

KT-TDL4
Operation Instruction



Please read this manual carefully before use.

Subject to change without notice!

CHANGSHA KETHINK S&T CO.,LTD.

www.kethink.com

Product Name: Centrifuge

Product Model: KT-TDL4 Table Low Speed Refrigerated Micro volume Centrifuge

Main Components :

control system, centrifugal chamber, driving system, rotor, refrigeration system (in refrigerated medical centrifuge) and safety protection system.

Applicable People:

This product is only applicable to trained professional operators and technicians.

Operation Attention:

Non-professional operators are forbidden to use.

Warning & Suggestive Content: display on device screen.

Operation Instruction: See above

Label & Package:



Please read the instruction.

Storage Condition & Method:

Store in the room which is ventilated, dry, light-proof and free of corrosive gas.

Warranty: 1 Year.

Precautions & Security Warnings

Precautions:

- 1) Please read the operation instruction handbook before use.
- 2) To avoid instrument failure, **DO NOT** keep it in damp, high temperature or dusty place.
- 3) **DO NOT** move or open its door when instrument is running.
- 4) Instrument should be put in solid & flat desktop, four rubber feet should be in contact with the desktop with uniform stress.
- 5) Keep liquid volume in centrifuge tubes the same by visual inspection. A large vibration will occur if liquid volume is uneven. Instrument must be stopped immediately, check liquid volume to make sure they are the same, centrifuge tubes must be placed symmetrically in even numbers.
- 6) Open instrument door and keep inner cavity clean and dry after use.
- 7) Instrument use power supply must have a reliable grounding line.

Safety Warning:

- 1) To avoid damage in instrument mechanical or electrical part, **DO NOT** collide, vibrate or throw instrument.
- 2) To avoid damage in instrument mechanical or electrical part, **DO NOT** keep instrument in damp/ high temperature place.
- 3) To avoid instrument damage, When separate acidic or alkaline substances, **DO NOT** spill it into instrument cavity.
- 4) **DO NOT** use if there is crack on rotor body / hanging cup.
- 5) Under the situation of large rotor weighing error / unbalanced rotors, operation is forbidden.
- 6) To avoid accidents, exceed the maximum speed set by the rotor and operate instrument is forbidden.

After Sales Service:

- 1) 1 year warranty (within one year from the date of purchase).
- 2) If damage **NOT** caused by inappropriate operation / man-made damage, we promise to bear all the costs within warranty period. After warranty period, only maintenance costs be charged.

1. Working Principle & Application Range

KT-TDL4 desktop low-speed refrigerated centrifuge (hereinafter referred to as this machine) can be widely used in clinical medicine, biochemistry, genetic engineering, radioimmunology and other fields, and is an ideal experimental instrument for scientific research institutes and major hospitals. This machine adopts DC brushless motor, microcomputer control, touch panel, digital display, fast lifting speed, low noise, small vibration, and electronic door lock is safe and reliable. (See table 1 & table 2 for the main technical parameters).

Table 1: Main Technical Parameters

Type	KT-TDL4
Max Speed	5000rpm
Max RCF	3354xg
Max Capacity	12*5/7ml
Speed Accuracy	±10rpm
Timer Range	1-99min
Display	LCD
Temperature Range	-10° C~+40° C
Temperature Accuracy	±1° C
Motor	Brushless AC frequency conversion
Power	600W
Noise	≤65dB(A)
Voltage	AC 220V 50HZ 10A
Compressed Units	Imported environmentally friendly

	refrigerants
Full Power	1KW
Net Weight	50Kg
Instrument Dimension	450*370*380mm (L*D*H)

Table 2: optional rotors

NO	Item	Max Speed(rpm)	Max RCF ×g	Max Capacity(ml)	Size(mm)
NO.1	Angle rotor	5000rpm	3354xg	12×5ml	Φ10×42
NO.2	Angle rotor	5000rpm	3354xg	16×5ml	Φ10×42
NO.3	Horizontal Rotor	4000rpm	2146xg	12×5/7ml	Φ13×75

2. Installation

A) The power supply of this machine is single-phase AC 220V, 50Hz 10A.

B) The power supply should have a safe ground wire and a safe power supply . It is strictly forbidden to replace the zero wire with the ground wire. Do not arbitrarily pull or modify the wires of the machine.

C) The indoor environment of the installation site of the machine should not have any corrosive gas and the relative humidity should not be greater than 85%. There should be no other strong vibration sources.

