

# BLOW MOULDED PLASTIC PRODUCTS



## 1.0 INTRODUCTION

Blow moulding is used for manufacturing a wide range of products for domestic as well as industrial purpose. Plastic bottles and containers used for storing liquids such as water, diesel, chemicals, edible oil etc (medium capacity containers) have been some of the most accepted storage products due to their high impact strength, light weight, aesthetics and cost-effectiveness. Plastic, with its versatility, allows for multiple designs, shapes, colours, production capacities, has been a delight to the blow moulding industry. Blow Moulding has been one of the most sought after projects by entrepreneurs who intend to start a business with low investments in the plastic industry. The plastic blow moulded containers are made from HDPE, LDPE, PP etc. These raw materials are available in the market through authorised dealers of the manufacturing companies.

This project profile is for production of blow moulded plastic products, based on 300 working days per annum and 8 working hours per day. The proposed product mix and the installed production capacity of the unit per annum is as follows;

Buckets	-	30,000 Nos.
Jugs	-	60,000 Nos.
Mugs	-	1, 50,000 Nos.

## 2.0 MARKET POTENTIAL

Plastic containers are replacing conventional metal containers and glass containers because of their

comparatively better properties, ease of handling and transportation. Usage of blow moulded Plastic products has grown due to new product designs and new mould designs with the expertise of mould makers in the country. Considering the uses of jug, mug, bucket and jerry can in urban and rural areas, there exist a substantial demand for the products in the market.

## 3.0 PROCESS DETAILS

The main process steps involved are:

- i) Plastic material in the form of granules is subjected to heat and pressure in an extruder.
- II) Semi-molten plastic in extruder passed through the nozzle known as parison. Adjustments have to be made in the machine to vary the wall thickness of the parison.
- III) Suitable parison is then inserted in a female mould and air is blown into parison to force the molten plastic against the sides of the mould.
- IV) The material is then cooled before removal from the mould.
- V) The article is then trimmed to remove flashes.

#### 4.0. COST OF THE PROJECT

The estimated project cost is given below:

(Rs. in lacs)

Particulars	Amount (Rs)
<b>Land &amp; Site development</b>	<b>Own Land/On Lease</b>
<b>Building &amp; Civil works</b>	<b>6.60</b>
<b>Plant &amp; Machinery</b>	<b>14.30</b>
<b>Misc. Fixed assets</b>	<b>3.47</b>
<b>Preliminary &amp; pre-operative expenses</b>	<b>1.43</b>
<b>Contingencies &amp; escalation @ 3%</b>	<b>0.73</b>
<b>Working capital</b>	<b>1.07</b>
<b>TOTAL</b>	<b>27.60</b>

**4.1 Land & Site Development:** Total Land: 3,000 Sq. Ft. ; Covered Area: 2,000 Sq. Ft.

**4.2 Building & Civil Works:** Details of building & civil works are given below.

Particulars	Area (Sq. Ft.)	Rate (Rs)	Amount (Rs)
Factory Shed, Storage Go-down and Office	2000	275	550000
<b>Sub total</b>			<b>550000</b>
Add: Electrification, water supply and sanitation @ 20%			110000
<b>TOTAL</b>			<b>660000</b>
<b>Say (Rs. in lacs)</b>			<b>6.60</b>

**4.3 Plant & Machinery:** Details of plant & machinery are given below.

Particulars	Qty	Amount (Rs)
Semi automatic extrusion blow moulding machinery with 10 HP Motor a) 50mm screw extruder with 10 HP Motor, b) Cross head dies (Single, double and triple) and Spacer c) Mould Closing & opening with hydraulic system with 5 HP motor	1	1252000
Compressor with 5 HP Motor	1	
Water Pump with 1 HP	1	
Moulds, Dies and Tools etc.	1	
DG Set 30 KVA	1	
Misc. Equipment	LS	25000
<b>Sub total</b>		<b>1277000</b>
Add: Installation, transportation, etc @ 10%		127700
<b>TOTAL</b>		<b>1429700</b>
<b>Say (Rs. in lacs)</b>		<b>14.30</b>

**4.4 Misc. Fixed assets:** Details of miscellaneous fixed assets are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Commercial Gas Cylinders	5	3000	15000
Electric Transformer	1	225000	225000
Furniture & fixtures etc	LS	--	25000
Miscellaneous items including office equipment	LS	--	50000
<b>Sub total</b>			<b>315000</b>
Add: Installation, transportation, etc @ 10%			31500
<b>TOTAL</b>			<b>346500</b>
<b>Say (Rs. in lacs)</b>			<b>3.47</b>

**4.5 Contingencies & escalation:** Contingencies & escalation has been assumed at 3% of the cost of land & site development, building & civil works, plant & machinery and miscellaneous fixed assets.

