PRODUCT : GALVANISED STEEL WIRE

PRODUCT CODE :

QUALITY STANDARD :
IS: 4826 : 1979
IS: 278 : 1978
IS: 279 : 1981

PRODUCTION CAPACITY (PER ANNUM) :
Qty. : 6140 M.T.
Value : 2312.17 Lakhs

MONTH & YEAR OF PREPARATION :
MARCH 2011

PREPARED BY :
MSME-Development Institute
IV Floor, Harsiddh Chambers
Ashram Road
Ahmedabad – 380 014
A. **INTRODUCTION:**

Mild Steel Galvanised steel wire popularly known as galvanised wire have extensive application in various field. It has got excellent demand in pre-stressed concrete product like railway sleeper, telegraph and telephone, electric pole etc. and also find ample application in pre-casted cement product like pipes, frames of door and windows etc. On the other hand it has its own market in the field of strands and also its domestic demand can not be ignored. The M.S. Wire are drawn to required dia and then galvanised i.e. coating of zinc is employed on it, gives excellent anti corrosion property to steel wire.

B. **MARKET:**

As discussed above, these products have good demand in various fields. The more and more electrification and expansion of railway network associated with gauge conversion of railway track is expected to create huge market. On other hand the demand in the field of pre-casted cement product and domestic is expected to increase in many folds. Same way expansion of telephone network will also add demand. It is also used in strand which has got market in electrical and railways etc. G.I. Wires is also used in shipping in the form of round strand. Looking into above it has good market potential.

C. **BASIS & PRESUMPTION:**

1. The production target fixed in the profile i.e. 511.67 M.T./month is well within the reach of 3 shift / day and 25 days/month working.

2. @ 2% M.S. Wire loss. 4 mm Ø average dia of finished product having 98.7 gm/metre, 20 metre out put per minutes per spool product etc. have been considered to arrive to production target and raw material requirement calculation in this profile. The wire of different dia can be manufactured with suggested machines..

3. The rate of machine, equipment, land, building, raw material as well as salary and wages etc. considered in this profile are considered for calculation and likely to very with time and place.

4. @15% interest rate on total capital investment has been considered for calculation purpose which may vary.

5. The Plant and Machinery suggested in this profile can work for three shift also, if so it will reduce production cost.
D. **IMPLEMENTATION SCHEDULE**:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Approx. Time required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Preparation of Project Report</td>
<td>4 Weeks</td>
</tr>
<tr>
<td>2. Selection of Site</td>
<td>4 Weeks</td>
</tr>
<tr>
<td>3. Various registrations</td>
<td>4 Week</td>
</tr>
<tr>
<td>4. Availability of Finance</td>
<td>3 to 4 months</td>
</tr>
<tr>
<td>5. Availability of Electric Connection</td>
<td>2 Months</td>
</tr>
<tr>
<td>6. Machinery procurement</td>
<td>3 Months</td>
</tr>
<tr>
<td>7. Erection &amp; Commission</td>
<td>2 Months</td>
</tr>
<tr>
<td>8. Trial Run</td>
<td>2 Weeks</td>
</tr>
<tr>
<td>8. Recruitment of labour</td>
<td>4 Weeks</td>
</tr>
</tbody>
</table>

Many activity can be initiated simultaneously, hence enter project can be implemented within 12 months.

E. **TECHNICAL ASPECT:**

(1) Manufacturing Process:

The M.S. Wire rods of 6 mm to 8 mm Ø in coil form purchased is first subject to pickling operation where rust and any other material stucked to it is removed and wire is fluxed. After pickling operation wire is drawn on bull black wire drawing machine to reduce the wire dia to desire specification. The number of passes will depend upon the feed dia and final dia required. Generally in one pass 20% reduction is achieved. The finer dia will be obtained on multistaged wire drawing machine. The drawn wire now will be sent for galvanizing. Here, at first instance wire will be passed through lead bath furnace, where annealing action will be done, followed by wire passing through quenching tank. Then same wire will pass through fluxing tank and finally from zinc furnace where coating of zinc will be done. The speed of wire passing is adjusted to such a way that all operation are done according to need. These speeds will be adjusted by take up machine where galvanized wire will be spool.
(2) Quality Specification:

