

## VetFuge – Mini Centrifuge Product Manual

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## 1. INTRODUCTION

The VetFuge™ is Antech's long-lasting, brushless motor, in-hospital centrifuge. The VetFuge offers versatility, simplicity, safety, and ease of usage in a single package. With unique features like imbalance detection and closed loop control, the VetFuge's design reflects the various needs of the laboratory environment.

This centrifuge is especially suitable for micro filtration, cell separations, centrifugal tube sedimentation, and spin down applications. The VetFuge comes with two rotors, a round rotor and a strip rotor:

- Round rotor: The 8 × 2/1.5 mL rotor can centrifuge up to eight (8) individual 2/1.5 mL plastic micro tubes and comes with reduction adapters.
- Strip rotor: The strip tube rotor is designed to centrifuge two strips of 8 × 0.2 mL strip tubes, for PCR applications.

**Important:** Please read this manual thoroughly before operating the centrifuge for safety information and how to care for your centrifuge. This user guide is intended to assist with the operation and care of the unit only and not for its repair. The customer should not attempt to service or repair the unit. If repairs are required, please contact the supplier.

## 2. STANDARD PARTS AND ACCESSORIES

### Standard parts

1	Protective lid	6	Non-slip rubber base
2	Rotor	7	On/off switch
3	Display	8	Power socket
4	Safety switch	9	Time knob
5	Release button	10	Speed knob

### Standard accessories

- 2/1.5 mL closed rotor
- PCR strip rotor
- Allen wrench
- Individual adapters for 0.4/0.5 mL tubes, pack of eight (8)
- Individual adapters for 0.2 mL tubes, pack of eight (8)
- Region-specific power adapter
- Product user manual, warranty card, and Declaration of Conformity



## 3. INTENDED USE

Centrifuges are used in many laboratories to separate particles from suspension, or even macromolecules from solutions, according to their density. The different biological substances that are usually separated by centrifugation are microbial cells, mammalian cells, organelles, proteins, DNA, and RNA.

For easy reference, make a note of the serial number, rental agreement start date, and supplier here:

Serial No.: \_\_\_\_\_ Rental Agreement Start Date: \_\_\_\_\_ Antech: \_\_\_\_\_

## 4. VETFUGE CENTRIFUGE KEY FEATURES

- Brushless Direct Current (BLDC) motor for maintenance-free long life
- Closed rotor which leads to less friction, reduces noise and heat generation
- Eight-position closed micro tube rotor
- Digital display alternates between speed and time
- Microprocessor-based closed loop system that self-adjusts to varying load conditions
- Digital timer programming function
- Variable speed settings with RPM increments at 100 RPM
- Electronic safety brake on lid opening for user safety
- Imbalance cutoff safety
- Quick start and stop for spin-down
- Smooth, quiet running
- Tiny footprint fits easily on a crowded bench top
- Interchangeable PCR rotor and adapter
- Low-voltage instrument with external power supply

## 5. SPECIFICATIONS

Motor type	BLDC Motor
Maximum speed	6000 RPM
Speed type	Variable speed up to 6000 RPM
Speed accuracy	± 25 RPM
Maximum RCF	2000 × g
Size (L x W x H)	6.37 × 6.18 × 4.56 in (162 × 157 × 116 mm)
Weight	2.42 lbs (1.1 kg)
Electrical	100–240 VAC, 50/60 Hz
Power consumption	15 W

## 6. OPERATING CONDITIONS AND PRECAUTIONS

The VetFuge centrifuge must be operated with necessary precautions mentioned hereunder:

- For indoor use only.
- Ambient temperature of 39° F to 149° F (4° C to 65° C).
- Main supply voltage fluctuations not to exceed +/- 10% of the nominal voltage.
- Position at least 20 cm from walls, 20 cm from ceiling, and 20 cm between other products. It must be positioned near the electrical outlet.
- Install the centrifuge on stable, flat surfaces.
- Load the rotor symmetrically every time. Each tube should be counterbalanced by another tube.
- Use only specified Micro Centrifuge tubes made from plastic and designed to withstand centrifugal forces of at least 2000 g.
- Do not use the centrifuge in any manner not specified in these instructions.
- Do not operate the centrifuge without the rotor being properly attached to the shaft. Re-check by trying to pull it up manually, especially after rotor assembly.
- Do not move the centrifuge while the rotor is spinning.
- Do not fill tubes while they are in the rotor. Liquid spillage may harm the unit.
- Do not put your hands in the rotor unless the rotor has completely stopped.
- Do not centrifuge flammable, explosive, or corrosive materials.
- Do not use solvents or flammables near this or other electrical equipment.
- In case the unit drops from the table, please check the casing for any cracks/damage prior to use.