**4.6 Preliminary & pre-operative expenses:** Details of preliminary & pre-operative expenses are given below.

		(Rs. In lacs)
Particulars	Amount (Rs)	
Travelling expenses	11000	
Professional & other fees	50000	
Interest during implementation	61924	
Miscellaneous expenses	20000	
<b>TOTAL</b>	<b>142924</b>	
<b>Say (Rs. in lacs)</b>	<b>1.43</b>	

**4.7 Working capital:** Details of working capital are given below.

		(Rs. in lacs)		
	Period (Days)	Total Current Assets		
		Year 1	Year 2	Year 3
Raw materials	15	0.32	0.37	0.43
Power & Utility	30	0.19	0.22	0.25
Salary	30	0.55	0.56	0.56
Finished Goods	15	0.73	0.80	0.87
Receivables	15	0.89	1.04	1.18
<b>Total</b>		<b>2.68</b>	<b>2.99</b>	<b>3.29</b>
<b>Working capital margin in Year 1 (40%)</b>	<b>1.07</b>			

## 5.0 MEANS OF FINANCE

The means of finance for the project is estimated as below.

		(Rs. in lacs)	
Particulars	Percent	Amount	
<b><u>EQUITY</u></b>			
A. Equity from Promoters	40%	11.04	
B. Subsidy from Central/State Govt.	-		
<b><u>DEBT</u></b>			
Term Loan from Banks/Financial Institutions	60%	16.56	
<b>TOTAL</b>	<b>100%</b>	<b>27.60</b>	

## 6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
<b><u>A. INCOME</u></b>							
Production capacity (Nos./annum)	240000	240000	240000	240000	240000	240000	240000
Capacity utilisation	60%	70%	80%	80%	80%	80%	80%
Production/annum at capacity utilisation	144000	168000	192000	192000	192000	192000	192000
Total income/annum	21.60	25.20	28.80	28.80	28.80	28.80	28.80
<b><u>B. OPERATING EXPENSES</u></b>							
Raw materials	7.79	9.09	10.39	10.39	10.39	10.39	10.39
Power & Utility	2.31	2.69	3.08	3.08	3.08	3.08	3.08

Salary	6.72	6.75	6.79	6.82	6.86	6.89	6.92
Repair & Maintenance	0.40	0.41	0.42	0.43	0.44	0.45	0.45
Other Expenses	0.43	0.50	0.58	0.58	0.58	0.58	0.58
<b>Total Operating Expenses</b>	<b>17.66</b>	<b>19.46</b>	<b>21.25</b>	<b>21.30</b>	<b>21.34</b>	<b>21.38</b>	<b>21.43</b>
<b>Operating profit</b>	<b>3.94</b>	<b>5.74</b>	<b>7.55</b>	<b>7.50</b>	<b>7.46</b>	<b>7.42</b>	<b>7.37</b>
<b>C. FINANCIAL EXPENSES</b>							
Depreciation	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Interest on Term Loan	1.32	1.22	1.00	0.78	0.56	0.34	0.12
Interest on Working Capital Loan	0.13	0.14	0.16	0.16	0.16	0.16	0.16
<b>Net Profit</b>	<b>1.29</b>	<b>3.18</b>	<b>5.19</b>	<b>5.37</b>	<b>5.55</b>	<b>5.72</b>	<b>5.90</b>
Net cash accruals	<b>2.49</b>	<b>4.38</b>	<b>6.39</b>	<b>6.56</b>	<b>6.74</b>	<b>6.92</b>	<b>7.10</b>
Principal Repayment	0.00	2.76	2.76	2.76	2.76	2.76	2.76

**6.1 Production capacity and Sales Realisation:** Total production of Blow Moulded Products at 100% capacity utilization is estimated as below.

