TABLET PRESSES

RTP10i ROTARY TABLET PRESS USER MANUAL

LFA Tablet Presses is a trading name of
LFA Machines Oxford LTD

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CAUTION.

Please read these operating instructions carefully before installation, starting up and repair. Inappropriate operation not recommended in the instructions may damage the machine or cause personal injury.

Introduction

The RTP10i is an intelligent, digitally controlled tablet press that sets new standards in tablet manufacturing. With a digital, touch panel display and a range of features that make pressing tablets easier, more accurate, safer and more efficient, the RTP10i is the future of tablet presses.

With a 2.2Kw motor and production of up to 18,000 tablets an hour, the RTP10i is ideal for medical research laboratories or small scale production in the pharmaceutical, chemical or food industries, and has been designed from scratch with the needs of professional users in mind. Class leading features include stepless speed control, digital display for turret speed, pressure, filling depth and tablet thickness, as well as safety refinements such as the Perspex turret shield and an automatic pressure overload cut out.

This machine can be used with dry granules or powders, but not superfine powders.

Technical Specifications

Number of dies	10
Maximum tabletting force	60Kn
Maximum pre-tabletting force	10Kn
Maximum tabletting diameter	22mm (25mm for special shapes)
Maximum tablet thickness	6mm
Maximum filling depth	17mm
Maximum tablet output	3,000-18,000 pieces/hour
Working diameter of rotary table	198mm
Turret speed	8 – 30 r/min
Diameter of die	38.1mm
Height of die	23.8mm
Diameter of upper and lower plungers	25.35mm
Length of upper and lower plungers	133.35mm
Model of matching motor	LFA-ABB-QA100L4
Power	2.2kW
Voltage	220V

Installation

The RTP10i should be installed in a clean, dry, well lit and well ventilated room. It requires a flat, level surface. Check the power supply is correct, and that the machine is properly earthed.

Before running an the insulation test of the electric parts, disconnect the machine from the frequency converter, to avoid the insulation test from damaging it.

Refer to the frequency converter manufacturer's manual for service details for the converter.

To install the dies:

NOTE To avoid friction during operation, the die tightening screws should be about 1mm higher than the outer circle of the turret when installing.

1. Find the groove inside the die, place the end with the groove at the bottom, then place the die into the die aperture. It should go in cleanly, and the die should be no higher than the working face of the turret. Tighten the die's screws.
2. Repeat these stages for all the dies.

To install the lower dies:

1. Insert the lower die into its aperture, then check they move cleanly without friction. Put the circular cover into place, and secure tightly with the screws.
2. Repeat for all the lower die.
3. Turn the right handwheel slowly to rotate the turret a couple of revolutions, and check everything is running smoothly. The lower die should move through its range without friction. When it reaches the upper limit of its range it should be 0.1 – 0.2mm higher than the working surface of the turret.

To install the upper die:

1. Insert the upper die through the upper aperture, and tap gently to force it into place.
2. Repeat for all the upper dies.
3. Turn the left handwheel slowly to rotate the turret. Check that the dies move through their range cleanly.

To install the feeder:

1. Install the feeder component and tighten the knurled screw. Ensure that the gap between bottom of the feeder and the working surface of the turret is approximately 0.10 – 0.15mm (the thickness of a piece of paper.)

2. Next install the powder scraper, ensuring that it sits lightly on the turret before tightening the screws. The distance between them should be the thickness of a piece of paper, to allow the scraper to move cleanly. Check this by turning the handwheel slowly to make sure the scraper has free movement.

3. Install the hopper, adjusting its height above the turret to allow powder to flow smoothly at the rate you require. Once in place at the right height, tighten the screws.

4. Install the left, right and rear doors, and the dust exhaust apparatus. Then close the Perspex shield.

NOTE When filling the hopper, add the raw material slowly. Top with granules frequently during operation, and do not let the hopper run empty. Running the tablet press when the hopper is empty may damage the machine.

Operation

NOTE There is a red emergency stop button on the cabinet. Striking this button cuts of the power.

To start using the machine, ensure the emergency stop is not engaged.

Turn on the mains power and press the start button.

NOTE The digital display panel shows the turret speed, tablet pressing pressure, filling depth, pre-pressing tablet thickness, main-pressing tablet thickness and speed.

Adjusting the processing speed
Speed is adjusted via the control panel.

NOTE Large diameter tablets, or tablets made from herbal or mineral substances that are difficult to compress, may require higher pressure and a slower speed than normal raw materials.

Adjusting the filling volume:

The filling adjusting handwheel on the left side of machine controls the tablet weight; turning it clockwise decreases the amount of powder filled, turning it counterclockwise increases the amount.

Adjusting tablet thickness

Adjust the thickness and hardness of tablets is carried out through the pressure control on the control panel. Increasing the pressure produces thinner, denser tablet, reducing the pressure produces a less dense tablet.

NOTE There is an automatic over-pressure shut mechanism that shuts the machine down if pressure is to high, thereby avoiding damage to the dies. To restart the machine after it cuts out, disengage the red safety cut out button.

Maintenance & Lubrication

LUBRICATION

NOTE Establish a regular lubrication schedule. Proper lubrication is essential to prolonging the service life of the machine.

Fill the oil nozzles on the machine before each shift. Monitor running temperature of the bearings and add more oil if required.

The plungers and guide rails require N32 machine oil. Ensure that there is enough to allow them to run freely, but not so much that the oil risks dripping down and contaminating tablet production.

The worm wheel box requires N46 oil in summer and N32 in winter. There should be enough oil in the box to cover the worm. Check the level through the viewing gauge.

Change the oil every six months.

MAINTENANCE

When production is completed, clean the machine thoroughly, paying special attention to all areas where powder can gather. Wipe down the body of the machine, and if it is going to be a long time before the machine is next used, apply grease to the machine to protect against moisture, then cover with a dust cloth.

Remove the dies, clean them thoroughly, and place in storage submerged in oil in their metal box. This will protect against rust.

The tablet press should be checked regularly, at least a couple of times a month, looking for signs of wear. All parts should be examined, but in particular look at the worm wheel, worm, bearing, pressing wheel, and upper and lower guide rails. If any part shows signs of wear, it should be replaced immediately, before the machine is used.

Trouble Shooting

PROBLEM	CAUSE	SOLUTION
Excessive play in upper or lower pressing wheels	Worn bearing in the pressing wheel.	Replace bearing.
Upper guide rail is worn	a. Insufficient lubrication b. Wrong lubricant being used c. Raw material is too fine, causing too much dust, thereby damaging the rail. d. Raw material is too wet, causing adhesion and incorrect wear. e.Upper punch aperture is clogged.	a. Replace rail, and improve lubrication routine. b. Replace rail, use 30# gear oil or pressure constraint engine oil. c. Replace rail, and use coarser grained tabletting material. d. Replace rail, reformulate the tablets using dryer tabletting material. e. Replace rail, clean upper punch aperture so that the punch moves cleanly.
Lower guide rail is worn	a. The raw material is too fine. b. Raw material is too wet, causing adhesion and incorrect wear. c. The lower punch aperture is clogged	Replace rail, and use coarser grained tabletting material. b. Replace rail, reformulate the tablets using dryer tabletting material. c. Replace rail, clean lower punch aperture so that the punch moves cleanly.
Uneven tablet weight	a. Excessive play of lifting rod, resulting from a worn small worm wheel. b. Badly installed feeder, leading to reduced flow rate. c. Worn die. d. Excessively large granules	a. Replace small worm wheel. b. Adjust feeder c. Replace die d. Change raw material