



Benchtop Centrifuge

DASH 6


Instructions for Use Manual



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1. Symbols

Symbol	Definition	Use
	Caution	Caution to safety hazard. Potential risk of personal injury or damage to the instrument if improperly handled. Consult the manual before proceeding.

2. Model Description

The Cardinal Health™ DASH 6 Centrifuge (Model DASH Apex 6) is engineered for STAT sample processing. When combined with process changes, the Cardinal Health™ DASH 6 Centrifuge may reduce turnaround time (TAT) by up to 20 minutes.

This general purpose laboratory centrifuge may also be used to spin approved containers with biologics, chemicals (non-flammable, non-explosive, non-volatile, and non-highly reactive), and environmental samples.

3. Features

- Simple 2-Button interface.
- Three (3) easily selectable pre-set cycles are conveniently labeled for your lab's most common applications. Use the default cycles or settings can be customized. An LED light indicates the current selected setting.
- If desired, the control panel can be locked on one preset cycle, ideal for standardization to a single spin.
- Lid lighting indicates the centrifuge's status (ready, running, done), keeping your TAT down (patent pending).
- A traditional audible alert indicates the completion of the cycle.
- Cool-Flow air flow design prevents overheating of samples by maintaining room temperature.
- Carbon fibers are used to reinforce the tube holders and provide high strength and durability.
- A clear lid permits safe observation of samples and optical calibration of speed.
- The lid safety system only allows entry into the centrifuge after the rotor has completely stopped.
- The lid safety system prevents the centrifuge from operating unless the lid is closed and latched.
- The high power brushless DC motor provides years of operation with no routine maintenance.

4. Intended Use

General purpose laboratory centrifuge, intended for the density-based separation of fluids through centripetal acceleration.

5. Warranty

Cardinal Health warrants that this centrifuge is free from defects in workmanship and parts for 2 years.

6. Caution and Warning Statements



This device is intended to be operated by properly trained personnel who have carefully read the operating manual and are familiar with the function of the device. Refer to the clinical laboratory method specified by the specimen receptacle manufacturer or established by the medical technology for the product's applications.



For the safety of both the operator and service personnel, care should be taken when using this centrifuge if handling substances that are known to be toxic, radioactive or contaminated with pathogenic microorganisms. Use appropriate personal protection equipment (PPE). When Risk Group II materials are used (as identified in the World Health Organization "Laboratory Bio-Safety Manual"), a Bio-Seal should be employed. In the event that materials of a higher risk group are being used, more than one level of protection must be provided. The use of flammable or explosive materials as well as those materials which have a vigorous chemical reaction is prohibited.



Unplug the centrifuge before cleaning or performing maintenance.



Inspect centrifuge for cracks or physical damage to cabinet, lid, rotor, or tube holders. Damage may result in unsafe operation. Discontinue use until repairs have been performed.



This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with this operator manual, may cause interference to radio communications.



Operation of this equipment in a residential area may cause interference, in which case the user will be required to correct the interference at his own expense.



Due to the lack of the possibility of human exposure, all Cardinal Health™ centrifuges and accessories sold by Drucker Diagnostics, Inc. are compliant without any special labeling required by the California Safe Drinking Water and Toxic Enforcement Act (Proposition 65).

7. Initial Setup

1. Unpack and verify that all of the supplied equipment is present.

The following items come standard with each Cardinal Health™ DASH 6 centrifuge:

- a. One (1) 6-place horizontal rotor
- b. Six (6) 75-100 mm tube holders
- c. One (1) line power cord (appropriate for your location)
- d. One (1) Quick Start Insert Guide

The rotor and rotor accessories are rated for a rotation frequency of 5,200 RPM.

