PROJECT PROFILE ON AUTO LEAF SPRINGS

PRODUCT CODE	**:**	**374728003**
QUALITY AND STANDARDS	**:**	**IS:1135/73**
PRODUCTION CAPACITY	**:**	**300 MT per year**
MONTH AND YEAR OF PREPARATION	**:**	**March, 2011**
PREPARED BY	**:**	**MSME-Development Institute, (*METALLURGY DIVISION)* C.G.O. Complex, Block "C", Seminary Hills, Nagpur – 6.**

1. INTRODUCTION:

Auto Leaf springs is one of the vital automobile components since full load of the chassis along with its contents rests on spring assembly. There are various sizes of springs depending on the type and nature of vehicles.

2. MARKET POTENTIAL:

Leaf springs are extensively used in all diesel and petrol driven vehicles. Use of leaf springs is increasing in replacement of broken spring on the vehicle for transportation.

3. BASIS AND PRESUMPTIONS:

Working hours per shift	8 Hours.
No.of shift per day	1 shift
Working days	300 days
Total number of working hours	2400
Working efficiency	75%
Time period for achieving Maximum capacity Utilization.	3rd year from the date on which production is started
Labour charges	As per minimum Wages Act of State Govt.
Rate of bank interest	12.5%
Operative period of the project	10 years.

4. IMPLEMENTATION SCHEDULE:

Project implementation will take a period of 8 months from the date of approval of the project. Break-up of activities with time-period for each activity is shown below.

Sl.No.	Nature of activities (Estimated)	Time period in months
1.	Scheme preparation and approval	0-1
2.	SSI provisional registration	1-2
3.	Sanction of loan	2-5
4.	Clearance from Pollution control Board	3-4
5.	Placement of order for delivery of machinery	4-5
6.	Installation of machines	6-7

7.	Power connection	6-7
8.	Trial run	7-8
9.	Commencement of production	9 months

5. TECHNICAL ASPECTS:

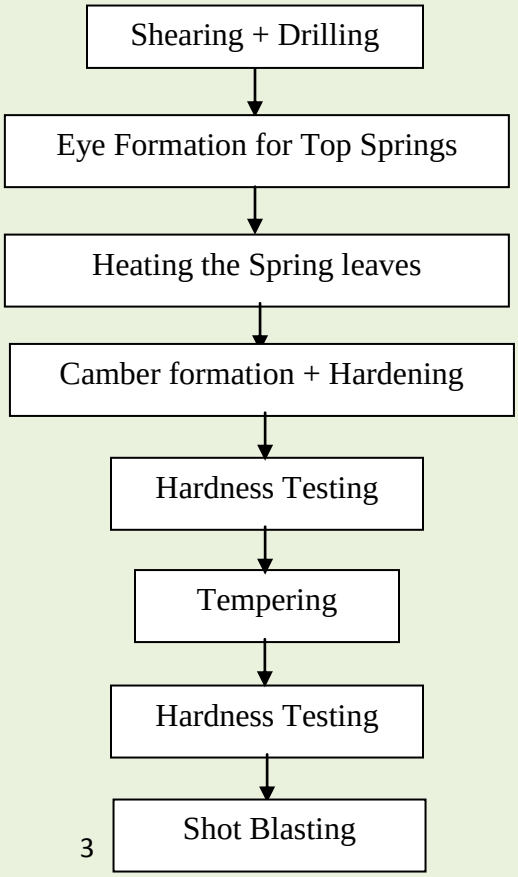
A. Production details and Process of Manufacture:

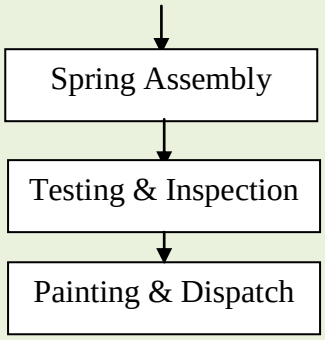
Shearing and drilling operations are done on spring steel-flats. Flats for top springs are sheared in four corners; both the ends are heated and rolled into formation of eye. Steel flats are heated, given the required camber (in hot condition) for specific shape depending on the position of the flat in the spring and quenched in oil. After hardening, these are again heated for tempering. Shot blasting operation carried out on the hardened & tempered spring flats. Subsequently various tests like Hardness testing, Camber tests are carried out.

