Injection Moulded Shoes

PRODUCT CODE	:	291101003
QUALITY AND STANDARDS	:	There is no specific BIS specification for Injection Moulded Shoes.
PRODUCTION CAPACITY	:	Quantity: 3,00,000 pairs shoes (per annum) Value: Rs. 7,97,25,000
MONTH AND YEAR OF PREPARATION	:	March, 2003
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Introduction

Injection moulding is one of the many processes adopted for shoe manufacture. Injection moulding of shoes with rubber as soling material by vulcanization process is very popular. It attained popularity during the early 1960's when PVC followed by PU were developed for use as soling materials. Injection moulded shoes has certain advantages over other shoes and is still one of the preferred methods for manufacture of shoes.

Market Potential

The international market for shoes is dominated by Italy, China, Thailand, Indonesia, India and some other South East Asian countries. The footwear industry in all major developed countries is showing a decreased trend due to a rise in the cost of production. Shoes being a low technology and high labour intensive product, India stands a favourable chance to be the largest exporter of footwear. The Indian domestic market is also huge and there is a lot of scope for setting up units manufacturing injection moulded shoes.

Basis and Presumptions

1. The unit will run on single shift basis of 8 hours duration and will have 25 working days in a month.
2. Time period of achieving full/ envisaged capacity utilization is 3 years.
3. Labour wages have been considered on minimum labour wages as declared by the State Government.

4. The rate of Interest for fixed capital and working capital is 15% on an average basis for both heads.
5. Margin money is to be raised as per the rates declared from time to time.
6. The estimated life period of the project is 10 years and pay back period of the project is 7 years.
7. Land cost- Rs. 1,00,000 (Rs. 50,000 per acre)

   Construction cost- Rs. 200 per sq. ft. for workshed. Rs. 300 per sq. ft. for office.

IMPLEMENTATION SCHEDULE

Sl. No.	*Activity*	*Period (In months)*
1.	Registration and other formalities	2
2.	Land acquisition	3
3.	Construction of shed, office etc.	8
4.	Machinery purchasing and installation	4
5.	Trial production	1
	Total	18

TECHNICAL ASPECTS

Process of Manufacture

The graded patterns of the components of the selected design are clicked for upper and lining materials and passed on to closing section for making the upper. In closing section, the edges are skived and components stitched and eyelets fixed as per buyers specification. In the making section, the insole is stapled to the making last, shank attached, the upper is then lasted over the last either by adhesive or tacks. Bottom roughing of the lasting allowance is done which can be a little over the lasting edge. The shank is attached securely by tacks and heel filler is attached in seat area to cut down PVC around the heel, shorten cooling time and prevents distortion of head shape. A one part or two part polyurethane adhesive is applied by machine or hand brush over the whole bottom only in case of PVC and not required for PU and is completely dried. The shoe is slipped from the making last and put on to alloy last mould. The shoe in the inverted position is then slid into the injection moulding machine. The side and sole moulds close and lock into position. Molten PVC is then injected into the mould, cutting off supply when full. It is then cooled by refrigeration chamber and moulds unlock after cooling time and shoe unloaded. The spue is then removed. Shoe is then send for finishing and then checked and packed. For PU injection moulding a different kind of injection moulding machine is used which is more critical. Expanded PVC is now a days popular as soling material. Vulcanized rubber soles are still in use.

Quality Control and Standards

The quality of footwear is guided by the physical and chemical properties of the material, destructive test on footwear and wear trials. Various organizations like SATRA, BLMRA, SLTC (UK), CTC (France), TNO (Netherlands), PFI (Germany), VESLIC (Switzerland), ALCA, ASTM (USA) and CLRI(India) have contributed to achieve quality standards for footwear and footwear materials. Test procedures and testing equipments of Bally (Switzerland) and SATRA (UK) and specification of British Standard (BS),

German Standards (DIN) and international standards (ISO) are widely used. In India BIS (Bureau of Indian Standards) have worked out specifications for various footwear and footwear materials. Shoes are to be manufactured as per the buyer's specification.

Production Capacity

Quantity : 3,00,000 pairs injection moulded shoes (per annum)

Value : Rs. 7,97,25,000.

