

# FLAT DIE PELLET MILL MKL229 INSTRUCTION MANUAL

<b>Model No.</b>	<b>Power (KW)</b>	<b>Output (kg/h)</b>	<b>Packing (cm)</b>	<b>NW/GW (kg)</b>
<b>MKL229</b> 3-rollers, die fixed	<b>11KW/380V/3 phase</b>	<b>270~500</b>	<b>100*48*98</b>	<b>320/360</b>

## 1. Knowing your machine



1. Wheel
2. Base
3. Feed hopper
4. Pellet chute
5. Upper case
6. Lower case
7. Electrical cabinet

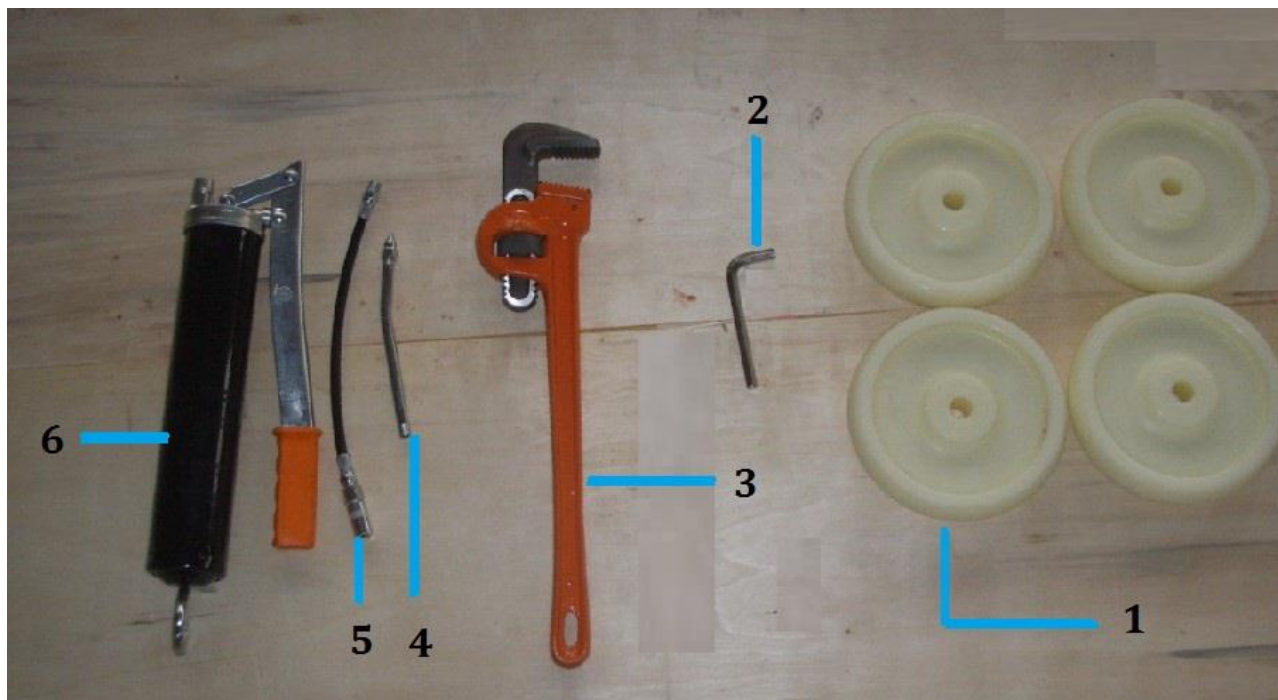
8. Gear box
9. Stop button
10. Start button
11. Indicator light
12. Ampere meter
13. Voltmeter

## Functioning

The pellet press is fixed with an engine with a power of RP-driven all kinds of different power. Via a drive shaft and the die roller wheels are caused to rotate. The starting material for the production of pellets, for example,

sawdust is pressed by the wheels roller in the matrix. Due to the pressure and friction in the die, the starting material is heated to a temperature of 60-80 ° C. As a result of pressure and temperature increase, the material connects to compressed pellets and will have a high strength after cooling. Depending on the material to be pressed, additional binder needs to be added. The diameter of the pellets is determined by the hole diameter of the die. Matrices can be ordered with the following hole diameters: 2.5mm, 4mm, 6mm, 8mm.

## TOOLS



1. Wheels
2. Allen keys
3. Wrench
- 4-6. Grease gun

Check whether all tools which come with the pellet mill.

Keep tools for future use.

Lubricate machine periodically.

