

Dpc Wire

PRODUCT CODE (ASICC) : 77472

QUALITY AND STANDARDS : IS 6162 (Part 1) : 1971
IS 7404 (Part 1) : 1991

Production Capacity : Quantity: 600 MT (per annum)
Value : Rs. 75,405,000

YEAR OF PREPARATION : 2002 _ 2003

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Introduction

The Double paper covering/transformer winding conductor (paper covered) basically used in winding purpose specially for HT and LT windings of Transformers as primary and secondary windings for the purpose of electromagnetic induction by producing alternating flux whose amplitude depends on the primary voltage and number of turns in each winding.

Market Potential

The demand for DPC/TWC is directly related to the production of power and distribution of transformers, which in turn related to power generation capacity of the country. The electrical power supply industry grew from 1367 MW in 1947 to 10036 MW by the end of 2000 with capacity addition of 3000 MW on an average, each year posing a growth rate of 6.7%. Consequently the power and distribution transformer also grew from 14000 MVA in 1975 to 49000 MVA approximately in 1998 - 99, emphasising that the faith of the transformer industry depends upon the power generation capacity, which is directly co-related with capacity addition to power capacity. It is

well, understood that the country as a whole is power deficit, at present and there is prospect of almost doubling the capacity of existing transformers consequently the demand for DPC/transformer winding conductors is bound to increase.

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 cuttack. 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.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.

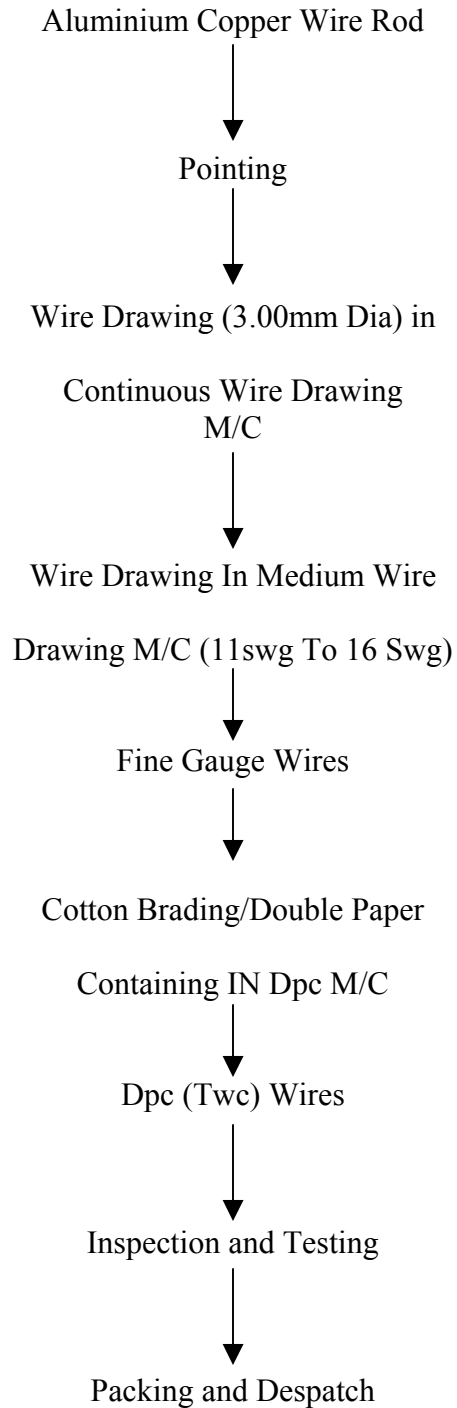
Technical Aspects

Process of Manufacture

The process of manufacture of Double Paper Covering (DPC)/Transformer Winding Conductors (TWC) (Paper covered/Cotton blended), involves the following steps:

1. Drawing of aluminium/Copper rod into the required size (3 mm dia) in continuous wire drawing machine.
2. Wire drawing in medium wire drawing machine (1/SWG to 16 SWG)
3. Wire drawing in fire wire drawing machine (16 SWG to 22 SWG)
4. Making fire Gauge wires
5. Double Paper covering/cotton braiding in DPC machine
6. Wounding in spools
7. Inspection and Testing and finally
8. Packing and Despatching.

Process Flow Chart for DPC



Alternatively the entrepreneurs can purchase fine gauge Aluminium/Copper wires from market as raw material and do DPC work. By this investment on plant and machinery can be reduced, substantially since the cost of wire drawing machine can be eliminated.

Quality Control and Standards

Since it is used in electrical industries purity of aluminium and copper wire should be 99.9%. The quality of DPC wires produced can be controlled by strictly following related IS specification right from beginning of the process that is from raw material to finished goods. The related IS specifications are:

- i) For Aluminium paper covered Round wire: IS 6162 (Part 1): 1971
- ii) For Copper paper covered lead wire: IS 7404 (Part 1): 1991

Production Capacity (per annum)

Quantity :	600 MT
Value :	Rs. 7,54,05,000
Motive Power	75 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

(1) Land and building	(Rs.)
i) Land 5000 Sq.ft @ Rs.50	2,50,000
Built up area:	
a) Working shed 40x80 3200 Sq.ft. @ Rs.150per Sq.ft	4,80,000
b) Office, Store etc. 30x30 Sq.ft = 900 sq.ft @ Rs.200per sq.ft.	1,80,000
Total	9,10,000

Note: Alternatively, the premises can be on rental basis as per market value of the area.

