

# Manufacture of Denim Garments

PRODUCT CODE	: N.A.
QUALITY AND STANDARDS	: N.A.
PRODUCTION CAPACITY	: Qty. : 105 Lakh pieces (per annum) Value : Rs. 285 lakhs
MONTH AND YEAR OF PREPARATION	: March, 2003
PREPARED BY	: Small Industries Service Institute Government of India, Ministry of SSI, Andheri-Kurla Road, Sakinaka, Mumbai-400072 Tel. : 022-28576090/3091/7166 Fax : 022-28578092 Website : www.sisimumbai.com E-mail: smallind@vsnl.com

## INTRODUCTION

The term 'apparel' or 'garment' would include ready-made garments as well as knitwear/hosiery. The garment industry is classified as those establishments which cut and/ or stitch/ make up garments out of woven or knitted fabrics without being involved in the manufacture of fabrics.

All these garments can be broadly classified into 3 categories. Formals, Casuals and Designers. Formal range of garments refers to those dresses, which are worn at offices and other sober places of visit. Casual garments refer to that breed of dresses whose styles are generally nonconformist with normal features of over sized pockets, pockets with flaps, larger front buttons, loose fit etc. Designer garments refer to the line of dresses which are worn at parties, joyous gathering such as weddings, receptions where general code of dress is not specified and has limited editions of a sampling cater to a small segment,

Denim garments come under the category of semi-formal wear.

Levi's Strauss made the first pair of jeans using tent canvas to help miners stash away enough gold into various pockets of hurriedly sewn up trousers, during the gold rush in California in 1890's. Today every second person, man or women wear jeans. Comfort is the key word, and that has contributed to a boom in the acceptability of jeans as part of daily life so much so, that it has nearly come to be accepted as an executive, formal wear too. Denim has become so popular among the people that a Tamil Filmmaker has named a film as "Jeans", starring former Miss world, Aishwarya Rai.

Denim dresses over the years have revealed a capability to transcend age and gender barriers. Boys and girls, men and women, the young and the old have come to hold the view this comfort and fashion. Travelling in a pair of jeans and T-shirt or sports-neck shirt is the

definition of “travelling comfortably dressed”.

The denim fabric, accessories and trims like collars, zips, buttons, sewing thread, fusible/non fusible linings etc. technology and the skilled workers for making these garments are available in India at competitive prices. Apart from the availability of raw material, various support services like garment dyeing/bleaching/finishing units, packing material manufacturers etc. are also available within India.

## MARKET POTENTIAL

The state of Maharashtra is one of the leading manufacturers' of readymade garments for domestic and export markets in the country due to its natural advantage of peaceful industrial climate, high skills of work force, easy availability of raw materials, reliable infrastructure facilities, uninterrupted power supply etc.

In the domestic market readymade garment industry has made spectacular progress in the last decade in our country due to vast middle class population which is equivalent in numbers to the total population of USA and has 17 per cent of the world's population. Readymade garment business thrives in a situation of rising levels of incomes particularly of the middle and upper middle classes. At the same time export markets for readymade garments are very large and the growth is tremendous. As per AEPC report, overall share of Indian garments in the International market as just 2.4% when compared to other smaller nations like South Korea, Hong Kong, Malaysia, Bangladesh, Sri Lanka, where it is more than 4% each. As per WTO agreement all quota restrictions for exports will be

removed by 2005 AD which will further boost the exports from country.

In Indian denim market, there is a premium segment which is catered mainly by foreign brands like Wrangler, Pepe, Lee's and Levi's (all are American). However, this premium segment accounts for a mere 3 percent, in volumes terms, of the total jeans market, pegged at approximately 25 million pairs per annum. The standard and economy segments catered by Indian brands like Flying Machine, killer, Texas, Sunnex, New Port (Aravind Mills), Trigger (KG Denim), Ruf and Tuf (tailor jeans by Aravind Mills occupy rest of the market). The total jeans market in India is estimated at about Rs. 2855 crores in which the premium segment accounts for Rs. 275 crores to 300 crores, standard segment of around Rs. 840 crores, and the rest by the unorganised economy segment. Predictably, the economy segment enjoys the largest market share by volume-nearly-70 per cent. There is fast growing trend in the standard and economy segments than the premium segment. The semi formal segment is growing at a rate of 35 percent per annum for the last few years, and will continue to grow at this rate. There is a growing trend towards soft jeans made with cellulose rayon and Tencel blended denim garments.