## 7. INSTALLATION

1. Open the box, then gently remove the centrifuge from the box.
2. Place on a non-slip rubber base or non-slip surface.
3. Plug in adapter pin before connecting to power source.
4. Turn centrifuge 'on' using the ON/OFF SWITCH at rear side.
5. Make sure the rotor is tight enough to avoid accidents.
6. Load the rotor with micro tube for centrifugation and set switch to 'On' position.
7. Close the lid to start centrifugation.

For reference, please refer to the RCF Chart below:

**RCF Chart**

RPM	ROUND ROTOR				PCR STRIP
	0.2 mL	0.5 mL	1.5 mL	2 mL	0.2 mL
1000	35.5	47	52	54	52
2000	142	188	217	217	208
3000	319	424	488	488	467
4000	567	753	832	868	830
4500	718	953	1053	1098	1050
5000	886	1177	1300	1356	1297
6000	1276	1695	1872	1952	1868

**Important note:** The product manual and any accessories should be kept with the centrifuge. Please keep all packaging in safe storage for at least two years for warranty purposes.

## 8. OPERATION

### Opening the centrifuge lid

- To open the centrifuge lid, press down on the "Lid Release" button.
- Pulling up the 'Lid Release' button will break and/or damage the button.

### Using the centrifuge

1. Switch the centrifuge on using the ON/OFF switch on the rear side so that display will show you the readings.

**Note:** 'En' Symbol indicates that the imbalance detection feature is enabled.

2. Load the rotor symmetrically to avoid centrifuge damage or accidents.
3. Use the speed knob to set the speed and the timer knob to set the run time.
4. Close the lid.
5. Once centrifugation is completed, the centrifuge will stop automatically, or use speed knob or use timer knob to bring the display value to zero. This will gradually stop the rotor.
6. If you want to stop the centrifuge quickly, push the 'Lid Release' button and the rotor will stop within two seconds.
7. After the rotor has stopped, press the 'Lid Release' button.
8. Open the lid with your thumb in front and fingers on the top, lifting the lid back on the hinge.

### Balancing the rotor

To centrifuge **8 samples** at a time fill 8 test tubes equally. Then insert them into the holes of the rotor as shown.



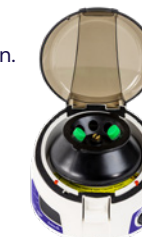
To centrifuge **4 samples** at a time fill the 4 test tubes equally. Then insert them into the alternate holes of the rotor as shown.



To centrifuge **3 samples** at a time fill the 3 test tubes equally with original samples. Then insert them in alternate holes of the rotor. Now fill a test tube with water and insert into remaining alternate hole for balancing the rotor as shown.



To centrifuge **2 samples** at a time fill 2 test tubes equally. Then insert them into the holes of rotor in opposite direction as shown. Positions can be 1-5, 2-6, 3-7, 4-8.



To centrifuge **1 sample** fill a test tube with sample then insert into any one hole of the rotor. Now insert 1 test tube filled with water in opposite direction of the sample as shown in the picture 5. Positions can be 1-5, 2-6, 3-7, 4-8.

#### Interchangeable rotor

- Rotor 8 Slot: 8 × 0.2, 0.4, 0.5, 1.5, 2 mL
- PCR Rotor: 16 × 0.2 mL

#### Changing the rotor

1. Insert the hexagonal Allen wrench into the marked hole provided on the side of the rotor.  
The grub screw is located at the bottom of the rotor on the marked side.
2. To remove the rotor, turn counterclockwise to loosen the screw and then gently pull the rotor up vertically.
3. Insert the new rotor from the top onto the motor shaft and tighten the screw again.
4. Turn clockwise to tighten screw located under the bottom of rotor.
5. Please check that the rotor is tight enough to avoid any accidents. Pull up gently on rotor to ensure it is firmly in place prior to use.



