

***PROJECT PROFILE***  
***ON***  
***ELECTRIC POWER CABLE***

Production Code : 361008007

Quality Standard : IS : 694-1990  
PVC Insulated Cables for Voltage up to  
and including 1100 Volts.

Production Capacity : 4mm<sup>2</sup> Al. Con. 1 core, 18000 Coils  
4mm<sup>2</sup> Al. Con. 1 core, 18000 Coils

Month and Year of  
Preparation : July, 2003

Prepared By : Br. Small Industries Service  
Institute, Udyog Vihar,  
Chorhata, Rewa (M.P.) - 486006

## **PROJECT PROFILES ON : ELECTRIC POWER CABLES**

### **1. INTRODUCTION:**

Cables and wires are major equipment for transmission & distribution of electrical power. They are suitable for use in substations, distribution systems, Industrial installations, house wiring, street lighting. PVC insulated wires and cables are the ultimate medium for distribution of electricity.

This project profile envisages manufacturing of PVC 4mm<sup>2</sup> 6mm<sup>2</sup> aluminum conductors extensively used in house wiring service connections, Railways, permanent & temporary connections of electrical power from overhead lines to customers previous/machines.

There are 40 SSI units manufacturing cables in the state of Madhya Pradesh, but with reference to Vidhya region only 05 units are at present manufacturing this products, some of them are-

- (1) M/s. Bhadora Industries,  
4, Semi Urban Industrial Estate,  
Dhonge, Tikamgarh (MP)
- (2) M/s. Jain Plastic Industries,  
Kasagar Ki Gali,  
Tikamgarh (MP)
- (3) M/s. Awasthi wire Industries,  
Shakti Talkies Road,  
Tikamgarh (MP)
- (4) M/s. Daksh Wire & Cables,  
71, Udyog Vihar Chorhata,  
Rewa (MP)
- (5) M/s. Indian Cable Industries,  
Udyog Vihar, Chorhata,  
Rewa (MP)

Some of the prominent cable manufacturers in Mahakaushal region are as follows-

- (1) M/s. Vanganga Electricals,  
Village-Garra, Block - Lalbarra  
Varaseoni, Balaghat (MP).

- (2) M/s. V.K. Electricals,  
Richhai Industrial Area,  
Jabalpur (MP)
- (3) M/s. Carry Power Enterprises,  
Richaai Indl. Area, Jabalpur (MP)
- (4) M/s. R.K. Cables,  
Cotegeon, Narsinghpur (MP)
- (5) M/s. Savedaya Indl. Corporation,  
31, Audyogik Centre,  
Katni (MP)
- (6) M/s. Indian Electrical Industries,  
9, New Bazar, Jabalpur (MP)
- (7) M/s. Precious Cables & Wire Enterprises,  
R.B. - 325, Jabalpur (MP).

## **II. MARKET POTENTIALS:**

Demand of this product will increase day by day due Electrification, colonization, exclusively some of the bulk purchaser's of this product are –

- (i) Coal fields & colleries,
- (ii) Electricity Boards,
- (iii) Railways,
- (iv) All types of Power Stations,
- (v) Housing Boards/Colonisers.

Major scope of market for this product is in new installation/fitting & replacement 75 : 25  
Entrepreneurs are advised to have close vision on both aspects.

To avoid unhealthy competition between the entrepreneur's itself. Strict quality norms as per standards specification are the main factors and to be followed strictly.

ETDC, ER TL, R TC, Electrical Research & Development Association Vadodara is the major development & testing centers for this product Entrepreneurs venturing in field of manufacturing of this product are advised to seek any help for testing of their products. However, in area where cluster of such industry are present testing centers can be set-up under Govt. directives.

### **III. IMPLEMENTATION SCHEDULE:**

The major activities in the implementation of the project has been tested and the average time for implementation of the project is estimated at 12 months.

		<b><u>Period (in months)</u></b>
1.	Preparation of project report.	1
2.	Registration and other formalities.	1
3.	Sanction of loan by financial institutions	3
4.	Plant & 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	2
7.	Trial production	11
8.	Commercial production	12

### **IV. BASIS & PRESUMPTIONS:**

1. Land & building is proposed on rental basis.
2. Labour wages mentioned are prevailing in the state of Madhya Pradesh.
3. Margin Money requirement may differ on the type of financial institutions/Entrepreneur
4. Cost of machinery, Raw material, Test Equipments may vary from place to place cost given is approximate & may vary.
5. Minimum one rear is required for full capacity utilization.
6. Break even poin is calculated on full capacity utilization.
7. Total capital investment has been calculated by taking 3 months working capital in to account.

8. Rate of interest has been taken is 20% may differ depending on type of financial institution one to another.
9. The basis for calculation of production capacity is on single shift basis working of 25 days/ 300 days in per month/year respectively.

