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INDUSTRY PROFILE #6

BLUE JEANS

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VITA

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Blue Jeans  
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**[C]1987, Volunteers in Technical Assistance****INDUSTRY PROFILES****Introduction**

This Industry Profile is one of a series briefly describing small or medium-sized industries, The Profiles provide basic information for starting manufacturing plants in developing nations. Specifically, they provide general plant descriptions, financial, and technical factors for their operation, and sources of information and expertise. The series is intended to be useful in determining whether the industries described warrant further inquiry either to rule out or to decide upon investment. The underlying assumption of these Profiles is that the individual making use of them already has some knowledge and experience in industrial development.

Dollar values are listed only for machinery and equipment costs, and are primarily based on equipment in the United States. The price does not include shipping costs or import-export taxes, which must be considered and will vary greatly from country to country. No other investment costs are included (such as land value, building rental, labor, etc.) as those prices also vary.

These items are mentioned to provide the investor with a general checklist of considerations for setting up a business.

### IMPORTANT

These profiles should not be substituted for feasibility studies. Before an investment is made in a plant, a feasibility study should be conducted. This may require skilled economic and engineering expertise. The following illustrates the range of questions to which answers must be obtained:

- \* What is the extent of the present demand for the product, and how is it now being satisfied?
- \* Will the estimated price and quality of the product make it competitive.
- \* What is the marketing and distribution plan and to whom will the product be sold?
- \* How will the plant be financed?
- \* Has a realistic time schedule for construction, equipment, delivery, obtaining materials and supplies, training of personnel, and the start-up time for the plant been developed?

- \* How are needed materials and supplies to be procured and machinery and equipment to be maintained and repaired?
- \* Are trained personnel available?
- \* Do adequate transportation, storage, power, communication, fuel, water, and other facilities exist?
- \* What management controls for design, production, quality control, and other factors have been included?
- \* Will the industry complement or interfere with development plans for the area?
- \* What social, cultural, environmental, and technological considerations must be addressed regarding manufacture and use of this product?

Fully documented information responding to these and many other questions should be determined before proceeding with implementation of an industrial project.

#### Equipment Suppliers, Engineering Companies

The services of professional engineers are desirable in the design of industrial plants even though the proposed plant may be small. A correct design is one that provides the greatest economy in the investment of funds and establishes the basis of operation that will be most profitable in the

beginning and will also be capable of expansion without expensive alteration.

Professional engineers who specialize in industrial design can be found by referring to the published cards in various engineering magazines. They may also be reached through their national organizations.

Manufacturers of industrial equipment employ engineers familiar with the design and installation of their specialized products. These manufacturers are usually willing to give prospective customers the benefit of technical advice by those engineers in determining the suitability of their equipment in any proposed project.

## VITA

Volunteers in Technical Assistance (VITA) is a private, non-profit, volunteer organization engaged in international development. Through its varied activities and services, VITA fosters self-sufficiency by promoting increased economic productivity. Supported by a volunteer roster of over 5,000 experts in a wide variety of fields, VITA is able to provide high quality technical information to requesters. This information is increasingly conveyed through low-cost advanced communication technologies, including terrestrial packet radio and low-earth-

orbiting satellite.

VITA also implements both long- and short-term projects to promote enterprise development and transfer technology.

## BLUE JEANS

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## PRODUCT DESCRIPTION

### 1. The Product

Blue jeans are work pants made from cotton denim. These blue jeans have four pockets, with brass rivets used at pocket openings where the stress is greatest. Waist sizes range from 28 to 44 inches, while lengths are 30 to 36 inches.

There are also fashion junior and children's jeans that can be made with the same equipment and similar materials.

### 2. The Facility.

This Profile describes one plant operating with one shift and making 15,000 dozens of blue jeans a year, and another that produces 22,000 dozens a year.

It is especially important for a small factory to be able to produce varied styles. Therefore, it is imperative to have a designer/pattern-maker available to quickly produce properly fitted items as requested by the customer.

## GENERAL EVALUATION

Capital requirements for this plant are moderate and little technical skill is needed. The product is in wide demand but price competition is often keen. Production appears suitable for many developing areas.

