



Manual of Multi-functional Mill CM100M

CONTENT

1.0 Notes on the Manual	3
2.0 Safety	3
2.1 General instructions	3
2.2 Warning	3
2.3 Repair	4
2.4 Safety instructions	4
Please use it normally	4
3.0 Packing and transportation	5
3.1 Packing	5
3.2 Transportation	5
3.3 Storage	5
3.4 Supply list	5
3.5 Ambient temperature	6
3.6 Air humidity	6
3.7 Base frame installation (fig3.7.1~3.7.4)	6
3.8 Installation main body (Fig 3.8.1~3.8.4)	7
3.9 Power connection (fig 3.9)	9
4.0 Technical specifications	9
4.1 Introduction of function characters	9
4.2 Electrical parameters	12
4.3 Feed size	12
4.4 Collecting bucket	13
4.5 Instrument size	13
4.6 Weight	13
4.7Floor space	13
5.0 Installation	13
5.1 Instrument units (fig 5.1.1~fig 5.1.5)	13
5.2 Spare parts function list	15
5.3 Open/close grinding room door (fig 5.3.1~5.3.2)	17
5.4 Install/replace the cutting type accessories (fig 5.4.1~5.4.4)	18
5.5 Install/replace the cross beater type accessories	19
5.6 Install/replace the rotor beater type accessories	
5.7 Collecting bucket installation (fig 5.7)	23
5.8 Control panel(fig 5.8)	23
5.9 Control panel function list	23
5.10 Feed sample materials	24
5.11 Preparation before grinding	24
5.12 Universal hopper (fig 5.12)	25
5.13 Standard hopper (Fig 5.13)	
5.14 Start instrument	26
5.15 Stop the instrument	26
5.16 Using the cyclone	26

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5.17 Install the cyclon	e		26
6.0 Routine			28
6.1 Clean			28
6.2 Maintenance			29
6.3 Functional inspect	ions		29
6.4 Copyright			29
6.5 Modification			29

1.0 Notes on the Manual

- > This manual covers all the contents of the CM100M directory, In order to operate safely, please read the relevant parts of the manual.
- This manual does not include repair information. If you need to repair, please contact the supplier or GRINDER directly.

2.0 Safety

Multi-functional CM 100M, which is a unique and advanced product from Grinder,a multi-functional mill combines three types:cutting type,cross beater type and rotor beater type to one machine.

- cutting type, which handles soft ,medium-hard ,tough, flexible and fibrous materials.
- cross beater type, which can deal with the hard, brittle materials .
- rotor beater type, which can handle soft, tough materials

By replacing different type of grinding accessories can achieve three different grinding functions to expand application scope greatly. The three kinds of grinding accessories are modular design, which can replace each of them easily with short time. CM100M with 1500W three-phase frequency control motor and work in with transformer to make the speed can be adjusted continuously from 500~4000rpm, so as to meet different grinding requirements for different properties samples.

2.1 General instructions

- As a user, be sure that you are authorized to use CM100M. Fully understand technical documents before using.
- Before operation new user must be trained by the skilled personnel or operate strictly according to this instruction.
- Read and fully understand the safety instructions before using.
- Improper handling may cause personal injury and damage to the instrument. Please pay attention to your personal safety.
- > Please ensure that unqualified personnel do not operate the equipment.

2.2 Warning

Please pay your attention to the content of 'Note' in this manual to ensure your personal safety and avoid damaging to equipment.

2.3 Repair

This manual does not include any repair information. For your safety, please contact GRINDER company's authorized agents or GRINDER technical service center for repair.

2.4 Safety instructions

Please use it normally

GRINDER shall not be liable for any personal injury or damage to the equipment due to failure to comply with the safety instructions.

No changes can be made to the instrument, and use the accessories and accessories approved by the GRINDER. Otherwise, any of our warranty commitments will no longer be valid.

Packaging

Please keep the packing materials during the warranty period. Otherwise, we shall not be able to guarantee your rights in case of packing complaint.

> Transport

The machine may not be knocked, shaken or thrown during transport. So as not to damage the electronic and mechanical parts of the instrument.

> Temperature change

If CM100M is subjected to large temperature changes(such as in air transport), the formation of condensate should be prevented to avoid damage to electronic and mechanical components.

