

# Automotive Chain (Motorcycle Chain)

PRODUCT CODE	: 343401002
QUALITY AND STANDARDS	: IS 11740:1986
PRODUCTION CAPACITY	: Qty. : 3.42 lakhs (per annum) Value : Rs. 239.4 lakhs
MONTH AND YEAR OF PREPARATION	: February, 2003
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## INTRODUCTION

Chain is an important link to transfer power from engine of a motorcycle to the rear driving wheel through sprockets. Automotive chains are of different sizes based upon the power to be transmitted. The size employed upon the most popular motorcycle in the Indian market is of 12.7 mm × 8 mm dia × 7.85 mm width rollers. The lengths of the chain for such models of motorcycles are either of 120 links or 118 links. This scheme is based on 120 links.

## MARKET POTENTIAL

Motorcycle has become a common mode of conveyance as a result of modern life style. As the population is rapidly increasing day by day, the

demand of motorcycles is also increasing. As such, there is a demand for motorcycle chains to meet the replacement market as well as for supply to the O.E.M. units.

Therefore, there is a great potential for this item and considerable scope to set up new units in this line.

## BASIS AND PRESUMPTIONS

1. The Project Profile has been prepared on the basis of single shift of 8 hours each day, 25 days in a month and at 75% efficiency.
2. It is presumed that in the first year, the capacity utilisation will be 60% followed by 70% in the next year and 80% in the subsequent years.
3. The rates of salaries and wages for skilled workers and others are

- the minimum rates in the State/ Neighbouring States.
4. Interest rate for fixed and working capital has been taken on an average rate of 16% whether financed by bankers or by Financial Corporations.
  5. Margin money required is minimum 30% of the project investment.
  6. The rental value of the workshed and other built up/covered area has been taken at the rate of Rs. 25.00 per square meter.
  7. The rates quoted in respect of machines, equipment and raw materials are those, prevailing at the time of preparation of this Project Profile and are likely to vary from supplier to supplier and place to place. When a tailor made project profile is prepared necessary changes are to be made.
    - ii) Rollers are drawn into cups on compound die sets from CR steel strips and then pierced on an automatic S.P.M.
    - iii) Bushes are manufactured by curling process on a S.P.M. from cold rolled strip with rounded edges.
    - iv) Pins are cut on an automatic Header Machine to required length.
    - v) Barrelling
    - vi) Heat Treatment
    - vii) Barrelling
    - viii) Colouring
    - ix) Block Assembly on automatic machine.
    - x) Chain assembly on automatic machines.
    - xi) Rivetting
    - xii) Greasing
    - xiii) Packing.

## IMPLEMENTATION SCHEDULE

Sl.No.	Activity	Period
i.	Preparation of Project Report:	
	a) Calling quotations	1 Month
	b) Preparation	2 Weeks
ii.	Provisional Registration as SSI	1 Week
iii.	Financial Arrangement	3 Months
iv.	Purchase and procurement of machines and equipments	2 Months
v.	Installation of Machines	1 Month
vi.	Electrification	1 Month
vii.	Recruitment of Staff and Workers	1 Month

## TECHNICAL ASPECTS

### Process of Manufacture

- i) Outer and inner link blank are cut from cold rolled steel strips on S.P.M. with progressive die sets.

### Quality Control and Standards

BIS has prepared a standard specification No. IS 11740 :1986 on chains for motorcycle and the quality should conform to the same.

### Production Capacity (per annum)

Item	Qty.	Amount (In Rs.)
Automotive Chain (Motorcycle Chain)	342000 Nos.	2,39,40,000
	(Excluding 5% provision made for stage rejections)	

Motive Power 160 KW.

### Pollution Control

The building/workshed, specially heat treatment section is to be provided with exhaust fans. Provision has also been made for neutralising of the cyanide

salts. Necessary permission from Pollution Control Department/ Board is required.

### Energy Conservation

- i) Machine Shop should be well ventilated and should have transparent roof sheets to get sufficient light during day time.
- ii) The periodic maintenance of Machines should be carried out.
- iii) Shunt capacitors should be used to improve the power factor.

## FINANCIAL ASPECTS

### A. Fixed Capital

#### (i) Land and Building (Rented)

Built up area/covered area:

a) Store and Office	50 Sq. Mtrs.
b) Working Shed	300 Sq. Mtrs.
c) Heat Treatment Section	75 Sq. Mtrs.
d) Packing Section	25 Sq. Mtrs.
<b>Total</b>	<b>450 Sq. Mtrs.</b>
<b>Total</b>	<b>Rs. 11,250 (per month)</b>

#### (ii) Machinery and Equipments

Sl. No.	Description	No.	H.P.	Amount (In Rs.)
<i>Production unit</i>				
1.	Single action power press cap. 75 tonnes complete with automatic feeding system and electricals etc.	2	15	4,00,000
2.	Single action power press cap. 10 ton complete with electricals	1	2	40,000
3.	Single action power press cap. 50 tonnes complete with automatic feeding system and electricals etc.	1	5	1,50,000