(ii) Machinery and Equipments

Sl.No.	Description	Ind./ Imp.	Qty. (No.)	Amount(Rs.)
1.	Wire drawing machine 3 dies with spooling	Ind.	1 set	3,60,000
2.	Medium Wire drawing machine Range (11-16 SWG 6 Dies) with spools	Ind.	1 set	1,10,000
3.	Fine wire drawing machine Range (16-22 SWG), 5 Dies with Spools	Ind.	1 Set	75,000
4.	Strip Flattering Machine	Ind.	1 Set	65,000
5.	Strip covering Machine	Ind.	1	60,000
6.	DPC wire covering machine @Rs. 52,000 4 line each	Ind	4 set	2,08,000
7.	Paper slitting machine 30" cutter size range 4mm- 20mm	Ind.	1	1,20,000

8.	Paper role slitting machine 42 inch size	Ind.	1	55,000
9.	Vaccum Annealing	Ind.	1	40,000
10.	Weight Bridge 2 MT	Ind.	1	20,000
Total				11,13,000

Testing Equipments

Sl. No.	Description	Ind./ Imp.	Qty. (No.)	Amount (Rs.)
1.	Tensile Testing Machine	Ind.	1	1,60,000
2.	Industrial Kiln bridge	Ind.	1	75,000
3.	Avometer, Multimeter	Ind.	1 each	15,000
4.	Wrapping Testing Machine	Ind.	1	15,000
5.	. Misc.	Ind.		10,000
6.	Pollution control equipment			Nil
Total				2,75,000

Sl.No.	Description	Ind./ Imp.	Qty. (No.)	Amount (Rs.)
Other Fixed Assets				
	<i>Energy conservation facilities/equipment</i>			Nil
	<i>Electrification and installation charges @ 10% of cost of machine and equipment</i>			1,11,300
	<i>Total Cost of Machinery and Equipment</i>			14,99,300
	<i>Cost of Moulds/Dies/ Other fixtures</i>			20,000
	<i>Cost of Office equipment/ working table etc.</i>			30,000
Total				15,49,300
(iii) Pre-operative Expenses (Project cost/Non refundable deposit)				5,700-00
Total Fixed Capital				24,65,000

B. Working Capital (per month)**(i) Personnel**

Sl. No.	Designation	No.	Salary (Rs.)	Amount (Rs.)
1.	Manager	1	5,000	5,000
2.	Marketing executive	1	3,500	3,500
3.	Clerk-cum- Accountant- Store Keeper	2	2,500	5,000
4.	Peon/ Watchman	2	1,600	3,200
5.	Production Engineer	1	4,000	4,000
6.	Skilled workers	2	2,500	5,000
7.	Un-skilled workers/Semi- skilled workers	3	1,800	5,400
			Total	31,100
			<i>Perquisites @ 15% of salaries</i>	4,665
			Total	35,765

(ii) Raw Material

Sl.No.	Description	Qty. (MT)	Rate/ MT(Rs.)	Amount (Rs.)
1.	Aluminium Rod EC Grade	22.5 MT	95,000	21,37,500
2.	Copper wire Rods	22.5	1,35,000	30,37,500
3.	Kraft paper/ Insulating paper	5 MT	95,000	4,75,000
4.	Stores/ Spares	LS	20,000	20,000
			Total	56,04,125

(iii) Utilities (per month)	(Rs.)
Power 75 kWh units @ Rs.4.60	38,605
Water Charges	1,000
Total	39,605

(iv) Other Contingent Expenses (per month)	(Rs.)
(i) Postage, stationery	1,000
(ii) Telephone	1,000
(iii) Repair and Maintenance	2,500
(iv) Transport charges	2,500
(v) Advertisement and publicity	2,000
(vi) Insurance	2,000

(vii) Misc.expenses		1,000
	Total	12,000

(v) Total Recurring Expenditure (per month)

$$35,765 + 56,04,125 + 39,605 + 12,000 = 56,91,495$$

(vi) Working Capital (for 3 Months)

$$3 \times 56,91,495 = \text{Rs. } 1,70,74,485$$

C. Total Capital Investment

a) Fixed capital		24,65,000
b) Working capital (for 3 months)		1,70,74,485
	Total	1,95,39,485

Financial Analysis

1. Total Cost of Production (per year)		(Rs.)
(i) Recurring expenditure		6,82,97,940
(ii) Depreciation on building @ 5%		45,500
(iii) Depreciation on Machinery		11,40,500
(iv) Depreciation on Mould and Fixtures @ 25%		5,000
(v) Depreciation on office equipment @ 20%		6,000
(vi) Interest on total investment @ 16%		31,26,318
	Total	7,26,21,258

(2) Turnover (per year)

Item	Qty.	Rate (Rs.)/MT	Value (Rs.)
(i) Aluminium Paper covered Round wire	268.5MT	1,20,000	3,58,20,000
(ii) Copper paper covered Round wire	268.5	1,60,000	4,77,60,000
(iii) Scrap (Aluminium)	1.5	60,000	90,000
(iv) Scrap (Copper)	1.5	90,000	1,35,000
		Total	8,38,05,000

Note: The turn over has been calculated on the basis of 12 SWG wires.

