

Hammer Type Test Mill

JXFM110

User Manual

Please carefully read this manual before use

1.General Description

When making physical inspection and chemical analysis of the grain quality, the grain departments normally pulverize the sample to be measures and detected.

JXFM110 mode hammer type whirlwind mill has the features of smart appearance, compact structure, convenient operation, stable running, long service life. The mill is suitable to be used in grain processing industry for pulverizing of intermediate and small size grains, such as wheat and rice with water content that meet national standards. The mill has following features:

1.1 It can pulverize various grains with high efficiency and high speed. The sample grains are pulverized by means of high speed mill hammers (16800r/min) into fine and uniform powder which enter into a sample powder.

1.2 On the inner wall of the tank there stacked with a layer of domestically advanced sound absorbing material which makes noise to be lower than that of the same domestic and abroad products

1.3 There is an embedded temperature protector within the motor. Once the temperature of motor exceeds a set temperature limit, it would automatically stop running and start again when temperature decreases to the normal value below the limit.

1.4 The high speed air flow produced during pulverizing sample grains has a self cleaning effect. Therefore, no manual cleaning the mill cylinder is required generally during the interval between sample pulverizing operations.

1.5 After going through sieves with different screening whole sizes, the pulverized sample powder is suitable for samples' preparation and measurement and analysis of their various indexes, such as wheat gluten quantity and quality, falling number, near infrared compositions, grain viscosity and other fineness requirements etc.

1.6 For large grain samples of irregular form (such as maize grains), a preliminary pulverizing by means of laboratory pulverizing mill or direct feeding pulverizing by means of laboratory pulverizing mill or direct feeding pulverizing is required

1.7 The high speed air flow produced during hammer pulverizing could result in loss of water content in sample grains. Normally, a sample grains that contain 10% or 20% water would loss 5% or 10% water content during the pulverizing process.

2. Technical Specification of Hammer Type Whirlwind Mill

Voltage of Power Supply : AC 220 \pm 10 V, 50 Hz

Output Power of Motor: 750 W

Diameter of Working Chamber: 110 mm

Rotational Speed of Mill Hammer: 16800 r/min

Hole Diameter of Screening Plate: 0.5, 0.8, 1.5 mm

Net weight: 51kg

Gross weight:68kg

Machine size: 53x53x65cm

Packing Dimension: 63x46x65cm

3.Packing List

Name	Quantity
Main Machine of Whirlwind Mill	1
Stainless Steel Collector	1set
Transparent sample feed hopper	1
Filter bag	1
Power Supply Cord of 2 m length	1
Automatic feeding device	1
Driving belt	1
Stainless Steel Screening Plate with 0.5 and 1.5 holes	1
Sealing O-ring of 19 X 2.65mm	1
M6X 10 Socket head cap screws	1
M6 Socket Head Spanner	1
25 mm sweeping brush	1
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4. Installation Guide of hammer Type Whirlwind Mill

After unpacking, check various accessories and spares against the packing list and the accessories must be mounted on the main machine.

4.1 Place the main machine of hammer type whirlwind mill on a flat and sound work stand surface.

4.2 Carefully read the operation manual and the operation precautions printed on both sides of the whirlwind mill.

4.3 Take stainless steel collector (14) and unscrew the fixing screw (12) on the upper side of discharge pipe on right side of main machine. Insert the feed pipe on upper part of the collector into discharge pipe (13). Fasten the screws after adjustment of collector angle. Put the air filter bag (11) around the big pipe on upper part of the collector.

4.4 Open the front door (7), loosen the circular connecting nut (3) on the upper of rubber sealing sleeve which locates on the upper part of mill cylinder and butterfly nuts at right side (16). Open the front cover (6) of mill cylinder and check if the mill hammer is loose. Then pull and hold outer side of blades of mill hammer with left hand and fasten M16 stainless steel nut on the center shaft clockwise by means of a spanner with right hand. Check the size of screening plate (a screening plate with hole size 0.8mm is mounted when delivered). Close the front cap (6) of mill cylinder and fasten butterfly nut (16) and circular nuts (3), then close the front door (7).

