

HDPE ROTO MOULDED TANKS

1. INTRODUCTION

Polyethylene water storage tanks are ideal for economic and hygienic storage of potable water in residential buildings, industrial units, business complexes, in fact any where and every where. These tanks are moulded in one piece. Water storage tanks are without any seams, joints or welds.

Because of their light weight, these tanks are easy to install and are extremely mobile. They are very light for the volume of water stored. A tank capable of storing 2000 litres of water weighs only 65 kgs. as against 0.5 MT in case of M.S. tank and 2 MT in case of RCC tank of a similar capacity. These tanks are rust proof and leak proof. Hence they practically require little or no maintenance.

These tanks have double the life than that of RCC tanks and three to four times than that of M.S. tanks. The temperature of water inside is maintained for a considerable longer time than an M.S. tanks because polyethylene is a bad conductor of heat.

2. MARKET POTENTIAL

Rotational moulding is new to the plastic industry because of its importance as processing method. Though the art is an old one but technological advancement during the last twenty years has caused growth of several sizeable industries and is rapidly gaining interest on a widespread basis.

3. BASIS & PRESUMPTIONS

- (i) The output capacity is taken as 70 Kgs/hr. The unit will work at 20 hrs. per day for 25 working days in a month and 300 days in a year. The output capacity may vary from machinery to machinery and the cost of machinery may also vary from supplier to supplier.
- (ii) The time period for achieving the full envisaged capacity utilisation is six months
- (iii) The labour wages are as per the prevailing rates in the market
- (iv) The rate of interest for fixed and working capital is taken as 12 per cent
- (v) The margin money requirement for this project is 30 per cent
- (vi) The pay back period of this project is 5 years
- (vii) The rate of land is taken @ Rs. 500/-per sq. mtr. and construction charges are taken @ Rs. 3500 per sq. mtr. This may also vary from place to place.
- (viii) The present profile has to be updated taking into prevailing cost of land, building, machinery etc. at the time of implementation of the project

4. IMPLEMENTATION SCHEDULE

The Time requirement for preparation of Project report	:	Two months
Time requirement for selection of Site	:	One month
Time required for registration as Small Scale Unit	:	One Week
Time required for acquiring the loan		
Machinery procurement, erection and commissioning	:	Three months
Recruitment of labourer etc.	:	One month
Trial runs	:	One month

5. TECHNICAL ASPECT

MANUFACTURING PROCESS

Rotational Moulding is a process for producing hollow seamless containers of all sizes and shapes. The process does not involve high injection pressure or high shear rates. Black polyethylene powder of 35 mesh is weighed and charged in the mould. The mould is heated while it is being rotated about two perpendicular axes. Simultaneously a porous skin is formed on the mould surface which gradually melts as the heating cycle progresses. At the end of heating cycle a layer of homogenous uniform thick wall is formed. The mould then enters a cooling station where forced air/water spray cools the mould. It is then positioned in a work zone where the mould is opened, the tank is removed and the mould is recharged for next cycle.

6. QUALITY & STANDARD

Rotational moulded Polythene water storage tanks can be manufacture as per IS 12701-1989.

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7. PRODUCTION CAPACITY (Per Annum)

- (a) Quantity (M.T.) : 420 M.T.
- (b) Value (Rs.) : 3,99,00,000.00

8. TOTAL POWER REQUIREMENT

Total connected load (KW) : 70

9. POLLUTION CONTROL MEASURES

The unit does not create any pollution. However, a proper ventilation should be made in the processing area for the better circulation of the fresh air.

10. ENERGY CONSERVATION

Entrepreneurs may select energy efficient machinery and proper planning has also to be made for saving energy in the unit.

11. FINANCIAL ASPECT

A. FIXED CAPITAL

i) LAND & BUILDING: Area sq. mtrs. Rate Rs. per Sq. mtr.
(Rs.)

Land	800	500	4,00,000.00
Building	500	3500	17,50,000.00
		Total :	21,50,000.00

ii) MACHINERY & EQUIPMENT:

(Rs.) Sr. No. Description of machines Qty.(Nos.)

(a) Production Unit

 i) Rock-N-Roll Machine
 19,00,000.00

 Moulding Dies & Moulds – Cap. 70 Kg/hr.

 ii) Scrap Grinder

 75,000.00

(b) Testing Equipment & Other Accessories

 1,25,000.00

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(c) Electrification & Installation @ 10% of cost & machinery
2,10,000.00

 (a) & (b)

(d) Pre-operative expenses

50,000.00

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Total cost of machinery & equipment (a to d)

23,60,000.00

(e) Cost of Moulds & Dies

6,00,000.00

(f) Cost of Office Equipment/Furniture/Computers etc.