BIS has laid down following specifications:

IS 4826 : 1979 Specification for hot dipped galvanised coating on round Steel wire.
IS 429 : 195 Methods for testing weight and uniformity of coatings on galvanized iron and steel wires and steel sheets
IS 278 : 2009 Specification for Galvanised Steel Barbed wire
IS 279 : 1981 Galvanised Steel wire for telegraph and telephone purpose
IS 12776 : 2002 Galvanized Strand for Earthing
IS 398 : Part 2 : 1996 Aluminium conductors for overhead transmission purposes: Part 2 Aluminium conductors, galvanized steel reinforced
IS 398 : Part 5 : 1992 Aluminium conductors for overhead transmission purposes: Part 5 Aluminium conductors - galvanized steel reinforced for extra high voltage (400 kV and above)
IS 2140 : 1978 Specification for Stranded Galvanized Steel Wire for Fencing

(3) Production Capacity (PA):

(a) Quantity : 6140 M.T. Galvanised Wire of different gauge

(b) Value : Rs. 2312.17 lakhs

(4) Motive Power:

Electric Connection of 120 H.P.

(5) Pollution Control:

Galvanized steel wire production needs clearance from Pollution Control Board.

The used picking solution and water needs to neutralise & filtration before discharge

(6) Energy Conservation:

Electricity and furnace oil are the main energy inputs need to optimise its use to reduce the consumption for given production. Every efforts should be made to conserve both energy inputs and in this endeavour, proper instrumentation and recording of data with evaluation of the same periodically can help in great way. Also energy audit prove to be useful to choose the right kind of drive and equipment for required result.
F. **FINANCIAL ASPECT:**

**Land & Building:**

Land, 3000 sq. meter @ Rs. 200/- per sq. meter  
Rs. 6,00,000  
Built up area, 2000 sq. meter @ Rs. 1300/- per sq. meter  
Rs. 26,00,000  
Total :  
Rs. 32,00,000

**Machinery & Equipment:**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Description</th>
<th>Qty.(Nos.)</th>
<th>Value (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bull block type heavy duty wire drawing Machine, 750 mm Ø end drum with electric Motor and other accessories etc.</td>
<td>2</td>
<td>4,70,000</td>
</tr>
<tr>
<td>2.</td>
<td>Bull Black type heavy duty wire drawing m/c. 600 mm Ø end drum with electric motor and other accessories etc.</td>
<td>2</td>
<td>3,10,000</td>
</tr>
<tr>
<td>3.</td>
<td>Multi stage wire drawing m/c. with 4 dia in row electric motor and other accessories etc.</td>
<td>2</td>
<td>3,25,000</td>
</tr>
<tr>
<td>4.</td>
<td>Pickling tank – 2m x 8m x 2m</td>
<td>1 Set</td>
<td>1,20,000</td>
</tr>
<tr>
<td>5.</td>
<td>Oil fired lead bath furnace 6 m x 1 m x ½ m with 7.5 H.P. Blower and other accessories alongwith water quenching tank etc.</td>
<td>1</td>
<td>5,20,000</td>
</tr>
<tr>
<td>6.</td>
<td>Oil fired zinc furnace 3 m x 1 m x ½ m with 5 H.P. Blower and other accessories alongwith fluxing tank etc.</td>
<td>1</td>
<td>6,15,000</td>
</tr>
<tr>
<td>7.</td>
<td>Water rinsing tank 2m x 8m x 6m</td>
<td>1</td>
<td>40,000</td>
</tr>
<tr>
<td>8.</td>
<td>Pay of stands</td>
<td>26</td>
<td>1,60,000</td>
</tr>
<tr>
<td>9.</td>
<td>Take-up m/c. with 12 spooling facility, alongwith electric motor, variable speed and other accessories</td>
<td>1</td>
<td>4,70,000</td>
</tr>
</tbody>
</table>
10. **Testing Equipment**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Quantity</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Tensile Testing m/c. 10 M.T.</td>
<td>1</td>
<td>2,00,000</td>
</tr>
<tr>
<td>(b) Torsion Tester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c) Resistivity Tester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(d) Hot Plate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(e) Laboratory Balance</td>
<td>1 set</td>
<td>1,80,000</td>
</tr>
<tr>
<td>(f) Glass Apparatus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(g) Micrometer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(h) Vernier Calliper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(i) Gauges</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. **Effluent treatment plant** consist of 1 set 7,80,000 Neutralising tank, filtering tank, filter Water cooling etc.

