

# PLASTIC MOULDED FURNITURE



## 1.0 INTRODUCTION

The Indian plastic industry is expanding at a phenomenal pace. Now-a-days plastic moulded furniture's are manufactured using different polymers in place of traditional materials like wood, metal etc. The furniture's are manufactured using Injection Moulding technique. Injection Moulded furniture's are easy to handle, durable and can be processed in single step manufacturing process only.

This project profile is for production of Plastic Moulded Furniture's, based on 300 working days per annum and 8 working hours per day. The installed production capacity of the unit per annum is as follows;  
Plastic Moulded Furniture's-100 MT

## 2.0 MARKET POTENTIAL

Demand for plastic furniture's are increasing day by day because these are available in attractive colours, design and are also cheaper and durable than the wooden furniture's. Due to these reasons, plastic furniture's are rapidly replacing wooden or metal furniture's.

## 3.0 PROCESS DETAILS

Injection moulding is a process of forming an article by forcing molten plastic material under pressure into a mould where it is cooled, solidified and subsequently

released by opening the two halves of the mould. Polypropylene (PP) is the most popularly used raw material for injection moulded furniture. Apart from PP, some additives and stabilizers are also required.

The PP granules are fed via a regulated hopper into a homogeneous molten mass by application of heat and shearing action of a continuously rotating extruded screw which also pushes the plastic melt forward. The melt gets collected at the forward end of the extruder cylinder and is pushed into the mould cavity by the screw which now acts as a hydraulic piston.

The mould is kept at a pre-specified temperature and once injected, the plastic melt is held under high pressure to ensure that the material reaches all ends of the mould. In furniture moulding, moulds used have very large depth. A locking force of an order of 1500 tonnes or so is essential to reduce the wastage. The mould is opened after the plastic melt has solidified sufficiently and the moulded item is ejected by means of ejector pins or plates. During the cooling cycle in the mould, the extruder screw prepares another batch of plastic melt, ready to be injected and thus the cycle goes on continuously.

The moulded articles usually don't require any finishing operation, except for removal of excess material, if any. Otherwise, after visual inspection, they are kept for curing for about 40-50 hours and then dispatched.

**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>16.50</b>
<b>Plant &amp; Machinery</b>	<b>27.89</b>
<b>Misc. Fixed assets</b>	<b>5.23</b>
<b>Preliminary &amp; pre-operative expenses</b>	<b>2.29</b>
<b>Contingencies &amp; escalation @ 3%</b>	<b>1.49</b>
<b>Working capital</b>	<b>4.20</b>
<b>TOTAL</b>	<b>57.59</b>

**4.1 Land & Site Development:** Total Land: 10,000 Sq. Ft. ; Covered Area: 5,000 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	5000	275	1375000
<b>Sub total</b>			<b>1375000</b>
Add: Electrification, water supply and sanitation @ 20%			275000
<b>TOTAL</b>			<b>1650000</b>
<b>Say (Rs. in lacs)</b>			<b>16.50</b>

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

Particulars	Qty	Amount (Rs)
Automatic Injection Moulding Machine with accessories	1	2430000
Scrap Grinder Machine with Motor	1	
Dry Colour Mixer	1	
Mould Lifting Equipment	1	
Water Cooling Arrangement	1	
Mould of Various Shapes/Sizes	6	
Weighing Machine	1	
DG Set 40 KVA	1	
Workshop Equipment	LS	55000
<b>Sub total</b>		<b>2485000</b>
Add: Installation, transportation, etc @ 10%		248500
<b>TOTAL</b>		<b>2788500</b>
<b>Say (Rs. in lacs)</b>		<b>27.89</b>

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Electric Transformer	1	350000	350000
Furniture & fixtures and Office Equipments	LS	--	100000
Miscellaneous items	LS	--	25000
<b>Sub total</b>			<b>475000</b>
Add: Installation, transportation, etc @ 10%			47500
<b>TOTAL</b>			<b>522500</b>
<b>Say (Rs. in lacs)</b>			<b>5.23</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.

