Automatic Curtain Opener

PRODUCT CODE (ASICC) : 77505

QUALITY AND STANDARDS : IS 13947 (Part 2) 1993

Production Capacity : Quantity :1200 Nos.

(per annum)

Value : Rs. 54,00,000

YEAR OF PREPARATION : 2002 - 2003

PREPARED BY : Small Industries Service Institute

P.O. Tadong,

Gangtok-737102

and

Office of the
Development Commissioner
Small Scale Industries,
Electrical and Electronics Division,
7th Floor,
Nirman Bhavan,
New Delhi-110 011

Introduction

This project profile envisages the production of Automatic Curtain Opener by setting up of a unit in a small scale sector. The Automatic Curtain opener are used for opening and closing of the stage of any good theatre, auditorium conference hall etc. The mechanism should automatically open and close the curtain depending on the situation of the function being performed on the stage. The mechanism consist of single phase induction motor drive a forward-reverse starter and two limit switches. The motor when actuated by the push buttons and contactors may rotate in either direction depending upon the direction of current flowing through its main winding. The motor once started will run for the duration required to open/close the curtain fully then stop. The motor when

required to stop requires limit switches. In the Automatic Curtain Opener the motors runs in both the direction for opening and closing hence two numbers of limit switches is required.

Market Potential

With rapid industrialization in urban and semi urban, with more entertainment centres coming up, with more conference/seminar halls coming up in the Government, private sectors the demand of Automatic Curtain Opener is enormous.

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 Sikkim. 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 12% 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:

Sl. No.	***Activity***	***Period (In Months)***
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

The process consists of cutting of CRCA sheets into proper and required size on shearing machine. The cut sheet

is then pressed into deep drawing press for making top and bottom covers. The covers are cleaned, drilled for holes, painted and welding done as required. The bought out components like contactor, overload relays, connectors, HRC fuse holders, terminal block's etc. are fitted in the bottom cover as per line and circuit diagram. Beading/rubber gaskets are provided between top and bottom cover in order to make it weather proof. Neutral link is provided in the bottom cover. Push button for starting and stopping is provided on the top cover. The Automatic curtain opener is inspected and tested for proper operation as per IS 13947(Part 2):1993. Rubber knockouts are fitted. The circuit line diagram is pasted inside the top cover. Nameplate is riveted on the outside of the top cover. The instruction and maintenance manual is packed along with the starter.

Quality Control and Standards

The quality of the Automatic Curtain Opener is as per IS13947(Part 2):1993.

Production Capacity (per annum)

Quantity : 1200 Nos.

Value : Rs. 54,00,000

Motive Power 25 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.)**

Rented cover shed of floor area of about 300 sq. mtr. to be taken on rent @ Rs. 50 — 15,000

ii) Plant and Machinery

Sl. No.	Name of the Machine and Specification	Ind./ Imp.	Qty. Nos.	Price (Rs.)	Total (Rs.)
1.	16/18 SWG x 1200 mm heavy duty type Treadle operated Guillotine Shearing machine manually operated with HCHC blades.	Ind.	1	23,000	23,000
2.	Deep Drawing press fitted 20 Tonne fitted with 2 HP, 440 volts. Motor with all standard accessories	-do-	1	75,000	75,000
3.	440 Volt, 350 amps, 3 phase Arc welding machine	-do-	1	9,000	9,000
4.	1/2 Inch Bench Drilling machine fitted with 1/2 HP 440 volts motor with drill chuck and arbor	-do-	1	5,000	5,000
5.	Bench Grinder 200 mm. Wheel double ended fitted	-do-	1	4,000	4,000

with 1 HP, 440 volts Motor, with one fine and other course grinding wheel.				
6. Pneumatic Riveting with 2.0 HP/440/50 Cy AC Electrical with compressor	-do-	1	22,000	22,000
7. Hand Shearing machine, 12 Inch Blade capacity, Heavy Duty Geared Type, HCHC Blade, 4 Edge hand lever	-do-	1	5,000	5,000
8. 500 x 500 x 500 mm pickling plant	-do-	1	7,000	7,000
9. 100 lbs. working pressure Air Compressor fitted with 1 HP, 440 volts Motor, single stage, single cylinder with spray painting unit	-do-	1	15,000	15,000
10. 3.0 KW heating chamber	-do-	1	55,000	55,000
	Total			**2,20,000**

