

Casting For Auto Locks

PRODUCT CODE	: N.A.
QUALITY AND STANDARDS	: As per BIS.
MONTH AND YEAR OF PREPARATION	: March, 2003
PREPARED BY	: Small Industries Service Institute, 34, Industrial Estate, Nunhai, Agra. (U.P.)

INTRODUCTION

Zincs castings of various sizes and shape are used in Auto Locks Assembly. Usually die casting zinc alloy is used for this purpose due to:

1. High productivity
2. Good as Casting surface finish and appearance
3. Do not require much machining
4. Can be cast within close dimensional tolerance
5. Their section can be cast with ease.
6. Very Low metal wastage
7. Very Low rejection.

MARKET POTENTIAL

Open market and Automobile units are in need of the Auto Locks. Hence there is good scope for this product. It is better to do the production of Zinc diecasting for Auto Locks near the Auto Lock Manufacturing units' Cluster. There is very good scope in and around Aligarh

city which has cluster group of Auto locks manufacturing units.

BASIS AND PRESUMPTIONS

1. Number of shifts	- Single shift of 8 hrs.
2. Working days per Annum	- 300
3. Working efficiency	- 75%
4. Time period for achieving full capacity utilisation	- 3 years
5. Labour wages	- As per the minimum Wages Act of State Govt.
6. Margin money	- 25% on an average of project cost.
7. Interest rate on fixed and working capital.	- 15% on average.
8. Estimated life of the project-	20 Years
9. Land cost and construction cost	- It has been assumed that the project is established in rented shed.
10. Cost of Machinery and Equipments	- Prevailing cost of the Market
11. Seeing present practice, it has been assumed that the die and Raw material will be supplied by the Lock Assemblers.	

IMPLEMENTATION SCHEDULE

<i>Nature of Activities</i>	<i>Period in month (Estimated)</i>
1. Scheme Preparation and Approval	1 month
2. SSI Provisional registration	15 days
3. Sanction of loan required if any	3 months
4. Clearance from State Pollution Control Board	2 months
5. Placement of order for delivery of machinery	3 months
6. Installation of machinery	1 month
7. Power connection	3 months
8. Trial Run	5 months
9. Commencement of regular production	After 5 months

TECHNICAL ASPECTS

Process of Manufacture

Melting of zinc Ingots (450°C) - Clearing - Diecasting - ejection of casting - runner breaking - Primary inspection - Fitting - Final inspection - Buffing - despatch.

Quality Control and Standards

As per customer's specification. Die cast components should be free from blow holes, pin holes, shrinkage, coldshut etc. They should be free from dimensional inaccuracies. Zinc alloy should be as per specification of the customer. Generally Zinc alloy (IS MAC-3) having electrolytic Zinc with 4-6% Al is used for this purpose. Raw material is expected to be supplied by the lock assemblers.

Production Capacity (per annum)

Quantity :	1.50 Lakhs
Value :	Rs. 12 Lakhs

Motive Power

40 H.P.

Pollution Control

There is not much problem of pollution. However, powerful exhaust is required for exhaust of smokes from the shed.

No Objection Certificate has to be obtained from State Pollution Control Board.

Energy Conservation

- Maximum utilisation of machine has to be done to consume metal from the melting Furnace.
- The Furnace should be provided with thermocouple and automatic temperature control devices.
- Opening of the Furnace should be kept closed while not in use.
- Energy audit of the unit has to be done on a regular basis.
- Preheating of charge should be done by keeping few ingots on holding furnace.
- The Furnace should be properly insulated to reduce radiation.

FINANCIAL ASPECTS

A. Fixed Capital

(i) Land and Building	(Rs.)
Rented area 300 sq. mtrs. @ Rs. 3000 per month	9,00,000

(ii) Machinery and Equipments

Sl. No.	Description	Ind/ Imp	Qty.	Amount (In Rs.)
1.	Horizontal Hot chamber pressure die casting M/c capacity 400 gm/ shot with control panel and accessories	Ind.	1 No.	2,00,000

Sl. No.	Description	Ind./ Imp.	Qty.	Amount (In Rs.)
2.	Electrical Resistance furnace for melting zinc alloy	Ind.	1 No.	1,00,000
3.	Arc welding machine	Ind.	1 No.	15,000
4.	Fitting equipment and Buffing equipments	"	-	15,000
5.	Bench drilling machine (1 HP)	"	-	10,000
6.	Weighing Machine (Platform type) 200 kg cap.			10,000
7.	Air compressor (3 HP)			25,000
8.	Pedestal Grinder (2 HP)			10,000
9.	Flexible shaft grinder (2 HP)			10,000
10.	Bench grinder double ended (1/2 HP)			8,000
11.	Pneumatic grinder	Ind.	1 No.	4,000
12.	Material Handling equipments	"		5,000
13.	Testing Equipments	Ind		20,000
14.	Pollution Control Equipment (Exhaust)	Ind		10,000
15.	Energy conservation facilities		-	Already included in the accessories of Furnace.
16.	Cost of power connection including transformer			1,00,000
17.	Electrification and Installation charges			50,000
18.	Tools and other fixtures			20,000
19.	Office equipment/working tables			20,000
Total				6,32,000