## BASIS AND PRESUMPTIONS

1. The project profile has been prepared on the basis of single shift of 8 hours each day, 25 days in a month and at 75% efficiency.
2. It is presumed that in the 1st year the capacity utilisation will be 70 % followed by 85% in the next year and 100% in the subsequent years.

3. The rates quoted in respect of salaries and wages for skilled workers and others are the minimum rates in the state/ neighbouring states.
4. Interest rate for fixed and working capital has been taken @14% on an average, whether financed by bankers or by financial corporations.
5. Margin money required is minimum 30% of the projected investment.
6. Pay Back period of the Project: After the initial gestation period of one and a half years, it will require 5 years to pay back the loans.
7. The rental value of the workshed and other built up/covered area has been taken at the rate of Rs. 20 per square meter.
8. The rates quoted in respect of machines, equipment and raw materials are those prevailing at the time of preparation of this project profile, and are likely to vary from supplier to supplier and place to place. When a tailor made project profile is prepared necessary changes are to be made.
9. Working capital for 3 months has been taken into consideration for smooth running of the project.

3. Financial arrangements	3 months
4. Purchase and procurement of machinery	2 months
5. Installation of machine	1 month
6. Electrification	1 month
7. Recruitment of staff and workers.	1 month

## TECHNICAL ASPECTS

### Process of Manufacture

Manufacture of denim garments is like any other garment except that these garments require special care and finishes. The basic outline of the operations for denim garments in general is given below.

1. Pattern design and pattern making.
2. Cloth cutting by mechanical process.
3. Sewing by high-speed industrial sewing machine.
4. Trimming and inspection.
5. Ironing and pressing as finishing process.

Designers use five elements to create a design that will stimulate the potential consumer to buy like colour, silhouette, drape, texture and tone. Besides these the designer selects buttons, uppers, snaps, thread lace, tapes, braids, medallions, sequins and a variety of ornaments and closures and decorative devices to impart the desired design effect.

Cutting involves three basic operations, i.e. making the marker, spreading the fabric and chopping fabric into the marked sections. There are six types of machines available to chop or cut a lay into the component parts of the marketlike rotary blade machine, vertical reciprocal blade

## IMPLEMENTATION SCHEDULE

<i>Sl.No. Activity</i>	<i>Period</i>
1. Preparation of the Project Report:	
(a) Calling quotations	1 month
(b) Preparation	2 weeks
2. Provisional Registration as SSI	1 week

machines, band knives, similar to band-saws, die clickers systems with straight blades and automated computerised laser beam cutting machines.

The sewing operation is performed to join the individual cut components in to desired shape by using power operated sewing machine.

Fusing and cementing are processes for stitching or decorative seaming. In fusing, the seam bond on decoration is formed by melting some fibre or finish content in the material in a manner that joins the sections or decorates in the desired area. In cementing, the bond or decoration is made by an adhesive, such as cement, glue on plastic which is applied to the materials during or immediately preceding the cementing process. Fusing is either by direct heat, by hot head fusing presses, in which pressure surface area is heated by electric heating grade or steam. Cementing processes use mechanical pressure systems with inbuilt head application depending on the adhesive materials used.

Moulding is a process that changes the surface character to photography of a garment of one of its stitch sections by application of heat, moisture or pressure. Pressing, pleating, blocking mangling, steaming, creasing, curing and casting curing and casting are trade terms for various moulding processes.

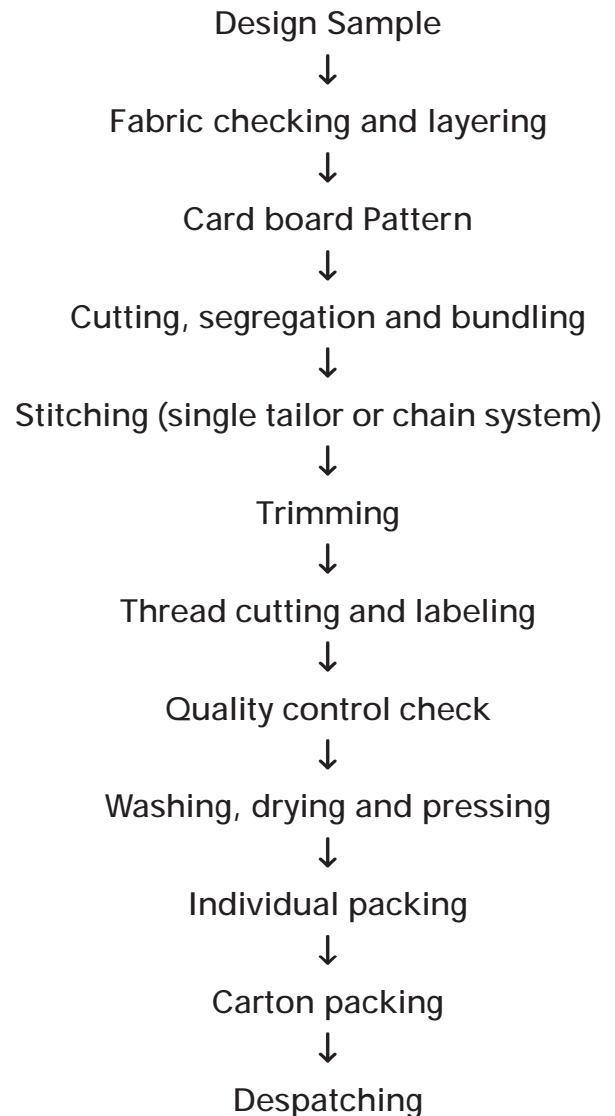
Pressing has two major divisions: Buck press is a machine for pressing a garment or section between two contoured, heated pressure surface that may have steam vacuum systems in either or both surface.

