

Electric Tandoor

PRODUCT CODE (ASICC)	77740
QUALITY AND STANDARDS	IS 302:1979
PRODUCTION CAPACITY	Quantity: 10800 Nos. (per annum) Value : Rs. 42,12,000
YEAR OF PREPARATION	2002 _ 2003
PREPARED BY	Small Industries Service Institute Industrial Estate, Bamuni Maidan Guwahati-781021 (Assam) and Office of the Development Commissioner Small Scale Industries Electrical and Electronics Division 7th Floor, Nirman Bhavan, New Delhi-110 011.

Introduction

Tandoor is used to make not only tandoor roti but also non- veg preparations. The traditional tandoor was made by clay in which we used wood fuel to heat it up. Now-a-days people lead fast life. Every member of family is working and Electric tandoor is very handy and convenient. That's why tandoor preparations have not only become popular in whole of this country but also in hotels abroad.

Market Potential

The demand for domestic electrical tandoor has been steadily increasing. As a result of the expansion in generation of electrical energy in the country, the electric energy does replace other forms

of energy for domestic use. Tandoor is widely used by hotels, restaurants etc.

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 Guwahati. 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 15% 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 Technica Personnel etc.	12
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 flow chart can be given as below:

- (a) Inspection of raw material (Metal sheet, Element etc.)
- (b) Fabrication of Tandoor body frame as per design
- (c) Fitting of element, Thermostat and switch
- (d) Painting of inner and outer body
- (e) Electric connection
- (f) Checking, inspection, testing
- (g) Packing and despatch.

Quality Control and Standards

IS 302:1979

Production Capacity (per annum)

Sl. Item No.	Qty. (No.)	Rate (Rs.)	Total (Rs.)
1. Electric Tandoor	10800	390	4212000

Motive Power 6 kVA.

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 (Rent)	(Rs.)
(a) Land 500 sq.mtr	50000
@ Rs. 100 per sq.mtr.	
(b) Building, built up area - 200 sq.mtr.	300000
@ Rs. 500 per sq.mtr.	
Total	350000

(ii) Machinery and Equipments

Machinery

Sl. Description No.	Qty.	Rate (Rs.)	Total (Rs.)
1. Bench grinder (Double grinder)	1	5000	5000
2. Sheet rolling machine	1	4000	4000
3. Drill machining (3/4")	1	5000	5000
4. Shearing machine (1200 mm)	1	25000	25000

5. Power Hacksaw 150 mm	1	15000	15000
6. Air Compressor with gun for painting	1 set	15000	15000
7. Hand press No. 8	1	7000	7000
8. Power Press	1	25000	25000
9. Tools, Dies, Fixes	1 set	15000	15000
Total			1,16,000

Test Equipments

Sl. Description No.	Qty.	Rate (Rs.)	Total (Rs.)
1. Megger 1000V	1	7500	7500
2. High voltage tester, 5 kV	1	10000	10000
3. Multimeter Digital	1	4000	4000
4. Test panel with Ammeter, Voltmeter and Wattmeter	1 set	20000	20000
5. Leakage testing set	1	5000	5000
6. Earthing testing connection eqpt.	1 set	2000	2000
7. Variable transformer 0-440 V	1	2000	2000
Total			50,500

(A) <i>Electrification and installation charge approximately 10% of the machinery and equipment cost</i>			16,650
(B) <i>Cost of Office equipment, Working table etc.</i>			15,000

Sl. Description No.	Qty.	Rate (Rs.)	Total (Rs.)
(iii) Pre-operative Expenses (Project Cost, Non-Refundable Deposit), if any			5,000
Total			36,650

Total Fixed Investment	(Rs.)
1) Land and Building	3,50,000
2) Machinery and equipment	1,66,500
3) Pre-operative expenses such as Consultancy fees, Electricity bill	36,650
Total	5,53,150