B. Quality Specification:

Leaf springs should be manufactured adhering to IS: 1135/95 specification. Quality of raw materials should conform to the composition as prescribed in IS: 3431/65.

6. Process Flow Chart:





7. Production Capacity:

Quantity : 300 tones per annum.

Value : 2,25,00,000/-

8. Motive power: 20 HP.

9. Pollution Control Measures:

While heating, coal should be used in a small open hearth type furnace and provision for smoke emitting equipment be made with chimney to pass through flue gases.

10. Energy Conservation:

Energy audit is an essential part for energy conservation. The following factors should be taken care of with regard to fuel economy in industrial furnace.

a. Proper heat distribution.
b. Complete combustion with minimum excess air.
c. Operating at the desired temperature.
d. Reducing heat losses from openings.
e. Minimising wall losses
f. Waste heat recovery from fuel gases.
g. Control of chimney draught.

In addition, machines should be individually motorized.

11. Financial Aspects :

A. Fixed capital:

(i) Land and building : Rs. 10,000(P.M.)
1000 sq.mtrs. (Rented)

(ii) Machinery & Equipments:

S.No.	Description of Machines	Quantity	Price (Rs)
(a)	**Production Unit**		
1.	Oil fired furnace size 2' x 3' x 7' with burner, blowers, filter and pipe line.	2 No.	5,50,000
2.	Double walled M.S. Tank 4' x 6' x 4' with stirrer and motorized pump.	2 No.	1,50,000
3.	Power Hacksaw machine 14" cap. With 1 HP with motor.	1 No.	35,000
4.	Doubled geared power press cap. 80 tonnes with 5 HP motor.	1 No.	2,00,000
5.	Pillar type drill cap. 1 ½" with 1 HP motor, blower etc.	1 No.	15,000
6.	Smithy hearth complete with 1 HP motor, blower etc.	1 No.	50,000
7.	Eye rolling machine, hand operated	1 No.	25,000
8.	Screw press-6" x 2" x ½" with die and punch	1 No.	50,000
9.	Eye grinding machine 1" x 15" dia with 2 HP motor	1 No.	75,000
10.	Platform type weighing machine 150 Kg. Cap,	1 No.	7,000
(b)	**Testing Equipments**		
11.	Hardness testing machine, 150 Kg. Cap.	1 No.	45,000
12.	Diesel set generator 20 KVA cap	1 No.	1,25,000
		Total	**12,77,000**
13.	Electrification & installation @ 10% of above		

	cost.		1,27,700/-
14.	Office equipments like furniture, fan**,** typewriter etc.	L.S.	40,000
15.	**Pre-operative expenses**	L.S.	75,000
		Total	**15,19,700**

12. Working capital (Per month):

A: Staff & Labour:

Sr.No.	Designation	No.	Salary (Rs)	Total (Rs)
1.	Manager	1	8,000	8,000
2.	Salesman	1	5,000	5,000
3.	Supervisor	1	6,000	6,000
4.	Lab. Asstt.	1	4,500	4,500
5.	Typist / Clerk	1	4,000	4,000
6.	Skilled Worker	3	3,000	9,000
7.	Semi-skilled Worker	4	2,500	10,000
8.	Unskilled Worker	5	2250	11,250
9.	Peon	1	2,000	2,000
10.	Watchman	1	2,000	2,000
			Total	**61,750**
11.	Add Perquisite @ 15% of salary			9,262
			Grand Total	**71,112**

A. Raw material (per month):

Sr.No.	Particulars	Qty.	Rate (Rs.)	Value (Rs.)
1.	Spring steel flats	26 Tones	48,000 per MT	12,48,000
2.	Paint/ other conumables	40 ltrs.	75 per ltr.	3000
			Total	**12,51,000**