12. **Air Compressor**, 20 HP with accessories etc. 1 80,000

13. **Air Cooled welding m/c., 250 amp.** complete with accessories etc. 1 26,000

14. **Over head crane**, 2 M.T Capacity along with movement fabrication and other accessories etc. 1 3,00,000

15. **Lathe m/c. 4 feet bed length** along with electric motor and other accessories etc. 1 40,000

16. **Drilling m/c. ½” capacity** along with electric motor and other accessories etc. 1 9,000

17. **Pedestal grinder** 1 12,000

18. **Guide Rollers** L.S. 70,000

19. **Electrification and Installation @ 10%** 4,72,700

20. **Office equipment** 1,00,000

21. **Pre-operative Expenses** 1,00,000

<table>
<thead>
<tr>
<th>Total:</th>
<th>Rs. 53,99,700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Say Rs.</td>
<td>54,00,000</td>
</tr>
</tbody>
</table>

**Fixed Capital**

(i) **Land & Building** Rs. 32,00,000

(ii) **Plant & Machinery** Rs. 54,00,000

<table>
<thead>
<tr>
<th>Total:</th>
<th>Rs. 86,00,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.7.</td>
</tr>
</tbody>
</table>
## Working Capital

### Personnel (P.M.)

<table>
<thead>
<tr>
<th>Position</th>
<th>No.</th>
<th>Salary</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manager/Metallurgist</td>
<td>1</td>
<td>15000</td>
<td>15000</td>
</tr>
<tr>
<td>Supervisor</td>
<td>6</td>
<td>8000</td>
<td>48000</td>
</tr>
<tr>
<td>Quality Control Inspector</td>
<td>3</td>
<td>8000</td>
<td>24000</td>
</tr>
<tr>
<td>Lab. Technician</td>
<td>3</td>
<td>7000</td>
<td>21000</td>
</tr>
<tr>
<td>Skilled Workers</td>
<td>24</td>
<td>6000</td>
<td>144000</td>
</tr>
<tr>
<td>Unskilled Workers</td>
<td>30</td>
<td>4000</td>
<td>120000</td>
</tr>
<tr>
<td>Accountant</td>
<td>1</td>
<td>7000</td>
<td>7000</td>
</tr>
<tr>
<td>Clerk/Store Keeper</td>
<td>3</td>
<td>5000</td>
<td>15000</td>
</tr>
<tr>
<td>Watchman</td>
<td>3</td>
<td>4000</td>
<td>12000</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>4,06,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

(+ Perquisites @ 15%)

| Total                             |     | **4,66,900** |

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### Raw material (P. M)

- **M.S. Wire rod of 6 mm to 8 mm Ø**
  - 522.17 M.T. @ Rs. 26000
  - Rs. 1,35,75,900

- **Lead M.T. 2.55 @ Rs. 59000/- per M.T.**
  - Rs. 1,50,450

- **Zinc M.T. 25.5 @ Rs. 45000/- per M.T.**
  - Rs. 11,47,500

- **Misc. Material like charcoal, oil, Asbestos, Pickling material etc. @ Rs. 700/- per M.T.**
  - Rs. 3,65,505

- **Furnace oil K.L. 51 @ Rs. 17000**
  - Rs. 8,67,000

**Total:** Rs. 1,61,06,305

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### Utility (P.M)

- **Electricity 32000 kwh @ Rs. 5.50/kwh**
  - Rs. 1,76,000

- **Water L.S.**
  - Rs. 15,000

**Total:** Rs. 1,91,000

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### Other Contingent Expenses (P.M)

