techpap
innovation for pulp & paper

FDA
Automated Dynamic Handsheet Former

INNOVATION FOR PAPER
AUTOMATED DYNAMIC HANDSHEET FORMER

PRINCIPLE

The uniqueness of the FDA resides in its handsheet formation principle which is completely different from classic handsheet formers. In fact, the ADF uses a process very similar to industrial PM sheet production. The sheet is formed by the projection of pulp on a wire positioned on the ID of a rotating cylindrical jar. The wire is completely submerged in a water wall. The pulp projection is accomplished using an injector nozzle fixed on a delivery tube sweeping vertically up and down inside the rotating cylindrical jar. The final basis weight of the sheet depends on the consistency of the pulp, the number of nozzle sweeps and the pulp flow. A scoop system bails out the water wall after the sheet is formed and the water remaining in the sheet is drained by centrifugal force. After the sheet is drained it can be removed along with the wire from the cylindrical jar for pressing and drying.

ADVANTAGES

The main advantages include:
> The handsheet shape is rectangular.
> Sheet look-through is excellent.
> The fiber orientation is dependent on jet to wire speed ratio (both are adjustable); therefore, it is possible to obtain orientated handsheets.
> The retention of fillers, chemicals or dyes is excellent.
> The distribution of elements in the sheet thickness is similar to a PM produced sheets.
> A large range of fiber types can be used; short or long fibers, synthetic fibers (non hydrophobia), recycled fibers, non-wood fibers, etc.
> A large range of basis weight sheets can be made from fine papers to board.
> It is easy to make bi-jet or multi jet sheets with excellent adhesion between the various grades.
> Rectangular handsheets can be pressed, dried, calendared, coated or sized, and tested as normal paper.

FDA


Multilayer white top sheet


Watermark


Roll Press

Dryer

Optional auxiliary equipment for FDA operation

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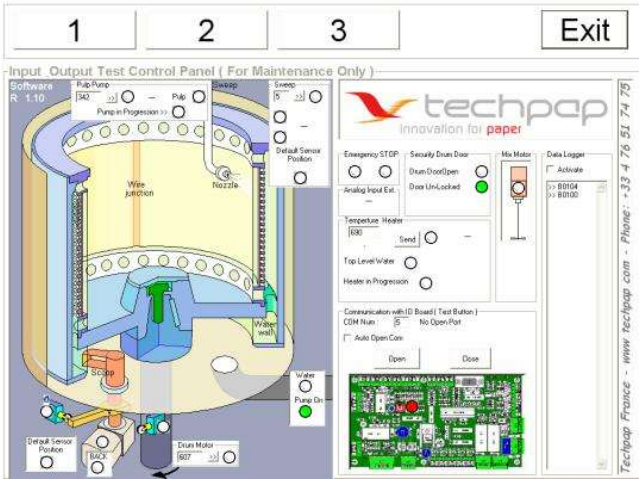
RUNNING

The Techpap FDA can be operated in manual or automatic mode: Manual operation can be useful in the start-up of a new product or to carry out research on an existing product. In this mode all the functions can be actuated or stopped manually. The manual mode is also practical for cleaning or emptying the circuits.

Automated operation is useful to obtain identical results when making a series of sheets. It also makes the system operation easy, leading to a reduction in errors and a better use of limited time or personnel. In automatic mode after the jar rotation is started all other functions; the cycle sweeping and injection, scooping and stopping of the jar are performed automatically as programmed. The jet speed, wire speed, sweep number, scooping time and pulp agitation can all be programmed.

THE JAR

The jars acceleration and deceleration are electronically controlled. The speed is displayed on the control panel and can be easily adjusted. The attention to detail and many years of experience in jar design ensures vibration free operation which is very important for the sheet formation.



GENERAL

The FDA is user friendly with a graphic interface touch screen. The screen displays real-time changes, enabling the operator to monitor the behavior of the unit. The latest generation of electronically controlled motors on the sweeping arm gives an even fiber distribution across the width of the sheet. Because the handsheets are so large many previously impossible test can now be performed. The mechanical and electronic design of the ADF ensures maximum safety for the operator.

APPLICATION

The FDA has been designed by hands-on paper lab technicians and engineers to be easy to use and to creat handsheets under identical paper machine conditions. The ADF allows paper manufacturers, research centers and chemical suppliers to address end user requirements by exploring and developing new paper and board grades, simulating fiber substitutions and studying chemical or filler impact on paper properties.

MISCELLANEOUS

Complementary equipment: Techpap Sheet Press
Techpap Sheet Dryer

Sheet

Dimensions	25 x 90 cm (9.8" x 35.4")
Basis Weight Range	20 to 400 g/m²
Pulp Consistency	0.5 to 10 g / l
Dry Content	10 to 15%
Orientation	CD/MD: 0.2 - 0.9
Fibres Retention	> 95 %
Fillers Retention	70% - 98%

A D F

Dimensions (L x D x H)	1560 x 770 x 1500 mm 61.4" x 30.3" x 59"
Weight	390 kg (860 pounds)
Structure	Anodized Aluminium
Cylinder Material	Anodized Aluminium
Cylinder Speed	500 to 1300 m/min
Power Requirements	220V 32A
Differential Circuit Breaker	30 mA
Emergency Switch	
Interface Display	Touch Screen
Locked Safety Cover During Operation	

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