Packing list

Upon receipt of the goods, if you find any shortage or damage to the equipment, please inform the transport company or contact the GRINDER (within 24 hours). Delayed complaints may not be accepted.

> Installation requirements

If the environment temperature is too high, too low or high humidity, it will be possible to cause damage to the electronic parts or mechanical parts of the instrument, and the performance will be unknown.

Power connection

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Before connecting the power supply, please pay attention to the value of the nameplate on

the instrument so as not to damage the electronic parts or mechanical parts of the

instrument.

3.0 Packing and transportation

3.1 Packing

The packing should be suitable for transportation and meet the CM100M packing

requirements.

Note:

Please retain the original packing during the warranty period so that when the equipment

is defective, and you need to have it shipped back intact to avoid any damage during

transit.

3.2 Transportation

During transportation, please do not throw, knock or oscillate, so as not to damage the

electronic and mechanical parts of the instrument.

Note:

If the temperature changes greatly (e.g., air transport), condensation water should be

prevented to avoid damaging the electronic components.

3.3 Storage

Please ensure that the CM100M is kept dry during storage.

3.4 Supply list

CM100M main machine: 1set

• Base frame: 1 set

Collecting bucket: 1 pc

Manual: 1 book

• Power code: 1pc (10A/250V)

● Fuse: 2 ↑(10A/250V)

5

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Please check whether the supply is complete after receiving goods, including individual additional orders.

Notice:

Please inform GRINDER company within 24 hours if the shipment is not complete or damaged. Delayed complaints may not be accepted.

3.5 Ambient temperature

From 5°C to 40°C

Note:

When the ambient temperature exceeds or falls below that specified, the electronic and mechanical components may be damaged, And performance data changed to an unknown extent.

3.6 Air humidity

At a higher air humidity, the electronic and mechanical components may be damaged, and performance data changed to an unknown extent.

3.7 Base frame installation (fig3.7.1~3.7.4)

The base frame is included in CM100M main machine (fig **3.7.1**), which is also a optional part and can be order separately, the base frame is consist with three installed spare parts:

- BS: base
- LR: Left roller rail
- RR: Right roller rail



Fig 3.7.1

Installation step:

 Fasten the base BS with left roller rail LR and right roller rail RR with the supplied screws and tools.(fig 4.5-2~4.5-3)

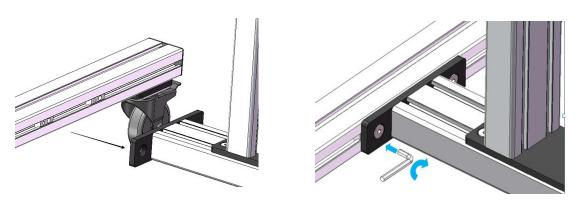


Fig 3.7.2 fig 3.7.3

Screws: M8×16 hexagon socket head screws* 4pcs

Tool: 5mm hexagon socket wrench *1pc

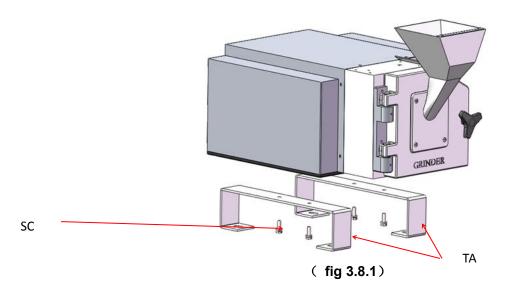
• The final installed base frame BBS (Fig 3.7.4)



Fig 3.7.4
3.8 Installation main body (Fig 3.8.1~3.8.4)

If the instrument is transported in separate packing, the base frame and main body should be installed on site. The installation steps as following:

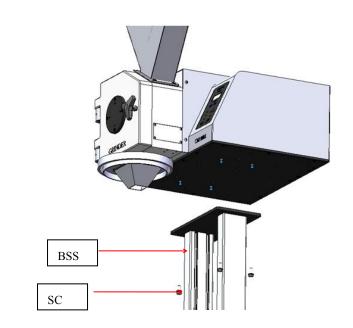
Please loosen and remove 4 pcs of transporting fixed screws SC and 2 pcs of fixing parts TA with supplied screws and tool.(Fig 3.8.1)



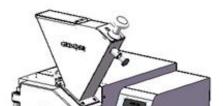
Tool: 13mm open spanner 1pc

Screws (**SC**): M8×25 hexagon socket head screws 4pcs

- > Installation step (fig 3.8.2~3.8.3)
- Please place the main body on the base frame BSS and fixed them with 4 pcs of screws SC.



