

# Brake Drum Casting

PRODUCT CODE	: 374815003
QUALITY AND STANDARDS	: As Per Customers Specifications
MONTH AND YEAR OF PREPARATION	: March, 2003
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## INTRODUCTION

Brake drum castings are made up of S.G. cast iron which has high strength, ductility, shock and wear resistance, good castability, excellent machinability and overall durability of the component.

## MARKET POTENTIAL

With the start of the automobile revolution in the country the brake drum castings are expected to increase manifold in future.

The S.G. brake drum castings are replacing even forgings. The brake drum casting units have good scope in small scale industries due to the excellent technical base available at the small foundry units.

## BASIS AND PRESUMPTIONS

1. The scheme has been prepared on the basis of 75% efficiency on single shift considering 25 working days in a month.

2. The rate of interest in the scheme has been worked out on the basis of 14% on an average; however this figure is likely to vary depending on the financial outlay of the project as well as location of the unit.
3. The costs of machinery and equipment as indicated are approximate ruling locally at the time of preparation of the scheme.
4. The rates quoted in respect of salaries and wages for workers and others are the minimum rates in the state/neighbouring states.
5. Margin money required is minimum 25% of the projected investment.

## IMPLEMENTATION SCHEDULE

### 1. Preparation of the Project Report:

Activity	Period
(a) Calling quotations	1 month
(b) Preparation of report	2 weeks
2. Provisional registration as SSI Unit	2 weeks
3. Financial arrangement	3 months

4. Purchase and procurement of machinery and equipments	3 months
5. Installation of machines and Equipments	3 months
6. Electrification	1 month
7. Recruitment of staff and workers	1 month
8. N.O.C. from Pollution Control Board	1 month

## TECHNICAL ASPECTS

### Process of Manufacture

The scrap and pig-iron in the required proportion are melted in the electric induction furnace. When the molten metal attains the pouring temperature, the hot metal is transferred from furnace to the ladle and then poured in the mould already prepared and kept ready. After cooling, the castings are knocked out, fettled, inspected and despatched to the customer.

### Quality Control and Standards

The Brake drum castings are manufactured under the following Indian specifications:

1. IS-1865-1974 Indian standard specification for Iron Castings with spheroidal or nodular graphite.
2. IS-5789-1970 Indian standard specification for S.G. Iron Castings for low temperature use.
3. IS-5788-1970 Indian standard specification for Iron Castings with spheroidal or nodular graphite for use at elevated temperatures.

### Production Capacity (per annum)

Quantity :	300 MT
Value :	Rs. 100.50 Lakhs

## Pollution Control

The units manufacturing brake drum foundry comes under category of Government classification. Hence the pollution control clearance is a must for these units. The unit has to take care of all statutory regulations.

## FINANCIAL ASPECTS

### A. Fixed Capital

#### (i) Land and Building

Sl. No.	Description	Amount (In Rs.)
1.	Land 1 acre	5,00,000
2.	Factory / Shed 2600 sq. ft.	4,80,000
3.	Office / laboratory 750 sq. ft.	3,00,000
<b>Total</b>		<b>12,80,000</b>

#### (ii) Machinery and Equipments

Sl. No.	Description	Qty.	Rate (In Rs.)	Amount (In Rs.)
1.	Air compressor capacity 500 lbs/sq. inch (Ind.)	1	40,000	40,000
2.	Bench drilling machine 20 mm Cap. with 1 HP motor and (Ind.)	1	5,000	5,000
3.	Crane capacity 3 tonnes with 20 HP motor (Ind.)	1	1,75,000	1,75,000
4.	Double-ended grinder with 2 HP motor (Ind.)	2	5,000	10,000
5.	Drying oven oil fired (Ind.)	1	50,000	50,000
6.	Electricity Transformer 11 KV/440 V/250 KVA (Ind.)	1	94,000	94,000
7.	Generating set rating 10 KVA	1	94,000	94,000
8.	Hand Trolleys etc. (Ind.)			15,000
9.	Hardness Tester (Brinell)	1	12,000	12,000
10.	Heat Treatment Furnace (2m x 1.5m x 1.5 m) oil fired with 3 HP motor (Ind.)	1	70,000	70,000