(iii) Pre-operative Expenses Rs. 50,000

Total Fixed Capital = 2 + 3 (As shed is rented)
= **Rs. 6,82,000**

B. Working Capital (per month)

(i) Personnel

a) Administrative Supervisory (Rs.)			
1. Manager	1 No.	Rs. 4,000	4,000

2. Engineer cum-Supervisor	1 No.	Rs. 4,000	4,000
3. Accountant (Part-time)	1 No.	Rs. 1,000	1,000
4. Clerk cum Typist (Part-time)	1 No.	Rs. 1,000	1,000

(b) Technical Skilled and Unskilled (Rs.)

1. Skilled worker	1 No.	Rs. 3,000	3,000
2. Semi-skilled worker	1 No.	Rs. 2,500	2,500
3. Unskilled worker	2 Nos.	Rs. 2,000	4,000
4. Peon-cum-watchman	1 Nos.	Rs. 2,000	2,000
Total			21,500
<i>Perquisites @ 15%</i>			3,225
Total			24,725

(ii) Raw Material (per month) (Rs.)

1. Zinc Alloy ingots	Ind (Alloy ingots will be supplied by the customer) 5% Burning loss will also be allowed.)		
2. Various consumables	Ind		20,000
Total			20,000

(iii) Utilities (per month) (Rs.)

Power		5,000
Water and Misc.		1,000
Total		6,000

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

Rent	3,000	
Telephone	1,000	
Consumable stores	500	
Transport charges	1,000	
Advertisement and publicity	500	
Postage and stationery	500	
Insurance taxes, and other misc exp.	3,000	
Repairs and maintenance	1,000	
Total		10,500

(v) Total Recurring Expenditure (per month)

(i) + (ii) + (iii) + (iv) = **Rs. 61,225**

(vi) Total Working Capital (for 3 Months)

Rs. 1,83,675

C. Total Capital Investment

i) Fixed capital	Rs. 6,82,000
ii) Working capital (3 months)	Rs. 1,83,675
Total	Rs. 8,65,675

MACHINERY UTILISATION

- Working efficiency—75%
- Single shift
- 25 working days in a month.

FINANCIAL ANALYSIS

(1) Cost of Production (per year)	(Rs.)
a) Total Recurring cost	7,34,700
b) Depreciation on machinery @ 10%	49,200
c) Depreciation on furnace @ 20%	20,000
d) Depreciation on tools and fixture @ 25%	5,000
e) Depreciation on office equipment @ 20%	3,000
f) Interest on total investment @ 15%	1,29,851
Total	9,41,751

(2) Turnover (per year)

Item	Qty.	Rate (In Rs.)	Value (Rs.)
Zinc die casting for Auto Locks per shot of 400 gm shot about 3-4 various castings like Roter, Body casting etc.	1,50,000 shots	@ Rs. 8 per shot conversion charges	12,00,000

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

$$= \text{Total Sales} - \text{Total Cost of Production}$$

$$= \text{Rs. 2,58,249}$$

(4) Net Profit Ratio

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

$$= 21.5\%$$

(5) Rate of Return

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

$$= 29.83\%$$

(6) Break-even Point

Fixed Cost (per annum)	(Rs.)
a) Depreciation on machines and equipment tools, fixtures and office equipments	77,200
b) Rent (Annual)	36,000
c) Interest on Total Investment	1,29,851
d) Insurance	24,000
e) 40% of salary and wages	1,18,680
f) 40% of other contingent expenses excluding rent and insurance	26,400
Total	4,12,131

$$\text{B.E.P.} = \frac{\text{Annual fixed cost} \times 100}{\text{Annual fixed cost} + \text{Profit}}$$

$$= \frac{412131 \times 100}{670380}$$

$$= 61.47\%$$

Additional Information

In this Project Die and Raw material will be supplied by the customer as per present practice in the field of die casting.

Addresses of Machinery and Equipment Suppliers

1. M/s. H.M.T. Limited
Die casting and Plastic Machinery Division, HMT P.O., Bangalore-31
2. M/s. P.K. Engineering Works
B-1, Industrial Estate, Aligarh. U.P.

Addresses of Raw Material Suppliers

1. M/s. Hindustan Zinc Limited
2. M/s. Minerals and Metals Trading Corpn. of India Limited.
1-8-32/15, Bapubagh, Panderghast Road, Secunderabad-3
3. M/s. S.S. Agarwal and Co.
Sabzi Mandi, Kanwari Ganj, Aligarh, U.P.

Addresses of Chemical Suppliers

1. M/s. Greaves Foseco Limited
Chinchwad, Pune-411019
2. M/s. I.V.P. Limited
Regd. Office, Shashikant Nedij Marg, Ghorupodio, Mumbai-33