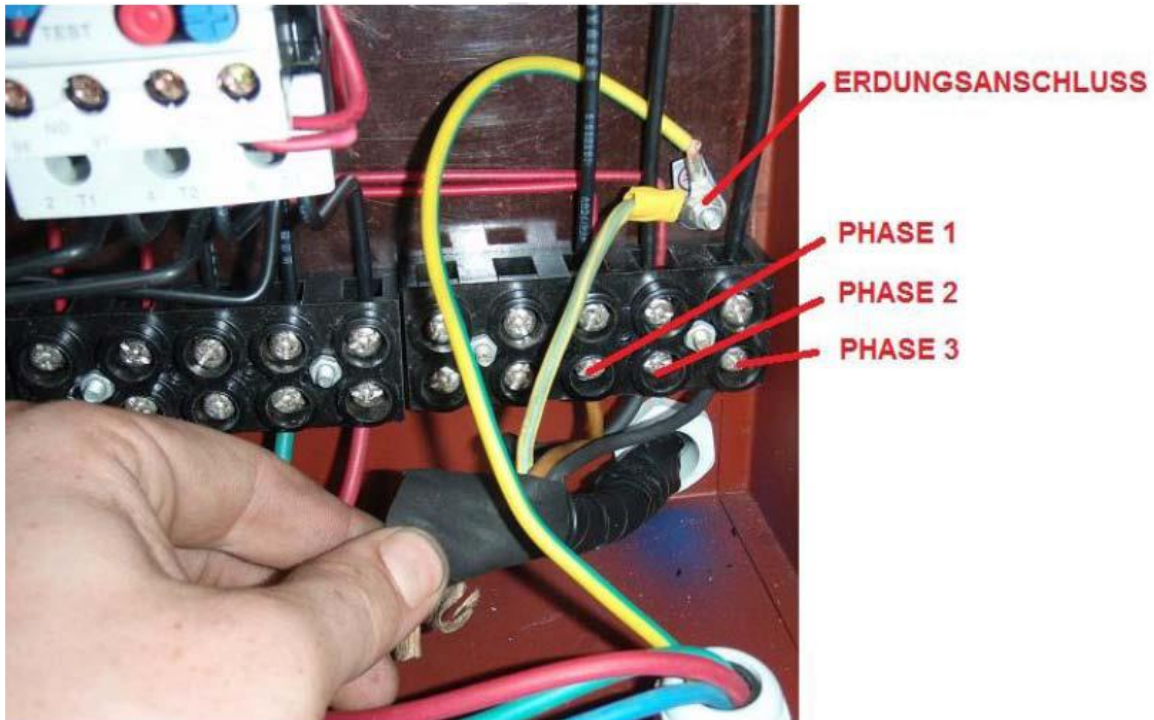
## 2. Commissioning

### 2.1 Connection and location of the pellet mill

**WARNING:** Disconnect all power supply before any maintenance.

### 2.1.1 Connection

□ Type: KL229 11KW/380V: 24A



Check and tighten all screws and cables to the control unit as before the main power cable is mounted. Failure to observe this will result in damage to the control unit. After successful connection of the pellet mill, first test the rotation of the roller. The rotation direction of the roller must be matching with the direction arrow. Make sure all these setting must be operated by a qualified person.

**Warning:** Power connections must be operated by a qualified electrician.

### 2.1.2 Location

Place the machine under a solid, safe and well-dry location. Keep the machine away from unauthorized person

Do not operate the machine under the temperature of 10 °C.

Before use make sure all bolts and nuts are securely tightened.

### 2.2 Rotation of the Roller

Before the first pellet production, it is important to loop the die of the machine, which can make the die smooth and cleaning. To do this you need to prepare

5 kg flour

5 kg fine sand (e.g. play sand)

1,5 Liter Vegetable Oil



Mix the ingredients in a bucket and squeeze the mixture 10-20 times completely through the die.



### 3. Operation of the Pellet Mill

#### 3.1 WARNING

The following safety rules must be reserved during operation of the pellet mill:

1. Disconnect power supply when you perform maintenance or transport the machine.
2. Always wear appropriate personal protection equipment. Wear hearing protection, eye protection, non-slip shoes, and tighten clothing. Never operate the machine with long hair.
3. Do not insert long objects into the hopper.
4. Be sure not to get the machine or the connections in contact with water.
5. Be away from open fire during operation.



### 3.2 SETTING THE MACHINE

1. Disconnect power supply.
2. Check whether all bolts and screws are properly secured.



3. Lubricate all bearing before first operation with wheel bearing grease. Perform lubrication at least 10 hours operation.
4. Check the bolt which fix the die, make sure this bolt is tightening, or when the roller is rotating, the die will also rotate, it will affect the normal working of the machine.



### 3.3 Production of Pellets

Check whether the raw material is in consistency. Refer to lowing four material for pellets production.

1. Insert the plug of the machine, and press the start button. The engine should start and the die turns. If the engine does not turn, immediately press the stop button, and check or investigate the cause of the problems.
2. Place a container (eg bucket) in the pellet chute.