Testing Equipments

Sl. No.	**Name of the Equipment and Specification**	**Ind./ Imp.**	**Qty. Nos.**	**Price (Rs.)**	**Total (Rs.)**
1 .	Megger 500 volts DC. Hand operated with testing leads and carrying case	Ind	1	3,500	3,500
2.	Multimeter	-do-	2	750	1,500
3.	Watt meter 3 Phase 4 Wire	-do-	1	3,500	3,500
4.	Auto Transformer 0.5 Kva	-do-	2	1,900	3,800
5.	3 1/2 Digit Digital Clamp Meter Range 0 - 200 Amps.	-do-	1	3,500	3,500
6.	Leakage current Earth Leakage Tester	-do-	1	4,500	4,500
7.	2.5 kV High Voltage Tester	-do-	1	7,500	7,500

8. Test Bench with fittings	-do-	2	5,500	11,000
9. Other misc. instruments and meters	-	-	-	6,500
	Total			**45,300**

Sl. No.	**Total Fixed Capital**	**Ind./ Imp.**	**Qty. Nos.**	**Price (Rs.)**	**Total (Rs.)**
(a)	Total Cost of Plant and Machinery and Testing Equipment				2,65,300
(b)	Electrification and Installation at 10% of cost of above				26,530
(c)	Office Equipments and furniture's	Ind.	—	LS	25,000
(d)	Cost of Tools, Dies and fixture	-do-	—	LS	30,000
(iii)	**Pre-operative Expenses**	**—-**	**—-**	**LS**	**25,000**
		Total			**3,71,830**
		Say			**3,72,000**

B. Working Capital

(i) Staff and Labour (per month)

Sl. No.	**Description**	**No.**	**Salary (Rs.)**	**Total (Rs.)**
1.	Plant Engineer	1	7,000	7,000
2.	Supervisor (Technical)	1	4,000	4,000
3.	Skilled workers	2	3,000	6,000
4.	Semi-skilled worker	2	2,000	4,000
5.	Un-skilled worker	2	1,500	3,000
6.	Electrician	2	2,500	5,000

7.	Accountant	1	3,500	3,500
8.	Store Keeper	1	2,500	2,500
9.	Office Assistants	2	2,000	4,000
10.	Peon	1	1,500	1,500
11.	Watchman	2	1,500	3,000
12.	Sales Officer	1	4,000	4,000
			Total	**47,500**
	Add 15% perquisites 7125 *of above*			
			Total	**54,625**

(ii) Raw Materials (per month)

Sl No.	**Name of the Material**	**Ind./ Imp.**	**Qty.**	**Price (Rs.)**	**Total (Rs.)**
1.	CRCA Sheet 18/20 SWG	Ind.	400 Kgs.	26	10,400
2.	Contactor, ML0	-do-	200 Nos.	575	1,15,000
3.	Limit switches	-do-	200 Nos.	75	15,000
4.	Push button	-do-	200 Nos.	175	35,000
5.	Over load relays 1-2 amps	-do-	100 Nos.	500	50,000
6.	HRC Fuse holders	-do-	400 Nos.	30	12,000
7.	Rubber bead, Knockout, hardware, silver rivets, paints, Earth Terminal, acids, packaging material, terminal blocks and other misc.	-do-	LS	—	30,000
				Total	**2,67,400**

(iii) Utilities (per month) **(Rs.)**

(i) Electricity bill per month 10,000

@ Rs.4 for 2500 Units

Total 10,000

(iv) Other Contingent Expenses (per month) (Rs.)

i. Rent	15,000
ii. Postage and stationary	1,500
iii. Insurance and Taxes	1,500
iv. Telephone	1,000
v. Repair and Maintenance	2,300
vi. Publicity and Advertisement	2,000
vi. Travelling and Transport	5,000
vii. Renewal and Replacement	2,000
viii. Other Misc. Expenses	3,500
Total	**33,800**