Sl. No.	Description	Qty.	Rate (In Rs.)	Amount (In Rs.)
11.	Induction Melting Furnace 150 kg capacity (Ind.)	2	5,00,000	10,00,000
12.	Izod / charpy Impact Tester	1	35,000	35,000
13.	Lab. Chemicals and Equipments		LS	1,45,000
14.	Metallographic Metallurgical Microscope	1	25,000	25,000
15.	Moulding Machine with 5 HP motor (L.S.)	1	66,000	66,000
16.	Office equipments, tables, chairs, fans, typewriters, almirah etc.			50,000
17.	Platform weighing machine 500 kg capacity (Ind.)	1	27,000	27,000
18.	Sand mixer (100 kg cap.) with 5 HP motor	2	28,000	56,000
19.	Sand testing machine	1	25,000	25,000
20.	Specimen Polishing machine (Double disc-type)	1	25,000	25,000
21.	Swing frame grinder with 10 HP motor (LS)	3	50,000	1,50,000
22.	Tools, Dies and equipments			50,000
23.	Weighing scale 500 kg. cap	2	20,000	40,000
24.	Installation and Electrification		LS	1,13,600
	<b>Total</b>			<b>23,72,600</b>

## B. Working Capital (per month)

### (i) Raw Material (per month)

Sl. No.	Description	Qty.	Rate (In Rs.)	Amount (In Rs.)
1.	Ferro-silicon (60%)		LS	30,000
2.	Furnace lining and other refractory		LS	20,000
3.	Graphite		LS	5,000
4.	Innoculating agents, fluxes bath conditioners etc.		LS	11,600

Sl. No.	Description	Qty.	Rate (In Rs.)	Amount (In Rs.)
5.	M.S. Plate covers for reduction Ladle 1 tonne		LS	35,000
6.	Mild Steel scrap 26 M.Tons	26	10,000	2,60,000
7.	Sand, Binder and other Moulding Materials		LS	15,000
	<b>Total</b>			<b>3,76,600</b>

### (ii) Salaries and Wages (per month)

Sl. No.	Designation	No.	Salary (In Rs.)	Amount (In Rs.)
1.	Accountant/ Stores incharge	1	4,000	4,000
2.	Clerk-cum typist	2	3,500	7,000
3.	Laboratory Technician	2	4,500	9,000
4.	Skilled Workers	5	3,000	15,000
5.	Supervisor	1	4,000	4,000
6.	Unskilled workers	5	2,500	12,500
7.	Works manager/ metallurgist	1	13,000	13,000
	<b>Total</b>			<b>64,500</b>
	<i>Perquisites @ 15%</i>			13,800
	<b>Total</b>			<b>78,300</b>

### (iii) Utilities (per month)

Sl. No.	Description	Qty.	Rate (In Rs.)	Amount (In Rs.)
1.	Electricity and Power		LS	78,000
2.	Furnace Oil and Fuel		LS	20,000
3.	Furnace lining Charges		LS	5,000
	<b>Total</b>			<b>1,03,000</b>

### (iv) Other Contingent Expenses (per month)

Sl. No.	Description	Amount (In Rs.)
1.	Miscellaneous	10,000
2.	Postage and Stationery	3,000
3.	Repairs and maintenance	10,000
4.	Transportation/Advt.	10,000
5.	Travelling and Conveyance	15,000
6.	Water	5,000
	<b>Total</b>	<b>53,000</b>

Working Capital per Month : 3,76,600 + 78,300  
+ 1,03,000 + 53,000 = Rs. 6,10,900

(v) **Working Capital for 3 Months**

= Rs. 610,900 × 3 = **Rs. 1,832,700**

**C. Total Capital Investment**

Fixed Capital	Rs. 36,52,600
Working Capital for 3 Months	Rs. 18,32,700
<b>Total</b>	<b>Rs. 54,85,300</b>

**FINANCIAL ANALYSIS**

(1) **Cost of Production (per annum)**

Sl. No.	Description	Amount (Rs.)
1.	Depreciation on Furnace	2,50,000
2.	Depreciation on Machinery and Equipments	1,15,900
3.	Depreciation on Office Furniture	12,500
4.	Depreciation on Tools	12,500
5.	Recurring Expenditure	73,30,800
6.	Interest on capital investment @ 14%	7,67,942
	<b>Total</b>	<b>84,89,642</b>

(2) **Sales (per annum)**

By Sale of 300 M.Ts of S.G. Iron Castings  
Value : Rs. 99,00,000

By Scrap 15 M. