

Chokes for Sodium/Mercury Vapour Lamps

PRODUCT CODE (ASICC) : 77419

QUALITY AND STANDARDS : IS 6616 : 1982

PRODUCTION CAPACITY : Quantity : 6000 Nos.
(per annum)

Value : Rs. 34,80,000

YEAR OF PREPARATION : 2002 - 2003

PREPARED BY : Small Industries Service Institute

Takyelpat Industrial Estate, Imphal - 795001

and

Office of the Development Commissioner Small Scale

Industries

Electrical and Electronics Division,

7th Floor, Nirman Bhavan, New Delhi - 110 011

Introduction

A choke is the most vital component for both low and high vapour lamps. The high pressure mercury vapour lamps find their principal use in flood lighting and Industrial plant lighting. In the street and highway lighting Sodium Vapour lamps are useful for their high efficiency, brightness and distinctive colour. High pressure Mercury Lamps with efficiencies as high as 70 lumens / watt and Sodium Lamps as high as 55 lumens/watt are commercially available.

Market Potential

As choke is the basic element in lighting, the product has good demand though a good number of industries are already in the field. Due to rapid expansion of highways and cities day by day, the choke finds a potential market as lighting is necessary in every corner.

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 Imphal. 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 18% 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. No.</i>	<i>Activity</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

With the help of automatic coil winding machine super enamelled copper wire of 17.5 swg is wound on the bobbins. The electrical stampings of CRGO dynamo grade are then fitted. The whole assembly is then housed in enclosure of mild steel. The connections are brought on the connector. This is

then fitted with polyester resin compound. The product is marked with necessary marking. The product is tested and packed.

Quality Control and Standards

As per IS 6616 : 1982

Production Capacity (per annum)

Qty. : 6000

Value : Rs. 34,80,000

Motive Power 20 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) **Rented Building 100 Sq.m. Rs. 2500 @ Rs. 25. Sq.m.**

(ii) Machinery and Equipments

Sl. No.	Description	Qty. No.	Amount (Rs.)
1.	Automatic coil wdg. M/c (mounting arrangement with electric motors)	1	25000
2.	Shearing machine (manual)	1	5000
3.	Resin mixer with motors	1	2000
4.	Electric oven 3kW, 0-25°C	1	10000
5.	Misc. tools like soldering iron, pliers, scissors etc.	1	5000
6.	Vacuum impregnation plant	1	23000
		Total	70,000

Testing Equipment

1.	Text bench complete with dimmer stat, voltmeter, wattmeter, ammeter, etc.	1	12000
2.	High voltage tester 0-5kV, AC	1	7500
3.	Megger 500V DC 100 Mohm	1	1600
4.	Multimeter	2	3000
		Total	24,100

(iii) Total Fixed Capital	(Rs.)
<i>(a) Total cost of machinery</i>	94,100

and equipments

(b) *Electrification and* 9,410

Installation charge @ 10% of cost of machinery and equipments

(c) *Cost of office furniture* 20,000

(iv) Pre-operative Expenses 10,000

Total 1,33,510

Say 1,33,500

B. Working Capital

(i) Staff and Labour (per month)

Sl. No.	Personnel	Qty. No.	Amount (Rs.)
1.	Manager/Testing Engg.	1	2500
2.	Skilled workers	3	4500
3.	Semi-skilled workers	3	3600
4.	Clerk-cum typist	1	1000
	Total		11,600

Add 15% as perquisites 1,740

Total 13,340

(ii) Raw Material (per month) for 500 Chokes

Sl. No.	Materials	Amount (Rs.)
1.	Super enameled copper wire 17.5 swg 500 kgs @ Rs 190/kg	95,000

2.	Electrical stamping CRGO 1750 kgs	1,13,750
3.	Bobbin insulating paper polythene L.S.	5,000
4.	Enclosures 500 nos. @ Rs.12	6,000
5.	Connector polyester compound hardware	7,000
6.	Packaging material for 500 chokes	1,000
	Total	2,27,750

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

1.	Power 500kw @ 2.50 per unit	1250
2.	Water	250
	Total	1500

(iv) Other Contingent Expenses (per month)

Sl. No.	Description	Amount (Rs.)
1.	Rent	2,500
2.	Consumable stores	1,000
3.	Postage/advertisement	800
4.	Repair and maintenance	1,000
5.	Insurance	200
6.	Telephone	300
7.	Misc. expenses	1,000

	Total	6800
(v) Total Recurring Expenditure		2,49,390
(per month)		
(vi) Total Working Capital (for 3 months)		7,48,170

C. Total Capital Investment

(i) Fixed Capital	Rs. 1,33,500
(ii) Working Capital (for 3 months)	Rs. 7,48,170

Total Rs. 8,81,670

Financial Analysis

(1) Cost of Production (per annum)	(Rs.)
a) Total recurring cost	29,92,680
b) Interest on capital investment @ 18%	1,58,700
c) Depreciation @10% on m/c and equipments	9,410
d) Depreciation @20% on office equipments	4,000
Total	31,64,790

(2) Turnover (per annum)	(Rs.)
By sales of 6000 nos. of chokes	34,80,000
@ Rs. 580 per chokes	

(3) Net Profit 3,15,210

(4) Net Profit Ratio

$$= \frac{\text{Net profit} \times 100}{\text{Turnover}}$$

Turnover

$$= 9.1\%$$

(5) Rate of Return

$$= \frac{\text{Net profit} \times 100}{\text{Total investment}}$$

Total investment

$$= 35.75\%$$

(6) Break-even Point

Fixed Cost	(Rs.)
a) Rent	30,000
b) Interest on capital	1,58,700
c) 40% of salary and wages	64,032
d) 40% of other contingencies excluding rent and Insurance	19,680
e) Insurance	2,400
Total	2,74,812

$$\text{B.E.P.} = \frac{\text{Fixed cost} \times 100}{\text{fixed cost} + \text{profit}}$$

fixed cost+ profit

$$= 46.6\%$$

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

1. M/s. BMP Equipments Mfg. Co. Burla Industrial Estate, Off. LBS Marg, Ghatkoper, Mumbai
2. M/s. Quality Machine Tools 62, Nagindas Master Road, Medows Street, Mumbai-23
3. M/s. Vacuum Plants and Instruments Mfg. Co. (P) Ltd. P.O. Mundhawa, Pune-36
4. M/s. S. A. Industries 115/2, Hazara Road, Kolkata_26
5. M/s. Technimax Opp. Marol Maroshi Road, Mumbai_59
6. M/s. Toshiniwal Brothers Pvt. Ltd. Rajmahal Vilas Extension, Bangalore_80

Raw Material Suppliers

1. M/s. Hindustan Wire Products Industrial Area, Patiala, Patiala
2. M/s. India Cable Co. Ltd. 37/17, West Cott Building, Nagpur
3. M/s. Filco Electric Industries Street No. 22 Marol, MIDC Area, Mumbai _ 93