In the field of casual fashion the fade look has significant value. Previously the faded effect used to come after repeated

washing of the garment. Now we can get the fade effects instantly by latest washing technology and it plays a very important role in the saleability of the denim garment.

There are many types of washes. The prominently used are Hard Wash, Half Bleach, Full Bleach, Marble Bleach, Acid Wash, Stone Wash, Chemical Wash, Ice Wash, Moon Wash, Bright Wash, Gun Wash, Camel Wash, Ink Wash etc.

#### *Process-flow Diagram*



#### Quality Control and Standards

In addition to various fabric defects

like slubs, snarls, shade variations from selvedge to selvedge especially with dark shades like red, turquoise, navy blue, mustard, dark lilac, etc. and shade variation in different batches should be checked before fabric is cut for sewing.

It is very essential to maintain garment industry, as the export markets are highly competitive. No quality specifications are followed either BIS or by any other institution as the same can not standardised due to frequent fashion changes in the garment industry. However, general quality practices like good house keeping periodic checks at each and every stage of production should be practiced. To find out various quality parameters like colour fastness, tearing strength, bursting strength, shrinkage test etc. testing services offered by reputed laboratories like ATIRA, BTRA, SITRA, NITRA, SGS India etc. shall be utilised to monitor and record the quality levels at regular intervals.

#### Production Capacity (per annum)

On average 10 pieces of adult garments can be produced with one machine in conjunction with the special machinery that works as complimentary.

Production per machine per day of 8 hours = 7 pieces

Production per 50 machines per day of 8 hours = 350 pieces

Production per 50 machines per day of 25 days = 8750 pieces

Annual Production Capacity = 1,05000

(a) Quantity : 1.05 Lakhs pieces

(b) Value : Rs. 285 Lakhs

#### Motive Power

A total of 45 kW or 60 HP power is required to run at full capacity and this can be drawn from state electricity boards.

#### Pollution Control

Unit is going to do only cutting stitching, pressing operations for the manufacture of readymade garments, which does not involve in discharge of any type of pollution. Hence there is no need of taking measures to control the pollution.

#### Energy Conservation

Another important international aspect of the recent period is energy conservation. The energy conservation will make the industries to reduce their production costs and thereby stay more competitive in the market. This matter should be the concern of every person involved in the day to day operations of any industry. Idle running of various machines, heaters, boilers, lights, fans, air conditioners etc. should be completely avoided. Suitable capacitors and energy saving devices should be incorporated wherever possible to minimise the wastage of energy.

### FINANCIAL ASPECTS

#### A. Fixed Capital

##### (i) Land and Building (Rented)

(a) Built up/Covered area	1000 sq. mt.
(b) Open/Uncovered area	200 sq. mt.
Total Area	1,200 sq.mtrs.
Average Rental Charges (per month) @ Rs. 20 sq.mt.	= Rs. 24,000

##### (ii) Machinery and Equipments

Sl. No.	Description	No.	Rate (Rs.)	Amount (Rs.)
1.	8" Power cutting	1	65,000	65,000
2.	8" Hot drill	1	50,000	50,000
3.	Band knife cutting machine	1	5,00,000	5,00,000
4.	Cloth clamps	15	1,000	15,000

