

ADEPT M-600

FULLY AUTOMATED TABLET PRESS



SINGHANIA®
TABLETING

EXPERTS SINCE 1968

ADEPT

CONCEPT
ENGG. CO.

consonant
ENGINEERING

mc Imperial
Pharmachines

Pharmachine
INDIA

HIGH SPEED DOUBLE ROTARY TABLET PRESS

The Adept M 600 is a fully automated press and is designed keeping in mind Adept's philosophy of providing simple and efficient solution. The Adept M 600 Press not only produces quality tablets but also guarantees minimum breakdown & maintenance. Special emphasis has been given on trouble free working and durability so that the machine can be used in a 24/7 working environment.

CENTER DRIVE

- The machine has true center drive, unlike the internal helical gear ring system
- There is no worm and gear ring on the turret mechanism thereby reducing moving parts and minimizing maintenance
- Gear box is directly coupled to center shaft with a keyless coupling to ensure zero backlash



HYDRAULIC POWER PACK

- The compression springs are replaced by compact hydraulic cylinders
- Pressure is applied directly on the compression axis ensuring more uniform pressure



10 TON PRE COMPRESSION

- Adept M-600 Press is designed for 10 tons pre-compression load. The pre-compression pressure is also hydraulic
- Rollers are fitted with high load capacity bearings, which do not require continuous lubrication
- All Main and Pre compression rollers are identical and interchangeable



ROTARY FEEDER SYSTEM

- Machine is fitted with a 3 chamber bottom driven rotary feeder
- Each Rotary Feeder has an individual motor and A.C. Drive
- An overflow indicator is provided in the rotary feeder to prevent jamming due to excess flow



GRAVITY FEEDER SYSTEM

- The Adept Mega Press is also provided with a multi-chamber gravity feeder that is made of food grade polymer
- A common hopper is designed for both Rotary and Gravity feeder
- Low Powder level sensor is provided



AUTOMATION

SCADA SYSTEM WITH 21 CFR PART 11 COMPLIANCE

The machine is run on a Scada system with a 15" touch screen HMI. This system has a 3 level password system, remote access and online support. The software is in compliance with 21 CFR part 11.

MAIN SCREEN

The main screen gives the complete control of the machine and all operating parameters can be set here. It shows the real time dwell time calculation of the running product. It gives you all the force limits set at a glance.

REPORT GENERATION

This system will generate Audit reports, batch reports, alarm reports, complete force data reports, average cycle reports and graphical displays. It has a recipe management system for all products.

20/04/2022 10:43:14 USERMANAGEMENT

Select User

USERNAME	USERLEVEL	STATUS	NAME
adept	ADMINISTRATOR	Activate	Adept Engg
supervisor	SUPERVISOR	Activate	supervisor
operator	OPERATOR	Activate	operator
VIPIN	OPERATOR	Deactivate	VIPIN
bipin	OPERATOR	Deactivate	bipin
lriti	OPERATOR	Deactivate	lritibhushan
operator1	OPERATOR	Deactivate	operator1
admin	ADMINISTRATOR	Activate	admin

Auto Logout Timeout: 10 Min.

Username: NO. Of Attempts: 3

Name: User Password Expiry: 30 DAYS

Password: Password Expired Notification Duration: 30 DAYS

Confirm Password: Auto Unblock Timeout: 15 Min.

Minimum Password length is six.

