


INSTRUCTION MANUAL



LOW SPEED CENTRIFUGE **ScanSpeed MiniVac** And **ScanSpeed MaxiVac**

Symbols used in this manual

	Warning
	Used in case of danger of a serious accident or lethal injury.



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Enclosure

Declaration of conformity

1 INTRODUCTION

ScanVac's ScanSpeed vacuum centrifuges have been designed specifically for speed vacuum concentration applications. The ScanSpeed series comprises of two sizes with the same technical specifications but with differing maximum sample capacities. The ScanSpeed Series is compatible with constituent equipment to provide complete integrated systems e.g. Cold traps & Vacuum pumps. Excellent results can be achieved from both units with good recovery results and with wide versatility of application.

2 INSTALLATION

2.1 Delivery Checklist


- 2-1-1. Main body
- 2-1-2. Basic rotor
- 2-1-3. Power cable
- 2-1-4. Emergency door open tool

2.2 Unpacking the instrument

- 2-2-1. Open the box from the top and remove the safety packaging.
- 2-2-2. Lift the instrument by both sides of the machine with an appropriate number of helpers.
- 2-2-3. Place it on a flat surface.

2.3 Installation location

- 2-3-1. Install the machine on a solid and flat bench or on the trolley.

	Warning
	DO NOT place the centrifuge at an angle, otherwise the axis of rotation will be changed due to the weight of rotor.

- 2-3-2. Install the machine about 30 cm away from the wall to give good air circulation.
- 2-3-3. Install the machine in a location with appropriate constant temperature & humidity.
- 2-3-4. Install the machine away from any kind of corrosive atmosphere.

2.4 Remove the protection material from inside the main body of the centrifuge

ScanSpeed series is delivered with the basic rotor mounted, and the protection material inside the main body protecting the rotor has to be removed prior to start-up.

- 2-4-1. Insert the emergency door opening tool into 'Emergency Door open hole' on the left side of the main body and open the lid.
- 2-4-2. Remove the rotor and then remove the protection packing.
- 2-4-3. Replace the rotor and secure in place.

2.5 Power Supply

ScanSpeed series uses 220V and the voltage variation range is $\pm 10\%$ of the standard voltage quoted. A stable voltage is required for the safe operation of the equipment. If you wish or have to use a different voltage supply, please contact us before proceeding.

3 OPERATION

3.1 Description of Control Panel

3-1-1. Main Display



- i) **Function:** Use for manual on-off of vacuum pump, release and cold trap. Only activated during the stop sequence and not during operation. Also use to move to the sub display from the main display.
- ii) **Standby:** Use for setting temperature of chamber. Standby LED is “blinking” during the set-up and constant when the setting is complete.
- iii) **Door:** For manual opening of the door. Can only be activated when the vacuum has been released.
- iv) **Start/Stop:** To start or stop the operation cycle
- v) **Enter:** To enter the preset values for operating. / Used also to check status of the preset values during the operation.
- vi) **RPM:** To set the operating speed in RPM (200 ~ 2,000 rpm)
- vii) **TIME:** To set the operating time (Default 0h 0m continuous / Setting range 1sec ~ 23h 59min).
- viii) **TEMP:** To set the required temperature of the chamber; +4~80 °C/Max 120 °C Displays the set temperature during in the stop mode, and actual temperature during the operation.
- ix) **VACUUM:** To display the vacuum pressure in the system.
- x) **PROG:** To save a set of operating values or to re- call the saved set of values (Memory capacity max. 100 programs).
 - ① Press the ‘**PROG**’ button for more than 3 seconds to save your preferred set of operating values.
 - ② The message “**PROGRAM SAVE: ##**” appears at the display, and the number segment “**##**” is “blinking”.
 - ③ Press the arrow buttons and select the program number, between 01 ~ 99.
 - ④ Press the **Enter** button to complete the saving.
 - ⑤ To retrieve a saved program, press the ‘**PROG**’ briefly, the message of “**PROGRAM CALL: ##**” appears on the display.

Select the number of the program required with the arrow buttons.