The table on which the machine is placed should have sufficient rigidity and hardness to support the instrument, and the table should be flat without any slope, so that the four rubber feet of the machine are in stable contact with the table.

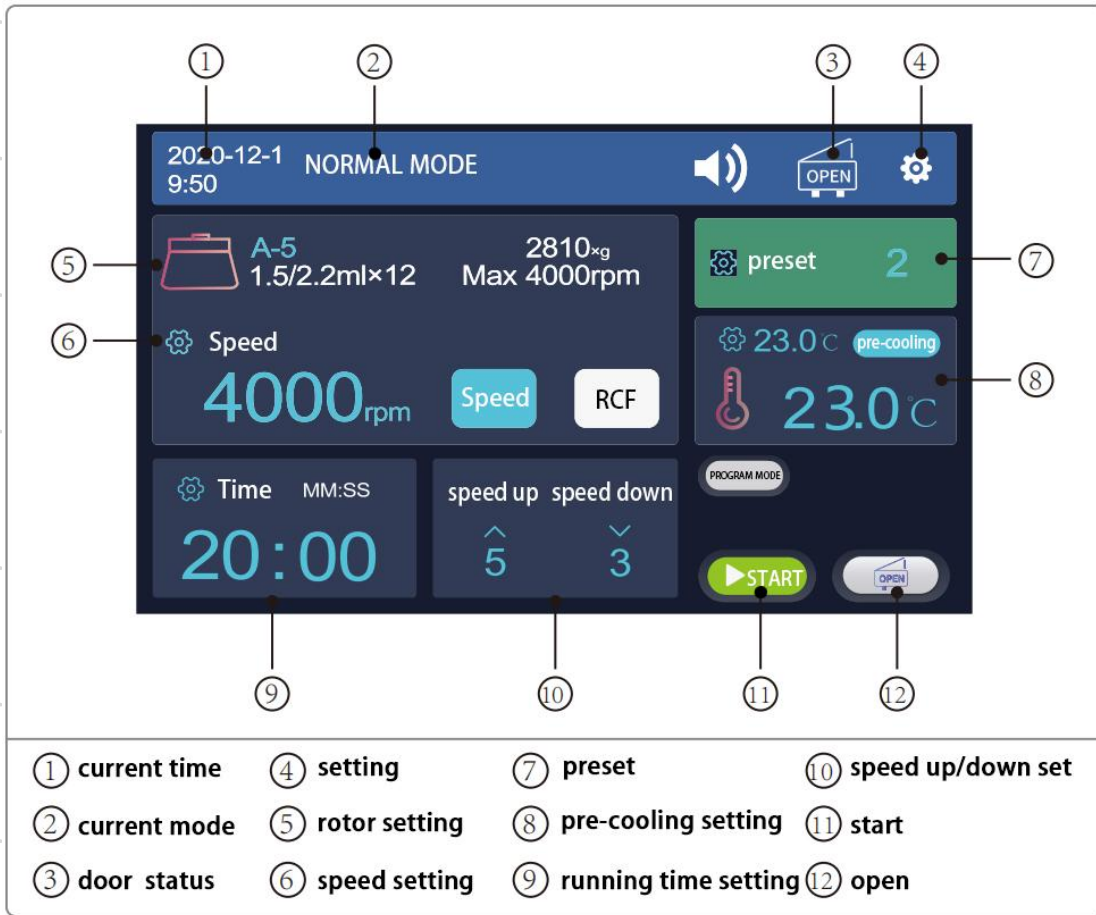
3. Operation Instructions

3.1 Place the centrifuge on a flat table or table. The four rubber feet should be firmly in contact with the plane. Visually check to make it balanced. Shake the centrifuge gently by hand to check whether the centrifuge is placed stably.

3.2 Open the door cover, put the centrifuge tube into the rotor test tube hole, the centrifuge tube must be placed in an even number and symmetrically (the test solution of the high-speed centrifuge centrifuge tube should be weighed), pay attention to tighten the rotor cover. Recheck whether the test tube is placed symmetrically and the screws are tightened.

3.3 Close the door cover, be sure to lock the door cover, and check whether the door cover is closed by hand after completion. Plug in the power outlet and press the power switch.