(v) Tota Recurring Expenses (per month) (Rs.)

a) Staff and labour	54,625
b) Raw material	2,67,400
c) Utilities	10,000
d) Other contingent expenses	33,800
Total	**3,65,825**

(vi) Total Working Capital Requirement

(for 3 Months)

Rs. 3,65,825 × 3 **=10,97,475**

Say 11,00,000

C. Total Capital Investment

i. Fixed capital	Rs . 3,72,000
ii. Working capital (for 3 Months)	Rs. 11,00,000
Total	**Rs. 14,72,000**

Financial Analysis

(1) Cost of Production (per annum)	**(Rs.)**
(i) Recurring Expenses	43,89,900
(ii) Depreciation on Machinery @10%	29,183
(iii) Depreciation on Tools and Equip. @ 20%	6,000
(iv) Depreciation on Furniture and Fixture @ 20%	5,000
(v) Interest on Total capital investment @ 12%	1,76,640
Total	**46,06,723**

(2) Sales (per annum)	**(Rs.)**
1,200 nos. of Automatic Curtain Opener	54,00,000

(3) Profit (per annum) **Rs. 7,93,277**

(Sales - Cost of Production)

(4) Percentage of Profit on Sales

$$= \frac{\text{Profit (per annum)} \times 100}{\text{Sales (per annum)}}$$

= 14.7%

(5) Rate of Return

$$= \frac{\text{Profit per annum} \times 100}{\text{Total Capital Investment}}$$

= **54%**

(6) Break-even Point

Fixed Cost (per annum)	**(Rs.)**
i. Rent	1,80,000
ii. Depreciation on Machinery @10%	29,183
iii. Depreciation on Tools and Equip. @20%	6,000
iv. Depreciation on Furniture and Fixture @20%	5,000
v. Interest	1,76,640
vi. 40% of salary and wages	2,62,200
vii. 40% of utilities and other contingent expenses (Excluding rent)	90,240
Total	**7,49,263**

B.E.P.

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

$$= \frac{7,49,263 \times 100}{7,49,263 + 7,93,277}$$

= **48.5%**

Additional Information

a. 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.

b. 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.

c. 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 Systems and ISO 14001 defines standards for Environmental Management System for acceptability at international level. The unit may therefore adopt these standards for global competition.

d. 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 and Testing Equipment Manufacturers

1. M/s. H P Singh Machinery (Pvt.) Ltd.

75, Ganesh Chandra Avenue, Kolkata - 700 013

2. M/s. Nandy and Co. 125 Belilious Road, Howrah - 711 101

3. M/s. Turnwell Machine Tools, 16, Ganesh Chandra Avenue, Kolkata - 700 013

4. M/s. Turner and Tools, 15, Ganesh Chandra Avenue, 2nd Floor, Kolkata - 700 013

5. M/s. Pathak Machine Tools Pvt. Ltd. 16, G.T Road, Salkia, Howarh - 711 106

6. M/s. Goliya Electricals Pvt. Ltd. Plot no. 64, G.I.D.C Estate, Phase_I, OPP. Sunita Textiles, Vapi - 396195. Distt. Bulsar, Gujarat.

7. M/s. Goliya Instrument Pvt. Ltd. 311, Bharat Industrial Estate, T. J. Road, Sewree,

Mumbai-400 015

8. M/s. Bengal Trading Co. Sevoke Road, P.O. Siliguri, District Darjeeling - (W.B.).

9. M/s. Any dealer of L and T. SIEMENS, Havells, Crompton Greaves, Meco etc.

10. M/s. Cherry Pvt. Ltd. Gangtok, Sikkim

Addresses Raw Material Suppliers

1. M/s. H.K. Agarwal and Co. Sevoke Road, Siliguri - 734 401
2. M/s. Beekay Hardware Tadong, Gangtok, Sikkim_737 102
3. M/s. Cherry. Pvt. Ltd. 31-A National Highway, Gangtok, Sikkim_737 101
4. M/s. Vinod Enterprise Near Convey Ground, Tadong, Gangtok, Sikkim _ 737101