLock rotor lids) after 50 autoclaving cycles.

3 Cleaning and disinfection

Use a mild cleaning agent for cleaning. Use alcohol (ethanol, isopropanol) or alcoholic disinfectants for disinfection. Clean and disinfect the rotor and all accessories (rotor lid, sleeves, adapter, bucket and plate carrier).

1. Remove the rotor from the centrifuge.
 2. Use a test tube brush to clean/disinfect the rotor bores of the fixed-angle rotors or the sleeves.
Do not immerse the rotor as liquid may enter the hollow spaces.
 3. Aerosol-tight rotor lids with exchangeable seal (e.g. QuickLock rotor lids) and caps: Remove the seal and clean the groove located below.
 4. Clean the rotor cone with a soft, dry, lint-free cloth. Do not lubricate the rotor cone.
 5. Inspect the rotor cone for damage.
 6. Place the rotors and accessories on a towel to dry. Place the fixed-angle rotors with the rotor bores facing downward.
 7. Aerosol-tight rotor lids with exchangeable seal (e.g. QuickLock rotor lids) and caps: Correctly reinsert the seal in the clean and dry groove.
 -  ▶ Do not use any discolored, porous or otherwise defective seals. Please also observe the manual of the centrifuge and the instructions for use enclosed with the aerosol-tight rotors for aerosol-tight centrifugation.
 - ▶ Apply a thin layer of pivot grease on the pegs in the lid thread of fixed-angle rotors at regular intervals.
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-  ▶ Make sure that the pegs of the rotor cross and the grooves of the buckets are free of contamination.
 - ▶ Apply a thin layer of pivot grease on the grooves of the buckets each time they were cleaned or autoclaved (121 °C, 20 min) or when the rotor swings out stiffly (order no. International 5810 350.050, North America 022634330).

Autoclavability

All fixed-angle rotors, rotor lids, buckets, caps and adapters can be autoclaved (121 °C, 20 min).

-  After a maximum of 50 autoclaving cycles, the caps of the aerosol-tight buckets and the seals of aerosol-tight rotor lids with exchangeable seal (e.g. QuickLock rotor lids) must be replaced.

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Autoclavable rotor crosses		Not autoclavable rotor crosses	
Rotor	Centrifuge	Rotor	Centrifuge
A-2-DWP	5804/5804 R/5810/ 5810 R	A-2-MTP	5430/5430 R
A-2-DWP-AT	5810/5810 R	A-4-81	5810/5810 R
A-4-38	5702/5702 R/5702 RH	S-4-72	5804/5804 R/5810/ 5810 R
A-4-44	5804/5804 R/5810/ 5810 R	S-4-104	5810/5810 R
A-4-62	5810/5810 R	S-4x400	5910 R/5910 Ri
A-8-17	5702/5702 R/5702 RH	S-4x500	5910 R/5910 Ri
S-24-11-AT	5427 R, 5430/5430 R	S-4x750	5910 R/5910 Ri, 5920 R
S-96x0.2-PCR	5425	S-4x1000	5920 R
		S-4xUniversal	5910 R/5910 Ri
		S-4xUniversal-Large	5920 R

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