Motive Power

The proposed unit will consume 10,000 kWH units of electricity per month.

Pollution Control

There is no pollution in the manufacture of injection moulded shoes.

Energy Conservation

Workers should be properly trained to minimize wastage of electrical energy by proper running and maintenance of the machines.

FINANCIAL ASPECTS

A. Fixed Capital

(i) Land and Building	(Rs.)
Land 2 acres @ Rs. 50,000 per acre	1,00,000
Building area for workshed of 10,000 Sq. ft. @ Rs. 200 per sq. ft (Factory, Test laboratory, Stores, rest room etc.)	20,00,000
Administrative Block of 5000 sq. ft @ Rs. 300 per sq. ft (Administration, Inspection, Guest Room etc.)	15,00,000
Compound wall, gate, road, water pump etc.	4,00,000
Total	40,00,000

(ii) Machinery and Equipments

Sl. No.	Description	Ind./ Imp.	Qty.	Rate (Rs.)	Value (Rs.)
1.	Computer with design and grading software and cutter	Imp.	1	10,00,000	10,00,000
2.	Swing beam hydraulic beam press 20 tonnes	Ind.	4	1,50,000	6,00,000
3.	Band knife upper splitting machine	Imp.	1	4,00,000	4,00,000
4.	Upper perforating machine	Ind.	1	1,00,000	1,00,000
5.	Strap cutting machine	Ind.	1	40,000	40,000
6.	Stamping machine for upper and lining	Ind.	1	45,000	45,000
7.	Sock stamping machine	Ind.	1	40,000	40,000
8.	Upper skiving machine	Ind.	4	50,000	2,00,000
9.	Thermocementing folding and attaching machine	Imp.	1	2,00,000	2,00,000
10.	Rotary Ironing machine	Imp.	1	1,00,000	1,00,000
11.	Stitch marking machine	Ind.	1	20,000	20,000
12.	Flat bed single needle machine	Imp.	4	30,000	1,20,000
13.	Post bed single needle machine	Imp.	4	50,000	2,00,000
14.	Flat bed double needle machine	Imp.	1	40,000	40,000
15.	Post bed double needle machine	Imp.	1	60,000	60,000
16.	Flat bed zig-zag machine	Imp.	1	45,000	45,000
17.	Cylinder bed binding machine	Imp.	1	65,000	65,000
18.	Steam rubbing machine	Ind.	1	40,000	40,000

Sl. No.	Description	Ind/ Imp	Qty.	Rate (Rs.)	Value (Rs.)
19.	Steam pressing machine	Ind.	1	20,000	20,000
20.	Punching and eyeleting machine	Ind.	1	50,000	50,000
21.	Conveyor (closing department)	Ind.	4	20,000	80,000
22.	Insole moulding machine	Ind.	1	50,000	50,000
23.	Counter moulding machine	Ind.	1	75,000	75,000
24.	Insole stapling machine	Ind.	1	40,000	40,000
25.	Toe puff attaching machine	Ind.	1	45,000	45,000
26.	Forepart lasting machine	Imp.	1	7,00,000	7,00,000
27.	Seat and side lasting machine	Imp.	1	8,00,000	8,00,000
28.	Humidifier for seat lasting	Ind.	1	25,000	25,000
29.	Pounding and ironing machine	Ind.	1	1,00,000	1,00,000
30.	Moist wrinkle classer	Ind.	4	10,000	40,000
31.	Humid heat setting machine	Imp.	1	3,00,000	3,00,000
32.	Bottom toughing machine	Ind.	1	50,000	50,000
33.	Cementing machine	Imp.	1	50,000	50,000
34.	Last removing jack	Ind.	1	20,000	20,000
35.	Heat activator	Ind.	1	40,000	40,000
36.	4 station injection moulding machine	Imp.	1	14,00,000	14,00,000
37.	Finishing machine	Ind.	1	1,00,000	1,00,000
38.	Spray booth	Ind.	1	20,000	20,000
39.	Air compresser	Ind.	1	40,000	40,000
40	Generator set	Ind.	1	3,00,000	3,00,000
41.	Testing equipments	Ind.	LS	2,00,000	2,00,000
42.	Cost of power connection including transformer				2,00,000
				Total	80,60,000
43.	Electrification and installation charges @ 10% of the cost of machinery and equipments				8,06,000
44.	Hand tools	Ind.	LS		14,000
45.	Clicking dies	Ind.	LS		40,000
46.	Plastic lasts	Ind.	LS		1,00,000
47.	Metal Moulds	Ind.	LS		1,80,000
48.	Furniture and office equipments	Ind.	LS		5,00,000
				Total	97,00,000