### 9. TIME AND SPEED SETTINGS AND DISPLAY

The unit is equipped with a countdown timer for runs of 00 to 25 minutes. Set the desired time cycle by operating the timer knob. The time increments/decrements will be in minutes and will show on display and indicator, and the timer can be reset or adjusted in between the runs.

If the user needs to operate without time control, the user can change it to next position after 25 for infinite time.

Speed control: Speed is set by rotating the speed control knob. While adjusting the speed, the speed indicator comes on. The minimum increment or decrement will be to the order of 100 RPM. The speed indicator must be read with a multiplication factor of 100 to get the actual RPM.

During the running of the centrifuge, the time and speed will alternate on the display, accompanied by speed indicator and time indicator, respectively.

- Quick spin function: By keeping the timer to position and speed set to any desired setting, the operator can open and close the lid to operate the centrifuge in quick spin function mode.
- RCF value: Based on the speed and rotor the actual RCF value will vary. Refer to the table on the installation page of this booklet to get the actual RCF of different rotors at certain given speed values.

### 10. IMBALANCE DETECTION ACTIVATION/DE-ACTIVATION

When you switch 'On' the centrifuge, it either shows 'En' or 'd5' which indicates whether imbalance detection is activated or de-activated.

- Imbalance Activated Display: If the display shows 'En' that means the imbalance detection is activated
- Imbalance De-activated Display: If the display shows 'd5' it means the imbalance detection is de-activated

User can activate and deactivate the imbalance detection function by pressing the timer and speed knobs together. The display will change to show 'En' or 'd5' to show active status.

#### Imbalance detection and cut-off

When imbalance detection is activated ('En'), and if the centrifuge is running with an unbalanced rotor, it may lead to excessive vibrations resulting in damage to the centrifuge. This centrifuge has an imbalance detector to protect the centrifuge, its user, and its surroundings against an unbalanced run.

When such an event occurs, the piezoelectric sensor built inside the centrifuge will sense the resonance created by unbalanced rotor and it will shut down the centrifuge, indicating the event by flashing 'Ub'.

#### User Action:

1. When the imbalance indicator shows, open the lid of centrifuge.
2. Correct the unbalanced load by various methods described in the balancing the rotor part of this manual.
3. Close the lid and reset the centrifuge by using the ON/OFF switch located on the rear side of the centrifuge to switch it OFF and then back ON.

## 11. CARE AND MAINTENANCE

The centrifuge and its rotor should be cleaned periodically. To clean the centrifuge:

- Ensure that the unit is not plugged in before and during cleaning.
- Use a damp cloth and a mild, noncorrosive detergent (pH < 8).
- Do not immerse the centrifuge in liquid or pour liquids over it.
- Excessive amounts of liquid should be avoided.
- Liquid should not come into contact with the motor.
- After cleaning, ensure all parts are dried thoroughly before attempting to operate the unit.

**Note:** If a spill of infectious material occurs within the rotor or rotor chamber, the unit should be disinfected. This should be performed by qualified personnel with proper protective equipment.

Important: Do not use any cleaning or decontamination methods except those recommended by the manufacturer. If uncertain, check with the manufacturer that the proposed method will not damage the equipment.

## 12. PRODUCT DISPOSAL

In case the product is to be disposed of, the relevant legal regulations are to be observed.

Information on the disposal of electrical and electronic devices in the European Community:

The disposal of electrical devices is regulated within the European Community by national regulations based on EU Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). According to these regulations, any devices supplied after 13.06.05 in the business to business sphere, to which this product is assigned, may no longer be disposed off in municipal or domestic waste. They are marked with the following symbol to indicate this.

As disposal regulations within the EU may vary from country to country, please contact your supplier if necessary.

Technical Support Services: **800-464-3752 US, 866-382-6937 CA** or email [vetsupport@heska.com](mailto:vetsupport@heska.com) US,  
or [labsupport-CA@heska.com](mailto:labsupport-CA@heska.com) CA