Sl. No.	Description	No.	Rate (Rs.)	Amount (Rs.)
5.	End cutter (Straight)	2	50,000	1,00,000
6.	Single Needle Sewing Machine	50	10,000	5,00,000
7.	Single needle sewing m/c with thread trimmer	1	35,000	35,000
8.	Single needle sewing m/c with edge trimmer	1	35,000	35,000
9.	Overlock with softy stitch	4	35,000	1,40,000
10.	Double needle straight machine	2	60,000	1,20,000
11.	Double needle split needle machine	1	80,000	80,000
12.	Three needle feed of the arm machine	1	1,50,000	1,50,000
13.	Double Needle feed of the arm machine	1	75,000	75,000
14.	Twin needle double chain stitcher	1	75,000	75,000
15.	Bar tacking machine	3	80,000	2,40,000
16.	4 Needle double chain stitch machine	1	1,30,000	1,30,000
17.	Snap fastening machine	1	1,70,000	1,70,000
18.	Button hole machine	1	1,10,000	1,10,000
19.	Button stitch machine	1	50,000	50,000
20.	Embroidery Single thread Computerised machine	1	1,50,000	1,50,000
21.	Automatic Jeans pocket sewer	1	2,50,000	2,50,000
22.	Compact computerised embroidery machine	1	3,00,000	3,00,000
23.	Trouser Topper	1	3,50,000	3,50,000
24.	Steam Iron	4	5,000	20,000
25.	Vacuum tables	4	35,000	1,40,000

Sl. No.	Description	No.	Rate (Rs.)	Amount (Rs.)
26.	Steam generator	1	70,000	70,000
27.	50 kg washing machine	1	2,00,000	2,00,000
28.	Hydro extractor	1	70,000	70,000
29.	Drying tumbler	1	1,00,000	1,00,000
30.	Diesel Generating set 20 kVA	1	1,00,000	1,00,000
31.	Non-IBR Boiler	1	1,00,000	1,00,000
32.	Mini Transport Vehicle	1	2,50,000	2,50,000
33.	Borewell with 5HP motor	1	1,00,000	1,00,000
<i>Testing Instruments</i>				
1.	Electronic Micro balance	1	10,000	10,000
2.	Fabric ends/picks tester	1	15,000	15,000
3.	Fabric thickness tester	1	25,000	25,000
4.	Shrinkage tester	1	40,000	40,000
5.	Colour fastness to washing	1	15,000	15,000
6.	Fabric strength tester	1	40,000	40,000
7.	Crease recovery tester	1	55,000	55,000
			Total	47,20,000

**(iii) Other Fixed Assets (Rs.)**

1.	Erection and installation charges	2,00,000
2.	Electrification and wiring	1,00,000
3.	Office furniture	1,00,000
4.	Pre-operative expenses	1,00,000
Total		5,00,000

**B. Working Capital (per month)****(i) Salaries and Wages**

Sl. No.	Designation	Nos.	Salary (Rs.)	Amount (Rs.)
<i>Administrative Staff</i>				
1.	Marketing manager	1	6,000	6,000
2.	Merchandisers	2	3,000	6,000

Sl. No.	Designation	Nos.	Salary (Rs.)	Amount (Rs.)
3.	Store Keeper	1	2,500	2500
4.	Accountant/Cashier (Part time)	1	2,000	2,000
5.	Clerks/Typists (Part time)	2	1,500	3,000
6.	Peon	1	2250	2250
7.	Watchmen	2	2250	4500
8.	Driver	1	2500	2500
<b>Production Staff</b>				
1.	Technical Manager	1	6,000	6,000
2.	Line Supervisors	4	4,500	18,000
3.	Pattern/Cutting master	1	4,000	4,000
4.	Fabric/garment checkers	5	2250	11250
5.	Skilled tailors	60(on contract)		1,00,000
6.	Fitter	1	3000	3000
7.	Electrician	1	3000	3000
8.	Helpers	4	2250	9000
		Total		154250
			Add perquisites @ 10%	183000
			Say	201300
			Total	200,000

(ii) Raw Materials

Sl. No.	Description	Qty.	Rate (Rs.)	Value (Rs.)
1.	Denim fabric in different colours (6 ozs. to 9 ozs. GSM)	15,000	85/ mtr.	12,75,000
2.	Embellishments like collars, Interlining cloth, zippers, sewing thread, elastic, labels, buttons etc.	LS	15% of the fabric (Rounded of)	1,90,000
		Total		14,65,000

(iii) Utilities (Rs.)

Electricity bill, Water charges, Fuel, coal and furnace oil	60,000
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(iv) Other Contingent Expenses (Rs.)

1. Building rent	24,000
2. Repair and maintenance	10,000
3. Transportation and cartage	25,000

(iv) Other Contingent Expenses (Rs.)