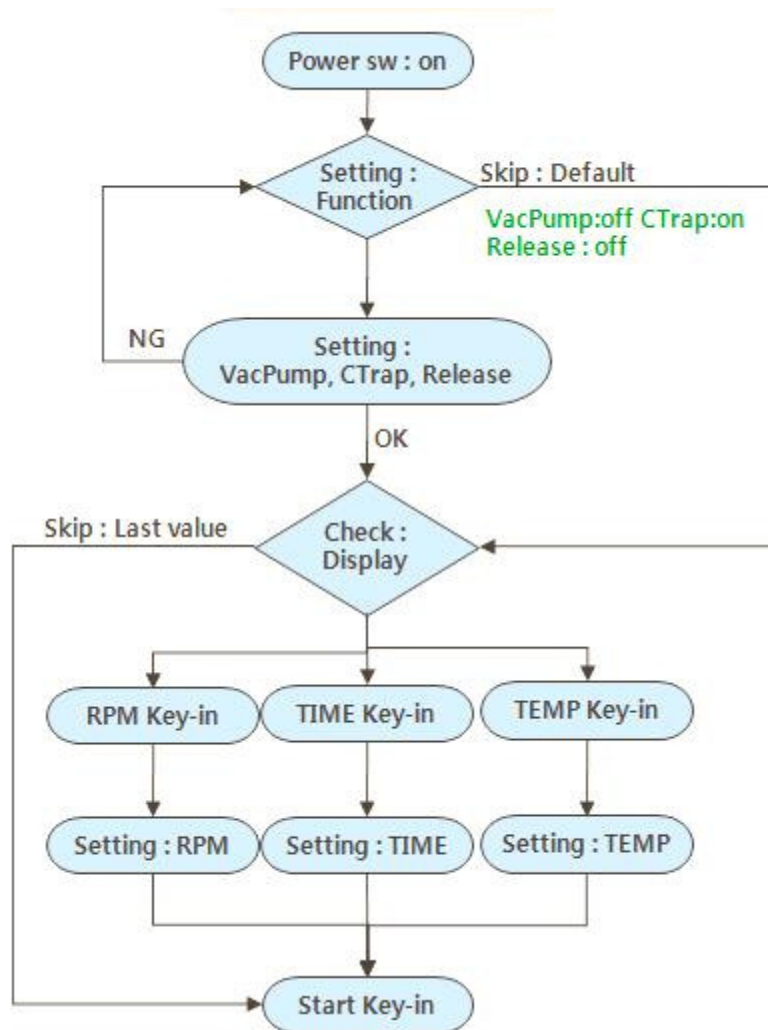
3-1-2. Sub Display



- i) Sub Display appears when the **Function** button is pressed after setting the operating conditions.
- ii) Sub Display function is for manual on-off of vacuum pump, solenoid valve and cold trap. But it can only be used when the centrifuge is not operating.
- iii) Normally, activation of the Sub Display is not used during the operating mode but for emergency opening and stopping of the system. The detailed method & sequences for emergency situations is given in section 4-1.
- iv) Press the **Function** button after completing the Sub Display function settings to return to the Main display. .
- v) **Function LED** is “blinking” during the setting of the sub display and constant when the setting is completed.

3.2 Operation Sequence

3-2-1. Sequence Map



3-2-2. Detailed Sequences for Operating

- i) Connect the AC cord to its required voltage.
- ii) Turn on the “trip switch”.
- iii) Turn on the power switch located on the right side of the unit.
- iv) Set the test condition according to your preferences. (RPM / TIME / TEMP)
- v) Press the **Function** button then up/down arrow buttons to set the operation of the vacuum pump, cold trap and vacuum release. Press the **Enter** button after completing the setting of each function. Normally, you don’t have to adjust these values for normal operation.

- vi) Press the **Start** button to start the operation with your set values. The operation is then started:-
- If you have set the speed above 1,000rpm the vacuum pump operation commences from 1,000rpm and gradually increases till the setting RPM is reached. If you set below 1,000rpm, the vacuum pump operation is started from your set RPM value.
 - The chamber is heated & starts to operate until reaching the set temperature, then maintains this temperature. If you want to start the operation with your set temperature, you use the **Standby** function. Press the **Standby** button before pressing the **Start** button. Then the operation sequence is started after reaching your set temperature value. The **Function** LED is “blinking” during the setup and constant when the setting is completed. Press the **Start** button to begin the operation.
- vii) Press the **Stop** button to end the operation.
- Vacuum pump is stopped.
 - Release is activated until the vacuum is completely released. **Function** LED is “blinking” during this process, and constant when completed.
 - Rotor is stopped.
 - After completing the vacuum release and the rotor has stopped, there is an audible signal and the **Door** LED is “blinking”.

To open the door, press the **Door** button, the lock is released for 5 seconds and the Door LED is “blinking”, it has to be opened within this time.

3.3 Operating Status for Each Part (VacPump / CTrap / Release / Heater)

Power on (Start status – default setting)	VacPump	CTrap	Release	Heater
	off	on	off	off
During the waiting status (for 1 hour)	VacPump	CTrap	Release	Heater
	off	on	off	off
After 1 hour of the waiting status – Power saving	VacPump	CTrap	Release	Heater
	off	off	off	off
Press any button during the power saving	VacPump	CTrap	Release	Heater
	off	on	off	off
Until reaching the setting RPM (Refer 3-2-2-vi.)	VacPump	CTrap	Release	Heater
	off	on	on	on
After reaching the setting RPM (Refer 3-2-2-vi.)	VacPump	CTrap	Release	Heater
	on	on	off	on
Press the STOP button	VacPump	CTrap	Release	Heater
	off	on	on	off
After completing the stop – return to the start status (default setting)	VacPump	CTrap	Release	Heater
	off	on	off	off

4 OTHER TOPICS

4.1 Manual Operating

If you need to ① Adjust the function of the vacuum pump, cold trap and release with your preferences, or to ② Operate the Emergency Open, you have to use Manual Operating mode.