4.5 Check if the voltage of power supply meets requirement and then connect the plug with power supply socket.

4.6 Check if the rotational direction of mill hammer is in coincidence with that pointed out by arrow the front cover of mill cylinder (counter clockwise).

4.7 Pull down the spring clamp (15) of the collector with left hand and take out the sample cup on lower part of stainless steel collector with right hand.

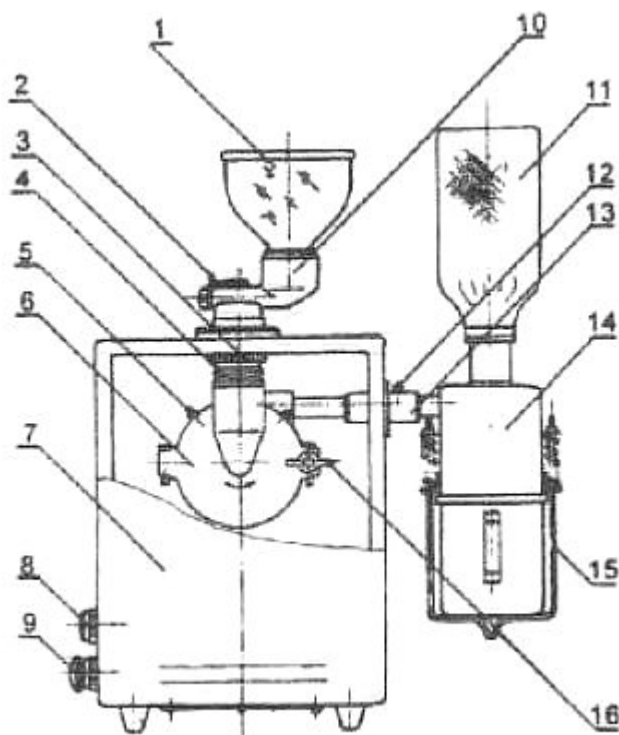
Then pour out the foreign object in the cup and lightly rotate it several times.

Leftwards and rightwards after replacing it back to prevent leakage.

4.8 Install the transparent feed hopper into feeding head (10) and press it soundly Totally open adjustment plate (2) of stainless steel throttle valve.

4.9 Press the green start button (8) on lower left side. For the first time application let the motor running idly for 2 to 3 left side.

4. 10 Press the red stop button (9) to stop the machine



1. Feed Hopper 2. Throttle Adjustment late 3. Connecting Nut;
4. Connecting Sealing O-ring; 5. Fixing Screw of Screening Plate
6. Front cover of Mill Cylinder; 7. Front Door; 8. Start Button;
9. Stop Button; 10. Stmt Button; 11, filter bag;
12. Fix screw; 13. Connecting Sleeve of Discharge Pipe;
14. Collector; 15. String clamp; 16. Butterfly Nut;

5. Operation

5.1 Before operation of hammer type whirlwind mill. it should be confirmed that the operation voltage is AC 220 \pm 10V with frequency 50 Hz. The current capacity of power supply socket should be equal to or greater than 10A.5.2 Before putting sample grains into feed hopper, it should be confirmed that there is no small metal pieces or other hard object within the sample grains.

5.3 The hammer type whirlwind mill should be placed on clean dry. well ventilating, level and sound stand to ensure normal running of the equipment.

5.4 After connecting to power supply, the start button should be pressed only after having

adjusted the throttle valve on feeding head to the maximum position. After normal operation of the whirlwind mill. pour the sample grain into feed hopper and then adjust the throttle valve to Let the sample grain gradually enter into mill cylinder. The entering speed of grain should not be too fast, to avoid the blocking operation

5.5 After having pulverized the sample grain, let the mill operate with time delayed for 40 to 60 seconds to clean the mill. Cylinder automatically, and then press the red stop button to stop the mill.

5.6 The quantity of pulverized sample grain for each time is 200 to 300g.

5.7 The feed speed could be adjusted by the adjustment plate of throttle valve on the feeding head. The feed speed depends on water content within the sample grain. The greater the water content in the sample grain, the slower the feed speed should be. For 300g of wheat grain with standard water content, the normal pulverizing time is about 90seconds. If there is abnormal sound from the motor, it means the feed speed is too high.