(3) Net Profit (per year) (Before Income Tax)

$$\begin{aligned} &= \text{Turnover} - \text{Total cost of production} \\ &= \text{Rs. } 8,38,05,00 - 72,621258 \\ &= \text{Rs. } 1,11,83,742 \end{aligned}$$

(4) Net Profit Ratio

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

Turnover per year

$$= \frac{1,11,83,742 \times 100}{8,38,05,000}$$

8,38,05,000

$$= 13.34\%$$

(5) Rate of Return

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

Total investment

$$= \frac{65,27,742 \times 100}{1,86,39,485}$$

1,86,39,485

$$= 35\%$$

(6) Break-even Point (% of Total Production Envisaged)

	Fixed Cost	(Rs.)
(a)	Depreciation on machinery and equipment, tools and jigs and fixture and office equipment	11,51,500
(b)	Rent or Depreciation on Building	45,500
(c)	Interest on total investment	31,26,318
(d)	Insurance	24,000
(e)	40% of Salary and wages	1,71,672
(f)	40% of other contingent expenses (Excluding rent and Insurance)	48,000

Total

45,66,990

E.E.P.

= FC x 100

FC + Net profit

= 45,22,990 x 100

45,66,990+ 11183742

= 45,66,990

15750732

= **29%**

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 System 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, Equipment and Raw Material Suppliers

Wire Drawing Machine

1. M/S. Hind Engineering Works
2, Kundan Lane, Liluah, Howrah-711204.

2. M/s. New Bishbaktima Mechanical Works (P) Ltd. 24/5, Brindaban Mullick Lane, Kadamtala,

Howrah-711 101

3. M/s. Bharat Engg. Works 243, Chittaranjan Avenue, Kolkata.

4. M/s. Pipalia Engineering Works (P) Ltd. Post. Pipalia Kalan, Distt. Pali, Rajasthan- 306307

5. M/s. Golden Engineering Industries 8797, Shidipura, Rani Jhansi Road, New Delhi-110 005.

6. M/s. Sampat Engineering Ltd. Deora Avenue, Mithakhathi Road, Navarangpura, Ahmedabad-380009

7. M/s. Super Cable Machines India Pvt. Ltd. Choudhury Villa, 1, Shastri Nagar, Ahmedabad-382440.

8. M/s. Prem Udyog Pvt. Ltd. Station Road, Vatva, Ahmedabad-382440

9. M/s. Nihar Engineering and Sons 11/1, Kundan Lane, Liluah, Howrah-711204

Paper Covering Machine

1. M/s. Machine Tools Works Kolkata

2. M/s. S.K. Fabricators Pvt. Ltd. Kolkata, 16, Mandal Templer Lane, New Alipur, Kolkata-7

3. M/s. Global Merchantiles Pvt. Ltd. 10, Ulive Road, Kolkata

4. M/s. Patel and Co. Nuapatna, Cuttack.

Testing Machine

1. M/S. Bluestar Ltd. 7 Hart Street, Kolkata Tel: 2480131

2. Scientific Testing India
2/5, Phase-II, DSIDC Campus, NEW DIC, Bus Depot, Nandanagari, Delhi-110 093

3. M/s. Hargolal and Sons Ambala Cantt, Harayana-133011
(Choke for Aluminium Conductor)

4. M/s Oriental Science Apparatus Workshop, Jawaharlal Nehru Marg, Ambala Cantt, 133001.

Other Misc. Machinery

1. M/s. Devendra Industries 230, Village Nanglisakrwati, Najafgarh, New Delhi-110 043.
2. M/s. Sampat Heavy Engineering Company 4B & C, Arehana Industrial Estate, Opp. Ajit Mills, Ahmedabad-360 023.
3. Hind Engineering Works 2, Kundan Lane, Liluah, Howrah
4. The National Small Industries Corporation Ltd. Link Road, Cuttack.

Raw Material Suppliers

1. M/s. N A L C O
Aluminium Rods and Alloys Rods, NALCO House, Nayapalli, Bhubaneswar.
2. M/s. Bharat Aluminium Co. Ltd. Chattarjee International Centre, 33A, Jawaharlal Nehru Row, Kolkata_71,
3. M/s. Aluminium Corporation of India Ltd. 7, Camel House Street, Kolkata.
4. HINDALCO Industrial Ltd. Birla Building, T/1, R. N. Mukherjee Road, Kolkata-1.