- i) Turn on the power switch again.
- ii) Press the **Function** button.
- iii) Check the display. (Default: Vacuum pump: off / Cold trap: on / Release: off)
- iv) Press the **Function** button then press the arrow buttons to set the operating of the vacuum pump and cold trap. You can adjust on/off of vacuum pump, cold trap and release according to your preferences. Then press the **Enter** button after completing the setting of each function.
- v) If you want to operate the Emergency Door Open, the release has to be set "ON".
- vi) After completing the vacuum release, there is audible alarm and the **Door** LED is "blinking" within 5 seconds.
- vii) Press the **Door** button and open the door within 5 seconds.

4.2 Other Features

- i) Up to 1,000 rpm: sensing the real rpm of the machine.
- ii) Above 1,000 rpm (1,000~2,000 rpm): sensing as 1,000 rpm.
- iii) The latest test setting value for RPM, time and temperature is saved always after power-on/off. If you change these setting values, the new values are saved automatically.
- iv) The Function setting value for vacuum pump, cold trap and release goes back to the default setting (off-on-off) after power-on/off.

5 SPECIFICATION

	ScanSpeed MaxiVac	ScanSpeed MiniVac
Max. RPM	200rpm ~ 2,000rpm	
Max. Capacity	1.5ml x 200 micro tubes	1.5ml x 120 tubes
Power Requirements	180V ~ 253V / 50-60Hz (Standard: 230V 50/60Hz)	
Motor Drive	High Torque Plate Type Brushless (BLDC) Motor	
Chamber Heating Temperature Range	+4°C ~ +80°C (with manual bimetal: up to +120 °C)	
Cold Trap Temperature Range	Refrigerated +20 °C ~ -110 °C	
Vacuum Pressure	1,013 mbar ~ 1 mbar	
Operating Time	> 23hr 59min or continuous Default value: 0h 0 m (continuous)	
Dimension	475W * 268D * 340H / mm	380W * 445D * 250H / mm
Weight	40 kg (with Rotor)	27 kg (with Rotor)

6 MAINTENANCE OF THE SCANSPEED

6.1 Maintain the exterior of the centrifuge

- 6-1-1. Clean the outside of the centrifuge with a dry soft cloth. If necessary clean with a damp cloth using a mild soap solution. Dry with a clean lint free cloth.
- 6-1-2. Do not use volatile solvents or chemicals such as alcohol, benzene, etc.
- 6-1-3. If any rust appears, clean with a neutral detergent and dry afterwards.

6.2 Maintain the chamber

- 6-2-1. Dry the inside of the chamber after each use of the centrifuge.
- 6-2-2. Clean with a neutral detergent then polish with the dry soft cloth.

6.3 Maintain the shaft

- 6-3-1. Clean the shaft to avoid any imbalance during the rotation.

6.4 Maintain the rotor

- 6-4-1. Clean the rotor if there is any sample spillage or any kind of contamination.
- 6-4-2. Ensure that the rotor is clean and dry at all times.

6.5 Storage

- 6-5-1. Remove the power cable.
- 6-5-2. Remove the rotor from the main body of the centrifuge
- 6-5-3. Clean all parts, especially the bowl and rotors before storing
- 6-5-4. Keep out of direct sunlight.



- ✓ The instrument should be installed on a flat and solid surface.
- ✓ Do not move the instrument during operation.
- ✓ Operate with a stable & appropriate power supply.
- ✓ Do not place other equipment or chemicals within radius of 30 cm.
- ✓ **Only use rotors from ScanVac with the correct tube size for the centrifuge.**
- ✓ Do not use dangerous materials – inflammable or radioactive materials – as a sample.
- ✓ Use the emergency door open function after the operation has completely stopped.
- ✓ The samples should be loaded with the same volume in each tube exactly, and the tubes are arranged symmetrically in the rotor.
- ✓ The rotor locking nut should always be used.
- ✓ The use without care or for any application with unauthorized accessories is not allowed and invalidates any warranties.

Declaration of conformity

We declare under our responsibility, that the following product:

Model: ScanVac MiniVac Alpha & MiniVac Beta Vacuum Concentrator

to which this declaration relates is in conformity with the following standard(s), directives or other normative document(s):

In compliance with:

EN 61010-1 - Safety requirements for electrical equipment for measurement, control and laboratory use - General requirements

EN 61326-1 - Electrical equipment for measurement, control and laboratory use - EMC requirement - General requirements.

EN 378-1 - Refrigerating system and heat pumps - Safety and environmental requirements - Basic requirements, definitions, classification and selection criteria.

EN 378-2 - Refrigerating systems and heat pumps - Safety and environmental requirements - Design, construction, testing, marking and documentation.

Following the provisions of:

2006/42/EC - Machinery Directive, as amended

2006/95/EC - Low Voltage Directive, as amended

2004/108/EC - EMC Directive, as amended

97/23/EC - Pressure equipment, as amended

2011/65/EU - RoHS Directive

2012/19/EU - WEEE Directive

Lynge, January 2013



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Declaration of conformity

We declare under our responsibility, that the following product:

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