(fig 3.8.2)



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Tool: 13mm open spanner 1pc

Screw (**SC**): M8×25 hexagon socket head screws *4pcs

Note:

The main body's gross weight is approx 85 kgs,

Need to 2 persons to move it!



(fig 3.8.3)

3.9 Power connection (fig 3.9)

- The voltage and frequency of the power supply have been marked on the nameplate.
- Ensure that the voltage is in line with the actual conditions.
- please use the supplied CM100M power cord.
- Fuse specification:10A/250VAC

(fig 3.8.4)



Fig 3.9

4.0 Technical specifications

4.1 Introduction of function characters

Function:

CM1OOM can handle batch quantity samples, please open the grinding chamber door and remove the rotor and grinding accessories after sample grinding, which is easy to clean.

Does not need to open the grinding chamber door and clean the grinding chamber when continuous grinding the same material.

Feature:

- High-efficiency grinding
- It can be used for batch and continuous sample grinding.
- Perfect combination with the unique grinding accessories shape and the variable frequency drive device, which is ensure rapid and high efficiency grinding progress and without the influence of the sample properties.
- Not suitable for wet grinding.
- It is not suitable for grinding humid materials.
- The rotor and grinding sets can be removed out for instrument cleaning.
- The speed can be adjusted from 500~4000 rpm continuous.

4.1.1 Cutting type (CM100M1) fig 4.1.1.1~4.1.1.2

Suitable for flexible, medium-hard, fibrous samples grinding.



Fig 4.1.1.1



Fig 4.1.1.2

Feature:

The bottom sieves can control the samples final fineness.

4.1.2 Cross beater type(CM100M2) fig 4.1.2.1~4.1.2.2

Suitable for hard, medium-hard and brittle samples grinding.



Fig 4.1.2.1



Fig 4.1.2.2

Feature

The bottom sieves can control the samples final fineness.

4.1.3 Rotor beater type (CM100M3) fig 4.1.3.1~4.1.3.2

Suitable for hard and medium hard sample grinding.





Fig 4.1.3.1

Fig 4.1.3.2

Feature

Draw-type rotor and the collecting device is easy to clean.

360° C and 180° C two type of ring sieves as option, the powerful 180° C ring sieve more suitable for medium hard and brittle samples.

4.2 Electrical parameters

Rated voltage: 220V, 50Hz

Rated power: 1500W

Motor speed: 500~4000rpm,adjustable continuously

4.3 Feed size

CM100M1: ≤70×80mm

CM100M2: ≤25mm

CM100M3: ≤25mm

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4.4 Collecting bucket

The max volume of collecting bucket is up to 5 L.