#### **V. TECHNICAL ASPECTS:**

- (i) EC grade aluminum wire is feed in to extruder. As Wire passes through die in extruder uniform coating of PVC is obtained all around the wire.
- (ii) Then wire to be passed through cold water for cooling.
- (iii) After this High Voltage testing to be carried out by High Voltage tester to check up the insulation strength.
- (iv) Name of manufacturer/Brand name is printed on cable after emergence from extruder and before cooling.
- (v) Wire is cooled in to lengths of 100 metres on the take off system and tested. As per IS specification for following tests-
  - (i) Tensile Test,
  - (ii) Ageing Test,
  - (iii) Insulation Test,
  - (iv) Resistance Test.

#### **VI. QUALITY SPECIFICATION:**

IS : 694 - 1977

#### **VII. PRODUCTION CAPACITY:**

1. 18000 coils of 91.4 meters each of 4mm<sup>2</sup> cable.
2. 18000 coils of 91.4 meters each of 6mm<sup>2</sup> cable.

#### **VIII. POWER REQUIREMENT:**

Approximate 3000 KWH is power requirement per month for this unit. In full capacity utilization 120 KWH is per day requirement of power.

#### **IX. POLLUTION CONTROL REQUIREMENT:**

1. This is pollution free manufacturing process.
2. Waste minimization of PVC compound to be strictly adhered.

**X. ENERGY CONSERVATION REQUIREMENT:**

1. If a load exceeds more than 10 kilowatt capacitor to be installed for power factor improvements.
2. Units should follow strict energy conservation by using electronic fan regulator/CF lamps.

**FINANCIAL ASPECTS****I. FIXED CAPITAL:****(a) LAND & BUILDING:**

It is proposed to have rental shed at the cost of Rs. 5000/- per month.

**(b) MACHINERY & EQUIPMENT:**

	Ind/Imo.	Qty.	Price
1. PVC extruder 65mm with cooling through take off & take up system.	Ind.	01	20,00,000
2. Wire straightening eqpt.	”	01	10,000
3. Embossing roll for Embossing name of manufacturer.	”	01	10,000
4. Coil winding & length measuring machines.	”	01	30,000
5. Extrusion dies & nozzles	”	LS	20,000
			20,70,000

**(c) TESTING EQUIPMENTS:**

	Qty.	Price
1. Continuous Spark Tester	01	15,000
2. Kelvin Bauble Bridge	01	15,000
3. Tensile Testing Machine 50, 1000, 500 Kg.	01	50,000
4. Mugger 500v DC	01	2,000
5. High Voltage Test Set 0-10 KV AC	01	15,000

6.	High Voltage Test Set 0-2 KV DC	01	6,000
7.	Ageing Test Apparatus	01	25,000
8.	Fire resistance testing apparatus	01	15,000
9.	Hot Water Bath	01	7,000
10.	Traveling microscope	01	3,000
11.	Micrometer 0-25mm	01	2,000
12.	HV Test Set AC 0-10 KV with misc equipment calipers etc.	01	20,000
			1,77,000

**(d) AUXILLARY EQUIPMENTS:**

1.	Electrification & Installation		22,470
2.	Furniture & Office Equipments		30,000
3.	Fire Extinguisher (CTC)		10,000
			62,000

**(e) TOTAL COST OF PLANT & MACHINERY:**

B+C+D

20,70,000 + 1,77,000 + 62,470 = 23,09,470

Rs.23,09,470.00

**II. RECURING EXPENDITURE :**

**(a) PERSONNEL (per month) :**

(1)	Manager	1	5,000
(2)	Skilled worker	10	15,000
(3)	Unskilled worker	10	10,000
(4)	Clerk/Accountant	01	10,000
(5)	Watchman/Peon	2	2,000
			33,000

**(b) RAW MATERIAL :**

<u>Description</u>	<u>Qty.</u>	<u>Rate</u>	<u>Value</u>
1. EC Grade Al. wire	2 Mtr.	20000/mtr.	40,000
2. PVC Compound (Cable grade)	3 Mtr.	60000/mtr.	1,80,000
3. Packaging material	-	-	30,000
4. Misc. item (Bobbin for 100 meters coils)	-	-	20,000
			<hr/>
			2,70,000
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**(c) UTILITIES (Per month)**

(1) Electricity		5,000
(2) Water		1,500
(3) Advertisement/Packing		1,000
(4) Transportation		3,000
(5) Miscellaneous		3,000
		<hr/>
		13,500
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**III. WORKING CAPITAL (per month) :**

(A + B + C)

33,000 + 2,70,000 + 13,500 = 3,16,500.00

**IV. TOTAL CAPITAL INVESTMENT:**

(1) Machinery & Equipment	23,09,470
(2) Working Capital for 3 months	9,49,500
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32,58,970	
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**V. COST OF PRODUCTION (per Annum) :**

