

Copper Coated M.S. Wire

PRODUCT CODE	: N. A.
QUALITY AND STANDARDS	: As Per Standard Specifications
PRODUCTION CAPACITY	: 240 M.T. (per year)
MONTH AND YEAR OF PREPARATION	: October, 2002
PREPARED BY	: Branch Small Industries Service Institute Industrial Estate Chandpur, Varanasi- 221106. Tel. - (0542) 370621

INTRODUCTION

Copper Coated M.S. Wire is used for Sub- Area welding process (SA) and Metal Inert Gas (MIG) welding process. Due to rapid growth of Industrial activities in Large/Medium and Small Scale Sector, the demand of copper coated M.S. Wire is in increasing order as the product is consumable.

MARKET POTENTIAL

Due to inherent characteristics of Sub-Area welding process and Metal Inert gas welding process, these welding processes are widely used in developed technology. The product is widely demanded by railways, Ship building, chemical fertilizer, cement, petrochemical industries. There is demand in production of water pipe line also. The advantages of S A AND MIG welding is lesser labour cost, lesser rejection and perfect welding, hence the market potential of this product is very good.

BASIS AND PRESUMPTIONS

1. The project is based on single shift of 8 hrs per day and 300 working days in a year.
2. The land and building is on rent.
3. Three years required for achieving full capacity utilization.
4. Labour wages have been considered as per present market trend.
5. The rate of interest has been considered as 15% for calculation purpose.
6. The plant and machinery are indigenously available.

IMPLEMENTATION SCHEDULE

The project implementation will take a period of one year from the date of approval of the scheme. Break up of time required in each activity is shown below:

<i>Nature of Activities</i>	<i>Period in Month</i>
1. Scheme preparation and approval.	1 month
2. S.S.I. provisional registration.	1 month

3. Financial arrangement.	1 month
4. Placement of order for delivery of M/C.	1 month
5. Installation of M/C.	1 month
6. Power connection.	1 month
7. Trial run.	15 days
8. Permanent registration.	1 week
9. Commencement of production	1 month

TECHNICAL ASPECTS

Process of Manufacture

Mild steel wire rod of 6 or 8mm dia available in coil bundle is cleaned by pickling. Pickling process involves dipping of M.S. Coil first in acid bath followed by dipping in Alkali Solution and then in water tank. The cleaned wire rod is drawn on heavy duty drum type wire drawing M/C. After annealing the drum wire is again drawn up to desired gauge. The wire is then passed through copper coating tank for coating of copper layer as per standard requirement.

Pollution Control

There is no pollution created during the production of copper coated M.S. Wire. So no anti-pollution measures are required. However, the building shed should be constructed as per parameters laid down for industrial buildings.

Production Capacity (per annum)

Submerged arc welding rods:

Co2 welding rods :	240 M.T.
Value :	Rs. 69,600

Quality Control and Standards

The strict quality control is required for production of copper coated M.S. Wire. The incoming material should be properly tested as per relevant standard. During the production stage, dimensional test must be carried out. Chemical solution of copper coating bath should be checked at regular intervals. The chemical composition of raw materials used for SA welding wire is given below:

Type	Carbon %	Silicon %	Manganese %	Molybdenum %	Nickel %
AS-1	0.10	0.03	0.4 to 0.6	—	—
AS-2 si	0.08 to 0.15	0.15 to 0.4	0.8 to 1.2	—	—
AS-2 m	0.08 to 0.15	0.05 to 0.15	0.8 to 1.2	0.45 to 0.6	—
AS-3	0.8 to 1.2	0.05 to 0.25	1.3 to 1.7	0.45 to 0.6	1.8 to 1.

For MIG Wire

Type	Carbon %	Silicon %	Manganese %	Chromium %	Molybdenum %	Aluminium %
A-15.	0.13	0.3 to 0.9	0.9 to 1.6	—	—	0.04
A-16.	0.25	0.3 to 0.5	1.3 to 1.6	—	—	—
A-18.	0.12	0.7 to 1.2	0.9 to 1.6	—	—	—
A-30	0.12	0.2 to 0.9	0.4 to 1.6	—	0.45 to 0.65	—
A-32	0.12	0.2 to 0.9	0.4 to 1.6	1.1 to 1.5	0.45 to 0.65	—

Sulphur and phosphorous should not exceed 0.04% in all cases.

FINANCIAL ASPECTS

A. Fixed Capital

(i) Land and Building

Total Land	: 700 Sq. Yard.
Covered Area	: 500 Sq. Yard rented @ Rs. 20000 per month

(ii) Machinery and Equipments

Sl. No. and Equipment	Qty.	Amount (In Rs.)
1. Non-slip recompilation type heavy duty Wire drawing M/C having 24" drum dia. Capacity to draw 6 or 8mm dia. Wire rod With 25 H.P. Motor and electricals	1	95,000
2. Heavy duty wire drawing M/C non-slip Type 22" dia. Drum with 20 H.P. Motor and electricals	1	75,000
3. Wire drawing M/C 12" drum dia cap. To Draw up to 12 SWG, to 18 SWG with 5. H.P. Motor and electricals	4	2,00,000
4. Roller type wire pointing M/C having cap. 10 mm to 2 mm. With 3 H.P. Motor and electricals	1	25,000
5. Hand operated roller type wire pointing M/C 2 mm to 1 mm.	1	7,000
6. Butt welding M/C cap. To weld from 6mm to 2 mm wire with electricals	1	40,000
7. Die-polishing machine with 1 H.P. Motor 2800 R.P.M. 220 V. and self Containing choke.	1	8,000
8. (a) Heavy duty reeling machine 0.8 to 1.6 mm with 1 H.P. Motor and electricals.	1	25,000
(b) Heavy duty reeling M/C 1.2 to 5.0 mm with 2 H.P. Motor and electricals.	1	40,000
9. Electrically heated annealing furnace with Automatic temp. Controller and indicator Rating 20 K.V.A. with chain pulley block.	1	1,05,000
10. Water tanks size 1m x 1m x 2m. of fibre Glass	1	10,000

11. Pickling and copper coating bath 1m x 1m x 2m complete with bus bars and electricals	3	4,00,000
12. Wire Polishing M/C 5mm. to 0.8 mm. Cap. With 5 H.P. Motor and electricals	1	40,000
13. Pay of stand chain pulley block, hand tools, weighing balance etc.	L.S.	40,000
14. Laboratory equipment and chemicals muffle, Furnace. Hot place, glass apparatus. Test Bench with sink distilled water unit.	L.S.	90,000
Total		12,00,000
15. Installation and electrification @ 10% of Cost of Plant and Machinery		1,20,000
16. Office and laboratory furniture and Typing machine		35,000
17. Pre-operative expenses		50,000
Total		14,05,000

B. Working Capital (per month)

(i) Raw Materials and Consumables

Sl. No. Materials	Qty.	Rate (In Rs.)	Amount (In Rs.)
1. EQ. Grade M.S. wire rod 6mm to 8mm rod	20.5 M/T	18,000 M/T	3,69,000
2. Copper coating chemicals, Acids, anodes etc.	L.S.	-	10,000
3. Masonite board spool.	400 Nos.	20 Each	8,000
Total			3,87,000

(ii) Staff and Labour (per month)

Sl. No.	Designation	No.	Salary (In Rs.)	Amount (In Rs.)
1.	Works Manager	1	10,000	10,000
2.	Supervisor	1	5,000	5,000
3.	Chemist	1	4,000	4,000
4.	Skilled Workers	2	3,000	6,000
5.	Semi Skilled/ Unskilled Workers	4	1,500	6,000

6. Accountant/Store Keeper	1	2,000	2,000
7. Clerk/Typist	1	2,000	2,000
8. Salesman	1	2,000	2,000
9. Peon/Guard	2	1,500	3,000
Total			40,000
<i>Perquisites @ 15% of Salary</i>			6,000
Total			46,000