4.5 Instrument size

• From grinding chamber to motor: 310x 550x 240 mm

Base frame: 660x 700x 850 mm

• Loner hopper: 300x 300x 300 mm

• Collecting bucket: diameter 192 x 201 mm

4.6 Weight

Net Weight: approx 120kgs

4.7Floor space

1m x 1m

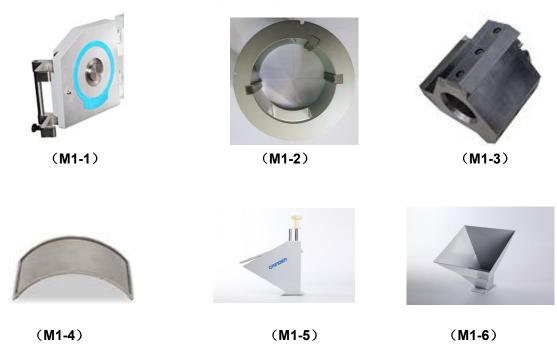
5.0 Installation

5.1 Instrument units (fig 5.1.1~fig 5.1.5)



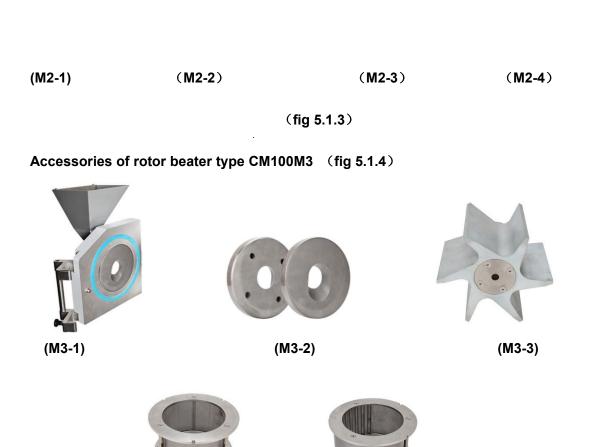
(fig 5.1.1)

Accessories of CM100M1 cutting type(fig 5.1.2)



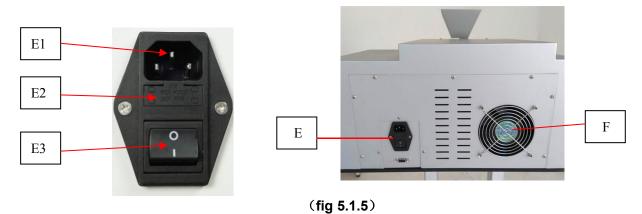
(fig 5.1.2)
Accessories of cross beater type CM100M2 (fig 5.1.3)





(fig 5.1.4)

(M3-5)



5.2 Spare parts function list

(M3-4)

No	Name	Function	Remark
А	Hopper	Feed samples	Suitable for

SIUDE	≣R		
eijing Grir	nder Instrument Co., Ltd. Tel: 010-8	2363430 Fax: 010-82363435	www.grindertech
M1-1	Grinding room door	Seal up the grinding room	Suitable for CM100M1
В	Handle	Open/close the lid	Universal
С	Collecting bucket	Receiving samples	Universal
D	Control panel	All menu items can be selected and parameters adjusted by display	Universal
CV	Cover of hopper	Seal up the feeder I	For M2, M3
M1-1	Grinding room door and handle	Seal up the grinding room	Suitable for CM100M-1
M1-2	Cutting type accessories	Cut samples,incl cutting bars	Suitable for CM100M-1
M1-3	Cutting type rotor	Cut samples	Suitable for CM100M-1
M1-4	Bottom sieves	Control the samples final fineness	Suitable for CM100M-1
M1-5	Feed hopper	Universal feed hopper	Suitable for CM100M-1
M1-6	Feed hopper	Standard feed hopper	Suitable for CM100M-1
M2-1	grinding room door,feed hopper and handle for cross beater type	Feed samples,seal up the grinding room	Suitable for CM100M-2
M2-2	accessories for cross beater type	cutting samples and installed it on grinding room	Suitable for CM100M-2
M2-3	Rotor of cross beater type	Cut samples	Suitable for CM100M-2
M2-4	Accessories of cross beater type	cutting samples and installed it on grinding room	Suitable for CM100M-2
M2-5	Bottom sieves	Control the samples final fineness	Suitable for CM100M-2
M3-1	grinding room door,feed hopper and handle for	Feed samples, seal up the grinding room	Suitable for

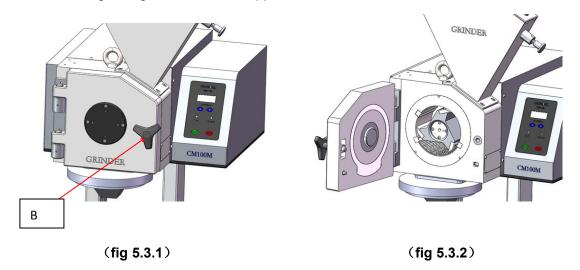
Beijing Grir	nder Instrument Co., Ltd. Tel: 010-8	2363430 Fax: 010-82363435	www.grindertech.c
	cross beater type		CM100M-3
M3-2	Accessories of rotor beater type	cutting samples and installed it on grinding room	Suitable for CM100M-3
M3-3	Rotor of cross beater type	Cut samples	Suitable for CM100M-3
M3-4	Accessories of rotor beater type	grind samples and installed it in the grinding room and match to the 360° C ring sieves	Suitable for CM100M-3
M3-5	Accessories of rotor beater type	grind samples and installed it in the grinding room and match to the 180° C ring sieves	Suitable for CM100M-3
E	Main switch	Power supply,on/off the power	Incl plug base,fuse and switch
F	Fan	Dissipate the heat	
E1	Plug base	Connect the power	
E2	Fuse base	Fuse input	
E3	switch	on/off the power supply	

5.3 Open/close grinding room door (fig 5.3.1~5.3.2)

- Please open the door only after CM100M is stop working.
- Please grab handle **B** manually,and turn it with anticlockwise direction and then you

can open the grinding room.