### 1. Outlook

#### A. Economic

Depends on the conditions in country.

#### B. Technical

Good used reconditioned sewing machines can perform just as well as some of the items listed on page 4. They can cost half the price of new machines.

### 2. Manufacturing Equipment Flexibility

The machinery and equipment used to produce blue jeans are similar to the kind used in the apparel industry to manufacture other types of clothing. Therefore, this plant could manufacture

other wearable items or other fabric products.

### 3. Knowledge Base

A good business plan is necessary. A two to three-year projection should be prepared and caution taken against overextension.

Management should have:

- a) Business experience
- b) Knowledge of field
- c) Sources of capital
- d) Knowledge of market
- e) Knowledge of procurement of material & equipment
- f) Capability to find government support

### 4. Quality Control

Quality control is very important, and specifications vary from company to company and garment to garment. For example, an entire order can be rejected for as little an error as the number of stitches per inch or the tension of the thread.

### 5. Constraints and Limitations

In developing countries there is usually an ample labor pool that is easily adapted to this industry. However, there may be a shortage of designers, pattern-makers, cutters, and mechanics.

Other considerations include:



- There are no special transportation requirements, but good highways would be helpful.
- Manager and supervisors should be fully experienced.
- Some operators will be operating more than one machine.
- After break-in period, production workers should go on piece work rates.
- Experienced cutters and designer/pattern-maker are required.

## MARKET ASPECTS

### 1. Users

Individuals, institutions, and organizations.

### 2. Suppliers

In most urban centers there are sales representatives of equipment manufacturers and jobbers of fabrics. It may be too expensive to go to the United States or other western nations to look for design, fabrics and machines. Hong Kong and Tokyo are also good sources for these items.

### 3. Sales Channels and Methods

Sales may be made direct to large stores and to wholesale houses for distribution to small retail outlets. The market needed will depend to a great extent upon the purchasing power of the local population.

One path to explore is contracting with U.S. garment manufacturers that could supply a steady source of work for the plant.

However, large investments in plant and equipment for exports should not be undertaken unless there is a written commitment from the manufacturer or contractor who can guarantee an outlet for the garments.

#### 4. Geographic Extent of Market

Domestic - Product is easy to ship and transport costs are normally low in relation to product value. Market may be nationwide.

#### 5. Competition

##### A. Domestic Market

Very small makers and imports may provide competition.

##### B. Export Market

The plant is relatively small and might have great difficulty in competing with large-scale plants or with exports from areas where labor is plentiful and cheap.

#### 6. Market Capacity

Under average conditions a population of about a million would probably be large enough to support production of a small plant.

**PRODUCTION AND PLANT REQUIREMENTS**

**Requirements Annual Output:**

15,000 dozen 22,000 dozen

**1. Infrastructure, Utilities Small Plant Medium Plant**

Land 1/2 acre 1/3 acre

Building (one story) 6,000 s.f. 10,000 s.f.

Power connected load 100 hp 120 hp

Fuel (for steam, heat)

Water (processing, sanitation, fire)

Other \_\_\_\_\_

**2. Major Equipment & Machinery Small Plant Medium Plant**

Units Units

**Tools & Machines**

cloth spreader (1) (1)

cloth unwinder (1) (1)

cutting tables (2) (2)

cutting machine (heavy duty) (3) (4)

cloth drill (1) (1)

buttonhole machine (1) (1)

button stamp machine (1) (1)

riveting machine (1) (2)

feed-off-arm machine (2) (2)

double needle machine (11) (13)

bartack machine (1) (2)

safety stitch machine (7) (9)

single needle machine (6) (8)  
overlock (1) (2)  
pocket press (1) (2)  
double needle flatbed  
for loops (1) (1)

#### Support Equipment & Parts

furniture & fixtures

hand trucks (3) (1)

20 hp boiler (1) (1)

pressing machine (1) (2)

chairs & workbenches

work tables

storage shelves

spare parts & tools

work baskets

truck/van (1) (1)

#### (\* )TOTAL ESTIMATED COST

of equipment & machinery only \$114,000 \$139,000

(\* )Based on \$US 1987 prices. The costs provided are estimates and are given only to provide a general idea of machinery costs; they are not intended to be used as absolute prices. Costs still need to be determined on a case by case basis.

