

Table Fan

PRODUCT CODE (ASICC)	: 77824
QUALITY and STANDARDS	: IS 555:1979
PRODUCTION CAPACITY	: Quantity: 12000 Nos. (per annum) Value : Rs. 7800000
YEAR OF PREPARATION	: 2002 _ 2003
PREPARED BY	: Small Industries Service Institute Udyog Vihar, Rewa_486 001 (M.P.) and Office of the Development Commissioner Small Scale Industries Electrical and Electronics Division, 7th Floor, Nirman Bhavan, New Delhi - 110 011.

Introduction

Electric Table Fan is one of the common electric appliances used in houses, offices, shops and business establishments to provide air circulation and to cool down temperature. Fan circulates the air, which enhances the evaporation rate of sweat from body, due to which body is cooled. Table Fans are manufactured 200 mm, 300 mm and 400 mm sweep sizes, but the one, which is most commonly used, is of 400 mm sweep size.

With respect to this particular place there are very few limited units who manufacture this product. Some of them are as such:

(i) M/s. Kumar Electrical Works Stand, Jabalpur, (M.P.)	New Motor
(ii) M/s. Shiva Electricals Udyog Vihar, Chorhata, Rewa (M.P.).	99-100,
(iii) M/s. Varanasi Fan Industries (Pvt.) Ltd. Udyog Vihar, Chorhata, Rewa (M.P.).	43- 44,

Market Potential

Table Fan has become necessity in summer season in houses, schools, colleges, factories, hospitals and business establishments.

Further Table Fan is extensively used in rural areas especially when:

- (i) there is no ceiling overhead.

(ii) Portability of this fan is better in comparison to ceiling pedestal and exhaust fans.

Minimum 50% of table fans used in this area are from standard brands such as Usha, Orient, Crompton, GEC, rest 50% are from SSI Units located in different parts of state.

To meet the demand of local market further many more SSI units manufacturing this product can be set up.

Entrepreneurs willing to manufacture this product are advised to go for quality product. Product having low losses is more economical to customer as well having better cooling efficiency.

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 (M.P.) 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:

<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

- (i) Base casting stamping, cover Super Enamelled Copper wire Rotary switch, Guard, Fan resistance wire, Blade are purchased from outside local market.
- (ii) Coils of desired turns are wound with the help of coil winding machine. Kept in staror grooves of motor and shedding rings are placed in the respective pole shoes.
- (iii) Varnishing is carried out in the motor.
- (iv) Stator end covers are fixed by fitting rotor, rotary switches.
- (v) Fan blades are fitted with rotor shaft.

- (vi) Fan blades are caged inside the fan blade Guard.
- (vii) Regulator is fitted on the base of fan.
- (viii) After fitting oscillation apparatus fan is connected to power.

Quality Control and Standards

IS 555:1979

Production Capacity (per annum)

Qty.: 12,000 nos. of table fan of 400 mm sweep and oscillatory.

Value: Rs. 7800000

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

It is proposed to have a rental

shed at the cost of Rs. 5000 (per month)

(ii) Machinery and Equipments

Sl. No.	Description	Ind. Imp.	Qty.	Value (Rs.)
1.	Lathe machine 1800 mm bed.	Ind.	1	30,000
2.	Automatic Coil winding machine	Ind.	2	50,000
3.	Drilling machine 25 mm	Ind.	1	3,000
4.	Bench Grinder D/ E	Ind.	1	3,000
5.	Fly Press No. 4	Ind.	2	8,000
6.	Impregnation chamber for varnishing, Baking	Ind.	1	10,000
7.	Spray painting with Air Compressor	Ind.	1	10,000
8.	Oven size 1200 mm x 1200 mm (for painting)	Ind.	1	3,000
9.	Portable drilling machine	Ind.	2	4,000
10.	Tank, Hand Tools, etc.			10,000
	Total			1,31,000

Testing Equipments

Sl. Description No.	Qty.	Value (Rs.)
1. High voltage Ac Test Equipment 0-5kV, Ac.	1	5,000
2. Megger 500 volt DC	1	2,000
3. Kelvin Bridge	1	11,000
4. Test Panel with wattmeter Ammeter, voltmeter, frequency meter, P F Meter, etc	1	10,000
5. Anemometer	1	6,000
6. Multimeter	1	3,000
7. Tachometer	1	5,000
8. Air delivery Test Chamber	1	20,000
Total		62,000

Auxiliary Equipments

(i) Electrification and Installation	19,000
(ii) Furnituter and Workshop Benches	25,000
(iii) Fire Extinguishers	5,000
Total	49,200