Lock the grinding room door with opposite order.



Note:

- The grinding chamber door can be closed only when the grinding chamber grinding surface without any samples to ensure instrument ,components and seal rings.
- Please don't open the door when the motor is running, it's danger to personal safety.
- > lease take safety measure before grinding poisonous and unhealthy substances.

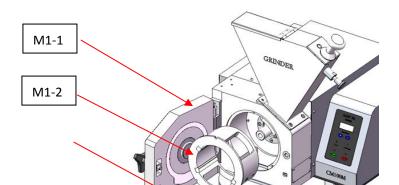
5.4 Install/replace the cutting type accessories (fig 5.4.1~5.4.4)

First step: Installing the grinding set M1-2:please align the slot I(3 places totally) with limited post G(3 places totally), and the outlet J match to the bottom outlet and turn the M1-2 to the innermost, the 2 limited holes L should match to limited post H when install the M1-2 with position. Refer to fig **5.4.1~5.4.3**

Second step: insert the rotor M1-3:insert the rotor into the drive shaft K and turn the rotor to the innermost position,refer to fig **5.4.4**

Third step: Install the bottom sieve M1-4:place the bottom sieve to the bottom of M1-2 and lock the sieve between two cutting bars N and put it into innermost place.Refer to fig **5.4.4**

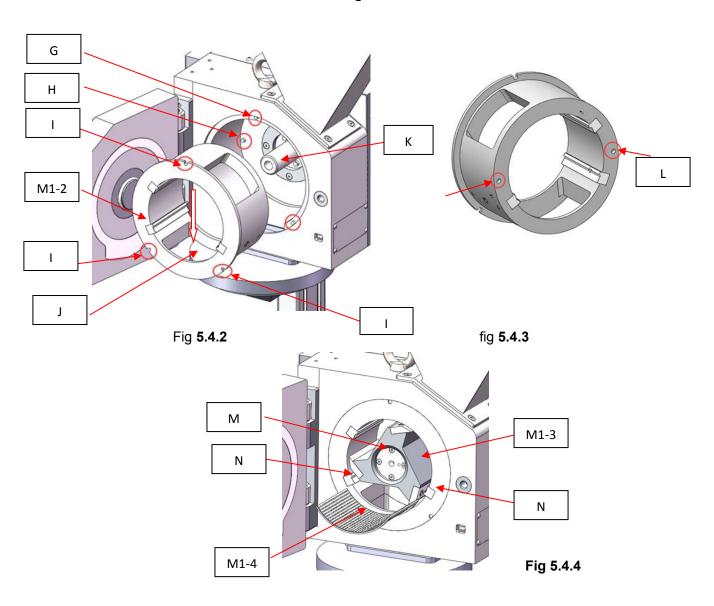
Note: Replace the accessories with opposite order.



M1-4

M1-3

Fig 5.4.1



5.5 Install/replace the cross beater type accessories

(M1 → M2) fig 5.5.1~5.5.6

First step: remover the hopper M1-5(or M1-6) from M1, and unscrew and take away the 4

pcs hexagon socket head screws (M5×12), then seal the hopper with cover **O** and screw them with 4 screws,refer to fig **5.5.1**

Second step: remove the rotor M1-3 from M1 manually.

Third step: remove the fixed screw P :loosen and remove the screw P from axle X with supplied 6mm hexagon socket wrench in anticlockwise direction.Refer to fig **5.5-1**

Forth step: remove the door of M1 and left M1-1, then replace it.

