Auto Miniature Lamp

PRODUCT CODE (ASICC) : 77412

QUALITY AND STANDARDS : IS 1606:1979

PRODUCTION CAPACITY : Quantity : 75000 Nos. (per month)

Value : Rs. 2,25,000

YEAR OF PREPARATION : 2002 _ 2003

PREPARED BY : Small Industries Service Institute
107, Industrial Estate,
Kalpi Road,
Kanpur-208012

and

Office of the
Development Commissioner
Small Scale Industries,
Electrical and
Electronics Division,
7th Floor,
Nirman Bhavan,
New Delhi-110011.

Introduction

The term Lamp means an artificial source of light. There are different types of lamps and auto lamps used for automobiles are known as Auto Lamps. The Auto lamps are of different specifications such as single filament, double filament, 6 Volt, 12 Volt, 12 Watts, 24 Watts, 36 Watts etc.

The Auto Lamps consists of tungsten filament mounted on lead-in-wire and supported by molybdenum wire, which are fixed on glass stem. The whole assembly is placed in a vacuum glass shell and sealed with metal caps.

The main popular brands of auto lamps sold all over U.P. State are COMET, AKAI which are mostly manufactured by large/medium industries. It is also

possible to manufacture auto lamps in small scale sector and can compete with the existing popular brands in the market.

Market Potential

Due to rapid and tremendous growth in automobile industry, daily some new make Auto-vehicle is being introduced in the market and still present day need finds sufficient scope for so many other vehicles to come up. As the auto lamp is the only source of light for vehicle, it has a very good market. Further, it is used for replacement purposes also.

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 the market. 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 16% 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 (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 manufacturing process of "Auto Lamps" is as below:

a) Cutting of glass tubes rods to size

b) Flare making of cut glass tube

c) Stem making out of flared glass tube and rods

d) Mounting of lead-in wires and support wire on stem

e) Mounting of filament of stem assembly

f) Mounting of filament stem assembly in glass shell and sealing

g) Fixing of metals cap

h) Soldering of lead-in-wires

The auto lamps manufactured as per above steps are then tested on the lines of IS1606:1979 and then packed for despatch.

Quality Control and Standards

IS 1606:1979

Production Capacity (per month)

Qty. : 75000 Nos.

Value : Rs. 2,25,000

Motive Power 10 kW.

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 Rented (per month) **(Rs.)**

200 sq. mtr. building area 2000

(ii) Machinery and Equipments

Sl. No.	Description	Qty.	Value (Rs.)
1.	Glass tube cutting Machine	1	4,000

	with 3/4 HP Motor and Switch		
2.	Flare making machine 10 head with automatic feeder gas control valves and burner and 1 HP motor and switch	1	35,000
3.	Stem making machine:12 heads with flare pusher annealer, Gas, control valves Automatic Colouring with 1 HP motor and switch.	1	38,500
4.	Sealing Machine: 12 heads with needles gas control valve 1 HP motor and switch	1	38,000
5.	Capping Machine 36 heads with 1 HP motor and switch	1	18,000
6.	Exhaust Bench 24 heads with purifying tower set, Gas Control Valve and Vacuum and switch	4	1,14,000
7.	Pree Focus Machine	1	6,000
8.	Spot Welding Machine	4	80,000
9.	Wire Cutter	1	1,000
10.	Wire Bender	1	1,000

11.	Cap Engarving Machine	1	1,200
12.	Soldering set with Gas Heated Burner	4	3,200
13.	Air Blower with 1 HP motor	1	6,000
14.	Vacuum	4	1,12,000
Testing Equipments			
15.	Ageing rack complete with regulator selector switch, on and off switch, volt meter alongwith 5 kVA multi tapped transformer	1	14,000
16.	Torsion Testing Machine	1	1,200
17.	Photometric Integrator 24" dia with Control Panels	1	10,000
18.	Vibration Testing Equipment	1	4,000
		Total	**4,87,000**
(iii) Electrification and installation charges @ 15% on the costs of plant and machinery			73,050
(iv) Cost of tools and fixtures			2,000
(v) Miscellaneous fixed assets (furniture, office equipment and safety equipment etc.)			5,000

	Total	**5,67,050**
Total Fixed Capital (ii + iii + iv + v)		**Rs. 5,67,000**

B. Working Capital (per month)

(i) Raw Material

Sl. No.	**Item**	**Qty.**	**Value (Rs.)**
i.	Ready coil filaments of different rating i.e. 6V, 12V 12W, 24W, 36 Watts at average price of Rs. 100/ 1000 Pcs.	75,000 Pcs	7,500
ii.	Lead in wire @ Rs. 22/ 1000 Pcs.	1,50,000 Pcs	3,300
iii.	Lamp caps of assorted ranges @ Rs. 455 per 1000 Pcs.	75,000 Pcs	34,125
iv.	Glass shells @ Rs.400/ 1000 Pcs.	75,000 Pcs	30,000

v.	Solder wire @ Rs.25/Kg	45Kg	1,125
vi.	Capping Cement @ 20/Kg	30Kg	600
vii.	Misc. chemicals and consumables	L.S.	400
	Packing Material	L.S.	15,000
		Total	**92,050**