<b>(Rs. In lacs)</b>	
Particulars	Amount (Rs)
Travelling expenses	17000
Professional & other fees	50000
Interest during implementation	132220
Miscellaneous expenses	30000
<b>TOTAL</b>	<b>229220</b>
<b>Say (Rs. in lacs)</b>	<b>2.29</b>

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

<b>(Rs. in lacs)</b>				
	Period (Days)	Total Current Assets		
		Year 1	Year 2	Year 3
Raw materials	15	2.60	3.03	3.47
Power & Utility	30	0.22	0.26	0.29
Salary	30	0.77	0.77	0.78
Finished Goods	15	3.20	3.67	4.13
Receivables	15	3.70	4.32	4.93
<b>Total</b>		<b>10.49</b>	<b>12.04</b>	<b>13.60</b>
<b>Working capital margin in Year 1 (40%)</b>	<b>4.20</b>			

## 5.0 MEANS OF FINANCE

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

<b>(Rs. in lacs)</b>		
Particulars	Percent	Amount
<b><u>EQUITY</u></b>		
A. Equity from Promoters	40%	23.04
B. Subsidy from Central/State Govt.	-	
<b><u>DEBT</u></b>		
Term Loan from Banks/Financial Institutions	60%	34.55
<b>TOTAL</b>	<b>100%</b>	<b>57.59</b>

## 6.0 PROFITABILITY STATEMENT

<b>(Rs. in lacs)</b>							
Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
<b><u>A. INCOME</u></b>							
Production capacity (Ton/annum)	100	100	100	100	100	100	100
Capacity utilisation	60%	70%	80%	80%	80%	80%	80%
Production/annum at capacity utilisation	60	70	80	80	80	80	80
Total income/annum	90.00	105.00	120.00	120.00	120.00	120.00	120.00
<b><u>B. OPERATING EXPENSES</u></b>							
Raw materials	63.24	73.78	84.32	84.32	84.32	84.32	84.32
Power & Utility	2.68	3.13	3.58	3.58	3.58	3.58	3.58
Salary	9.36	9.41	9.45	9.50	9.55	9.60	9.64
Repair & Maintenance	0.80	0.82	0.83	0.85	0.87	0.88	0.90

Other Expenses	1.80	2.10	2.40	2.40	2.40	2.40	2.40
<b>Total Operating Expenses</b>	<b>77.89</b>	<b>89.24</b>	<b>100.59</b>	<b>100.65</b>	<b>100.72</b>	<b>100.78</b>	<b>100.85</b>
<b>Operating profit</b>	<b>12.11</b>	<b>15.76</b>	<b>19.41</b>	<b>19.35</b>	<b>19.28</b>	<b>19.22</b>	<b>19.15</b>
<b>C. FINANCIAL EXPENSES</b>							
Depreciation	2.35	2.35	2.35	2.35	2.35	2.35	2.35
Interest on Term Loan	2.76	2.55	2.09	1.63	1.17	0.71	0.25
Interest on Working Capital Loan	0.50	0.58	0.65	0.65	0.65	0.65	0.65
<b>Net Profit</b>	<b>6.49</b>	<b>10.28</b>	<b>14.31</b>	<b>14.71</b>	<b>15.11</b>	<b>15.50</b>	<b>15.90</b>
Net cash accruals	<b>8.85</b>	<b>12.63</b>	<b>16.67</b>	<b>17.06</b>	<b>17.46</b>	<b>17.86</b>	<b>18.25</b>
Principal Repayment	0.00	5.76	5.76	5.76	5.76	5.76	5.76

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

Products	Quantity
Plastic Moulded Furniture's	100 MT
<b>Total production per annum at 100% capacity</b>	<b>100 MT</b>

Particulars	Quantity	Average Rate per Unit	Amount
Plastic Moulded Furniture's	100 MT	150000	15000000
<b>Total Sale Turnover per annum at 100% capacity (In Rs.)</b>			15000000