Sl. No.	Description	No.	H.P.	Amount (In Rs.)
4.	Special purpose roller cups Punching Machine complete with automatic feeding systems and electricals etc.	2	2	1,30,000
5.	Special purpose curling and cutting machine complete with automatic feeding system and electrical etc.	2	4	2,60,000
6.	Special purpose bush making and sizing machine complete with automatic feeding system and electricals	2	3	2,00,000
7.	Automatic header machine for cutting of rivetting pins complete with electricals etc.	1	2	50,000
8.	Automatic special purpose lock pin turning machine complete with electricals etc.	1	1	50,000
9.	Tumbling barrels complete with gear box motor and electricals etc.	4	8	1,30,000
10.	30 KW electric rotary retort type gas carburising furnace 30 Kg. Cap, complete with electricals etc.	2	100	7,50,000
11.	15 KW salt bath furnace electrically operated charge cap. 30 Kg.	2	40	2,50,000
12.	Automatic chain block assembly machine complete with electricals and feeding system.	2	4	4,00,000
13.	Automatic chain assembly machine complete with electricals etc.	2	4	3,80,000
14.	Pneumatic chain stretching machine complete with 1 HP Compressor and electricals	1	2	9,00,00
			<b>Total</b>	<b>32,80,000</b>

Sl. No.	Description	No.	H.P.	Amount (In Rs.)
<i>Testing Section</i>				
15.	Hardness Testing machine with spare set of diamonds and steel balls and standard test samples	1	—	1,00,000
16.	Chain fatigue testing machine	1	2	75,000
	<b>Total</b>			<b>1,75,000</b>
<i>Tool Room And Machine Section</i>				
17.	1500 mm Bed sliding surfacing and screw cutting centre lathe machine complete with electric motor, starter etc.	1	2	1,00,000
18.	500mm × 200mm traverse Horizontal spindle surface grinding machine complete with electricals etc.	1	1.5	60,000
19.	12mm cap. Precision drilling machine complete with electricals etc.	1	0.5	20,000
20.	Double ended bench grinder 200 mm wheel dia. with motor.	1	0.5	7,500
21.	24" stroke shaping machine complete with electric motor and other electricals etc.	1	3	80,000
22.	Universal milling machine size No. 2 alongwith vertical attachment and dividing head complete with electricals	1	5	2,00,000
23.	Pollution Control Equipment	3		2,50,000
24.	Marking and measuring instruments	—		75,000
25.	Special purpose toolings and other petty equipments	—		3,50,000
	<b>Total</b>			<b>11,42,500</b>

Sl. No.	Description	No.	H.P.	Amount (In Rs.)
<i>Electrification and Installation</i>				
	Charges including cost of power connection and security deposit @ 10% of cost of machinery and equipment			4,59,750
	<b>Total Cost of Machinery and Equipments</b>			<b>50,57,250</b>
(iii)	Cost of Office Equipment, Furniture etc.			1,00,000
(iv)	Pre-operative Expenses			1,00,000
	<b>Total Fixed Capital (i + ii + iii+iv)</b>			<b>52,57,250</b>
	<b>Say</b>			<b>52,58,000</b>

## B. Working Capital (per month)

### (i) Personnel

Sl. No.	Designation	No.	Salary (In Rs.)	Amount (In Rs.)
<i>Administrative</i>				
1.	Manager	1	7000	7000
2.	Engineer	1	8000	8000
3.	Accountant	1	2500	2500
4.	Clerk/Typist/ Store Keeper	3	2000	6000
<i>Technical</i>				
5.	Foreman	2	4000	8000
6.	Heat Treater	1	3000	3000
7.	Skilled Worker	14	2000	28000
8.	Semi-skilled Worker	6	1750	10500
9.	Peon/Chowkidar	3	1500	4500
10.	Sweeper	1	1100	1100
	<b>Total</b>			<b>78,600</b>
	<i>Add Per-quisites @ 15% of salary</i>			11,790
	<b>Total</b>			<b>90,390</b>
	<b>Say</b>			<b>90,400</b>

### (ii) Raw Materials Including Packaging Requirements

Sl. No.	Particulars	Qty. MT	Rate/ MT	Amount (In Rs.)
1.	Medium carbon steel sheet 19 SWG	27	21000	567000
2.	CRCA, DD Grade steel strips 19 SWG	8.20	20000	164000

Sl. No.	Particulars	Qty. MT	Rate/ MT	Amount (In Rs.)
3.	CR. Steel strip 11 mm × 1 mm thick with Rounded edges (rolled from wire)	5.5	30000	165000
4.	Low Carbon 4.5mm dia steel wire	8.5	30000	255000
5.	Liquid carburising materials	4000 liters	10 per ltr.	40000
6.	Ammonia Gas	25 Cylinders	2500 Cyld.	62500
7.	Packaging cartons etc.	30000 Nos.	0.70 each	21000
8.	Misc. O/B items		LS	96000
	<b>Total</b>			<b>13,70,500</b>

(iii) Utilities		(In Rs.)
1.	Power 19200 units @ Rs. 3.50/unit	67200
2.	Water	800
	<b>Total</b>	<b>68000</b>