2. Set up the centrifuge on a flat and level surface. A benchtop clearance height of 21 in. (54 cm) is required to open the lid.
3. The centrifuge should have 6 in. (15 cm) of clear space around the centrifuge. Proper ventilation is necessary to prevent the overheating of samples as well as premature failure of the centrifuge. Choose an area which allows unencumbered air flow, and where the temperature remains between 16°C and 32°C.
4. No hazardous material shall be permitted in the clearance envelope during operation.
5. The operator time within the envelope shall be limited to the time necessary for loading, unloading, and centrifuge operation only.
6. Plug the line cord into the centrifuge.
7. Plug the line cord into an electrical outlet.
8. Turn on the power switch on the back of the centrifuge.
9. Be sure the electrical outlet is always accessible, as the line cord is the means of emergency disconnection.

8. Operation

1. Place the tubes into the tube holders. Be sure to follow the rules for balanced loads as listed on page 6.
2. The front panel LED is illuminated for the currently selected cycle. The selected cycle determines the run time and speed. To select another cycle, press the UNLOCK button in succession until the desired cycle is selected. Note: cycle selection is only available with the lid open.
3. Close the lid and turn the lid knob clockwise to its complete stop position.
4. Pushing the START button on the control panel starts the spin cycle.
5. When the cycle is completed, the rotor will slow to a complete stop and the lid light will flash.
6. The locking mechanism will disengage for 60 seconds allowing entry into the rotor chamber. To unlock after more than 60 seconds have elapsed, press the UNLOCK button. The lid will unlock for another 15 seconds.
7. Turn the lid knob counterclockwise and open the lid. The lid light will turn off.
8. You may now safely remove the samples.

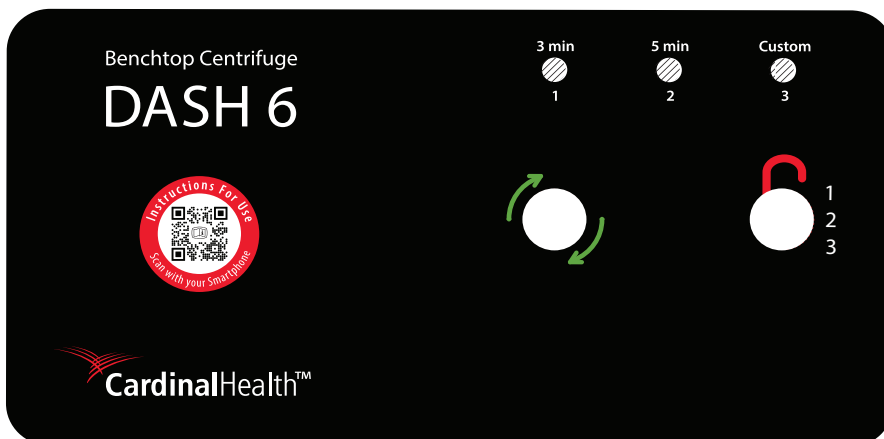
9. General Specifications

Tube Capacity	6 tubes – 3 to 10 mL
Radius with included accessories	5 in. (12.7 cm)
Dimensions (Width x Depth x Height)	12 in. x 14 in. x 9 in. (30 cm x 36 cm x 23 cm)
Weight	12 lbs (5.4 kg)
Noise Level	61 dB
Environmental Range	16°C – 32°C
Voltage	100-240 VAC
Frequency	50/60 Hz
Power Requirement	225 Watts
Centrifuge Motor	½ H.P. Brushless DC
Maximum Speed	5,300 RPM
Cycle Time	1 to 30 minutes (+/- 2%)




10. Quick Start

The LED indicator light is on for the cycle currently selected:




Factory Settings	DASH 6		
Preset	RPM	Time	G-Force
3 min	5,300	3 min	4,000
5 min	5,300	5 min	4,000
Custom	3,800	7 min	2,000



Cycle Controls

	Cycle Selection	The LED light above the numbers indicates the cycle currently selected. To change the selected cycle, open the lid and press the UNLOCK button in succession until the desired cycle is selected. Two seconds after selection, the button reverts to its UNLOCK function.
	Lock Cycle Selection	Open lid. Select desired cycle. Press and hold the UNLOCK button for 5 seconds. Two beeps will confirm that cycle selection is locked.
	Unlock Cycle Selection	To re-enable cycle selection, open lid, then press and hold UNLOCK button for 5 seconds. Three beeps will confirm that cycle selection is now unlocked.