4. Postage and stationery	5,000
5. Telephone bills	6,000
6. Insurance	15,000
7. Sales and advertisement	15,000
8. Miscellaneous expenses	10,000
Total	1,10,000

(v) Total Working Capital (per month) (Rs.)

1. Salaries and wages	2,00,000
2. Raw Materials	14,65,000
3. Utilities	60,000
4. Other expenses	1,10,000
Total	18,35,000

C. Total Capital Investment

1. Fixed Capital	Rs. 52,20,000
2. Working capital (for 3 months)	Rs. 55,05,000
Total	Rs. 10725000

FINANCIAL ANALYSIS

(1) Cost of Production (per annum) (Rs.)

1. Total recurring cost	2,20,20,000
2. Depreciation on machinery @10%	4,762,000
3. Depreciation on the fixed assets @ 20%	1,00,000
4. Interest on total capital investment @ 14%	1501500
Total	24,09,3500

(2) Annual Turnover (per year) (Rs.)

1. By sales of 90,000 Denim pants @ Rs. 250 pc.	22500000
2. By sale of 20,000 Denim jackets @ Rs. 300 pc.	60,00,000
Total	2,85,00,000

(3) Annual Net Profit

$$= \text{Turnover} - \text{cost of production}$$

$$= \text{Rs. } 2,85,00,000 - 24093500$$

$$= \text{Rs. } 4,40,6500$$

(4) Net Profit Ratio

$$= \frac{\text{Net profit (per year)} \times 100}{\text{Annual Turnover}}$$

$$= \frac{4406500 \times 100}{28500000}$$

$$= 15\%$$

(5) Percent of Profit on Total Investment

$$= \frac{\text{Net profit (per year)} \times 100}{\text{Total Investment}}$$

$$= \frac{4406500 \times 100}{1072500}$$

$$= 41\%$$

(6) Break-even Point

Fixed Cost	(Rs.)
1. Annual building rent	2,88,000
2. 40% of salaries and wages	9,60,000
3. 40% of utilities and other expenditure	6,28,800
4. Depreciation	5,72,000
5. Interest on total capital investment	1,50,1500
6. Insurance	1,80,000
Total	41,30,300

B.E.P.

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

$$= \frac{4130300 \times 100}{4130300 + 4406500}$$

$$= 48\%$$

#### Addresses of Machinery Suppliers

1. M/s. Apparel and Leather Technics Pvt. Ltd.  
Kaikondanahalli, Sarjapur Road,  
Near Bellandur Gate,  
Carmelram (P.O.),  
Bangalore-560 035
2. M/s. Industrial Sewing Systems  
30, Ramakrishna Street,  
North Usman Road, T. Nagar,  
Chennai-7
3. M/s. Ramsons Garment Finishing Equipments Pvt. Ltd.  
320, Mysore Road,  
Bangalore-560 026
4. M/s. Gabbar Engineering Co.  
Ginza Machinery Compound,  
Plot No. 1903, Phase III, GIDC,  
Vatwa, Ahmedabad-382 445

5. M/s. Paramount Instruments Pvt. Ltd.  
B-3/45, Paschim Vihar,  
New Delhi -110 063

6. M/s. Baltex Engineering Pvt. Ltd.  
13th Floor, Jolly Maker,  
Chambers No. II, Nariman Point,  
Mumbai-21

7. M/s. Erhardt Leimer India Ltd.  
43, Dr. V. B Gandhi Road,  
Mumbai-23

8. M/s. Eastern Engineering Co.  
Jeevan Udyog, II Floor,  
278, Dr. D. N. Road,  
Fort, Mumbai

9. M/s. Srirang Equipment Company  
472, Kamarajar Road,  
Coimbatore-641 004

For Laboratory Testing Equipment

10. M/s. Ingorsoll Road (I) Ltd.  
Marketed by M/s Bhushan  
International  
Vishwamitra Bhawan,  
Exhibition Road, Patna-800 001  
For Compressors and boilers

#### Raw Material Suppliers

1. M/s. Rajeswari Textiles Limited  
Raja Street, NH Road,  
Kalbadevi Market, Mumbai
2. M/s. Mettur Beardsell Limited  
Bombay Mutual Building, III Floor,  
NSC, Bose Road,  
Chennai-600 001
3. M/s. Vardhaman Threads  
Mahavir Spg. Mills Ltd.,  
Chandigarh Road,  
Ludhiana-141 011
4. M/s. K. G. Denims Limited  
Narsihamaicken Palayam,  
MTP Road, Coimbatore
5. M/s. Aravind Clothing Mills Ltd.  
Ahmedabad.