Fifth step: install M2 door: install the M2-1(the door ,hopper and grinding accessories of M2-2) to the hinge of grinding chamber,refer to fig **5.5-2**

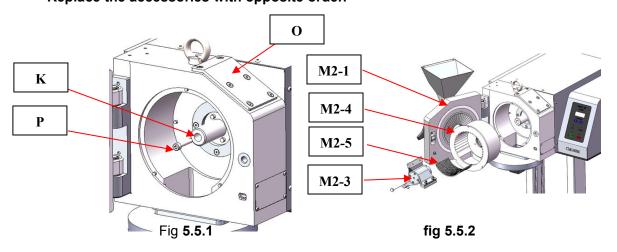
Sixth step: Install the parts of M2-4:please align the slot Q(3 places totally) with limited post G(3 places totally),and the outlet port R match to the bottom outlet of M2 and turn it to the innermost position,the 2 limited holes should insert to the limited post H when with right position.Refer to fig **5.5-2~5.4-4**

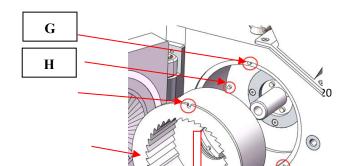
Seventh step: install the cross beater rotor M2-3: insert the M2-3 into the axle K and press it into innermost place and fix the M2-3 to the drive shaft K with a pc of hexagon head screw T(M8×90),refer to fig **5.5-5**

Eight step: Install the bottom sieves: place M2-5 at the bottom of M2-4

Note:

Replace the accessories with opposite order.





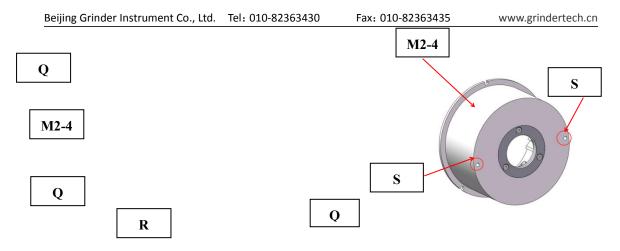
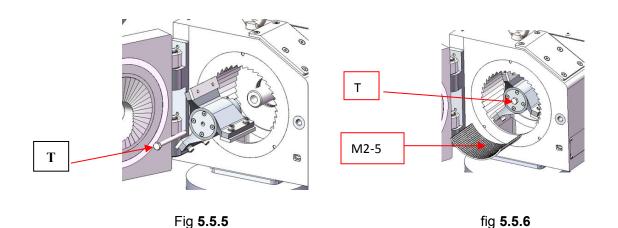


Fig 5.5.3 fig 5.5.4



5.6 Install/replace the rotor beater type accessories

(M2 → M3) fig 5.6.1~5.6.6

First step: remove the door and hopper of M2-1 and left M2-1 and take it away,refer to fig 5.6-1

Second step: remove the rotor of **M2-2**: loosen and remove hexagon head screw T in anticlockwise direction from the axle X with s supplied 6mm hexagon socket wrench ,refer to fig **5.6.1**

Third step: M2-5, remove grinding accessories M2-4 and bottom sieve M2-5,refer to fig **5.6.1**

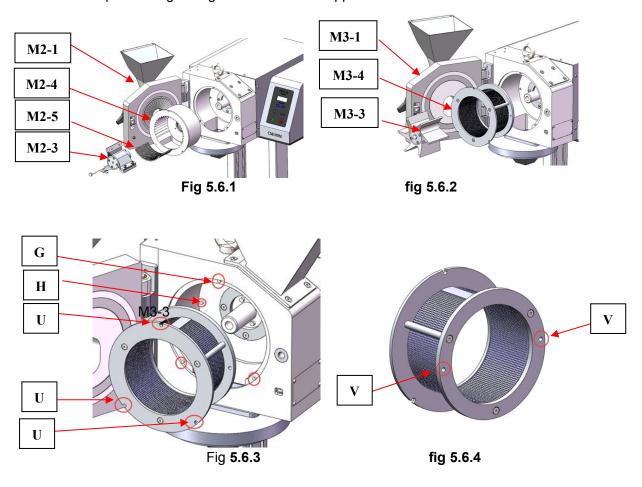
Forth step: Install M3-1: install M3-1 (door ,hopper and accessories of M3-2) on the hinge of grinding chamber.