Buttons

	Start	Begins running the cycle indicated by the cycle indicator LED light (the lid must be closed).
	Unlock	Allows for access into the rotor chamber by disengaging the locking mechanism. Entry is only possible when the rotor is stopped.
	Stop	Pressing the UNLOCK button during operation will terminate the run and unlock the lid after the rotor has come to a stop.

11. Review Cycle Time and Speed Settings

Factory programmed cycles are shown on the rear of the centrifuge, on the Factory Set Cycles label. To confirm your centrifuge's current settings, follow this procedure:

1. Open the lid. The lid must remain open until cycle confirmation is complete.
2. Press and hold the START button until you hear a beep.
3. Release the START button. The centrifuge will beep and the LED light will flash once for each minute of run time in the current cycle. 10 beeps / flashes equal 10 minutes of run time. Run time starts when the rotor reaches 90% of desired speed and stops when the rotor starts decelerating.
4. Pressing the START button again will cause the LED light to flash once for each 100 revolutions per minute (RPM) in the current cycle. 10 beeps / flashes equal 10 x 100 or 1,000 RPM.
5. The centrifuge will automatically revert to normal mode at the end.

12. Changing Cycle Time and Speed Settings

1. Open the lid. The lid must be open throughout setting adjustment.
2. Select the cycle you wish to change.
3. Press and hold the START and UNLOCK buttons together until the LED light flashes.
4. Press the START button for each minute of run time.
5. Move to speed setting mode by pressing the UNLOCK button.
6. Press the START button once for each 100 RPM.
7. Press the UNLOCK button to exit setting mode.

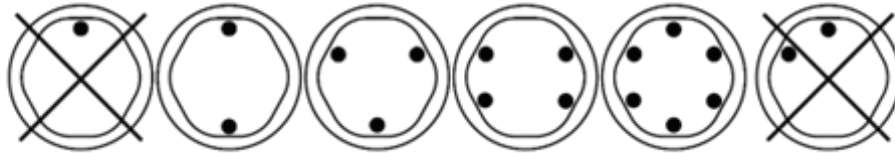
13. Record Custom Cycles

Cycle	Tube Type	RPM	G-Force (RCF)
1			
2			
3			

14. Balanced Loads

Your centrifuge must contain a balanced load to work properly. Spinning balanced loads will extend the life of the centrifuge and produce better results. Use the following rules when loading the rotor. If an odd number of samples is to be spun, fill a tube with water to match the weight of the unpaired sample and place it across from this sample.

1. Opposing tube holders must be equally loaded or empty or loaded with equally weighted samples.
2. When loading only 3 tubes, they must be of equal weight.



15. Care and Preventative Maintenance

With proper care and maintenance your Cardinal Health™ DASH 6 centrifuge will provide years of laboratory service. For proper care, the following steps should be taken:

1. **Always Spin Balanced Loads:** Make certain that you are always spinning a balanced load, as shown in the previous section. These centrifuges have a unique counter balanced motor mounting design which produces excellent vibration dampening. However, out-of-balance loads may break glass test tubes and may produce unsatisfactory separation results. Proper load balancing will improve sample separation and extend the life of the centrifuge.
2. **Motor and Electrical Maintenance:** The highest quality electrical components have been selected for the DASH 6 Apex centrifuges and should not need maintenance or servicing for the life of the centrifuge.
3. **Remove Accessories Before Moving:** All samples must be removed from the rotor chamber before transporting or storing the centrifuge to prevent damage and injury.
4. **Tube Holder Replacement:** It is recommended that the tube holders be replaced after 24 months of use. Inspect tube holders regularly for cracks. If cracks are discovered, replace immediately.

16. Cleaning and Disinfection

To prolong the life of the centrifuge, cleaning and disinfection is recommended every six months, or whenever there is a spillage or tube breakage. Contaminants must be removed immediately, or corrosion and premature degradation of components can occur. Before using any cleaning or decontamination methods except those recommended by the manufacturer, users should check with the manufacturer that the proposed method will not damage the equipment.

1. Unplug the centrifuge before cleaning.
2. Use appropriate personal protective equipment (PPE).
3. Apply cleaning solutions with a towel or cloth. Do not submerge the centrifuge in water or other cleaning solutions as this will cause damage and void the warranty.
4. ONLY isopropyl alcohol or a 10% (5500 PPM) bleach solution should be used for cleaning and disinfection of the centrifuge and accessories.
5. All surfaces must be dried immediately after cleaning and disinfecting.
6. TBQ Germicidal products shall not be used, as they will cause damage to the centrifuge and void the warranty.
7. The use of fully/partially halogenated hydrocarbons, ketones, esters, ethers, benzyls, ethyl benzenes, and all other chemicals not prescribed by the manufacturer shall not be used as they may cause damage to the rotor chamber, rotor, tube holders, accessories and centrifuge exterior and void the warranty.

17. Troubleshooting

NOTE: The latch must be turned completely clockwise to its stop position in order for the centrifuge to operate.

Problem		Solutions
1	The rotor does not spin freely.	<ul style="list-style-type: none"> • Make sure nothing has fallen into the rotor chamber. • If there is nothing obstructing the rotor, the rotor may be damaged. Contact Drucker Diagnostics at 814-692-7661 for further assistance.
2	Excessive noise when the machine is running.	<ul style="list-style-type: none"> • Check to see that the load is balanced. • Make sure that nothing has fallen into the rotor chamber. • Make sure that the screw in the center of the rotor is tight.
3	The centrifuge does not run.	<ul style="list-style-type: none"> • Check the electrical outlet. • Make sure the lid latch is turned completely clockwise to its stop position. When the lid is closed properly, the latch light on the control panel will illuminate.
4	The latch light does not come on when the lid is closed.	<ul style="list-style-type: none"> • Make sure that the unit has power. • Make sure the lid latch is turned completely clockwise to its stop position. The latch makes contact with a switch underneath the front top of the cabinet. If this switch is not activated, the light will not turn on and the machine will not run.
5	The run time is not set to the desired length.	<ul style="list-style-type: none"> • Check the run preset by following the instructions on page 5. If the preset is not the desired length, follow the procedure on the same page to change the run preset time.
6	The machine does not unlock after a run has completed.	<ul style="list-style-type: none"> • The lid should remain locked until the rotor has nearly come to a complete stop and then unlock for 60 seconds. If additional unlock time is needed, press the UNLOCK/STOP button with the machine plugged in and the rotor stopped. If the lid remains locked after this and will not unlock, the electronics may have been damaged. Contact Drucker Diagnostics at 814-692-7661 for assistance. • To access the rotor chamber, remove the latch label and use a pen to manually disengage the locking mechanism. Pull the mechanism towards the control panel and then unlatch and open the lid. If the unit is damaged, contact Customer Service for assistance.

For servicing information or additional technical support, contact Cardinal Health.

18. Replacement Parts

Part	Part No.
6 Place Horizontal Rotor	02-001-0-0011
75-100 mm Tube Holder (Pack of 6)	03-1-0007-0046K
Rubber Foot (Pack of 4)	7724037K
Lid Assembly	02-002-1-0027
Front Panel Label	03-0-0003-0296
Internal Power Supply	03-1-0005-0192

19. Available Accessories

Part	Part No.
1 in. Tube cushion (Pack of 6)	1525K
0.25 in. Tube cushion (Pack of 6)	9150K
13 x 75 mm Insert (Pack of 6)	77136064K
13 x 100 mm Insert (Pack of 6)	7713066K



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