(1) Rent	60,000
(2) Staff & Labour	3,96,000
(3) Raw Material	32,40,000
(4) Depreciation on plant & machinery @ 10%	2,30,947
(5) Interest on total capital investment @ 20%	4,71,794
	<hr/>
	Say Rs. 43,98,741
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	43,98,000
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**VI. TURN OVER (Per Annum) :**

(1) By sales of 18000 coils of 4mm <sup>2</sup> cable (91.4 meters each) @ 150/- each	27,00,000
(2) By sales of 18000 coils of 6mm <sup>2</sup> cable (91.4 meters each) @ 200/- each.	36,00,000
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	63,00,000
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**VII. PROFITABILITY (Per Annum) :**

$$63,00,000 - 43,98,000 = 19,02,000.00$$

**VIII. NET PROFIT RATIO:**

$$\frac{1902000}{4398000} \times 100 = 43.24\%$$

**IX. RATE OF RETURN:**

$$\frac{1902000}{3258970} \times 100 = 58.36\%$$

**X. BREAK EVEN ANALYSIS:****a. FIXED COST:**

(1) Rent	60,000
(2) Interest on total capital investment.	4,71,794
(3) Depreciation on plant & machineries @ 10%	2,30,947
(4) 40% of salary & wages	1,58,400
(5) 40% of contingent utilities	64,800
	<hr/>
	9,85,941
	<hr/>

**b. BREAK EVEN POINT:**

$$\frac{FC \times 100}{FC + Profit} = \frac{985941 \times 100}{985941 + 190200} = \frac{98594100}{2887941}$$

$= 34.13\% \qquad \qquad \qquad = 34.13\%$

**XI. GENERAL INFORMATIONS:**

- (a) Project Profile may be modified/tailored to suit the individual entrepreneurship qualities/capacities, 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 national and international 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 environments 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 banks discretion.

**XII. NAME & ADDRESSES OF MACHINERY & EQUIPMENT SUPPLIERS:**

- |    |   |                                     |
|----|---|-------------------------------------|
| 1. | M/s. Shiman Engg. Works<br>2535, Prem Narayan St.<br>Churiwalan, Delhi- 110 006                       | PVC Extruders &<br>allied machines. |
| 2. | M/s. MSIC Ltd. (Marketing Divn.)<br>Near Okhla Indl. Estate,<br>New Delhi                             | “                                   |
| 3. | M/s. Prince Plastic Machinery Co. Ltd.<br>Plot No. 55, Indl. Estate,<br>Kandivili, Bombay             | “                                   |
| 4. | M/s. Boolani Engg. Corpn.<br>Prabha Devi Indl. Estate,<br>402, Veer Savarkar Marg,<br>Bombay-400 025. | “                                   |

- |     |   |   |
|-----|---|---|
| 5.  | M/s. Toshinwal Bros. (P) Ltd.<br>M.G. Road, Ajmer.  | Kelvin Bridge   |
| 6.  | M/s. BPL India Ltd.<br>304, Ashok Bhavan,<br>Nehru Place, New Delhi-110 024                           | Insulation Tester   |
| 7.  | M/s. Rectifiers & Electronics<br>WH-49, Mayapuri Indl. Estate,<br>Phase-I, New Delhi.                 | High Voltage Testing<br>Equipments AC & DC  |
| 8.  | M/s. Automatic Electric Co. Ltd.<br>Rectifier House 570,<br>Nigam Cross Road,<br>Ph. No. 7103, Bombay | Spark Testers.  |
| 9.  | M/s. Naran Trading Agency<br>Box. 6657, Bandra, Bombay-50   | 1. High Voltage Test<br>Equipment AC & DC<br><br>2. Spark Tester.<br>Tensile Testing Machine. |
| 10. | M/s. Blue Star Ltd.<br>Bhandari House, 91, Nehru Place,<br>New Delhi                                  |   |
| 11. | M/s. Precision Scientific<br>Equipment Works,<br>26, Patel Road, SP Nagar,<br>New Delhi- 110 002      | Oven etc.   |
| 12. | M/s. Oriental Scientific<br>Apparatus Workshop,<br>J.L. Nehru Marg,<br>Ambala Cantt. 133 001.         | Kelvin Bridge   |

### **XIII. ADDRESSES OF RAW MATERIAL SUPPLIERS:**

- |    |  |              |
|----|--|--------------|
| 1. | M/s. National Organic Chemical<br>Industries Ltd.<br>Bank of Baroda Building,<br>Parliament Street, New Delhi. | PVC Compound |
|----|--|--------------|

2. M/s. Shri Ram Industries Ltd. PVC Compound  
Shri Ram Nagar, Kota, Rajasthan
3. M/s Indian Aluminium Co. Ltd. ECG Aluminium  
United Commercial Bank Building,  
Parliament Street, New Delhi