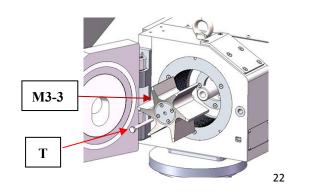
Fifth step: Install the parts of M3-4 /M3-5:please align the slot U(3 places totally) with

limited post G(3 places totally), turn it to the innermost position with both hands,the 2 limited holes V should insert to the limited post H when with right position.Refer to fig 5.6.2~5.6.4

Sixth step: Install the rotor of M3-3: insert the M3-3 into the axle K and press it into innermost place and fix the M3-3 to the drive shaft K with a pc of hexagon head screw $T(M8\times90)$, refer to fig **5.6.5~5.6.6**

Note: replace the grinding accessories with opposite order.





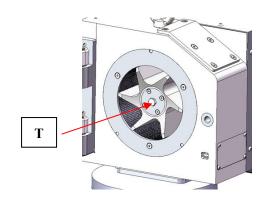


Fig **5.6.5**

fig 5.6.6

5.7 Collecting bucket installation (fig 5.7)

- Hang the collecting bucket C
- Locking clamp W

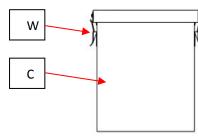
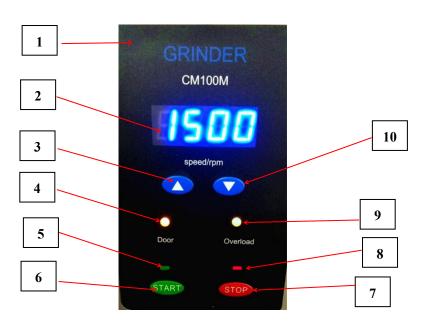


Fig 5.7

5.8 Control panel (fig 5.8)

fig 5.8



5.9 Control panel function list

No	Name	Function
1	display	parameter setting and
		control the instrument
2	Digital display tube	Display the running speed

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3	Speed setting key	Increase the speed
4	Guiding light for grinding	Lighting when the grinding
	room opening	door is opening
5	Start indicator lamp	The lamp is lighting after
		instrument starting
6	Start key	Start the instrument
7	Stop key	Stop the instrument
8	Stop indicator lamp	The lamp is lighting after
		instrument stopping
9	Overload indicator lamp	The lamp is lighting when
		instrument is overloading
10	Speed setting key	Reduce the speed

5.10 Feed sample materials

Start the CM100M at first, then start feeding the sample material!

Note:

- > Excess sample amount will lead to instrument and components damages
- The maximum feed size must not exceed specified feeding,otherwise it's lead to instrument break down and cause components damages
- Fill the sample material slowly and continuously into the feed hopper while the device is running.
- Danger of breathing in dust hazardous to health!

Pay attention to the dust ingredients in the grinding substance. Any released dust may danger for your body health and please take some protection measure and use exhaust device.

> Explosion hazard!

Dusty grinding material can escape through the hopper during grinding. Use suction extractors if the material is toxic or otherwise hazardous to health.

5.11 Preparation before grinding

First step: cut off the electric power

Second step: insert relative grinding accessories.

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Third step: insert the rotor

Forth step: close and lock well the grinding room

Fifth step: fasten the collecting bucket

5.12 Universal hopper (fig 5.12)

The universal hopper is suitable for large amount of samples

Operation of universal hopper:

First step: pull out the lock pin LP horizontal

and raise up the feed hopper plug Y.

Second step: open the cover of funnel X

Third step: start the instrument

Forth step: Feed the samples from feed port.

Fifth step: Close the cover of hopper X

Sixth step: put down the hopper plug Y

5.13 Standard hopper (Fig 5.13)

The application for standard hopper

- Cable waste
- Abandoned carpets
- similar materials like straw and grass.
- Similar materials like tree branch.

Operating method of standard hopper:

First step: start CM100M

Second step: feed the samples into hopper.

Third step: push the samples with feed shovel **Z** into grinding chamber.

Note:

- Wear cut-resistant safety gloves when you feed some long size samples.
- Only the hopper plug can be used to assist to feed the sample, the instrument and parts will be damaged if use assist tools.
- It's possible to cause personal injure if allow many shapes samples entry into the hopper.