Add Deactivate Edit Unblock User Group

M/C START M/C STOP AUTO PROCESS DI DO REAL GRAPH PUNCH SEL. AVG. TABLE LIMIT SETUP MAINTENANCE

20/04/2022 10:39:18 AUTO MODE

TABLET COUNT: 8043.4

TABLET / HOUR: 0

CURRENT CYCLE: 2391

TOTAL TIME: 0.0000 Sec

RUNNING BATCH

AWC DISABLE TURRET SET RPM: 18 RPM SET PRESSURE: 5.0 TON FEEDER MODE: FORCE

REJECTION BY AIR

REJECTION BY FLAP

MANUAL SAMPLING

AUTO SAMPLING

TAB. COUNT RESET

POWER PACK

DRAIN

INITIAL REJECTION

FORCE LIMIT DISABLE

BI-LAYER

LHS PRE COMPRESSION

LHS MAIN COMPRESSION

RHS PRE COMPRESSION

RHS MAIN COMPRESSION

GRAPH COLOUR CODE: AVERAGE REL. HIGH REL. LOW LOAD HIGH VALUE LOW VALUE

REJ. UPPER LIMIT: 13.00 kN 13.00 kN

AWC UPPER LIMIT: 11.55 kN 11.55 kN

SET FORCE: 11.00 kN 11.00 kN

AWC LOWER LIMIT: 10.45 kN 10.45 kN

REJ. LOWER LIMIT: 8.00 kN 8.00 kN

TURRET RPM: 15 15

MACHINE START MACHINE STOP

BATCH OFF INCHING

LEFT POWDER LEVEL LOW: RIGHT POWDER

M/C START M/C STOP AUTO PROCESS DI DO REAL GRAPH PUNCH SEL. AVG. TABLE LIMIT SETUP MAINTENANCE

11/05/2022 16:51:39 AUDIT, ALARM & BATCH REPORT

Date & Time	Description	Old Value	New Value	Userlevel	Username	Comment	Status
12/04/2022 10:34:32	Power Pack Motor Button	OFF	ON	---	---	---	---
12/04/2022 16:34:36	Auto Power Pack Motor (2.98)	OFF	OFF	---	---	---	---
12/04/2022 10:34:40	Drum Button	OFF	ON	---	---	---	---
12/04/2022 16:34:41	Drum Button	OFF	ON	---	---	---	---
14/04/2022 14:53:37	Power Pack Motor Button	OFF	ON	---	---	---	---
14/04/2022 14:53:49	Power Pack Motor Button	ON	OFF	---	---	---	---
14/04/2022 14:54:49	Power Pack Motor Button	OFF	ON	---	---	---	---
14/04/2022 14:54:53	Auto Power Pack Motor (3.76)	OFF	OFF	---	---	---	---
14/04/2022 14:58:41	LHS REJECTION LOW: BI-LAYER Change	0.00	7.00	---	---	---	---
14/04/2022 14:58:46	RHS REJECTION LOW: BI-LAYER Change	0.00	7.00	---	---	---	---
14/04/2022 14:58:51	LHS REJECTION HIGH: BI-LAYER Change	0.00	11.00	---	---	---	---
14/04/2022 14:58:51	RHS REJECTION HIGH: BI-LAYER Change	0.00	11.00	---	---	---	---
14/04/2022 16:07:33	Power Pack Motor Button	OFF	ON	---	---	---	---
14/04/2022 16:07:36	Auto Power Pack Motor (2.91)	OFF	OFF	---	---	---	---
14/04/2022 16:10:59	Machine Start	OFF	ON	---	---	---	---
14/04/2022 16:13:38	Machine Stop	ON	OFF	---	---	---	---
14/04/2022 16:15:14	Machine Start	OFF	ON	---	---	---	---
14/04/2022 16:15:59	Machine Stop	ON	OFF	---	---	---	---
14/04/2022 16:16:44	Machine Start	OFF	ON	---	---	---	---
14/04/2022 16:17:22	Machine Stop	ON	OFF	---	---	---	---
14/04/2022 16:18:17	Machine Start	OFF	ON	---	---	---	---
14/04/2022 16:18:58	Machine Stop	ON	OFF	---	---	---	---
14/04/2022 16:19:54	Machine Start	OFF	ON	---	---	---	---
14/04/2022 16:20:15	Machine Stop	ON	OFF	---	---	---	---
14/04/2022 16:25:55	Drum Button	OFF	ON	---	---	---	---
14/04/2022 16:25:55	Drum Button	OFF	ON	---	---	---	---

FILE MONTH_YEAR SELECTION: 04_2022

FROM: 14/5/2022 TO: 14/5/2022

User Name_Report

BATCH NAME_Report

AUDIT-TRAIL ALARMS BATCH

M/C START M/C STOP AUTO PROCESS DI DO REAL GRAPH PUNCH SEL. AVG. TABLE LIMIT SETUP MAINTENANCE

FORCE MEASUREMENT OF TABLETS

The main compression, pre compression and ejection force of each tablet is measured and recorded. The tablet parameters like weight, thickness and hardness are directly related to the force measured. The press has provision for upper punch tightness measurement.



WEIGHT & THICKNESS SETTING

- Pre-Compression Thickness, Main Compression Thickness and Weight can be set from the touch screen HMI.
- The controls are fitted with servo motors & encoders for higher accuracy.

AUTO WEIGHT CONTROL (AWC)

This system keeps a check on the force data trend and will automatically do corrections to the weight dozer to keep the average cycle force data in the required range. This ensures that the weights of the tablets remain in the specified tolerance.

