

Engine Mounting—Rubber Bonded

PRODUCT CODE	: 41493
QUALITY AND STANDARDS	: ASRTU – AS-236/1 R –1994
PRODUCTION CAPACITY	: 54,000 pcs. of Engine Mounting of assorted sizes (per annum) worth Rs. 27,54,000.
MONTH AND YEAR OF PREPARATION	: January, 2003
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INTRODUCTION

Engine Mountings play an important role in the efficient functioning of automobile systems and vehicles. These mountings are not only used in original equipment but also required for subsequent replacements as well. It is a heartening fact that the automobile sector is expanding very rapidly not only in the existing capacities but also in the creation of new capacities.

MARKET POTENTIAL

The demand for various types of mountings for automobiles has been increasing steadily. These products are directly linked with the industrialization of the country. The demand-rise in the various types of vehicles is fast increasing with the living standards of the people. The engine mounting essentially consists of two parts. One is metallic and another is rubber part. Subsequently, they are jointed together to form the end product.

BASIS AND PRESUMPTIONS

- i) The estimates are drawn for a production capacity generally considered economically viable for a model type of manufacturing activity.

Information supplied is based on the standard type of manufacturing activities utilizing conventional techniques of production.

The cost in respect of land and building, machinery and equipment, raw-materials and selling price of the finished products etc. are those generally obtaining at the time of preparation of the project report.

Whereas some names of manufacturers/suppliers of machinery and equipment, raw-materials are indicated at the end of the profile, these are by no means exclusive or exhaustive.

IMPLEMENTATION SCHEDULE

In the project, land and building have been taken as rented, and as such there

is no problem of acquisition of land and other formalities. The entire plant and machinery and other equipment have to be purchased and installed. It may take about 3 to 6 months on an average for a unit to go into regular production.

TECHNICAL ASPECTS

Process of Manufacture

The engine mounting consists of two parts namely metallic and rubber. First of all, metallic part is made from the suitable iron plates, according to size and thickness desired as per standard specifications of the end product. For making the rubber compound, first of all various chemicals are checked for their respective percentage purity. Subsequently, they are mixed with rubber on a standard Mixing Mill as per standard weights and formulations adopted. Some chemicals are added to soften the rubber or sometimes rubber is warmed to lighten the load on the Mixing Mills before mastication process.

Mixing mills generally consist of two steel rollers or chilled cast iron rolls which rotate towards each other at different speeds so that any material passing between the rollers is subject to tearing action.

After the pre-mixing, usually the raw compound sheets are stored for one day. For final mixing, raw-compounded sheet is again mixed for 10 to 15 minutes. Subsequently, these sheets are pasted on metallic part with rubber solutions as per size and weight required. These are then placed in suitable mould in a press and cured. Finally, these mountings are inspected for any defects, tested for physical parameters and then packed.

FINANCIAL ASPECTS

A. Fixed Capital

(i) Land and Building			
Land area	400 sq.metre		
Covered area	200 sq.metre	Rented	8000 per month
(ii) Machinery and Equipments (Rs.)			
1.	Rubber Mixing Mill 12 inches × 30 inches complete with reduction gear, Safety devices, motor and other accessories.		2,00,000
2.	Baby Boiler complete with all accessories and pumps etc.		75,000
3.	Hydraulic Press 4 daylight with motors etc.		60,000
4.	Moulds		50,000
5.	Misc. tools and fittings etc.		20,000
6.	Testing Equipment		40,000
7.	Furniture and office materials etc.		10,000
8.	Installation charges		30,000
	Total Fixed Capital		4,85,000

B. Working Capital (per month)

(i) Personnel

Designation	No.	Value (Rs.)
1. Manager	1	5,000
2. Chemist-cum-Supervisor	1	4,000
3. Accountant-cum-Store Keeper	1	3,000
4. Skilled workers	3	7,500
5. Un-skilled Workers	3	4,500
6. Watchman	1	1,000
7. Peon	1	1,000
	Total	26,000
	<i>Prerequisites 15%</i>	3,900
	Total	29,900

(ii) Utilities (per month) (Rs.)	
1. Power	5,000
2. Fuel	3,000
3. Water	2,000
Total	10,000

(iii) Other Contingent Expenses (per month)(Rs.)