3,00,000.00

Total: -----
32,60,000.00

Fixed Capital = (i) + (ii) = 21,50,000 + 32,60,000 =
54,10,000.00

B. WORKING CAPITAL

i) Staff and Labour (Per Month)

Designation	Nos.	Salary (Rs.)	(Rs.)
Production Engineer/Manager	1	10,000.00	10,000.00
Sales Executive	1	5,000.00	5,000.00
Accountant-cum-Store Keeper	1	4,000.00	4,000.00
Watchman	2	3,000.00	6,000.00
Skilled Workers	3	3,500.00	10,500.00
Helpers	3	3,000.00	9,000.00
		Total:	44,500.00
Add perquisite @ 10% of the Salary			
			4,450.00
		Total:	45,000.00

ii) Raw Material (Per Month) Qty. (M.T) Rate Rs./MT
(Rs.)

	HDPE Granules	35	75,000
	26,25,000.00		
iii)	<u>Utilities</u> (per month):		(Rs.)
	a) Power		1,05,000.00
	(60% utilisation x 70 KW x 500 hrs. x Rs. 5 per unit)		
	b) Water		
5,000.00			
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		Total:	1,10,000.00

iv)	<u>Other Contingent Expenses</u> (Per month)		
(Rs.)			
	gg) Repairs and Maintenance		
	3,000.00		
	hh) Transportation Charges		5,000.00
	ii) Postage and stationery		1,000.00
	jj) Telephone/Fax/Computer		
	2,000.00		
	kk) Consumable Stores		
	1,000.00		
	ll) Advertisement & Publicity		
	2,000.00		
	mm) Insurance		5,000.00
	nn) Miscellaneous Expenses		
	1,000.00		
		Total:	20,000.00

12.	<u>TOTAL WORKING CAPITAL</u> (Per Month)		
i)	Staff and Labour		45,000.00

ii) Raw Material	
26,25,000.00	
iii) Utilities	1,10,000.00
iv) Other Contingent Exp.	20,000.00

Total:	28,00,000.00

Working Capital for 3 months	84,00,000.00

13. TOTAL CAPITAL INVESTMENT

(Rs.)

A. Fixed Capital	
54,10,000.00	B. Working Capital for 3 months
84,00,000.00	

Total:	1,38,10,000.00

14. FIANCIAL ANALYSIS

(Rs.)

A. Cost of Production (per year) (300 days)	
(a) Total Recurring Cost	
3,36,00,000.00	
(b) Depreciation on building @ 5%	
87,500.00	
(c) Depreciation on machinery & equipment @ 10%	
2,36,000.00	
(d) Depreciation on Dies, Moulds & office equipment @ 20%	
1,80,000.00	
(f) Interest on total Capital Investment @ 12%	
16,57,200.00	

Total:	3,57,60,700.00

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Or Say Rs.

3,57,60,000.00

B. Sales/Turn over (per year)

Item	Qty.(MT)	Rate (MT)	Value (Rs.)
HDPE Rotomoulded Tanks	420	95,000	
			3,99,00,000.00

C. Net Profit (Per year)

Sales(Rs)	-	Cost of Production (Rs.)	=	Profit
(Rs.)				
3,99,00,000	-	3,57,60,000	=	
41,40,000.00				

D. Net Profit Ratio = $\frac{\text{Net Profit} \times 100}{\text{Sales}}$

= $\frac{41,40,000 \times 100}{3,99,00,000}$ = 10.37%

E. Rate of Return = $\frac{\text{Net Profit} \times 100}{\text{Total Capital Investment}}$

= $\frac{41,40,000 \times 100}{1,38,10,000}$ = 30.00%

F. Break-even Point

Fixed Cost (Per Year)	(Rs.)
a) Depreciation on Building @ 5%	
	87,500.00
b) Depreciation on Machinery & Equipment @ 10%	
	2,36,000.00
c) Depreciation on Moulds/Dies & Office Equipment	
	1,80,000.00
@ 20%	
d) Insurance	24,000.00
e) Interest on total capital investment	16,57,200.00
f) 40% of salary and wages	2,16,000.00

g) 40% of other contingent expenses
72,000.00

Total: 24,72,700.00

Or Say Rs. 24,73,000.00

Net Profit (Per Year)

$$\begin{aligned} \text{B.E.P. \%} &= \frac{\text{Fixed Cost} \times 100}{\text{Fixed Cost} + \text{Net Profit}} \\ &= \frac{24,73,000 \times 100}{24,73,000 + 41,40,000} \\ &= \frac{24.73.000 \times 100}{66,13,000} \\ &= 37.39\% \end{aligned}$$