3.4 Set the rotor number, speed, temperature, time: (the operation panel diagram 1 is as follows):




(1) Door cover status:

current door cover open: 

current door cover closed: 

(2) Speed/RCF setting: press  to switch the display to set centrifugal force, the blue background is the current parameter;

(3) Pre-cooling setting: set the temperature (20.0° C in Figure 1), display the actual temperature (23° C in Figure 1) and turn on the pre-cooling function ;

(4) Set rotor number: 

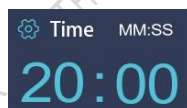
Click on the settable parameter area, and a numeric keyboard will appear indicating the current range of parameters that can be set. Input the data within the range. After pressing "Enter", the numeric keyboard will be automatically exited. The input data is the set parameter value. save automatically, otherwise Then press "Exit", the parameter value will not be saved; (**Note:** The rotor number of the instrument has been set before leaving the factory, and it is necessary to operate this function only when multiple rotors are equipped.) The rotor number must correspond to the matching rotor of this machine.

(5) Speed setting:



Click the number "4000", a numeric keyboard will appear, enter the required speed value, and then click "Enter".

(6) Time setting:



Click the number "20:00", a numeric keyboard will appear, enter the required time value. (**Note:** the "20" position is the minute setting, and the "00" position is the second setting), and then click "Enter".

(7) Temperature setting: Click the number "23.0", a numeric keyboard will appear, enter the desired temperature value, and then click "Enter".

(8) After all parameter settings are completed, close the door and click the "START" button to run the instrument.

4. Precautions

4.1. The table on which the centrifuge is placed should be flat, and the four rubber feet should be in contact with the table and evenly stressed to avoid vibration.

4.2. The centrifuge tube should be weighed and balanced. If the liquid difference is too large, large vibration will occur during operation. At this time, it should be stopped for inspection to make the liquid volume meet the requirements. The centrifuge test tube must be placed in even numbers and symmetrically.

4.3. If the centrifugal test tube is broken during operation, it will cause large vibration and should be stopped immediately.

4.4. After pressing the "Start" button, if the instrument cannot be started, check whether the door cover is closed.

4.5. The time interval between restarting after each shutdown shall not be less than 5 minutes to avoid damage to the compressor due to stalling.

4.6. After each centrifugation, the rotor must be taken out. (Unscrew the rotor cover and screw it into the center hole of the rotor with a T-shaped handle to lift it out.) Otherwise, if it is placed on the shaft for a long time, it may rust and the rotor will not be taken out. The whole centrifuge is scrapped.

4.7. The service life of the main engine of this machine is 10 years, and

the service life of the rotor is five years. The rotor should be replaced when it expires. All rotors must not be used above their maximum speed.

5. Troubleshooting

Common Fault	Possible Reason	Solution
Power on, display window does not light up	No 220V power	Check power supply
	Fuse burnt	Check & replace
	Transformer power plug and control board loose	Insert tight
Press "start", rotor not work	Door not closed	Close door
	Wiring plug and circuit board loose	Insert tight
	Power transformer damaged	Replace
	Motor is powered but does not rotate, the motor or motor module is damaged	Replace motor/ module
	Circuit board damage	Contact manufacturer for replacement
Centrifuge vibrates	Asymmetric placement of centrifuge tubes in the rotor	Check
	Centrifuge tube broken	Check & replace
	Rotor is not spinning	Check

Note: When the instrument is faulty, please check the fault condition corresponding to the fault number, and then solve the fault of the instrument according to the actual situation. Press the stop key to clear the fault display.

E-1: unbalanced	E-2: overspeed	E-3: door
E-4: Hall bug	E-5: Overvoltage (shutdown)	

E-6: Overcurrent	E-7: no speed test	E-8: communication
E-9: External input power fluctuation is too large	E-10: Temperature Sensor	

6. Warranty

1 year warranty (within one year from the date of purchase).

If damage NOT caused by inappropriate operation / man-made damage, we promise to bear all the costs within warranty period. After warranty period, only maintenance costs be charged.

Certificate of Conformity

Product Name : Tabletop Low-speed Refrigerated
Centrifuge

Product Model: KT-TDL4

Product No:

Max Speed: 5000 rpm

Max RCF: 3354 xg

This product has been tested and proved to be
qualified for delivery in conformity with technical standard.

Inspector:



Date: June,10th, 2022

Company Name: CHANGSHA KETHINK S&T CO.,LTD.

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KT-TDL4 Tabletop Low Speed Refrigerated Centrifuge**Packing List**

NO	Item	Specification	Quantity	Remarks
1	Tabletop Low Speed Refrigerated Centrifuge	KT-TDL4	1set	Wooden box
2	Rotor			
3	Rack			
4	Plastic Centrifuge Tube			
5	Tool			
6	Power		1pcs	
7	User Manual		1pcs	
8	Certificate of Conformity		1pcs	
9	Packing List		1pcs	