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

Particulars	Quantity	Average Rate per Unit	Amount
PP (Injection Moulded Grade)	125 MT	80000	10000000
Pigments, Colours etc.	LS	--	300000
Packaging Materials	LS	--	240000
<b>Expenses on raw material at 100% capacity (Rs)</b>			10540000

**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 40)	—	29.84	29.84
General Lighting	20	0.10	2.00
Total power requirement/ day (Kw)			31.84
No. of hrs/day	8		
No. of days/annum	300		
Annual power requirement (kwh)	76416		
Rate per unit (Rs)	3.50		
Expenses on power (Rs)	267456		
<b>Estimate of Diesel required for Generator</b>			
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>447456</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	10000	120000
Accountant cum Store Keeper	1	7000	84000
Sales Persons	3	7000	252000
Technicians/Machine Operators/Skilled Workers	3	5000	180000
Semi skilled workers	4	4000	192000
Unskilled workers	3	3000	108000
<b>Expenses on salary in the 1st year (Rs)</b>			<b>936000</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	16.50	1.00%	0.17
Plant & Machinery	27.89	2.00%	0.56
Misc. Fixed assets	5.23	1.50%	0.08
<b>Expenses on repair &amp; maintenance in year 1</b>			<b>0.80</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	16.50	3.34%	0.55
Plant & Machinery	27.89	5.28%	1.47
Misc. Fixed assets	5.23	6.33%	0.33
<b>TOTAL</b>			<b>2.35</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	34.55	34.55	28.80	23.04	17.28	11.52	5.76
	Repayment	0.00	0.48	0.48	0.48	0.48	0.48	0.48
	Interest (8%)	0.23	0.23	0.19	0.15	0.12	0.08	0.04
	<b>Closing balance</b>	<b>34.55</b>	<b>34.07</b>	<b>28.32</b>	<b>22.56</b>	<b>16.80</b>	<b>11.04</b>	<b>5.28</b>
Month 2	Opening balance	34.55	34.07	28.32	22.56	16.80	11.04	5.28

