

## Ni-Cd/Ni-MH Battery Packs

PRODUCT CODE (ASICC) : 77607

QUALITY AND STANDARDS : As per Customer's Specifications

Production Capacity : Qty. : 67500 Nos. (per annum)  
Value : Rs. 121,50,000

YEAR OF PREPARATION : 2002 \_ 2003

PREPARED BY : Small Industries Service Institute  
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New Delhi-110020  
and  
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Commissioner  
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Electrical and Electronics Division,  
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New Delhi - 110 011.

### Introduction

The information Technology Revolution has given a tremendous boost to Computers and Telecommunication equipment market. The demand for computers and telecommunication related equipment is increasing with leaps and bounds. The manufacture of the proposed product has immense scope as it is used in Laptop Computers, Wireless sets, Mobile Phones and much portable and medical equipments.

### Market Potential

Presently, the battery packs for most of equipments like Mobile phones, laptop computers etc. are available through OEM's only. In case of Mobile phones, companies like Siemens, Nokia, and Ericson

are some of the OEM's. The rates of battery packs for mobile phones in the market vary from Testing Rs. 400 to Rs. 900 for different models. The preliminary Market Survey shows that there exists a good market for battery packs in the replacement sector and demand is likely to grow as the density of Mobile phones increases. Presently, about 1 crore Mobile Phones are operating in the country and the growth rate is very fast. The entire requirement of these battery packs is met through imports (mostly through OEM's). Although some reconditioned packs are available in the market but the quality is highly sub-standard. In the case with cordless phones where the battery packs are available from Rs. 150-250 for different models. For computers the price range is Rs. 3000 to Rs. 5000 for different Models.

### **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 Delhi. 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 13% 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**

*For Cordless Phones*

Manufacturing Process consists of cell assembly and spot welding of Ni-Cd cells. The connector assembly is affected to the terminals for making connections. Cell assembly is finally connected with the plastic tube and charging is done, thereafter, the final testing on the battery pack is done before sending it for packing.

*For Mobile Phones/Wireless Sets/Laptop Computers and Other Portable Instruments*

Manufacturing process consists of cell assembly of Ni-MH, Ni-Cd or Li-ion cell by way of grading and spot welding. PCM assembly is initially bought from outside is attached to it and put into the case. Finally, it is closed by ultrasonic welding machine. Final inspection and charging is done followed by packing.

**Quality Control and Standards**

As per Original Equipment Manufacturer's Product and Model.

### **Production Capacity (per annum)**

It is proposed to manufacture:

- a) Ni-Cd battery packs - 150 nos./day
- b) Ni-MH battery packs - 75 nos./day

**Motive Power** 10kw.

### **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**

The proposed unit can work in a rental premise The built up area required is 1000 sq.ft. The approx. monthly rent is about Rs.8,000

**(ii) Machinery and Equipments**

<b>Sl. No.</b>	<b>Description</b>	<b>Qty./ Nos.</b>	<b>Total (Rs.)</b>
1.	Spot welding Machine	2	4,00,000
2.	Ultrasonic welding machine	1	1,50,000
3.	Battery Charger	2	12,000
4.	Power Supply	2	10,000
5.	Tools set (like screw driven set, spanner, cutter etc.)	5 (sets)	10,000
6.	Air conditioner (1.5 ton each)	2	30,000
7.	Air compressor	1	10,000
<b>Total</b>			<b>6,22,000</b>

*Testing Equipments*

<b>Sl. No.</b>	<b>Description</b>	<b>Qty./ Nos.</b>	<b>Total (Rs.)</b>
1.	Digital Multimeter	4	10,000
2.	I.R. Tester	2	4,000
3.	Battery tester	2	10,000
4.	Battery impedance tester	2	10,000
<b>Total</b>			<b>34,000</b>

**Electrification and Installation (Rs.)**

i) Charge @ 10% of the cost of the machinery	62,200
ii) Cost of dies and fixtures	10,000
iii) Cost of office equipments and furniture	25,000
iv) Pre-operative expenditure	50,000
<b>Total</b>	<b>1,47,200</b>

**Total Fixed Capital** **8,03,200**

**B. Working Capital**

**(i) Staff and Labour (per month)**

Sl. No.	Designation	Nos.	Value (Rs.)
1.	Manager	1	12,000
2.	Engineer	1	10,000
3.	Marketing Executive	2	16,000
4.	Skilled Worker	2	10,000
5.	Semi-skilled Worker	2	7,000
6.	Helper	2	6,000
7.	Watchman	1	3,000
			<i>Perquisites @ 15% of the salary and wages</i>
			9,600
<b>Total</b>			<b>73,600</b>