Products	Quantity
Bucket	30000 Nos.
Jug	60000 Nos.
Mug	150000 Nos.
<b>Total production per annum at 100% capacity (In Nos.)</b>	<b>240000 Nos.</b>

Particulars	Quantity	Average Rate per Unit	Amount
Bucket	30000 Nos.	40	1200000
Jug	60000 Nos.	20	1200000
Mug	150000 Nos.	8	1200000
<b>Total Sale Turnover per annum at 100% capacity (In Rs.)</b>			<b>3600000</b>

**6.2 Raw materials:** Total expenses on raw materials at 100% capacity utilization are estimated as below.

Particulars	Quantity	Average Rate per Unit	Amount
HDPE	6 MT	72000	432000
PVC	12 MT	45000	540000
Consumables like Colours and Pigments	LS	--	72000
LPG Gas	3 MT	45000	135000
Labelling, Packaging Material	LS	--	120000
<b>Expenses on raw material at 100% capacity (Rs)</b>			<b>1299000</b>

**6.3 Power & Utility:** Total expenses on power & utility at 100% capacity utilization is estimated as below.

Particulars	Quantity	Power (Kw)	Total (Kw)
Plant & machinery (Total HP of 30)	--	22.38	22.38
General Lighting	20	0.10	2.00
Total power requirement/ day (Kw)			24.38

No. of hrs/day	8
No. of days/annum	300
Annual power requirement (kwh)	58512
Rate per unit (Rs)	3.50
Expenses on power (Rs)	204792

**Estimate of Diesel required for Generator**

No of working hours per day	2
Diesel consumption (litres per hours)	6
No. of days/annum	300
Annual requirement (in litres)	3600
Diesel Price per litre	50
Expenses on diesel (Rs)	180000
<b>Expenses on power &amp; utility at 100% capacity (Rs)</b>	<b>384792</b>

**6.4 Salary:** Total expenses on salary in the 1<sup>st</sup> year are estimated as given below. It is assumed that salary expenses will increase @ 0.5% every subsequent year.

Particulars of Employees	Numbers	Salary/ Month (Rs)	Cost/ annum (Rs)
Production Manager	1	8000	96000
Accountant cum Store Keeper	1	6000	72000
Sales Persons	2	6000	144000
Machine Operators/Skilled Workers	2	5000	120000
Semi skilled workers	2	4000	96000
Unskilled workers	4	3000	144000
<b>Expenses on salary in the 1st year (Rs)</b>			<b>672000</b>

**6.5 Repair & Maintenance:** Total expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 2% every subsequent year.

(Rs. in lacs)			
Particulars	Cost (Rs)	Rate	Amount (Rs)
Building & Civil works	6.60	1.00%	0.07
Plant & Machinery	14.3	2.00%	0.29
Misc. Fixed assets	3.47	1.50%	0.05
<b>Expenses on repair &amp; maintenance in year 1</b>			<b>0.40</b>

**6.6 Other Expenses:** Other expenses have been assumed at 2% of sales realisation.

**6.7 Depreciation:** Depreciation has been calculated by straight line method. The details of calculation are given below.

(Rs in lacs)			
Description	Cost (Rs)	Rate	Amount/ annum (Rs)
Building & Civil works	6.60	3.34%	0.22
Plant & Machinery	14.30	5.28%	0.76
Misc. Fixed assets	3.47	6.33%	0.22
<b>TOTAL</b>			<b>1.19</b>

**6.8 Interest on term loan & principal repayment:** Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 7 years including moratorium period of 1 year with equal monthly instalments. The details of calculation are given below.

(Rs in lacs)