(iv) Other Contingent Expenses		(In Rs.)
1.	Rent	11,250
2.	Postage and Stationery	1,000
3.	Consumable Stores	10,000
4.	Telephone Charges	1,500
5.	Repair and Maintenance	7,000
6.	Transport Charges	5,000
7.	Advertisement and publicity	5,000
8.	Insurance	2,000
9.	Taxes	1,500
10.	Sales Expenses	10,000
11.	Miscellaneous Expenses	3,000
	<b>Total</b>	<b>57,250</b>
	<b>Say</b>	<b>57300</b>

(v) Total Recurring Expenses (per month)		(Rs.)
1.	Raw Material	13,70,500
2.	Personnel	90,400
3.	Utilities	68,000
4.	Other Contingent Expenses	57,300
	<b>Total</b>	<b>15,86,200</b>
	<b>Say</b>	<b>15,86,000</b>

Working Capital (for 3 months)  $15,86,000 \times 3$   
= Rs. 47,58,000

### C. Total Capital Investment

(i) Fixed Capital	Rs. 52,58,000
(ii) Working capital for 3 months	Rs. 47,58,000
<b>Total</b>	<b>Rs. 100,16,000</b>

## FINANCIAL ANALYSIS

### (1) Cost of Production (per year) Amt. (In Rs.)

(i) Total recurring cost	1,90,32,000
(ii) Depreciation on machinery and equipments @ 10%	5,08,300
(iii) Depreciation on Dies / Tools/ measuring instruments etc. @ 20%	15,000
(iv) Depreciation on office equipment @20%	20,000
(v) Interest on total investment @ 16%	16,00,000
<b>Total</b>	<b>2,11,75,300</b>
<b>Say</b>	<b>2,11,75,000</b>

### (2) Turnover (per year)

Item	Qty.	Rate (Rs.)	Value (Rs.)
Motorcycle Chain	342000 Nos.	70/ chain	2,39,40,000

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

$$\begin{aligned} \text{Profit} &= \text{Sales} - \text{Production Cost} \\ &= \text{Rs. } 2,39,40,000 - 2,11,75,000 \\ &= \text{Rs. } 27,65,000 \end{aligned}$$

### (4) Net Profit Ratio

$$\begin{aligned} &= \frac{\text{Net Profit} \times 100}{\text{Turn over per year}} \\ &= \frac{27,65,000 \times 100}{2,39,40,000} \\ &= 11.5\% \end{aligned}$$

### (5) Rate of Return

$$\begin{aligned} &= \frac{\text{Net Profit} \times 100}{\text{Total Investment}} \\ &= \frac{27,65,000 \times 100}{100,16,000} \\ &= 27.6\% \end{aligned}$$

(6) Break-even Point (% of total Production envisaged)

(i) Fixed Cost (per year)	(Rs.)
(a) Total Depreciation	5,43,300
(b) Rent	1,35,000
(c) Total interest	16,00,000
(d) Insurance	24,000
(e) 40% of salary and wages	4,33,920
(f) 40% of other contingent expenses (Excluding rent and Insurance)	2,11,440
Total	29,47,660

(ii) Net Profit (per year) Rs. 27,65,000

$$\begin{aligned} \text{B.E.P.} &= \frac{\text{Fixed Cost} \times 100}{\text{Fixed cost} + \text{Profit}} \\ &= 51.5\% \end{aligned}$$

#### Addresses of Machinery and Equipment Suppliers

1. M/s. Milton Machine Tools  
P.B. No. 30,  
Sonepat (Haryana)
2. M/s. Godly Machine Tools (P) Ltd.  
C-190, Phase-VI,  
Focal Point,  
Ludhiana.
3. M/s. Research and Development  
Centre for Bicycle and Sewing  
Machines, Focal Point,  
Ludhiana.
4. M/s. Vishkarma Electric Furnaces  
St. No. 2, Partap Nagar,  
Ludhiana-141003
5. M/s. Kalsi Machine Tools  
Gill Road,  
Ludhiana-141003

6. M/s. Simplicity Furnaces Ltd.  
55-B, Phase-II, Mayapuri,  
New Delhi.
7. M/s. Sant Machine Tools  
G.T. Road, Near Dholewal Chowk,  
Ludhiana.
8. M/s. Raj Enterprises  
628, Industrial Area-B,  
Ludhiana.
9. M/s. Basant Mechanical Works  
(Regd.)  
720-722, Basant Road,  
Industrial Area-B,  
Ludhiana.
10. M/s. Deep Industries  
Oswal Street No. 1,  
Industrial Area-B,  
Ludhiana.

#### Addresses of Raw Material Suppliers

1. M/s. Rolled Strips and Profiles Ltd.  
Karur (Kerla).
2. M/s. Avon Cycles Ltd.  
Ludhiana.
3. M/s. Special Steels Ltd.  
Mumbai and  
Bhagwan Chowk, Ludhiana.
4. M/s. Steel Strips Ltd.  
Industrial Area-B,  
Ludhiana-141003.
5. State Small Industries and Export  
Corporations.
6. M/s. Steel Authority of India Ltd.
7. Open Market.