5.8 For sample grain with high water content, the feed speed should be very low. Otherwise the dough would be burnt due to high temperature within mill cylinder. If this phenomenon has happened, the cylinder and whole powder discharge duct should be cleaned immediately.

5.9 If an automatic feeding device is used the feed quantity of sample grain could be adjusted by the speed regulator. So that the necessity of controlling feed quantity of sample grain by means of manual adjustment of throttle valve could be totally excluded.

5.10 After finishing pulverizing of sample grain, the upper part of collector must be beaten several times with a small wood stick. Then take out the sample grain cup and screening and weighing as required.

5.11 If falling number or the index in relation to water content is measured, the weight measured by means of scale must be corrected to that at the standard water content.

6. Description of Circumstances where the Hammer Whirlwind Mill is not applicable

6.1 The hammer type whirlwind mill is not suitable to be applied to pulverize sample grains with high water content, high viscosity, high oil content and high cellulose. Otherwise, not only the pulverizing effect would be not satisfactory,, but also the machine would possibly be damaged and even motor could be burnt out

6.2 A single phase capacitor started motor is used on the hammer type whirlwind mill and its output power is 750W. It cannot be used to start with load and for long time full load running. Otherwise, the temperature within mill cylinder would rise rapidly, or the motor would be damaged due to over loading.

6.3 The hammer type whirlwind mill is not applicable to pulverize the sample grains with high hardness, large size or irregular form. If such sample grains must be pulverized with the whirlwind mill, they should be first processed by preliminary pulverizing and then pulverized by the whirlwind mill.

7 Troubles Shooting and Maintenance

7. 1 cleaning

If abnormal sound or low powder output efficiency (powder output lasts for long time) is heard or observed during the application process, it means that the machine should be stopped for cleaning. The cleaning should be done as following:

- 1) Disconnect power supply and take away the sample cup. Loosen the fix screw (12) on the connecting sleeve (13) of discharge pipe, and then turn the collector 90 degree forward, wipe and clean internal chamber of collector;
- 2) Remove the collector and pole and stir the discharge duct with a small stick;
- 3) Remove filter bag and clean it;
- 4) Adjust proper tension of driving belt as described in section 7.4;
- 5) If the whirlwind mill is continuously used for a long period. it should be cleaned everyday.

7.2 Replacement of Screening Plate

- 1) Disconnect power supply and open the front cover (6) of mill cylinder as described in section 4.4;
- 2) Unscrew both M4 nuts (5) on left and right of external side on fix pressing plates of the screening plate;
- 3) Loosen both M4 screws on left and right from inner side with a screw driver;
- 4) Pull out original screening plate and insert new screening plate;
- 6) The procedure of locking up pressing plate is just opposite to the steps mentioned above for removing

7.3 Replacement of mill hammer

If the mill hammer is worn out seriously or deformed under the effect of a force, it should be replaced to following procedure:

- 1) Buy a new mill hammer by mail;
- 2) Disconnect power supply and open the front cover (6) of mill cylinder as described in section 4.4;
- 3) Then pull and hold outer side of blades of mill hammer with left hand and unscrew M16 stainless steel hexagon nut on the center shaft counter clockwise with right hand;
- 4) Remove the nut and mount a new mill hammer, then fasten as described in section 4.4;
- 5) When mounting the new mill hammer, it is prohibited to beat on new mill hammer; otherwise it could result in deformation of mill hammer and affect the quality.

7.4 Locking up and Replacement of Driving Belt

After long term operation of hammer type whirlwind mill, the driving belt would definitely elongate and be worn out, resulting in slipping of belt tension or to replace the driving belt as following;

- 1) Disconnect power supply;
- 2) Tip the whole machine 90 degree from front backwards;
- 3) Remove 4 M5 screws on cover of electric box on base surface, and remove the contactors of heat relay from the cover;
- 4) Press the reset switch of heat protector;
- 5) Mount the cover of electric box in procedure opposite to that step mentioned above and starts again.