Month	Year	1	2	3	4	5	6	7
Month 1	Opening balance	16.56	16.56	13.80	11.04	8.28	5.52	2.76
	Repayment	0.00	0.23	0.23	0.23	0.23	0.23	0.23
	Interest (8%)	0.11	0.11	0.09	0.07	0.06	0.04	0.02
	<b>Closing balance</b>	<b>16.56</b>	<b>16.33</b>	<b>13.57</b>	<b>10.81</b>	<b>8.05</b>	<b>5.29</b>	<b>2.53</b>
Month 2	Opening balance	16.56	16.33	13.57	10.81	8.05	5.29	2.53
	Repayment	0.00	0.23	0.23	0.23	0.23	0.23	0.23
	Interest	0.11	0.11	0.09	0.07	0.05	0.04	0.02
	<b>Closing balance</b>	<b>16.56</b>	<b>16.10</b>	<b>13.34</b>	<b>10.58</b>	<b>7.82</b>	<b>5.06</b>	<b>2.30</b>
Month 3	Opening balance	16.56	16.10	13.34	10.58	7.82	5.06	2.30
	Repayment	0.00	0.23	0.23	0.23	0.23	0.23	0.23
	Interest	0.11	0.11	0.09	0.07	0.05	0.03	0.02
	<b>Closing balance</b>	<b>16.56</b>	<b>15.87</b>	<b>13.11</b>	<b>10.35</b>	<b>7.59</b>	<b>4.83</b>	<b>2.07</b>
Month 4	Opening balance	16.56	15.87	13.11	10.35	7.59	4.83	2.07
	Repayment	0.00	0.23	0.23	0.23	0.23	0.23	0.23
	Interest	0.11	0.11	0.09	0.07	0.05	0.03	0.01
	<b>Closing balance</b>	<b>16.56</b>	<b>15.64</b>	<b>12.88</b>	<b>10.12</b>	<b>7.36</b>	<b>4.60</b>	<b>1.84</b>
Month 5	Opening balance	16.56	15.64	12.88	10.12	7.36	4.60	1.84
	Repayment	0.00	0.23	0.23	0.23	0.23	0.23	0.23
	Interest	0.11	0.10	0.09	0.07	0.05	0.03	0.01
	<b>Closing balance</b>	<b>16.56</b>	<b>15.41</b>	<b>12.65</b>	<b>9.89</b>	<b>7.13</b>	<b>4.37</b>	<b>1.61</b>
Month 6	Opening balance	16.56	15.41	12.65	9.89	7.13	4.37	1.61
	Repayment	0.00	0.23	0.23	0.23	0.23	0.23	0.23
	Interest	0.11	0.10	0.08	0.07	0.05	0.03	0.01
	<b>Closing balance</b>	<b>16.56</b>	<b>15.18</b>	<b>12.42</b>	<b>9.66</b>	<b>6.90</b>	<b>4.14</b>	<b>1.38</b>
Month 7	Opening balance	16.56	15.18	12.42	9.66	6.90	4.14	1.38
	Repayment	0.00	0.23	0.23	0.23	0.23	0.23	0.23
	Interest	0.11	0.10	0.08	0.06	0.05	0.03	0.01
	<b>Closing balance</b>	<b>16.56</b>	<b>14.95</b>	<b>12.19</b>	<b>9.43</b>	<b>6.67</b>	<b>3.91</b>	<b>1.15</b>
Month 8	Opening balance	16.56	14.95	12.19	9.43	6.67	3.91	1.15
	Repayment	0.00	0.23	0.23	0.23	0.23	0.23	0.23
	Interest	0.11	0.10	0.08	0.06	0.04	0.03	0.01
	<b>Closing balance</b>	<b>16.56</b>	<b>14.72</b>	<b>11.96</b>	<b>9.20</b>	<b>6.44</b>	<b>3.68</b>	<b>0.92</b>
Month 9	Opening balance	16.56	14.72	11.96	9.20	6.44	3.68	0.92
	Repayment	0.00	0.23	0.23	0.23	0.23	0.23	0.23
	Interest	0.11	0.10	0.08	0.06	0.04	0.02	0.01
	<b>Closing balance</b>	<b>16.56</b>	<b>14.49</b>	<b>11.73</b>	<b>8.97</b>	<b>6.21</b>	<b>3.45</b>	<b>0.69</b>
Month 10	Opening balance	16.56	14.49	11.73	8.97	6.21	3.45	0.69
	Repayment	0.00	0.23	0.23	0.23	0.23	0.23	0.23
	Interest	0.11	0.10	0.08	0.06	0.04	0.02	0.00
	<b>Closing balance</b>	<b>16.56</b>	<b>14.26</b>	<b>11.50</b>	<b>8.74</b>	<b>5.98</b>	<b>3.22</b>	<b>0.46</b>
Month 11	Opening balance	16.56	14.26	11.50	8.74	5.98	3.22	0.46
	Repayment	0.00	0.23	0.23	0.23	0.23	0.23	0.23
	Interest	0.11	0.10	0.08	0.06	0.04	0.02	0.00
	<b>Closing balance</b>	<b>16.56</b>	<b>14.03</b>	<b>11.27</b>	<b>8.51</b>	<b>5.75</b>	<b>2.99</b>	<b>0.23</b>
Month 12	Opening balance	16.56	14.03	11.27	8.51	5.75	2.99	0.23
	Repayment	0.00	0.23	0.23	0.23	0.23	0.23	0.23

	Interest	0.11	0.09	0.08	0.06	0.04	0.02	0.00
	<b>Closing balance</b>	<b>16.56</b>	<b>13.80</b>	<b>11.04</b>	<b>8.28</b>	<b>5.52</b>	<b>2.76</b>	<b>0.00</b>
	<b>Principal Repayment</b>	<b>0.00</b>	<b>2.76</b>	<b>2.76</b>	<b>2.76</b>	<b>2.76</b>	<b>2.76</b>	<b>2.76</b>
	<b>Interest</b>	<b>1.32</b>	<b>1.22</b>	<b>1.00</b>	<b>0.78</b>	<b>0.56</b>	<b>0.34</b>	<b>0.12</b>