(iii) Utilities (per month)		(Rs.)	
1. Power		15,000	
2. Water		500	
Total		15,500	

(iv) Other Contingent Expenses (per month) (Rs.)			
1. Stationery and postage		1,000	
2. Publicity and advertisement		2,000	
3. Insurance		1,000	
4. Transportation		2,000	
5. Repair and maintenance		5,000	
6. Consumables and Chemicals		10,000	
7. Misc. expenses		5,000	
Total		26,000	

(v) Working Capital (per month)		(Rs.)	
1. Raw Materials		3,87,000	
2. Salary and Wages		46,000	
3. Utilities		15,500	
4. Other Expenses		26,000	
5. Rent		20,000	
Total		4,94,500	

C. Total Capital Investment

1. Fixed Capital	Rs. 14,05,000
2. Working Capital for 3 months	Rs. 14,83,500
Total	Rs. 28,88,500

FINANCIAL ANALYSIS

(1) Cost of Production (per annum)		(Rs.)	
1. Working Capital		59,34,000	
2. Depreciation on plant and machinery @ 10%		1,23,500	

2. Interest on total Capital investment @ 15%	1,44,425
Total	62,01,925
Say	62,02,000

(2) Total Sales (per annum)		(Rs.)	
1. Copper coated M.S. SA/MIG. Welding Rods, @ Rs. 29,000/M.T.	240/M.T.	69,60,000	

(3) Profit Before Tax (per annum)		(Rs.)	
1. Total Sales		69,60,000	
2. Cost of Production		62,02,000	
Total		7,58,000	

(4) Profit Ratio

$$\begin{aligned}
 &= \frac{\text{Profit} \times 100}{\text{Total Sales}} \\
 &= \frac{7,58,000 \times 100}{69,60,000} \\
 &= \mathbf{10.8\%}
 \end{aligned}$$

(5) % Rate of Return of Capital

$$\begin{aligned}
 &= \frac{\text{Profit} \times 100}{\text{Total Capital investment}} \\
 &= \frac{7,58,000 \times 100}{28,88,500} \\
 &= \mathbf{26\%}
 \end{aligned}$$

(6) Break-even Point

Fixed Cost (per annum)		(Rs.)	
1. Interest on Total Capital investment		1,44,425	
2. Depreciation on Plant and Machinery		1,23,500	
3. 40% Salary of staff and labour		2,20,800	
4. 40% of other expenditure		1,24,800	
5. Rent		2,40,000	
Total		8,53,525	

$$\begin{aligned}
 \text{B.E.P.} &= \frac{\text{F.C.} \times 100}{\text{F.C.} + \text{Profit}} \\
 &= \frac{8,53,525 \times 100}{8,53,525 + 7,58,000} \\
 &= \frac{8,53,52,500}{16,11,525} \\
 &= \mathbf{52\%}
 \end{aligned}$$

Addresses of Machinery and Equipment Suppliers

1. M/s. Saran Engineering Works
A-147, Ghatkopar,
Industrial Estate,
Mumbai - 400086.
*Wire Drawing Copper Coating
Rewinding Machinery*
2. M/s. Viksa Shahu Udyog
A-8/1, Jhilmil Tahirpur Indl. Area,
G.T. Road,
Shahadra,
Delhi-110032.
Wire Drawing Butt Welding M/C.
3. M/s. Regal Dies
25, Friends Colony,
Indl. Area, Gali No. 2,
G.T. Road,
Shahadra,
Delhi-110032.
Wire Drawing Dies.
4. M/s. Inducto Heat Inducto Therm
India Ltd.
Ambli,
Ahmedabad - 380054.
Annealing Furnace
5. M/s. Graver and Weel India Ltd.
Bharath Agencies
Ahad Missions, 1st Floor,
740, Mount Road,
Madras-600002.
Metal Coating Chemicals.
6. M/s. Meta therm Furnace Pvt. Ltd.
MIDC, Indl. Area,
Balapur Road, Thane-400701.
Annealing Furnace.