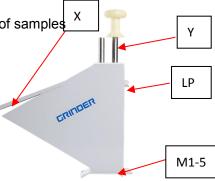
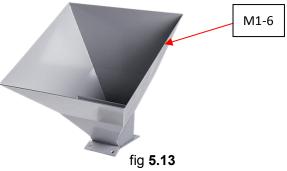
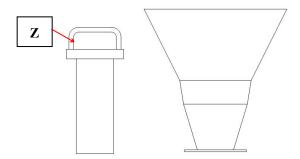




fig 5.12





5.14 Start instrument

First Step: installing all accessories well.

Second step: close and lock the grinding chamber door.

Third step:setting the grinding speed.

Forth step: press "START" key to start the instrument.

5.15 Stop the instrument

Press" STOP " key to stop the instrument.

5.16 Using the cyclone

CM100M can connect with cyclone when need to collect some light samples,eg:plastic bag,paper bag and packing material for milk products.

5.17 Install the cyclone

5.17.1 Function introduction of parts: fig 5.17.1

- 1.cover of cyclone
- 2.feeding hopper of cyclone
- 3. Cover of collecting bucket
- 4.Lock
- 5.5L collecting bucket
- 6. Supplied handle of cyclone
- 7.supplied bar
- 8.outlet hopper of cyclone (incl 4 pcs of hexagon socket head screws M4x8)
- 9.fixed sets of cyclone (incl 4 pcs of hexagon socket head screws M6x12, 1 pc of hexagon socket head screws M6x20)

10.outlet ring

9 8 1 2 2 4 6 6 5 4

Fig **5.17.1**

5.17.2 Installation notes: fig .17.2.1~5.17.2.2

First step: fasten the supplied bar 7 to the fixed set 9 with one pc of hexagon socket head screws M6x20

Second step: Install the fixed set 9 and the supplied bar 7 on the main body and fasten them with 4 pcs of hexagon socket head screws M4x8.

Third step: Install the supplied handle 6 on the supplied bar 7.

Forth step: fixing the outlet hopper 8 onto the outlet ring 10 with 4 pcs of hexagon socket head screws M4x8 refer to fig **5.17.2.1**

Fifth step: Insert the feed hopper 2 into the round hole of outlet hopper 8 and adjusted with available height and fasten them with hand wheel.

Sixth step: install the cover 3 to the hopper 2 (thread connection)

Seventh step: fix the bucket 5 with 3 pcs of hang locks.

Eighth step: put the cover 1 to the hopper 2 and press 1 down to ensure seal up them well.

Assembled them with opposite order.

Note: please insert the exhaust tube of vacuum cleaner into the interface of cover 1 when connect a vacuum cleaner.

8

9 2 10

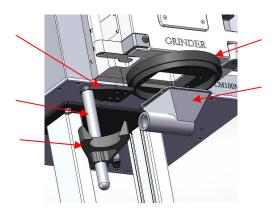


Fig **5.17.2-1**

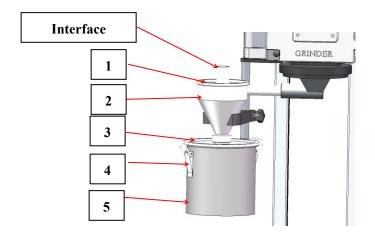


Fig **5.17.2-2**

6.0 Routine

6.1 Clean

First step: stop CM100M.

Second step: Remove the power code and cut off the power before cleaning.

Third step: open the grinding chamber door.



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Note:

➤ Do not use running water to clean the CM100M and remove the accessories if necessary,an industrial vacuum cleaner and a stable, long-handled brush are best suited for cleaning the CM100M.

> Please cut off the power before cleaning.

6.2 Maintenance

CM100M is maintenance free.

6.3 Functional inspections

Please check the instrument's grinding chamber and safety switch one time half a year:

First step: open the grinding chamber room and get out all grinding setting.

Second step: press "START" key and the instrument can not work any more.

Third step: Close grinding chamber room and press"**START**" and instrument work.

Note:

Please keep contact with **GRINDER** and inform relative distributor if the instrument can work when the grinding chamber room is opening.

It's danger to people if the main switch is break down.

6.4 Copyright

The GRINDER will be held liable only if the GRINDER has direct authority to copy or distribute the instruction.

6.5 Modification

Technical improvements will be made without prior notice.