1. Rent	8,000
2. Postage and stationery	2,000
3. Telephone	2,000
4. Consumable Stores	2,000
5. Repairs and Maintenance	2,000
6. Advertisement and Publicity	3,000
7. Insurance	1,000
8. Transport and Conveyance	2,000
9. Sales Expenses	2,000
10. Misc. expenditure	1,000
Total	25,000

Engine Mountings 54,000 pcs. of assorted sizes (per annum)

(iv) Raw Materials (per annum)

Particulars	Qty. (Kg.)	Rate (Rs.)	Value (Rs.)
1. Natural Rubber	1980	50 per kg.	99,000
2. Synthetic Rubber	4620	70 per kg.	3,23,400
3. Carbon Black	2640	40 per kg.	1,05,600
4. Rubber Chemicals like Rosin, Stearic Acid, Calcium Carbonate etc.	2640	40 per kg.	1,05,600
5. Curing Agent like Sulphur, Vulcanising agent etc.	330	8 per kg.	2,640
6. Synthetic adhesive	396	100 per kg.	39,600
7. Paints, lacquers etc.			7,000
8. CRCA (Metallic Parts)	26500	28 per kg.	7,42,000
Total			14,24,840
Cost of Raw Material			1,18,736
or Say			1,18,740

(v) Total Recurring Expenditure (per month) (Rs.)

1. Salary and wages	29,900
2. Raw-material	1,18,740
3. Utilities	10,000
4. Other contingent expenses	25,000
Total	1,83,640

C. Total Capital Investment (Rs.)

(i) Fixed Capital	4,85,000
(ii) Working capital for 3 months	5,50,920
Total	10,35,920

Machinery Utilisation

The proposed project under reference is based on a single shift basis with 8 hours working per day. But working hours will be 6 hours per day on single shift basis i.e. on an average working at 75% utilization of machinery.

FINANCIAL ANALYSIS**1. Cost of Production (per year) (Rs.)**

Total recurring expenditure	22,03,680
Depreciation on machinery and equipment @ 10%	48,000
Depreciation on office equipment	2,000
Interest on total capital investment @ 14%	1,45,030
Total	23,98,710

2. Turn over (per year)

Engine Mountings of assorted sizes 54,000 pcs.
@ Rs. 51 per pc.

3. Net Profit (per year) 3,55,290**4. Net Profit Ratio**

$$= \frac{3,55,290 \times 100}{27,54,000}$$

$$= 13\%$$

5. Rate of Return

$$= \frac{3,55,290 \times 100}{10,35,920}$$

$$= 34\%$$

6. Break-even Point**(i) Fixed Cost (Rs.)**

a) Depreciation on machinery and furniture	48,000
b) Rent	96,000

Fixed Cost	(Rs.)
c) Interest on total capital investment @ 14% (per annum)	1,45,030
d) Insurance	12,000
e) 40% of salary and wages	1,44,000
f) 40% of other contingent expenses excluding rent and insurance.	76,800
Total	5,21,830

$$\begin{aligned} \text{B.E.P.} &= \frac{\text{F.C.} \times 100}{\text{F.C.} + \text{Profit}} \\ &= \frac{5,21,830 \times 100}{8,77,120} \\ &= 59\% \end{aligned}$$

Addresses of Machinery and Equipment Suppliers

1. M/s. Premier Industries
Station Road, Sirhind
(Punjab)
2. M/s. Anant Industries
Bassi Road, Sirhind
(Punjab)
3. M/s. Anant Engg. Corporation,
Bassi Road, Sirhind
(Punjab)
4. M/s. Sunrise Industries,
Railway Road, Sirhind
(Punjab)
5. M/s. Rubbermac Industries,
Outer Bye Pass, Sirhind
(Punjab)
6. M/s. Sohal Engg. Works
Off Haines Road,
Mumbai-400013.

Addresses of Raw Material Suppliers

Rubber

1. M/s. I.C.I. India Pvt. Ltd.
P. Box No. 310, Crescent House,

Ballard Estate,
Mumbai.

2. M/s. Bayer India Limited
Nagin Mahal,
Veer Nariman Road,
Mumbai.
3. M/s. Monsanto Chemicals of India Ltd.
318, Asaf Ali Road,
New Delhi.

Carbon Black

4. M/s. United Carbon India Limited
133, Mahatma Gandhi Road,
Mumbai-400001.
5. M/s. Phillips Carbon Black Limited
Udyog Bhavan,
Ballard Estate,
Mumbai-400001.

Process Oils

M/s. Indian Oil Co.
Unity Building,
J.C. Road,
Bangalore.

Zinc Oxide

M/s. Kamani Metallic Oxide Pvt. Ltd.
Nicols Road,
Kamani Chamber,
Mumbai-400001.

Mineral Fillers and Synthetic Rubber

M/s. Kila Chand Deva Chand Co. Pvt. Ltd.
Rubber Division,
7, Jamshedji Tata Road,
Mumbai-400020.

Stearic Acid

M/s. Godrej Soaps Pvt. Ltd.
3/6, Delisle Road,
Mumbai-400011.