Total Cost of Plant and Machineries

1,31,000 + 62,000 + 49,200 = **Rs. 2,42,200**

Sl. Description No.	Qty./ Kg.	Rate (Rs.)	Value (Rs.)
1. Casting Base	1000 Kg.	60	60,000
2. Lamination	1200 Kg.	80	96,000
3. Super Enamalled Copper Wire.	300 Kg.	200	60,000
4. MS Shaft	1000 pcs	10	10,000
5. Bush	1000 Set	5	5,000
6. Front and Real Guard	1000 Set	20	20,000
7. Fan blades attachment	1000 Set	40	40,000
8. Oscillation mechanism	1000 Set	50	50,000
9. Rotary S/w	1000 Set	10	10,000
10. Resistance Wire with porcelain base	1000 Set	30	30,000
11. spradding ring	1000 Set	5	5,000

12. Supply chord	1000	30	30,000
13. Insulating material paint and varnish	LS		40,000
14. Packaging material	LS		8,000
Total			4,64,000

B. Working Capital (per month)

(i) Personnel	Qty.	(Rs.)
1. Manager	1	4,000
2. Skilled workers	6	9,000
3. Un-skilled workers	10	10,000
4. Typist/ Accountant	1	1,500
5. Peon/Watchman	1	1,000
		25,500
<i>Perquisites @ 15% of Salary</i>		3,825
Total		29325
Say		29,500

(ii) Raw Material (per month)

(iii) Utilities (per month)	(Rs.)
(i) Electricity Charges	7,000
(ii) Water Charges	500
(iii) Advertisement/Postage	1,000
(iv) Transportation	2,500
Total	11,000

(iv) Working Capital (per month)

Rent + Raw Material + Personnel + Other Expenditure

$$5000+4,64,000+29,500+11,000 = \text{Rs. } 5,09,500$$

Working Capital (for 3 months) Rs. 15,28,500

C. Total Capital Investment

(i) Fixed Capital	Rs. 2,42,200
(ii) Working Capital (for 3 months)	Rs. 15,28,500
Total	Rs.17, 70,700

Financial Analysis

(1) Cost of Production (per annum)	(Rs.)
1. Rent	60,000
2. Raw Material	55,68,000
3. Staff and Labour	3,54,000
4. Depreciation on Plant and Machinery @10%	24,220
5. Intrest on total capital Investment @20%	3,54,140
Toal	63,60,360

(2) Turnover (per annum) (Rs.)

By sale of 12,000 no's of 78,00,000

Table Fan (400 mm, Oscillatory type) at the rate of Rs. 650 each

(3) Net Profit (per annum) (Before taxes)

78,00,000- 63,60,000 = **Rs. 14,40,000**

(4) Net Profit Ratio

$$= \frac{14,40,000 \times 100}{78,00,000} = 18.46\%$$

(5) Rate of Return = 81.32%

$$= \frac{14,40,000 \times 100}{17,70,700}$$

(6) Break-even Point

Fixed Cost (per annum)	(Rs.)
1. Rent	60,000
2. Depreciation on machinery and Equipment @10%	24,220
3. Intrest on total Capital investment @20%	3,54,140
4. 40% of Other Contingent Expenses	4,400
5. 40% of Salary and Wages	1,41,600
6. Depreciation on Office Equipment and Furniture	2,500
Total	5,81,860

B.E.P.

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

$$= \frac{5,81,860 \times 100}{5,81,860 + 14,40,000}$$

$$= \frac{5,81,86,000}{19,71,860} = 28.7\%$$

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 Suppliers

1. M/s. Motwani Pvt. Ltd.
24-45, Birhana Road, Kanpur.
2. M/s. Prem Engg. Works
Okhla Industrial Estate, New Delhi-110020.
3. M/s. East Asiatic Ind. Pvt. Ltd. 113/1, Rasbihari Road,
Kolkata
4. M/s. Jambo Ind. Corpn.
394, Dr. Bhadkamkar Road, Mumbai-400 002.
5. M/s. Automatic Electric Ltd.
Rectifier House, PB 7103, Mumbai-400 031.

6. M/s. Joshi Engg. Co. Ltd.
Indian Palace. H-Block, Connaught Place, New Delhi-110001

Addresses of Raw Material Suppliers

1. M/s. Nareen Industries Dadanagar Industrial Area, Kanpur-208 022.
2. M/s. India Supply Corpn.
Gariyahar Road, Kolkata-700 007.
3. M/s. Mahesh Vidyut Ayog Chikhana House,
453, M.Kalka Devi Road, Mumbai-400 002.
4. M/s. Hindustan Wire Products Industrial Area, Patiala.
5. M/s. System Stamping
B-16, Sarvodaya Nagar, Kanpur-208006.
6. M/s. Devidayal Stainless Steel Industries Pvt. Ltd.
P.B. 6224, Darukhana Road, Mumbai.