(iii) Pre-operative Expenses	(Rs.)
Project Cost -non-refundable deposits	3,00,000

(iv) Total Fixed Capital		(Rs.)
1.	Land and Building	40,00,000
2.	Machinery and Equipments	97,00,000
3.	Pre-operative Expenses	3,00,000
	Total	1,40,00,000

B. Working Capital (per month)

(i) Personnel (per month)

Sl. No.	Designation	Nos.	Salary (Rs.)	Total (Rs.)
(a)	*Administrative and Supervisory Staff*			
1.	General Manager	1	10,000	10,000
2.	Manager (Administration)	1	8,000	8,000
3.	Manager (Production)	1	8,000	8,000
4.	Supervisor	5	4,000	20,000
5.	Accountant	1	3,000	3,000
6.	Clerk cum Typist	2	2,500	5,000
7.	Storekeeper	1	2,400	2,400
8.	Peon	1	1,800	1,800
9.	Sweeper	3	1,800	5,400
10.	Watchman	3	1,800	5,400
(b)	*Technical Staff (Skilled and Unskilled)*			
11.	Skilled worker	30	4,000	1,20,000
12.	Semi-skilled worker	20	3,000	60,000
13.	Helper	15	2,000	30,000
14.	Mechanic	1	4,000	4,000
15.	Electrician	1	3,000	3,000
		Total		2,86,000
Perquisites @ 20% of Salary				57,200
		Total		3,43,200

(ii) Raw Materials (per month)

Sl. No.	Particulars	Ind./ Imp.	Unit	Qty.	Rate	Value
1.	Upper Leather @ 2.5 sq. ft./pair	Ind.	Sq. ft	62,500	40	25,00,000
2.	Lining Leather @ 1.25 sq. ft./pair	Ind.	Sq. ft	31,250	20	6,25,000
3.	Textile lining tape	Ind.	Pair	-	2	50,000
4.	Self adhesive cloth tape, threads, foam, cushion, eyelets	Ind	Pair	-	14	3,50,000
5.	Toe puff and stiffener	Ind	Pair	-	12	3,00,000
6.	Insole shanks	Ind	Pair	-	12	3,00,000
7.	PVC	Ind	Kgs	5000	40	2,00,000
8.	Shoe finishing chemicals (cleaner, filler, finish and wax)	Imp.	Pair	-	12	3,00,000
9.	Shoe laces	Ind.	Pair	-	5	3,00,000
10.	Packing (tissue papers, antifungal tablet, carton box)	Ind.	Pair	-	10	2,50,000
					Total	51,75,000

(iii) Utilities (per month)		(Rs.)
1.	Power 10,000 kWH units @ Rs. 4.50 per unit	45,000
2.	Fuel for Generator	5,000
	Total	50,000

(iv) Other Contingent Expenses (per month)		
1.	Postage and stationery	2,000
2.	Telephone	5,000
3.	Consumable Stores	7,000
4.	Repairs and Maintenance	5,000

(v) Other Contingent Expenses (per month) (Rs.)	
5. Transport charges	9,000
6. Advertisement and Publicity	3,000
7. Insurance	8,000
8. Sales Expenses	7,000
9. Miscellaneous Expenses	8,000
Total	54,000

(vi) Total Recurring Expenditure (per month) (Rs.)	
1. Personnel	3,43.200
2. Raw material	51,75,000
3. Utilities	50,000
4. Other Contingent Expenses	54,000
Total	56,22,200