7.5 Handle the failure

1. Change the driving belt

Take off the six screws at the back of the box, loose the butterfly-size nut beside the engine .Lift the bottom plate of the engine. Take off the driving belt from the front of the box. Put a new driving belt on. Turn down the butterfly size nut.

2. The failure of start

When motor over loading arose heat protect relay jump brake

- 1) cut off the power supply;
- 2) Rotate 90 degree of the front of the whole engine;
- 3) Unload the 4-M5 nails on the cover. Take the thermorelay off, press the reset button reinstall the thermorelay on.
- 4) Unload heat protest ware replacement brake
- 5) Athwart the above order fit on the box cover board, then restart.

3. Change the sieve plate.

Open the door, take the joint nut. Take butterfly-size nut off, open the front chamber cover, and take off the screw the screwdriver point. Go on take off this screw. Change a new sieve plate. Put the screw down. Close the front chamber cover, screw down the butterfly-size nut and the joint nut.

That's all

7.6 Tripping of internal heat protector within motor due to overheating of the motor wait for some time and restart the motor after it is cooled down.

7.7Buming out of Motor due to Overloading

Remove the motor and send it to the Company for repair.

8. Measure item and sample counting

Measure item	Sample	Aperture of sieve plate (mm)	Sample claim	Sample granularity claim			Remarks
				Aperture (mm)	Proportion (Aperture amount/ inch)	Sieve number	
Gluten value	Wheat	0.8	90% pass	0.437	40	CQ16	
Descent numerical value	Grain	0.8	90% pass	0.505	35	CQ14	100%through 0.71mm
Viscosity	Foodstuff	0.5	90% pass	0.270	60	CQ24	
	Maize	0.8	90% pass	0.437	40	CQ16	
Fatty acid value	Rice	0.8	95% pass	0.437	40	CQ16	
	Foodstuff	0.8	90% pass	0.437	40	CQ16	
Steamed bun	Wheat	0.8	60% pass	0.161	91	CB36	
Steamed bread	Maize	0.8	75% pass	0.437	40	CQ16	

9. Usage Notice

1. JXFM110, the hammer vortex mill with many characteristics, such as high-speed, high efficiency, the small, uniform comminuting and so on. The sample turn to tiny powder by high speed hammer (16800 turns per minute), then along with the high air current via C

0.8mm stainless steel sieve plate (stockse C0.5, 1.5mm sieve plates) enter into the stainless steel integration implement for sample preparation.

2. The structure of the machine is compacted, its easy operation, steady revolution, and durable. The inner wall of the box with absorption deadening, and it's possible to absorb the noise from hammer high speed. Once the single-phase motor of built-in temperature protector running ultra-long or overload the normal temperature, it will be automatically stop for protect the machine, it can be restarted until the temperature drop to normal.

3. Hammer vortex mill mostly suitable for grain industry's sample smashing, as wheat, rice and other finely ground particle (moisture content conforms to national standard), suitable for gluten content and the index, descent numerical value, infrared components, determination for the viscosity of food.

It's also suitable for corresponding goods smashing in other industries.

4. Hammer vortex mill does not apply to high-content moisture, high fat, high viscosity, high cellulose, big pellet and these samples smash. Otherwise, it not only failed to obtain the expectation effect. instead, it will cause mechanical damage and may even bum the motor.

5. Hammer vortex mill should be placed in the cleanly, dry, ventilated, horizontal, the firm platform, in order to ensure the equipment normal operation.

6. Before the use, should confirm that the working voltage is AC220 田 IOV50HZ, the capacity of power supply should be bigger than IOA.

7. Before the sample put in the hopper, should confirm the sample without any metal scrap or other hard objects.

8. After connect the power source, connects the start button, adjusts the air throttle of feed head to the largest position. After the normal operation, puts sample into the hopper, adjusts the air throttle, to make the sample enter evenly, not to fast to avoid closed.

9. When sample smash finished, press the stop button delay about 40-60seconds, after the hammer vortex mill stop steadily, stock the right integrator gently and take down the sample cup, sieving or weighing as required.

10. If possible to open the bore for cleaning, must remove the attaching plug, after finish the work, it should be cleaned completely, the power supply should cut off if does not use for a long-term.