3. Put a little source material into the feed tube. Be sure not to fill too much material at once, as the machine can be clogged.
4. After a short time the pellets will fall into the pellet chute and collect them. The pellet can reach the final hardness only after cooling.
5. Put the remaining material and change the container of the pellets when it is full.
6. Do not stop the machine during pellets pressing operation (except for emergency), otherwise the machine will be clogged for re-starting.
7. Stop the machine by pressing the stop button.
8. Clean the machine with a single run. This step is very important as if the raw material cool completely they will stay inside the roller case and it is difficult to be removed.

**Note:** In the event that no satisfactory pellets are achieved during the first test run of the machine, the pellets produced should be re-introduced into the feeding tube. More components should be added e.g. saw dust, which can improve the quality of pellet producing

### **3.4 Malfunctions and Maintenance**

#### **The machine will not start:**

- Check whether the machine is properly connected to the power supply.
- Electrical maintenance only can be operated by a qualified electrician.
- Do disconnected the power supply when clean the machine.

#### **Machine does not produce pellets:**

- Unsuitable material.
- Material too dry or too damp.
- Suitable binder needs to be admixed.

#### **Machine blocked or clogged:**

- Stop the machine immediately.
- Unplug the power.
- Remove the material from the machine and clean it.
- Check whether the material in consistency and the moisture content.

## **5. Use and Types of Pellets**

### **4.1 Use of Pellets**

The pellets can be used in different areas, such as animal feeding, heating of the buildings, and the production of the manure. The major advantage of the pellets compared with other material, it can be easily handled, transported and stored for longer life.

## 4.2 Fundamental to the starting pellet

Pellets can be produced from various organic materials. Thus, the starting material bonds to be fixed into durable pellets, and the moisture contents need to be controlled within 12% und 15%. If the starting material is too dry, it often occurs as powder or need to be re-emerged from the pellet chute. If the starting material is too damp, the pellets will be of inferior quality. The residual moisture of the starting material can be measured or determined by a commercial moisture meter. The length of raw material should be controlled within 5mm, otherwise the pellet mill machine will be clogged or the performance will be slowing down. **The raw material with longer length (e.g. wood shaving) need to be grinded into small size by a hammer mill.**

## 4.3 Pellet-Types

Here are the main types of pellets and the composition of starting material which can be used for pellet.

### Saw Dust Pellets

Starting material: Saw dust

Use: Pellet Heating Mixture

- a. Pine or spruce percentage at least 50%: It can be directly pressed into pellets.
- b. Portion of pine or spruce less than 50%: For stable pellet it needs to add 0.2-2% corn or potato starch. (Total moisture content 12-15%)

### Straw-Pellets, Hay-Pellets, Miscanthus-Pellets

Starting material: Straw, Hay, Miscanthus (chopped)

Use: Pellet-Heating, Animal Bedding, Feed

Mixture: directly (Moisture 12-15%)

### Feed-Pellets

Starting material: Straw, Hay, other feed (chopping)

Use: Animal Bedding, Feed

Mixture: directly (Total Moisture Content 12-15%)

### Fertilizer-Pellets

Starting material: Manure, Straw/Hay (chopped)

Use: Fertilization

Mixture: approximately equal proportion (Total Moisture Content 12-15%)





SAW DUST



STRAW



HAY



CEREALS



PAPER

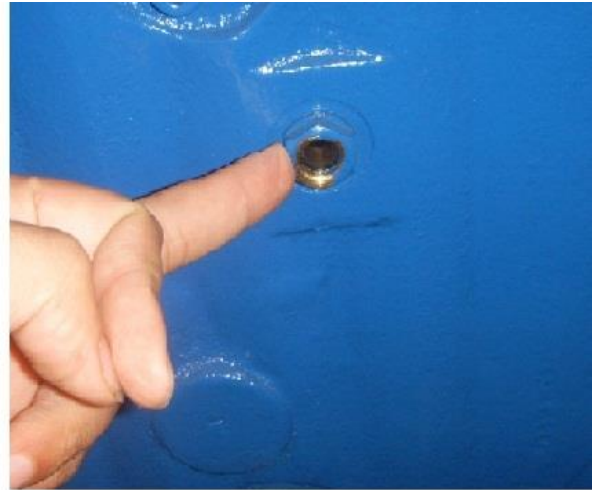
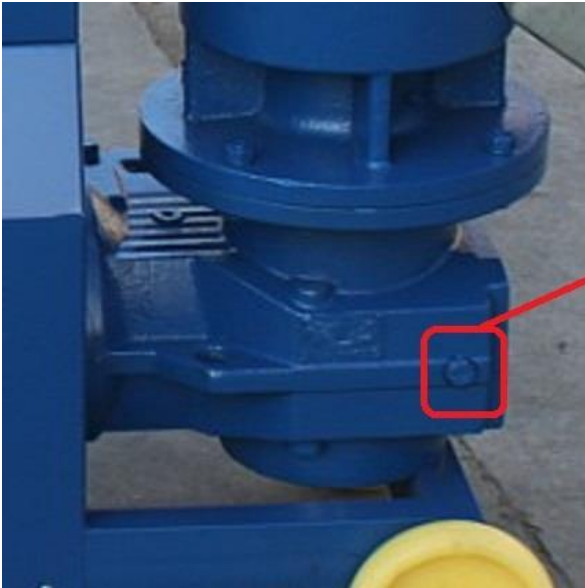
## 6. Maintenance and important information