(ii) Salary and Wages (per month)

Sl. No.	**Personnel**	**No.**	**Total (Rs.)**
i.	Works Manager	1	5,000
ii.	Technical Supervisor	1	3,000
iii.	Skilled workers @ Rs. 2000	10	20,000
iv.	Un-Skilled workers @ Rs. 1000	20	20,000
v.	Accountant	1	2,000
vi.	Store Keeper	1	1,800
vii.	Clerk-cum-Typist	1	1,500
viii.	Watchman/Peon	1	1,000
ix.	Salesman	1	2,000
		Total	**56,300**
Perquisites @ 15% *on the total salary*			8,445
		Total	**64,745**

(iii) Utilities (per month)	**(Rs.)**
i. Power	800
ii. Water	500
Total	**1,300**

(iv) Other Contingent Expenes (per month)	**(Rs.)**
i. Rent	2,000
ii. Postage and Stationery	500
iii. Repair and Maintenance	2,000
iv. Transport and Packing	2,000
v. Conveyance	1,000
vi. Advertisement	2,000
vii. Misc. Expenses	1,000
Total	**10,500**

(v) Total Recurring Expenses (per month)	**(Rs.)**
(i + ii + iii + iv)	**1,68,595**
Say	**1,68,500**

C. Total Capital Investment

(i) Fixed Capital Rs. 5,67,000

(ii) Total Working Capital Rs. 5,05,500

for 3 months

Total	**10,72,500**

1) Cost of Production (per month)	**(Rs.)**
i. Total Working Capital	1,68,500

ii. Depreciation on plant and machinery @ 10% of the cost of plant and machinery	4,060
iii. Depreciation of tools and fixtures @ 25% of the cost of tools and fixtures	40
iv. Depreciation on furniture, office equipments etc. @ 20% of its cost	80
v. Interest on total capital investment @ 15%	13,400
Total	**1,86,000**

(2) Turnover (per month) **(Rs.)**

Sale of 75000 Lamps @ Rs.3 per lamp 2,25,000

(3) Net Profit (per month) (Before Income Tax)

= Turnover - Cost of the Production

= Rs. 2,25,000 _ 1,86,000

= **Rs. 39,000**

(4) Profit on Sales

$$= \frac{\text{Net Profit x 100}}{\text{Turnover}}$$

$$= \frac{39,000 \text{ x } 100}{2,25,000}$$

= **17%**

(5) Profit on Total Capital Investment

$$= \frac{\text{Annual Profit x 100}}{\text{Total Capital Investment}}$$

$$= \frac{39{,}000 \times 12 \times 100}{10{,}72{,}500}$$

= **43%**

(6) Break-even Point

Fixed Cost (per annum)	**(Rs.)**
Rent	24,000
Depreciation on machinery and equipment @ 10%	48,720
Depreciation on tools, jigs and fixtures @ 25%	480
Depreciation on office equipment, furniture @ 20%	960
Fixed Cost (per annum)	**(Rs.)**
Interest on total capital investment @ 15%	16,000
40% of Salaries and wages	3,10,776
40% of other contingent expenses and utilities (excluding rent)	50400
Total	**595436**

B.E.P. = Fixed cost x 100

Fixed cost + Profit

= 595436 x 100

595436 + 468000

= **55.99%**

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 Raw Material Suppliers

Machinery Suppliers

1. M/s. Basan Machine Tools

Jawahar Colony, Gurudwara Road, Plot No. 1692, N. I. T.,

Faridabad-121001.

(Complete Plant)

2. M/s. Product Engineers

57/6, B. T. Road,

Phool Bagan,

Kolkata-700 002.

3. M/s. Hindustan Pump and Machinery Corpn.

3, N. C. Choudhary Road,

Kasba, Kolkata-700 042.

Addresses of Raw Material Suppliers

1. M/s. Jay Electric Wire Corporation Ltd.

K. R. Sagar Road,

Metagalli,

Mysore-570 016.

(Tungsten Filaments)

2. M/s. Lamp Caps and Filaments Ltd. 32, Raghunath

Dadaji Street, Fort,

Mumbai-400 001.

(Tungsten Filaments)

3. M/s. Metal Lamp Caps (India) Limited 2, Murphy Road,

Post Bag No. 876, Ulsoor, Bangalore_560 008

(Lamp Caps, Lead in Wire and Lead

4. M/s. Indian Plastics Limited

Poidar Bridge, Kandivli,

Mumbai-400 067

(Lamp Capping Cement)

. M/s. Apar Pvt. Ltd.

Dharmshir Park, National Highway No. 8, P.B. No. 3,

Nadiad-387 001

(Glass Tubes Filaments and Lead Glass Tubing)