	Repayment	0.00	0.48	0.48	0.48	0.48	0.48	0.48
	Interest	0.23	0.23	0.19	0.15	0.11	0.07	0.04
	<b>Closing balance</b>	<b>34.55</b>	<b>33.59</b>	<b>27.84</b>	<b>22.08</b>	<b>16.32</b>	<b>10.56</b>	<b>4.80</b>
Month 3	Opening balance	34.55	33.59	27.84	22.08	16.32	10.56	4.80
	Repayment	0.00	0.48	0.48	0.48	0.48	0.48	0.48
	Interest	0.23	0.22	0.19	0.15	0.11	0.07	0.03
	<b>Closing balance</b>	<b>34.55</b>	<b>33.11</b>	<b>27.36</b>	<b>21.60</b>	<b>15.84</b>	<b>10.08</b>	<b>4.32</b>
Month 4	Opening balance	34.55	33.11	27.36	21.60	15.84	10.08	4.32
	Repayment	0.00	0.48	0.48	0.48	0.48	0.48	0.48
	Interest	0.23	0.22	0.18	0.14	0.11	0.07	0.03
	<b>Closing balance</b>	<b>34.55</b>	<b>32.63</b>	<b>26.88</b>	<b>21.12</b>	<b>15.36</b>	<b>9.60</b>	<b>3.84</b>
Month 5	Opening balance	34.55	32.63	26.88	21.12	15.36	9.60	3.84
	Repayment	0.00	0.48	0.48	0.48	0.48	0.48	0.48
	Interest	0.23	0.22	0.18	0.14	0.10	0.06	0.03
	<b>Closing balance</b>	<b>34.55</b>	<b>32.15</b>	<b>26.40</b>	<b>20.64</b>	<b>14.88</b>	<b>9.12</b>	<b>3.36</b>
Month 6	Opening balance	34.55	32.15	26.40	20.64	14.88	9.12	3.36
	Repayment	0.00	0.48	0.48	0.48	0.48	0.48	0.48
	Interest	0.23	0.21	0.18	0.14	0.10	0.06	0.02
	<b>Closing balance</b>	<b>34.55</b>	<b>31.68</b>	<b>25.92</b>	<b>20.16</b>	<b>14.40</b>	<b>8.64</b>	<b>2.88</b>
Month 7	Opening balance	34.55	31.68	25.92	20.16	14.40	8.64	2.88
	Repayment	0.00	0.48	0.48	0.48	0.48	0.48	0.48
	Interest	0.23	0.21	0.17	0.13	0.10	0.06	0.02
	<b>Closing balance</b>	<b>34.55</b>	<b>31.20</b>	<b>25.44</b>	<b>19.68</b>	<b>13.92</b>	<b>8.16</b>	<b>2.40</b>
Month 8	Opening balance	34.55	31.20	25.44	19.68	13.92	8.16	2.40
	Repayment	0.00	0.48	0.48	0.48	0.48	0.48	0.48
	Interest	0.23	0.21	0.17	0.13	0.09	0.05	0.02
	<b>Closing balance</b>	<b>34.55</b>	<b>30.72</b>	<b>24.96</b>	<b>19.20</b>	<b>13.44</b>	<b>7.68</b>	<b>1.92</b>
Month 9	Opening balance	34.55	30.72	24.96	19.20	13.44	7.68	1.92
	Repayment	0.00	0.48	0.48	0.48	0.48	0.48	0.48
	Interest	0.23	0.20	0.17	0.13	0.09	0.05	0.01
	<b>Closing balance</b>	<b>34.55</b>	<b>30.24</b>	<b>24.48</b>	<b>18.72</b>	<b>12.96</b>	<b>7.20</b>	<b>1.44</b>
Month 10	Opening balance	34.55	30.24	24.48	18.72	12.96	7.20	1.44
	Repayment	0.00	0.48	0.48	0.48	0.48	0.48	0.48
	Interest	0.23	0.20	0.16	0.12	0.09	0.05	0.01
	<b>Closing balance</b>	<b>34.55</b>	<b>29.76</b>	<b>24.00</b>	<b>18.24</b>	<b>12.48</b>	<b>6.72</b>	<b>0.96</b>
Month 11	Opening balance	34.55	29.76	24.00	18.24	12.48	6.72	0.96
	Repayment	0.00	0.48	0.48	0.48	0.48	0.48	0.48
	Interest	0.23	0.20	0.16	0.12	0.08	0.04	0.01
	<b>Closing balance</b>	<b>34.55</b>	<b>29.28</b>	<b>23.52</b>	<b>17.76</b>	<b>12.00</b>	<b>6.24</b>	<b>0.48</b>
Month 12	Opening balance	34.55	29.28	23.52	17.76	12.00	6.24	0.48
	Repayment	0.00	0.48	0.48	0.48	0.48	0.48	0.48
	Interest	0.23	0.20	0.16	0.12	0.08	0.04	0.00
	<b>Closing balance</b>	<b>34.55</b>	<b>28.80</b>	<b>23.04</b>	<b>17.28</b>	<b>11.52</b>	<b>5.76</b>	<b>0.00</b>
	<b>Principal Repayment</b>	<b>0.00</b>	<b>5.76</b>	<b>5.76</b>	<b>5.76</b>	<b>5.76</b>	<b>5.76</b>	<b>5.76</b>
	<b>Interest</b>	<b>2.76</b>	<b>2.55</b>	<b>2.09</b>	<b>1.63</b>	<b>1.17</b>	<b>0.71</b>	<b>0.25</b>

**7.0 DEBT SERVICE COVERAGE RATIO (DSCR)**

(Rs. in lacs)

