

## ROTARY EGG TRAY PULP MOLDING PRODUCTION LINE

### PROJECT PROPOSAL

1. **Description:** Egg tray pulp molding plant
2. **Capacity per line:** 1200-1440 egg trays/hr, appr.30,000 trays per day(22 working hours).
3. **Products:** all sizes of 30 cavity egg trays, 6,8,10,12,15,18 cavity egg cartons, apple trays & other molded pulp trays by fitting equivalent mold tools. Exception: male urine bottles and trays beyond molding area.
4. **Process flow of automatic production:**

Waste paper(manual)→hydropulping→pulp mixing→pulp feeding→pulp molding→transferring→on line drying→automatic collecting,counting&stacking→warehouse

#### 5. Breakdown major equipment list:

Serial no.	Description of equipment	power	QTY/set	
<b>I. Pulp preparation system</b>				
1	Hydropulper 1M <sup>3</sup>	18.5KW	1	1
2	Agitators	1.5KW	2	
3	Pulp pumps	2.2KW	2	
4	Water pumps	2.2KW	2	
5	Vibrating screen	3KW	1	
6	Pulp refiner	11KW	1	
7	Pulp consistency control		1	
8	Control panel		1	
<b>II. Pulp molding system</b>				
1	Fully automatic rotary molder		1	1
	a. speed: 5-6 cycles per minute.			
	b. mold fitted:4 sets eggtray molds made from bronze			
	c. mold platen size:1600x400mm			
	d. control mode: PLC			
	e. advantage: weight of egg tray adjustable between 40g-100g via exclusive CMC rotary technology			
2	Vacuum pump	11KW	1	
3	Air compressor	11KW	1	
4	Vacuum/steam separating pot		1	
5	Compressed air pot		1	
6	Water spraying unit		1	
7	Control pane		1	

III. Drying system(gas, diesel, or coal/electricity at option)				
1	single passage dryer(length:22M)			1
	Advantage: single passage drier is SAFE, and of more rational heating effect than multi-passage drier which tends to create jamming and fire accident due to over-drying		1	
	a. gas-fired or diesel-fired burners (200,000KCAL/hr)	0.25KW	3	
	b. zonal drying modules		3	
	c. conveyor with chain belt	3KW	1 lot	
	d. air recirculating fans	5.5KW	3	
	e. air exhaust fan	2.2KW	1	
	f. hot air combustion chambers		3	
	g. control panel		1	
IV. Others				
1	Automatic stacking machine		1	
2	Pneumatic compacting machine		1	
3	Accessory equipment		1 lot	
4	Spare & wear parts		1 lot	
Total consignment: 1x40'HC + 1x20'FCL				

**6. Equipment/civil works to be provided by the Buyer:**

No.	Description	QTY
1	Floor foundation, drainageway, operating platforms, dryer exhaust extension	As per diagrams or engineer's instruction
2	pulp pools, water pools and other civil works construction 2 pulp pools + 1 water pool + 1 white water pool	As per diagrams or engineer's instruction
3	Piping connection for water/pulp/vacuum/compressed air/fuel	As per site layout
4	Wiring/cabling connection, transformer 120KVA	As per site layout

**7. Raw materials:** waste newspaper, cardboard, cartons & other recycled paper.

**8. Consumption:** (assuming 50g egg tray)

waste paper per day: 2T

water per day: 6MT

power per hour: 60KWH (installed power load 120KW, 380V 50HZ unless specified otherwise)

fuel per day: appr. 800m<sup>3</sup> gas, or 500kg LPG, or 700KG diesel

**9. Workshop size:**

roofed floor: LxWxH = min. 30x10x4.5M

warehouse: 300M<sup>2</sup>

**10. Number of direct operators:** 3 labors/shift

**11. Delivery period:** within 90 days after advance payment or L/C.

**12. Payment mode:** mixed progressive payment by L/C or T/T(40% advance, 50% after shipment and 10% after commissioning)

**13. Warranty period:** 12 months after commissioning.



## DESCRIPTION OF PRODUCTION PROCESS

Waste paper is put into hydropulper to beat pulp around 4% consistency, pulp through vibrating screen and refiner becomes cleaned & refined, then diluted and agitated in U/G civil works pools. Waterproof agent like AKD or rosin wax/aluminium Sulphate, coloring diestuff may be added if required. At this stage the working pulp is to be diluted around 1% consistency.

The ready working pulp is pumped into the pulp chest beneath the rotary molder. The molder is rotary type with each mold platen fitted with 4 egg tray molds. When the fully automatic molder rotates in 180 degree each cycle, the bottom platen's 2 molds are immersed into pulp chest, through vacuum suction wet trays(pulp fibres) are formed and deposited on forming mold screens and excess water is returned to pulp chest for re-use. The excess pulp above pulp chest level is automatically flowed back to pulp pools for recyclable use. Both the front and back side of molder is fitted with high pressure water spraying system for automatic non-stop mold cleaning and egg tray edge washing each cycle. The excess white water after vacuum-suction is pumped into a U/G civil works white water pool, and this white water is repumped back to hydropulper or U/G pulp pools for recyclable use.

At the front side(facing the dryer),one transfer mold platen(with 2 egg tray transfer molds) comes close to forming mold and through vacuum & compressed air the 2 wet trays are delivered from forming molds(via compressed air blowing) to transfer mold(via vacuum suction). Then the transfer molds in a robot manner put wet trays(via compressed air) onto the moving dryer conveyor, and repeat another cycle. Each cycle takes 7 seconds or more depending upon drying effect.

The dryer is single pass tunnel conveyor type in 3 independent modules(zones). Each module(zone) has independent gas or diesel-fired burner,temperature control, air recirculating fan & air diffuser. Each module's temperature can be adjusted independently to reach curved drying so as to avoid tray deformation to the minimum.

At the exit of drier there is facility of automatic collecting,counting and stacking of final dry trays into bundles.