B. Working Capital (per month)**(i) Staff and Labour**

Sl. Particulars No.	No.	Salary (Rs.)	Total (Rs.)
<i>(A) Administrative Staff</i>			
1. Office Manager	1	4000	4000
2. Accountant/Clerk	1	2000	2000
3. Watchman	1	1200	1200
Total			7200

(B) Technical Staff

1. Supervisor	1	3500	3500
2. Skilled Workers	5	2500	12500
3. Semi-skilled workers	8	2000	16000
4. Un-skilled workers	8	1500	12000
5. Helper	5	1200	6000
Total			50,000

Total (A+B)= 50,000 + 7200 57,200

Perquisites @ 15% of total salary 8,580**Total** **65,780****(ii) Raw Material (per month) All Indigeneous 900 Tandoor/month**

Sl. Name of Item No.	Quantity	Rate (Rs.)	Total (Rs.)
1. CRC Sheet	3600 kg	20/kg	72,000
2. Nichrome resistance wire	45 kg	500/kg	22,500
3. Ceramic roofs	900	5/pc	4,500
4. Bakelite handle	900 Rs.	20/pc	18,000
5. Thermostat	900 Rs.	40/pc	36,000
6. MS Angles	LS	Rs. 50/set	45,000
7. Switch, connection	LS		

Flexible cord, Two
pin Outlet and
other misc. items

Total **1,98,000**

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

Power 3000

Water 500

Total **3500**

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

(a) Postage and stationery 4000

(b) Repair and maintenance 3500

(c) Transport 3500

(d) Adv. and publicity 9000

(e) Insurance 1000

Total **21,000**

(v) Total Recurring Expenses (per month) **(Rs.)**

1) Personnel 65,780

2) Raw material 1,98,000

3) Utilities 35,000

4) Other contingent expenses 21,000

Total **2,82,280**

C. Total Capital Investment

Fixed capital Rs. 5,53,150

Working capital (for 3 months) Rs. 8,46,840

Total **Rs. 13,99,990**

Financial Analysis

(1) Cost of Production (per year) **(Rs.)**

i) Cost of production (recurring cost) 33,87,360

ii) Depreciation on machinery, fixtures and equipment @ 10% of cost 16,650

iii) Depreciation on office equipment @ 20% 3,000

iv) Interest on total investment @ 15% 2,12,698

Total **36,19,708**

(2) Turnover (per annum)

Sl. Item No.	Qty.	Rate (Rs.)	Total (Rs.)
1. Electric Tandoor	10800	390	4212000

(3) Net Profit

= Sales - Cost of production = Rs. 4212000 - 3619708 = **Rs. 592292**

(4) Net Profit Ratio

= $\frac{\text{Net profit}}{\text{Annual turnover}}$
= $\frac{592292}{4212000}$

= **14.06%**

(5) Rate of Return on Total Capital Investment

= $\frac{\text{Net profit}}{\text{Total capital investment}}$

Total capital investment

= $\frac{592292}{1399990}$

1399990

= **42.3%**

(6) Break-even Point

Fixed Cost	(Rs.)
1) Total Depreciation	19650
2) Interest on investment	212698
3) 40% of personnel	26312
4) 40% of utilities	1400
5) 40% of other contingent expenses	8400
Total	2,68,460

B.E.P

=Fixed Cost
Fixed Cost + profit
= 268460
592292 + 592292

= **31%**

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 Plant, Machinery and Raw Material Suppliers

1. M/s. Rajdhani Tele Elect. Product Pvt. Ltd. F. A. Road, Kumarpara, Abhay Ch. Dutta Lane, Guwahati

2. M/s. Assam Electricals,
(for Control switches), Tinsukia, Assam

3. M/s. Applied Electronics Ltd. 4th Floor, 4E/14,
Jhandewalan Extension, New Delhi.

4. M/s. Prem Engg. Works Okhla Indl. Estate,
New Delhi-20.