#### (\* )3. Materials & Supplies Small Plant Medium Plant

#### Raw Materials

denim 360,000 yards 540,000 yards

lining 32,000 yards 45,000 yards

zippers 15,000 dozen 23,000 dozen

size tags 15,000 dozen 23,000 dozen

labels 15,000 dozen 23,000 dozen

thread (12,000 yd. cones) 4,200 cones 6,000 cones

buttons 1,410 gross 2,200 gross

rivets 7,500 gross 11,000 gross

#### Supplies

lubricants

office supplies

factory supplies

#### Packaging

#### 4. Labor Small Plant Medium Plant

##### Skilled

designer/pattern-maker 1 1

cutters 2 3

operators 26 36

pressers 1 2

floor help 6 8

##### Semi-skilled

Unskilled 4 5

Administration

manager 1 1

office 1 1

supervisor 1 2

mechanic/chauffeur 1 1

5. Distribution/Supply flow Small Plant Medium Plant

Amount in/out per day 60 doz. 80-95 doz.

6. Market Requirements Small Plant Medium Plant

- 1 million

(\* ) This includes an approximate amount of materials used over a period of a year. It does not mean that a year's supply must be stored on the premises.

## PROCESS DESCRIPTION

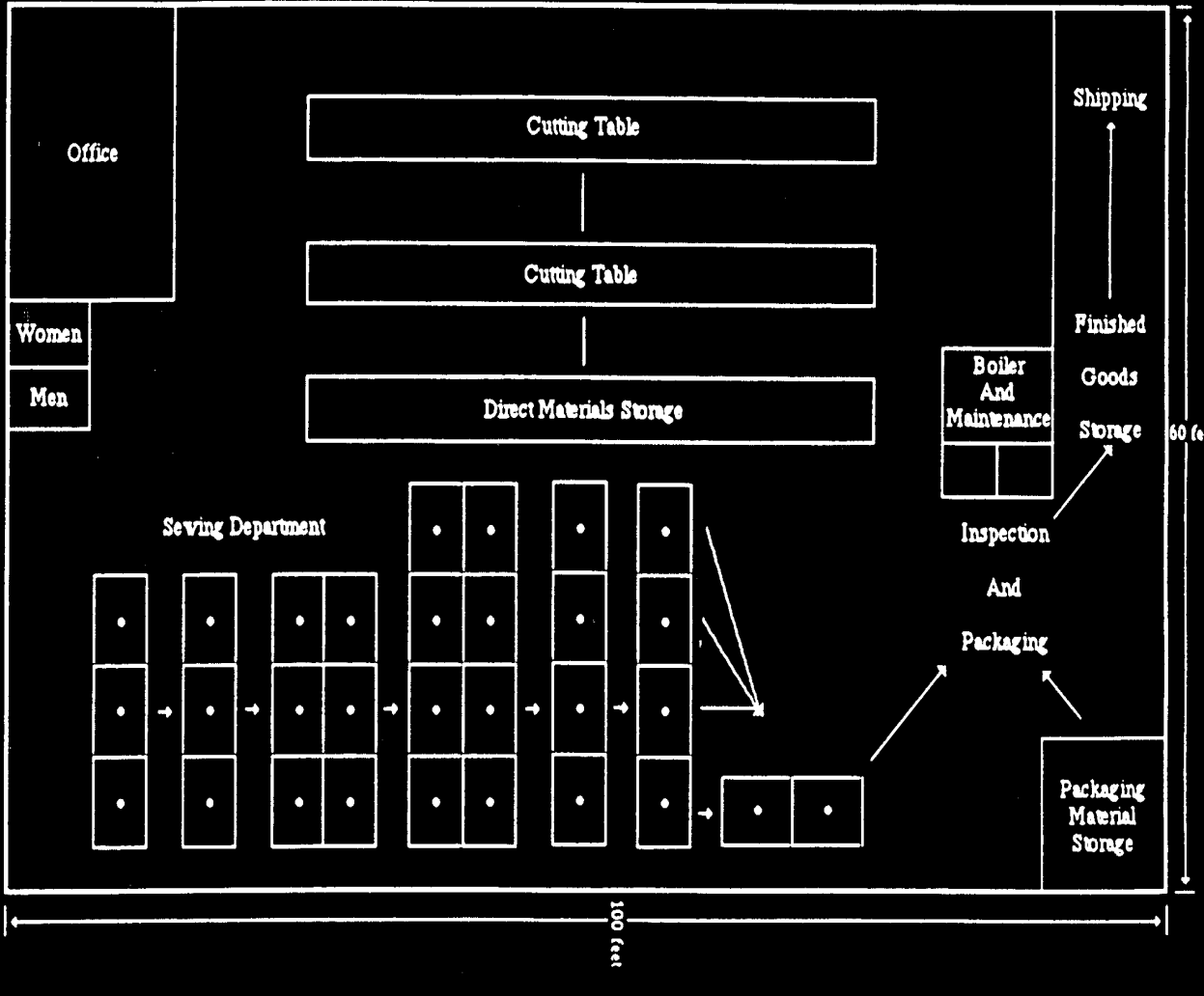
1. Diagram <see plant layout and work flow>

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### MEN'S BLUE JEANS

#### PLANT LAYOUT AND WORK FLOW

Plant layout indicates an orderly flow of work from cutting to finished goods. It should be fairly simple to arrange machines and operations according to need. An area should be set aside for design and pattern making.



## 2. Remarks

Plant layout indicates an orderly flow of work from cutting to finished goods. It should be fairly simple to arrange machines and operations according to need. An area should be set aside for design and pattern making.

## REFERENCES

Unless otherwise stated, these addresses are in the United States.

### 1. Technical Manuals & Textbooks

Fashion Institute of Technology 7th Ave. and 27th St.

New York, New York 10001

Library and Bookstore with full listing of books on design and pattern-making, marketing, etc.

Who Puts the Blue in the Jeans? Adventures in the World of Work.  
Random House, Inc. 1976. 73 pp.

### 2. Periodicals

Women's Wear Daily & Daily News Record

Fairchild Publications

7 E 12th Street

New York, New York 10003

Bobbin Magazine

Bobbin International, Inc.



PO Box 1986  
1110 Shop Road  
Columbia, South Carolina 29202

Apparel Industries Magazine  
180 Allen Street  
Atlanta, Georgia 30328

Apparel World  
366 Park Avenue, South  
New York, New York 10016

### 3. Trade Associations

American Apparel Manufacturing Association  
2500 Wilson Blvd.  
Arlington, Virginia 22201

National Knitwear & Sportswear Association  
366 Park Ave., South  
New York, New York 10016

### 4. Equipment Suppliers, Engineering Companies

Hudson Sewing Machine Co.  
109 Johnston St.  
Newburgh, New York 12550  
(dealer in all types of equipment)

**The Singer Company**  
135 Raritan Center Parkway  
Edison, New Jersey 08837  
(sewing room equipment, cutting room equipment)

**Kurt Salmon Associates**  
350 Fifth Avenue  
New York, New York 10118  
(management consultants, consulting services)

## 5. Directories

**Buyers Guide:**  
A Source Guide for the Apparel Industry,  
produced by The Associate Membership Congress  
American Apparel Manufacturers Association  
2500 Wilson Boulevard  
Arlington, Virginia 22201

## 6. VITA Resources

VITA has on file a number of documents related to the textile and apparel industry. For example:

Selected Information Resources on Textiles. Compiled by J.A. Feulner, National Referral Center, Library of Congress, May, 1980. 17 pp. XII-E-1, P. 1, 022470, 12.

## 7. VITA Venture Services

**VITA Venture Services, a subsidiary of VITA, provides commercial services for industrial development. This fee-for-service includes technology and financial information, technical assistance, marketing, and joint ventures. For further information, contact VITA.**

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