## 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5
Profit After Tax (Net Profit)	1.29	3.18	5.19	5.37	5.55
Depreciation	1.19	1.19	1.19	1.19	1.19
Interest	1.32	1.22	1.00	0.78	0.56
<b>Total</b>	<b>3.81</b>	<b>5.60</b>	<b>7.39</b>	<b>7.35</b>	<b>7.30</b>
Interest	1.32	1.22	1.00	0.78	0.56
Loan repayment	0.00	2.76	2.76	2.76	2.76
<b>Total</b>	<b>1.32</b>	<b>3.98</b>	<b>3.76</b>	<b>3.54</b>	<b>3.32</b>
<b>DSCR</b>	<b>2.88</b>	<b>1.41</b>	<b>1.96</b>	<b>2.07</b>	<b>2.20</b>

Average DSCR = 2.10

## 8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
<b>A. Net sales</b>	<b>21.60</b>	<b>25.20</b>	<b>28.80</b>
<b>B. Variable cost</b>			
Raw materials	7.79	9.09	10.39
Power & Utility	2.31	2.69	3.08
Other expenses	0.43	0.50	0.58
Interest on Working Capital Loan	0.13	0.14	0.16
<b>Total variable cost</b>	<b>10.66</b>	<b>12.43</b>	<b>14.20</b>
<b>C. Contribution (A-B)</b>	<b>10.94</b>	<b>12.77</b>	<b>14.60</b>
<b>D. Fixed &amp; Semi-fixed Costs</b>			
Salary	6.72	6.75	6.79
Repair & maintenance	0.40	0.41	0.42
Interest on Term Loan	1.32	1.22	1.00
Depreciation	1.19	1.19	1.19
<b>Total fixed cost</b>	<b>9.64</b>	<b>9.58</b>	<b>9.41</b>
<b>E. BREAK EVEN POINT</b>	<b>88.17%</b>	<b>75.07%</b>	<b>64.44%</b>
<b>F. BEP at operating capacity</b>	<b>52.90%</b>	<b>52.55%</b>	<b>51.55%</b>
<b>G. Cash BEP</b>	<b>46.35%</b>	<b>46.00%</b>	<b>45.00%</b>

## 9.0 INTERNAL RATE OF RETURN (IRR)

(Rs. in lacs)

Year	0	1	2	3	4	5	6	7
<b>CASH OUTFLOW</b>								
Capital Expenditure	25.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	2.68	0.31	0.31	0.00	0.00	0.00	0.00
<b>Total (A)</b>	<b>25.10</b>	<b>2.68</b>	<b>0.31</b>	<b>0.31</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>CASH INFLOW</b>								



Profit After Tax		1.29	3.18	5.19	5.37	5.55	5.72	5.90
Add: Depreciation		1.19	1.19	1.19	1.19	1.19	1.19	1.19
Add: Interest		1.32	1.22	1.00	0.78	0.56	0.34	0.12
Add: Salvage Value								
<b>Total (B)</b>	<b>0.00</b>	<b>3.81</b>	<b>5.60</b>	<b>7.39</b>	<b>7.35</b>	<b>7.30</b>	<b>7.26</b>	<b>7.22</b>
<b>NET FLOW (B-A)</b>	<b>-25.10</b>	<b>1.14</b>	<b>5.29</b>	<b>7.08</b>	<b>7.35</b>	<b>7.30</b>	<b>7.26</b>	<b>7.22</b>

IRR = 19%

Sl. No.	Name of the Machinery Suppliers	Communication Address
1.	M/s Ahura Industrial Engineers	18, Sidhpura Industrial Estate, Tarun Compound, S V Road, Goregaon, Andheri (East), Maharashtra , Pin- 400 602
2.	M/s Boolani Engineering Corporation	402, Prabhadevi Industrial Estate, Savarkar Road, Mumbai, Maharashtra, Pin-400 018
3.	M/s Brimco Plastic Machinery Corporation.	Plot 55, Govt. Kandivili Industrial estate, Kandivili (West), Mumbai, Maharashtra, Pin-400 067
4.	M/s Universal machinery Services	Tarun Compound, SV Road, Goregaon, Andheri (East), Mumbai, Maharashtra, Pin-400 062.