- **Repair & Maintenance**
  - Rs. 30,000

- **Postage and stationery**
  - Rs. 4,000

- **Consumable Stores**
  - Rs. 12,000

- **Telephone**
  - Rs. 5,000

- **Transportation**
  - Rs. 1,20,000

- **Sales Expenses**
  - Rs. 30,000

- **Insurance**
  - Rs. 2,000

- **Miscellaneous Expenses**
  - Rs. 10,000

**Total:** Rs. 2,13,000

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Total Working Capital Requirement (P.M)  Rs. 1,69,77,255
Say Rs. 1,69,77,000

Working Capital Requirement on Three Months Basis
Rs. 5,09,31,000

Total Capital Investment

<table>
<thead>
<tr>
<th></th>
<th>Rs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Capital</td>
<td>86,00,000</td>
</tr>
<tr>
<td>Working Capital</td>
<td>5,09,31,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5,95,31,000</td>
</tr>
</tbody>
</table>

G. **MACHINERY UTILISATION**:

The suggested Machinery are capable to produce 6140 M.T. finished galvanised wire of 4 mm Ø on Three shift / day and 25 days per month working, provided due attendance is given on Galvanising operation.

H. **FINANCIAL ANALYSIS**:

Cost of Production per year (P.A)

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total recurring cost</td>
<td>Rs. 20,37,24,000</td>
</tr>
<tr>
<td>Depreciation on Furnace @ 25%</td>
<td>Rs. 2,83,750</td>
</tr>
<tr>
<td>Depreciation on Testing equipment @ 20%</td>
<td>Rs. 76,000</td>
</tr>
<tr>
<td>Depreciation on Guiding rollers @ 25%</td>
<td>Rs. 17,500</td>
</tr>
<tr>
<td>Depreciation on other machinery @ 10%</td>
<td>Rs. 3,14,200</td>
</tr>
<tr>
<td>Depreciation on Office equipment @ 20%</td>
<td>Rs. 20,000</td>
</tr>
<tr>
<td>Interest on total Capital investment @ 15%</td>
<td>Rs. 89,29,650</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>Rs. 21,33,65,100</td>
</tr>
<tr>
<td><strong>Or Say</strong></td>
<td>Rs. 21,33,65,000</td>
</tr>
</tbody>
</table>

Turn over (P.A.):

1. By sale of M.S. Galvanised Steel Wire of different gauges – 6140 M.T. @ Rs. 37500/M.T.  Rs. 23,02,50,000
2. Sale of zinc dross 16 M.T. @ Rs. 60 per Kg.  Rs. 9,60,000
3. Sale of Lead Ash 0.64 MT @ Rs. 12/kg  Rs. 7,680
   **Total**:  Rs. 23,12,17,680
Net Profit (P.A.)

Turn over - Cost of production = Rs. 1,78,52,580

Say Rs. 1,78,53,000

Net Profit Ratio = Net Profit x 100 = 7.72%
                  Turn Over

Rate of Return = Net Profit x 100 = 29.98%
                 Capital Investment

Break-even Point

(i) Fixed Cost

   (a) Total Depreciation          Rs. 7,11,450
   (b) Interest on Capital Investment Rs. 89,29,650
   (c) Insurance                   Rs. 24,000
   (d) 40% of Salary and Wages     Rs. 22,41,120
   (e) 40% of other contingent expenses (excluding Insurance)

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Total:            Rs. 1,29,19,020

B.E.P. % = F C x 100 = 41.98%
        F C + Profit

NAME & ADDRESS OF MACHINERY SUPPLIERS

1. M/s. Associated Machinery Corpn. Ltd.
   F-64, Site No. 1, Bulandshahar Road
   Industrial Area, Ghaziabad (U.P) – 201001

   Plot No. 56, Vishwakarma Industrial Complex
   Mujesar, Faridabad

3. M/s. ACE Thermal Technologies Pvt. Ltd.
   Pokar Mansion, 3rd Floor, Chembur, Gandhi Road
   Chembur, Mumbai – 400 007

4. Indian Engineers Pvt. Ltd.
   C-22 & 23 Industrial Plot, Magappair West
   CHENNAI – 600 058

5. M/s. Nobel Refractories
   8-A National Highway, P.O. Box No. 202,
   Hasanpura, Wankaner – 363 622

..10.
   MIDC Area, Gokulshirgaom, Kolhapur – 416 234

   C-45/2 MIDC Area, Miraj – 416 410

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