B. Utilities (per month):

1. Power 1800 unit @ Rs 3.75 per unit	6,750
2. Coke (Smithy) –2 tonnes @Rs. 2000 per tonne	4,000
3. Fuel (Diesel Oil)- 7 Kl. @ Rs 44,000 per Kl.	3,08,000
4. Mobil oil- 40 ltr. @ Rs. 60 per ltr.	2,400
Total:	**3, 21,150**

C. **Other contingent expenses (Per month):**

1. Rent	10,000
2. Postage and telephone	5,000
3. Packing	5,000
4. Insurance	6,000
5. Repairing and maintenance	5,000
6. Consumable stores	5,000
7. Misc. expenses	5,000
8. Transport allowance	5,000
Total:	**46,000**

13. Total Working Capital (Per month): **16,89,262**
(A+B+C+D)

14. Total Capital investment

(i) Fixed capital	15,19,700
(ii) Working capital	50,67,786
Total:	**65,87,486**

15. FINANCIAL ANALYSIS :

a. Cost of production (Per year):

(i) Total recurring cost	2,02,71, 144
(ii) Dep. On machinery & Equipment @ 10%	77,700
(iii) Dep. On furnace @ 20%	1,00,000
(iv) Dep. On office equipment @ 20%	8,000
(v) Int. on total investment @ 14%	9,22,250

Total: 2,13,80,094

Or Say Rs. 2,13,80,000/-

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b. Turnover (per year):

S.No.	Item	Qty	Rate	Value (RS)
1.	Leaf springs of various sizes	310 tonnes	75,000 per tonne	2,32,50,000

c. Net profit per year

Turnover per year – Cost of production per year.

= 2,32,50,000 – 2,13,80,000/-

= 18,70,000

d. Net Profit Ratio

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

$$= \frac{18,70,000}{2,32,50,000/-} \times 100$$

= 8 %

e. Rate of return :

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

Total investment

$$= \frac{18,70,000}{65,87,486} \times 100$$

= 2**8.4 %**

f. <u>Break-even Point :</u>

Fixed cost (FC):

i) Rent	1,20,000
ii) Depreciation on machine and equipment@ 10%	77,700
iii) Dep. On furnace @20%	1,00,000
iv) Dep. On office equipments @20%	8,000
v) Interest on total investment	9,22,250
vi) Insurance	72,000
vii)40% of salary and wages	3,41,337
viii) 40% of other contingent expenses excluding rent and insurance.	1,44,000
Total :	**1785287**

<u>BREAK-EVEN POINT (BEP)</u>:

$$= \frac{\text{Fixed cost}}{\text{Fixed cost + Profit}} \times 100$$

$$= \frac{1785287}{1785287 + 1870000} \times 100$$

$$= \frac{1785287}{36,55,287} \times 100$$

= **48.8% %**

NAMES & ADDRESSES OF MACHINERY AND EQUIPMENT SUPPLIERS :

1) M/s. Hannu Metallurgical,
   B-22, Indsutrial Estate, Mahakali Caves Road,
   Andheri (East), Mumbai – 93.
2) M/s. Mahavir Engineering Corpn.,
   1, Ambica Estate, B/h. Agarwal I.E.,
   off S.V. Road, Jogeshwari West,
   Mumbai – 102.
3) M/s. Divecha Electrticals,
   Balaji Indl. Complex,
   Gala No. ½, Navaghar , Bhayandar (E),
   Distt. Thane.
4) M/s. Nisha Engrs. & Consultants
   Nisha Enclave, Plot No. 95,
   Sector 23, Cidco Indl. Area,
   Turbhe, Distt. Thane.
5) M/s. Combustion Equipments & Instruments,
   Jer Mahal, Dhobi Talaw, 1st Floor,
   Mumbai –2.
6) M/s. AIMIL Ltd.,
   Malhotra House, Opp. G.P.O.,
   Walchand Hirachand Marg,
   Mumbai – 1.
7) M/s. Electroil Super Thermal Engineers,
   151, Small Factory Area, Lakadganj,
   Nagpur – 8.

NAMES & ADDRESSES OF RAW MATERIAL SUPPLIERS :

SAIL, TISCO or Local Metal Traders or Dealers for Alloy Steel.