

# ZP-7 Rotary Tablet Press



## Instructions:

ZP-7 Rotary Tablet Press Machine is a subminiature machine that can automatically rotate and continuously press tablet. It is mainly applied to pharmaceutical, chemical and some other industries. It can be used in doing research and validating whether the grainy material can be pressed into tablet or not. The unit is suitable for grainy material which powder content (sizing 100 Mesh) is not more than 30%. The machine can be used to press round, irregular shape and character print tablets of 4-22 mm.

## Technical Parameters:

Model	ZP-7
Die No.	7 sets
Production Capacity	12000 pc/h
Max. Pressure	50 KN
Max. Tablet Diameter	22 mm
Filling Depth	17 mm

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Max. Tablet Thickness	6 mm
Rotating Speed	10-30r/min
Power	220V/50Hz/1.1Kw OR 110V/60Hz/1.1Kw
Packing Size	630×470×1120 mm
Packing Weight	350 Kg

## Main structures and working elements

### 1. Turret Unit

Turret is the main actuator for the machine, which consists of upper bearing, lower bearing and main shaft. 7 dies are equally distributed around it. Drive key is used between turret and main shaft for torque transmission and can only rotate in clockwise direction (Determined by the preset for the transducer-controlled motor. It will not rotate in counter clockwise; however you change the power phase sequence.)

### 2. Guild Mechanism

The cylinder cam and plate cam constituted by upper and lower rail in the guild mechanism is the movement track of upper and lower punch rods.

The upper guide is on the top of turret, and is made of several rails. All of them are tightened on the upper rail plate, and upper rail is set on the upper pinch wheel frame. There is a reversible set flap in the middle of parallel guide specially used for dies installation and dismounting. (The set flap must be reset to its original position before machine starting for prevention of accidents.)

The lower guide consists of upper and lower rail, fill rail and bridge plate, which are installed on the main body. There is a round block in the entrance of upper and lower rails specially used for lower punch rod assemble and disassemble. For the convenient of the replacement of wear parts, the blocked lower rails can be directly disassembled from the body.

### 3. Fill Adjust Unit

Fill adjust unit is used to adjust tablet weight. It consists of a worm-gear pair and a screw pair. When the handwheel (located on the control table) is adjusted, the small worm drives worm gear, and then brings worm move up and down, accordingly make fill rail installed on the screw shaft up and down and change the fill volume.

### 4 Tablet Thickness Adjust Unit

The unit is used to adjust tablet thickness. It's realized by adjusting the position of the lower pinch wheel center, which consists of the lower pinch wheel holding eccentric shaft (shaft of lower pinch wheel), helical gear and adjust screw. When the handwheel is adjusted, the adjust screw drives helical gear, and then brings the rotating of eccentric shaft and changes lower pinch wheel offset on eccentric shaft, thus the center position of the pinch wheel is changed, the distance between upper and lower pinch is consequently changed, so the thickness requirement is met with.

### 5. Feed unit

The unit consists of feeder, hopper frame, bracing, set screw and hopper. The hopper height and clearance between feeder and turret table is adjustable.

### 6. Drive components

The electromotor transmits power to the worm-gear pair by synchronous tooth shape belt, and

drives power to the main shaft. There is no commissioning handwheel with worm shaft, and the belt tension is adjusted by electromotor plate. The tension will be well received if the deflection is lower than 10mm when you push the belt surface with thumb.

#### 7. Mantle components

The machine is all close set, it fits for the GMP standard, the half up components is made up of 4 view windows, it's convenient to clean. The down part is made up of stainless steel, it was locked usually except it was under maintaining.

## Installation and operation

### 1. Installation and adjustment of dies

1.1 Please clean the turret work face, upper and lower die holes, center die holes and dies one by one before dies installation. Open the side front and back lower square plates until you observe if the indication of tablet thickness regulation instrument is on 3. if not, please regulate it with handwheel and reinstall the front and back plates. Then open the left glass door and draw the panel after your opening by key.

#### 1.2 Installation of center dies

Screw out the fastening screw about 1mm from turret outside cylinder surface (It will be suitable to not make center die contact with fastening screw head) the center should be laid horizontally because of the tight transition fit between center die and hole. At this turn up the set flap and put beat rod into upper holes and hammer the center die with hand hammer. It will be all right if center die surface not higher than turret surface. Then tight up fasten screw.

#### 1.3 Installation of upper punch rod

Apply some vegetable tallow to punch rod tail if the upper rail set flap is turning up. Then plug the upper punch rod into the hole and rotate the rod to confirm its freely movement. Check if dies quality meet with requirement. Turn commissioning handwheel till upper rod neck into parallel rail. Install punch rods one by one and then remember to turn down the set flap.

#### 1.4 Installation of lower punch rod

Firstly remove the proximity switch, and then rise up block used for handling lower punch rod in body surface with finger. Now the lower punch rod can be installed, the way is the same as the above one. But the block must be restored to its original appearance after the installation.

1.5 After all dies have been installed, turn commissioning handwheel in the direction of turret number sequence for two rounds to observe the operating condition if upper and lower punch rod running into holes and running on the rail. No collision or hard friction is allowed. Pay attention to the lower punch should be 0.1-0.3mm higher than turret table when it ascends to the highest point (tablet release position).

### 2. Installation and adjustment of feeder

Fit the crescent bar feeder component into the support column (this time the support column fastening screw is in loose condition) and then put a piece of paper on the turret table (about 0.05-0.1mm). Loosen screw on baffle plate and powder scrape and make feeder is tightly adhere to the paper. Lastly tight up socket cap screw on the support column and ensure the clearance between feeder and baffle plate bottom face and turret operating surface. Then loosen knurling the screw, pull out paper and tight up. In addition, adjust the level of ebonite powder screw scrape and make it tightly adhere to the turret table.

### 3. Fill control

The fill is controlled with the two middle handwheel. The middle left one control the weight of tablet pressed by left pinch wheel, and the middle right one controls the weight of tablet pressed

by right pinch wheel. Turning handwheel in clockwise will add fill and the value will be indicated on the scale, and vice versa.

#### 4. Tablet thickness control

Tablet thickness is controlled with the two front ends handwheel. The left one control the thickness of tablet pressed by right pinch wheel. Turning handwheel in clockwise will add thickness and the value will be indicated on the scale, and vice versa. After the fill volume determined by tablet weight is set, you can check the tablet thickness (disintegration index) and make some adjustments.

#### 5. Powder flow control

Powder flow which be fed by weight must be controlled to stabilized rest angle in feeder and keep fill volume into die holes. Firstly loosen the knurled screw on the side of hopper frame, and then loosen top knurled screw to adjust distance between feed opening and turret work face. In this way the powder flow is controlled. It will be acceptable if there is no overflow when you observe the powder stack with machine running. Tight up knurled screw after adjustment.

#### 6. Adjustment of speed

It's simple to adjust speed, push down the adjustment switch rotate in the clockwise direction to speed up, the state of pills is depending on the different pressure. the highest speed is not allowed to over 25rounds/min. it's suggested the best methods is under 80% of the full speed.