Carefully and strictly follow the instructions which will make your pellet mill long time service.  
Failure to follow the instructions will cause parts defect or serious injury.

**Gearbox:**

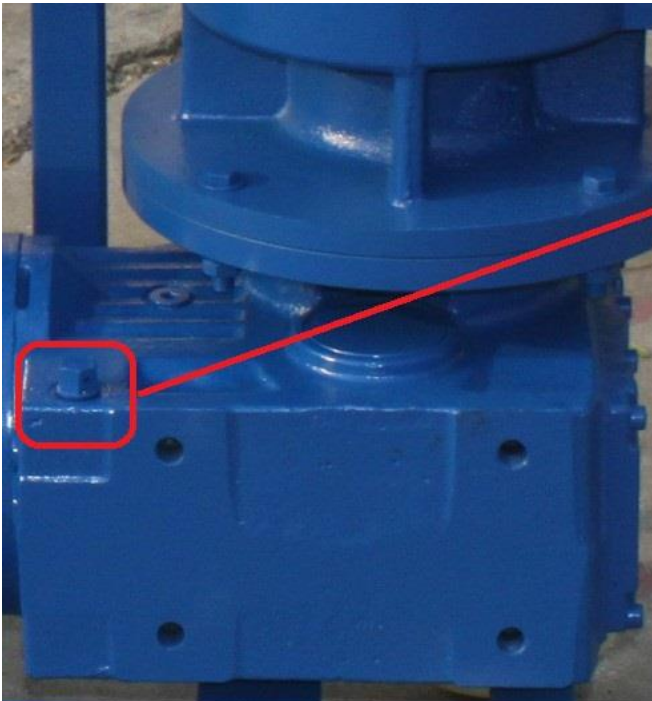
1. Check whether there are enough engine oil in the gearbox via the window on the gearbox. And please note that you need to pour out all of the engine oil in the gearbox after 60 hours operation. Then fill up the gearbox with new engine oil.

For next operation, you need to pour out the old engine oil then change the new engine oil every three month.



**the window on the gearbox**

2. See the following picture, it is the air outlet valve on the gearbox. You need to check this valve every 15 days. Please make sure that it will vent air normally, or the oil temperature will be too high to wear the gear.



**air outlet valve**

**ATTENTION!**

Be away from moving parts. Failure to do this will result in serious injury. Disconnect the power supply before maintenance or repair.

Regularly check and re-tighten the screws and nuts due to vibration.

## 7. Grease

### 6.1 Grease the bearing on the main shaft via grease nipple.

Be lubricated it weekly.



### 6.2 Grease the bearings on the roller via grease nipple

You need to take down the upper case, then grease the bearing on the roller by grease nipple after each use or after 8 hours operation.



## 8. EXCHANGING ROLLER AND DIE

01 – Disconnect the power connector

02 – Remove the feed hopper

03 – Loosen the lock nuts on the upper case. Then take off the upper case.





**04 - Take off the upper case.**



**05 – Loosening the big nut on the center of the roller.**



**06 – Take off the roller carefully.**



**07 – To fix the holes on the two sides of the die by nuts, then hold the nuts to take off the die.**



08 – Thoroughly clean the die

09 – Set the machine back together in reverse order

**WARNING:** When you exchange the die and roller, please make sure there is no material in the upper case. Or it will be very hard to loosen the nuts.

**Warning:**

1. The gear box gear oil should be replaced every 100-200 hours for the new machine.

Per 300-400 hours should add gear oil into the gear box, make sure the gear box doesn't lack of the gear oil.

9. The gear box oil should meet the standard: Heavy duty gear oil GL-5, viscosity 85W-90

10. The roller and main shaft bearing must add the grease before start the new machine.

11. The bearing must add grease per shift.

12. The grease standard must meet: Extreme pressure lithium complex grease

13. The sawdust can not mix any hard material, also can not mix any wood chip more than 6mm in diameter.

14. The raw material diameter must be below 6mm in powder state, the moisture between 8%-15%. Too dry and too wet material can not make out pellet.

15. For the new machine, it must be polished by the oil sawdust.

16. For the material, had better choose the red pine sawdust that contains a lot of Lignin, it is easy to make into pellet.