The screenshot shows the 'LIMIT SETUP' software interface with a 'FORCE SETTING' section. It contains two columns of settings for 'LHS' and 'RHS'. The settings include: REJECTION LOW (8.00 kN), AWC LOW (10.45 kN), SET FORCE (11.00 kN), AWC HIGH (11.55 kN), REJECTION HIGH (13.00 kN), PRE AVERAGE SET (3.00 kN), and EJECTION AVERAGE SET (10.00 Kg). Below this is a 'FORCE SAFETY LIMIT' section with four sub-sections: LHS Pre Lower Limit, LHS Main Lower Limit, RHS Pre Lower Limit, and RHS Main Lower Limit, each set to 0 kN. At the bottom, there are four more settings: NO. OF TABLET FOR SAMPLING (20), SAMPLING TIME (60 min.), MACHINE STOP REJECTION TABLET LIMIT (20), and INITIAL REJECTION TIME (5 Sec). The same control buttons as the previous screenshot are at the bottom.

AUTO REJECTION & SAMPLING

This system will automatically reject the tablets which are not in the required range. This can be done by a flap system or a single tablet air blow system. The sampling can be set at a desired interval and the sample tablets will be collected in the sample bottle.



PROFILE CAMS

- The cams cover upper punches completely protecting them from dust thereby preventing jamming
- The cams are made of a special polymer that reduces noise & friction



CONTROL PANEL

- The control system is a 15 inch touch screen colour HMI
- All machine parameters are controlled through a Scada system
 - Main Motor Speed
 - Feeder Speed
 - Hydraulic Pressure Setting
 - Lubrication System
 - Safety Interlock
- The system also stores and displays Pressure, Tablet count, Turret RPM, Motor Ampere, Product recipe and Batch data
- The electric panel is a full length panel attached to the backside of the machine on hinges.



Touch Screen Colour HMI

OTHER ADVANTAGES

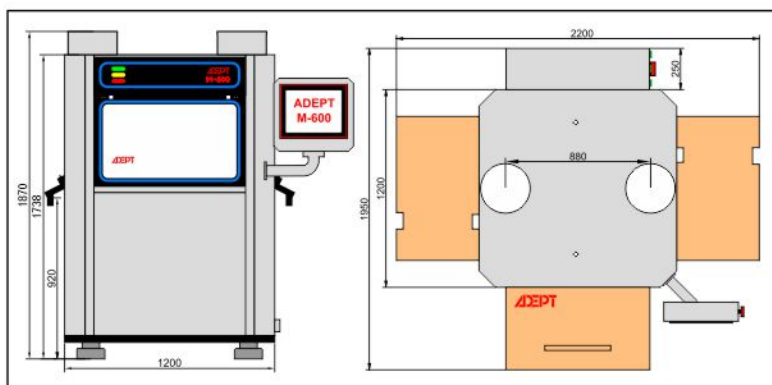
- Machine has triple V belt for higher load requirements
- Upper Punch Penetration selection
- Auto lubrication for turret bearing, upper & lower punch head
- Spring loaded anti rotation plugs. No need to set the plugs every time a lower punch is removed
- Upper & Lower Punch collision prevention system
- Smallest footprint in category
- Contact parts of S.S. 316. All non-contact parts in compression zone are of S.S. 304 / ENP or Hard Chrome Plated
- S.S. fabrication is done using Laser Cutting & CNC Bending
- Proximity sensor for Acrylic Guards



Electrical Panel

TECHNICAL DETAILS

MODEL	STATION	MAX PRESSURE IN TONS	ROUND - MAX DIA	CAPLET- MAX LENGTH	PUNCH			DIE			MOTOR*		TABLET OUTPUT PER HOUR	
					TYPE	DIA	HEIGHT	TYPE	DIA	HEIGHT	HP	RPM	10 RPM	40 RPM
M600 D-D-45	45	10.0	25.0	25.0	D	25.40	133.6	D	38.10	23.81	10	1440	54000	216000
M600 B-B-61	61	6.5	18.5	19.0	B	19.05	133.6	B	30.16	22.22	10	1440	72000	292800
M600 B-BB-75	75	6.5	13.0	16.0	B	19.05	133.6	BB	24.00	22.22	10	1440	90000	360000
M600 A-A-101	101	6.5	10.0	NA	A	12.70	NA	A	17	NA	10	1440	1,20,000	4,80,000



Machine Dimensions	- 120 x 145 x 190 cm
Case Dimensions	- 185 x 168 x 193 cm
Upper Punch Penetration	- 3.5 to 8 mm
Net Weight	- 3400 Kg
Gross Weight	- 3800 Kg
Hopper Capacity	- 17 Ltr
Technical Details	- 101 Stn
Max fill depth for A tooling	- 16mm



*specifications subject to change without notice