(vii) Total Working Capital	(Rs.)
Working capital is calculated for 3 months i.e. Total Recurring Expenditure x 3 (56,22,200 x 3)	1,68,66,600

C. Total Capital Investment

(i)	Fixed Capital	Rs. 1,40,00,000
(ii)	Working Capital	Rs. 1,68,66,600
	Total	Rs. 3,08,66,600

FINANCIAL ANALYSIS

(1) Cost of Production (per year)	(Rs.)
1. Total Recurring Cost	6,74,66,400
2. Depreciation on Building @ 5%	2,00,000
3. Depreciation on Machinery and Equipments @ 5%	9,20,000
4. Depreciation on Office Equipments and Furniture @ 20%	1,00,000
5. Interest on Total Capital Investment @ 15%	46,29,990
Total	7,33,16,390

(2) Turnover (per year)

Item	Quantity	Rate (Rs.)	Value (Rs.)
Shoes Grade-I	2,85,000 pairs	270	7,69,50,000
Shoes Grade-II	15,000 pairs	185	27,75,000
	Total		7,97,25,000

(3) Net Profit (per year) *(Before Income Tax)*

= Turnover – Cost of Production

= Rs. 7,97,25,000 – 7,33,16,390

= Rs. 64,08,610

(4) Net Profit Ratio

$$= \frac{64,08,610 \times 100}{7,97,25,000}$$

= 8.04 %

(5) Rate of Return on Total Investment

$$= \frac{\text{Net Profit per year} \times 100}{\text{Total Investment}}$$

$$= \frac{64,08,610 \times 100}{3,08,66,600}$$

= 20.76%

(6) Break-even Point

Fixed Cost	(Rs.)
1. Depreciation on Machinery	9,20,000
2. Depreciation on Office Equipments and Furniture	1,00,000
3. Depreciation on Building	2,00,000
4. Interest on Capital Investment	46,29,990
5. Insurance	96,000
6. 40% of salary and wages	16,47,360
7. 40% of other contingent expenses	4,99,200
Total	80,92, 550

B.E.P.

$$= \frac{\text{Fixed Cost} \times 100}{\text{Fixed Cost + Profit}}$$

= 55.8 %

Addresses of Machinery and Equipment Suppliers

1. M/s. Leather and Packaging Machinery Corporation,
   1/23-B, Asaf Ali Road,
   New Delhi-110 002.
2. M/s. Torielli
   1090, Periyar EVR High Road,
   Chennai-600 084.

3. M/s. Rakesh Sukhia and Company Limited,
62-A, Wulhucattan Street, Periamet,
Chennai-600 003.
4. M/s. Bensen Industries
96, Sri Arobindo Road, Salkia,
Howrah-6.
5. M/s. Lefoot Machines,
373, Sideo Industrial Estate,
Chennai-600 098.

Footwear Components, Grinderies and Chemical Suppliers

1. M/s. Agra Leather Board,
Nunhai Industrial Estate,
Agra.
2. M/s. Flexole Raman Limited,
Mysore Ooty Road, Tahandvapura,
Mysore.
3. M/s. Atlanta Trading Pvt. Company,
Atur house, Worli Naka,
Mumbai - 400 018.
4. M/s. Chandra Chemicals Enterprises Limited,
P-35, CIT Road,
Kolkata - 700 014.
5. M/s. Salma International
Salma House, 142,
Purasawalkam High Road,
Kellys,
Chennai - 600 012.
6. M/s. Toscana Lasts Limited
Thapar House,
124, Janpath,
New Delhi - 110 001.
7. M/s. Sanghavi Shoe Accessories
3, Hari Krupa, 10th Road,
Chembur,
Mumbai - 400 071.
8. M/s. Vardhman Threads Private Limited
4/6, D.B. Gupta Road, Paharganj,
New Delhi - 110 055.
9. M/s. Indian Eyelet Industries
5, Dr. Rajendra Prasad Sarani,
Kolkata - 700 001.
10. M/s. Skandia Cutting Dies Private Limited
1-B, General Collin Road,
Chennai - 600 122.
11. M/s. India Shoe Lace Works
8/359, Hing Ki Mandi,
Agra - 3.