Year	1	2	3	4	5	6	7
Profit After Tax (Net Profit)	6.49	10.28	14.31	14.71	15.11	15.50	15.90
Depreciation	2.35	2.35	2.35	2.35	2.35	2.35	2.35
Interest	2.76	2.55	2.09	1.63	1.17	0.71	0.25
<b>Total</b>	<b>11.61</b>	<b>15.19</b>	<b>18.76</b>	<b>18.70</b>	<b>18.63</b>	<b>18.57</b>	<b>18.50</b>
Interest	2.76	2.55	2.09	1.63	1.17	0.71	0.25
Loan repayment	0.00	5.76	5.76	5.76	5.76	5.76	5.76
<b>Total</b>	<b>2.76</b>	<b>8.31</b>	<b>7.85</b>	<b>7.39</b>	<b>6.93</b>	<b>6.47</b>	<b>6.01</b>
<b>DSCR</b>	<b>4.20</b>	<b>1.83</b>	<b>2.39</b>	<b>2.53</b>	<b>2.69</b>	<b>2.87</b>	<b>3.08</b>

Average DSCR = 2.62

**8.0 BREAK EVEN POINT (BEP)**

(Rs. in lacs)

Year	1	2	3
<b>A. Net sales</b>	<b>90.00</b>	<b>105.00</b>	<b>120.00</b>
<b>B. Variable cost</b>			
Raw materials	63.24	73.78	84.32
Power & Utility	2.68	3.13	3.58
Other expenses	1.80	2.10	2.40
Interest on Working Capital Loan	0.50	0.58	0.65
<b>Total variable cost</b>	<b>68.23</b>	<b>79.59</b>	<b>90.95</b>
<b>C. Contribution (A-B)</b>	<b>21.77</b>	<b>25.41</b>	<b>29.05</b>
<b>D. Fixed &amp; Semi-fixed Costs</b>			
Salary	9.36	9.41	9.45
Repair & maintenance	0.80	0.82	0.83
Interest on Term Loan	2.76	2.55	2.09
Depreciation	2.35	2.35	2.35
<b>Total fixed cost</b>	<b>15.28</b>	<b>15.13</b>	<b>14.73</b>
<b>E. BREAK EVEN POINT</b>	<b>70.18%</b>	<b>59.55%</b>	<b>50.72%</b>
<b>F. BEP at operating capacity</b>	<b>42.11%</b>	<b>41.69%</b>	<b>40.58%</b>
<b>G. Cash BEP</b>	<b>35.62%</b>	<b>35.20%</b>	<b>34.10%</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	51.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	10.49	1.56	1.56	0.00	0.00	0.00	0.00
<b>Total (A)</b>	<b>51.10</b>	<b>10.49</b>	<b>1.56</b>	<b>1.56</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>CASH INFLOW</b>								
Profit After Tax		6.49	10.28	14.31	14.71	15.11	15.50	15.90
Add: Depreciation		2.35	2.35	2.35	2.35	2.35	2.35	2.35
Add: Interest		2.76	2.55	2.09	1.63	1.17	0.71	0.25
Add: Salvage Value								



<b>Total (B)</b>	<b>0.00</b>	<b>11.61</b>	<b>15.19</b>	<b>18.76</b>	<b>18.70</b>	<b>18.63</b>	<b>18.57</b>	<b>18.50</b>
<b>NET FLOW (B-A)</b>	<b>-51.10</b>	<b>1.12</b>	<b>13.63</b>	<b>17.20</b>	<b>18.70</b>	<b>18.63</b>	<b>18.57</b>	<b>18.50</b>

IRR = 24%

<b>Sl. No.</b>	<b>Name of the Machinery Suppliers</b>	<b>Communication Address</b>
1.	M/s Anu Engineering Works	235/260, 1 <sup>st</sup> Main, Vinayak Nagar, Kamakshipalya Industrial Area, Mumbai, Maharashtra, Pin- 560 079.
2.	M/s Ace Automation	228/1, M. G. R. Street, Sivanandapylam, Saravanampatti, Coimbatore, Pin- 641035
3.	M/s G S Azad Indstry.	A-31, Naraina Industrial Area Phase I, New Delhi, Pin-110 028