**(ii) Raw Material (per month)**

Cordless	Phones Nos.	Value (Rs.)	Mobile Nos. Phones	Value (Rs.)
Cells Ni-Cd	3	50	Cells Ni-MH	5 230
Connector assembly	1	5	Plastic casing	1 18
Plastic tube	1	0.25	PCB	1 8
Ni-plated job	2	0.50	PTC	1 40
			Tobs	4 4

**Total 55.75 (per unit) Total 300 (per unit)**

$(55.75 \times 150 \text{ nos.} + 300 \times 75 \text{ nos.}) \times 25 \text{ days} = \text{Rs. } 7,71,562.5 \text{ (per month)}$

**(iii) Utilities (per month)** **(Rs.)**  
Electricity and Water charges 8,000

**(iv) Other Contingent Expenses (per month)** **(Rs.)**  
Rent 7,000  
Insurance expenses 2,000

Advertisement and Publicity expenses	2,000
Travelling expenses Consumable such as oil, lubricants, Cotton waste etc.	2,000
Repair and Maintenance	1,500
Transport and packing expenses	3,000
Postage and stationery	1,000
Telephone expenses	1,000
Misc. expenses	1,000
<b>Total</b>	<b>22,000</b>

<b>(v) Total Recurring Expenditure (per month)</b>	<b>(Rs.)</b>
Personnel	73,600
Raw Material	715312.5
Utilities	8,000
Other contingent expenses	22,000
<b>Total</b>	<b>875162.5</b>
<b>Total Working Capital (for 3 Months Basis)</b>	<b>26,25,487.5</b>

<b>Total Capital Investment</b>	<b>(Rs.)</b>
i) Fixed Capital	8,03,200
ii) Working capital (for 3 month basis)	26,25,487.5
<b>Total</b>	<b>34,28,687.5</b>

### **Machinery Utilisation**

The number of machines to be installed has been determined in such a way that planned scheduling of jobs will not cause any bottleneck in operation during bulk production. As such, the unit will make utilisation of machinery as envisaged without any bottleneck.

### **Financial Analysis**

<b>(1) Cost of Production (per annum)</b>	<b>(Rs.)</b>
1. Total recurring cost	10501950
2. Depreciation on machinery and equipment	72,800
3. Depreciation on office equipment @ 20%	5,000
4. Interest @ 13%	445729,375

**Total**

**11025479.75**

**(2) Turnover (per year)**

By sale of 150 Nos. of Ni-Cd packs and

75 Nos. of Ni-MH battery pack/day

$$= 12 \times 25 (150 \times 120 + 75 \times 300)$$

$$= 1,21,50,000 = \text{Rs. 1.215 Crore}$$

**(3) Net Profit (per year)**

$$= 1,21,50,000 - 11025479.375$$

$$= 1124520.625$$

$$= \text{Rs. 0.112 Crore}$$

**(4) Net Profit Ratio**

$$= \text{Net profit per year} \times 100$$

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Turnover per year

$$= 0.112 \times 100$$

$$= \text{9.26\%}$$

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1.215

**(5) Rate of Return**

$$= \text{Net Profit per year} \times 100$$

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Total Investment

$$= 0.182 \times 100$$

$$= \text{32.80\%}$$

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0.326



**(6) Break-even Point**

<b>Fixed Cost</b>	<b>(Rs.)</b>
Dep. on Machines, instruments and office equipment	72,800
Rent	84,000
Insurance	24,000
40% of salary and wages	3,54,816
40% of other contingent expenses other than rent and insurance	62,400
Interest on total investment @ 13%	445729
<b>Total</b>	<b>1043745</b>

= Fixed Cost x 100

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Fixed cost + Net Profit

= 0.104 x 100

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0.104 + 0.112

= **48.13%**

**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**

### *For Ultrasonic Welding System For Plastic*

#### *Office*

1. Roop Telsonic Ultrasonix Ltd.  
A-41, Nand Kishore Industrial Estate, Opp. Mahakali Caveri Road,  
Andheri (E), Mumbai-400 093  
Ph: 8361074, 8360994,  
Fax: 8360693

#### *Factory*

E-133, 134, GIDC,  
Electronic Zone, Sector- 26, Gandhi Nagar,  
Pin-382047  
Ph.: 230002, 232159

2. M/s. Hanrim Electronics Industries Co. Ltd.  
Hanrin B/D, 626-1, Pajang-dong, Jangan-Gu, Kyungki-do,  
Korea,  
Tel. : 82-331-252-5100  
Fax : 82-331-252-5563

3. M/s. Unitek, Miyachi Cer, USA  
For Ni-Cd and Ni-MH Batteries  
M/s. Nexcell Battery Co. Ltd.  
Suit 302, No.47, Park Avenue 2,  
Science Based Industrial Park, Hsinchu,  
Taiwan 30077, R.O.C.  
Tel: 886 (35)783-800  
Fax: 886(35)786-645