

Starters for Fluorescent Tubes

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| PRODUCT CODE (ASICC) | : 77430 |
| QUALITY AND STANDARDS | : IS 2215:1968 |
| PRODUCTION CAPACITY | : Quantity: 120000 Nos. (per annum) Value: Rs. 6,00,000 |
| YEAR OF PREPARATION | : 2002 _ 2003 |
| PREPARED BY | : Small Industries Service Institute Udyog Vihar, Charhatta Rewa_486001 (M.P.) and Office of the Development Commissioner Small Scale Industries Electrical and Electronics Division, 7th Floor, Nirman Bhavan, New Delhi - 110 011. |

Introduction

Starters are used in fluorescent lamps for starting purposes and are commonly known as starters. Starter has two bimetallic electrodes enclosed in a small glass tube containing helium gas. These electrodes normally remain open. When the switch is put on a small current flows from one electrode to other through helium gas. Discharge through the helium gas develops some heat, which bends the bimetallic electrodes, and thus they come directly in contact with each other. Now sufficient high current flows through the electrodes, after one or two seconds these electrodes cool down. This results in breaking the contact and current stops flowing through filament as well as choke coil.

Hence starter comes in circuit during starting of fluorescent lamps only more to say. It performs the function of a switch.

There are very few registered SSI units in Vindhya Region who manufacture this product. However, a large No. of entrepreneurs in this region are actively engaged in manufacturing of this product.

Market Potential

Rapid colonisation and Electrification deems a good prospect for this product. As the demand for fluorescent lamp increases day by day. Due its economy in power consumption demand for starter also increases.

Basis and Presumptions

i) The basis for calculation of production capacity has been taken on single shift basis on 75% efficiency.

- ii) The maximum capacity utilization on single shift basis for 300 days a year. During first year and second year of operations the capacity utilization is 60% and 80% respectively. The unit is expected to achieve full capacity utilization from the third year onwards.
- iii) The salaries and wages, cost of raw materials, utilities, rents, etc. are based on the prevailing rates in and around Rewa. These cost factors are likely to vary with time and location.
- iv) Interest on term loan and working capital loan has been taken at the rate of 20% on an average. This rate may vary depending upon the policy of the financial institutions/agencies from time to time.
- v) The cost of machinery and equipments refer to a particular make/model and prices are approximate.
- vi) The break-even point percentage indicated is of full capacity utilization.
- vii) The project preparation cost etc. whenever required could be considered under pre-operative expenses.
- viii) The essential production machinery and test equipment required for the project have been indicated. The unit may also utilize common test facilities available at Electronics Test and

Development Centres (ETDCs) and Electronic Regional Test Laboratories (ERTLs) and Regional Testing Centres (RTCs).

Implementation Schedule

The major activities in the implementation of the project has been listed and the average time for implementation of the project is estimated at 12 months:

| <i>Sl. Activity No.</i> | <i>Period (In Months)</i> |
|--|-------------------------------|
| 1. Preparation of project report | 1 |
| 2. Registration and other formalities | 1 |
| 3. Sanction of loan by financial institutions | 3 |
| 4. Plant and Machinery: | |
| a) Placement of orders | 1 |
| b) Procurement | 2 |
| c) Power connection/Electrification | 2 |
| d) Installation/Erection of machinery/Test Equipment | 2 |
| 5. Procurement of raw materials | 2 |
| 6. Recruitment of Technical Personnel etc. | 2 |
| 7. Trial production | 11 |
| 8. Commercial production | 12 |

Notes

1. Many of the above activities shall be initiated concurrently.
2. Procurement of raw materials commences from the 8th month onwards.
3. When imported plant and machinery are required, the implementation period of project may vary from 12 months to 15 months.

Technical Aspects

Process of Manufacture

Main process involved are:

- i) Procuring of components
- ii) Testing of components
- iii) Assembling of components
- iv) Final Testing
- v) Packing.

Quality Control and Standards

As per IS 2215:1968

Production Capacity (per annum)

Quantity : 1,20,000 Nos.

Value : Rs. 6,00,000

Motive Power 10 HP.

Pollution Control

The Government accords utmost importance to control environmental pollution. The small-scale entrepreneurs should have an environmental friendly attitude and adopt pollution control measures by process modification and technology substitution.

India having acceded to the Montreal Protocol in September 1992, the production and use of Ozone Depleting Substances (ODS) like Chlorofluore Carbon (CFCs), Carbon Tetrachloride, Halons and methyl Chloroform etc. need to be phased out immediately with alternative chemicals/solvents. A

notification for detailed Rules to regulate ODS phase out under the Environment Protection Act, 1986 have been put in place with effect from 19th July 2000.

Energy Conservation

With the growing energy needs and shortage coupled with rising energy

cost, a greater thrust in energy efficiency in industrial sector has been given by the Government of India since 1980s. The Energy Conservation Act, 2001 has been enacted on 18th August 2001, which provides for efficient use of energy, its conservation and capacity building of Bureau of Energy Efficiency created under the Act.

The following steps may help for conservation of electrical energy:

- i) Adoption of energy conserving technologies, production aids and testing facilities.
- ii) Efficient management of process/manufacturing machineries and systems, QC and testing equipments for yielding maximum Energy Conservation.
- iii) Optimum use of electrical energy for heating during soldering process can be obtained by using efficient temperature controlled soldering and de-soldering stations.
- iv) Periodical maintenance of motors, compressors etc.
- v) Use of power factor correction capacitors. Proper selection and layout of lighting system; timely switching on-off of the lights; use of compact fluorescent lamps wherever possible etc.

Financial Aspects

A. Fixed Capital

| | | |
|--|--------------|---------------|
| (i) Land and Building (per month) | (Rs.) | |
| It is proposed to have a rental shed of costing | 2000 | |
| (ii) Machinery and Equipments | | (Rs.) |
| 1. Hand press No.4 | 2 | 10,000 |
| 2. Hand rivetting machine | 1 | 2,000 |
| (ii) Machinery and Equipments | Qty. | (Rs.) |
| 3. Bench drilling machine | 1 | 7,000 |
| 4. Double End Grinder | 1 | 4,500 |
| Total | | 23,500 |
| (iii) Testing Equipments | Qty. | (Rs.) |
| 1. H.V. Tester | 0-5 KV | 1 8,000 |
| 2. Multimeter | 1 | 1,000 |
| 3. Test Bench Compresing of Voltmeter Ammeter etc. | 1 | 5,000 |
| 4. Misc. equipments | LS | 1,000 |

Total **15,000**

| | |
|-------------------------------------|---------------|
| (iv) Auxillary Equipments | (Rs.) |
| 1. Electrification and Installation | 3,850 |
| 2. Furniture and Office Equipment | 10,000 |
| Total | 13,850 |

Total Cost of Plant and Machinery

23,500 + 15,000 + 13,850 = **Rs. 52,350**

B. Working Capital

| | | |
|----------------------------------|-------------|---------------|
| (i) Personnel (per month) | Qty. | (Rs.) |
| 1. Manager | 1 | 5,000 |
| 2. Skilled Worker | 1 | 1,500 |
| 3. Un-skilled Worker | 5 | 5,000 |
| 4. Watchman/Peon | 1 | 1,000 |
| Total | | 12,500 |

(ii) Raw Material (per month)

| Sl. Material No. | Qty. | Rate | Value (Rs.) |
|--------------------------------------|----------------|--------------|---------------|
| 1. Aluminium/ Plastic cans | 1,000 | 0.50/ pc. | 5,000 |
| 2. Hylem Sheet 1/16" thickness | As reqrd. | LS | 2,000 |
| 3. Brass contact | 10,000 sets | 0.20/ set | 2,000 |
| 4. Glow lamp | 10,000 nos. | 0.50/ pc. | 5,000 |
| 5. Condensors | 10,000 nos. | 0.50/ pc. | 5,000 |
| 6. Misc. Items | LS | LS | 2,000 |
| Total | | | 21,000 |

| | |
|------------------------------------|--------------|
| (iii) Utilities (per month) | (Rs.) |
| 1. Electricity | 2,000 |
| 2. Water | 200 |
| 3. Advertismen/Postage | 200 |
| 4. Transportation | 2,000 |
| 5. Miscellaneous | 1,000 |
| Total | 5,400 |

(iv) Working Capital (per month)

12,500 + 21,000 + 5,400 = **Rs. 38,900**

C. Total Capital Investment

| | |
|---|---------------------|
| (i) Machinery and Equipment | Rs. 52,350 |
| (ii) Working capital for 3 months 38,900 x 3 | Rs. 1,16,700 |
| Total | Rs. 1,69,050 |

Financial Analysis

| (1) Cost of Production (per annum) | (Rs.) |
|--|-----------------|
| 1. Rent | 24,000 |
| 2. Staff and Labour | 1,50,000 |
| 3. Raw material | 2,52,000 |
| 4. Depreciation on Plant and machineries @10% | 5,235 |
| 5. Interest on total capital investment @ 20% | 33,810 |
| Total | 4,65,045 |

(2) Turnover (per year)

By sale of 1,20,000 nos.of starters Rs.6,00,000 @ 5 per nos.

(3) Profitability (per annum)

Rs. 6,00,000 - 4,65,045 = **Rs. 1,34,955**

(4) Net Profit Ratio

$$= \frac{134955 \times 100}{600000} = 22\%$$

(5) Rate of Return

$$= \frac{134955 \times 100}{169050} = 79\%$$

(6) Break-even Point

| Fixed Cost | (Rs.) |
|--|--------------|
| 1. Rent | 24,000 |
| 2. Interest on total capital | 33,810 |
| 3. Depreciation on plant and machinery | 5,235 |

| | |
|--|-----------------|
| 4. 40% of salary and wages | 60,000 |
| 5. 40% of contingent utilities (Excluding Rent) | 2,160 |
| Total | 1,05,205 |

$$\begin{aligned} \text{B.E.P.} &= \frac{\text{Fixed Cost} \times 100}{\text{Fixed Cost} + \text{Profit}} \\ &= \frac{105205 \times 100}{105205 + 134955} \\ &= \frac{10520500}{240160} = 43\% \end{aligned}$$

Additional Information

- The Project Profile may be modified/tailored to suit the individual entrepreneurship qualities/capacity, production Programme and also to suit the locational characteristics, wherever applicable.
- The Electrical Technology is undergoing rapid strides of change and there is need for regular monitoring of the national and international technology scenario. The unit may, therefore, keep abreast with the new technologies in order to keep them in pace with the developments for global competition.
- Quality today is not only confined to the product or service alone. It also extends to the process and environment in which they are generated. The ISO 9000 defines standards for Quality Management System and ISO 14001 defines standards for Environmental Management System for acceptability at international level. The unit may therefore adopt these standards for global competition.
- The margin money recommended is 25% of the working capital requirement at an average. However, the percentage of margin money may vary as per bank's discretion.

Addresses of Machinery Suppliers

- M/s. Electronic Corporation Electrical Market, Chandni Chowk, Delhi.
- M/s. Prem Engg.
20, Okhla Industrial Estate, New Delhi-20.

Addresses of Raw Material Suppliers

- M/s. S. P. Industries
29, Sir Syed Ahmed Road, Kolkata.
- M/s. Bharat Electronics Ltd. Bangalore.
- M/s. Prima Brass Industries
1715, Arya Samaj Road,
Karol Bag,
New Delhi.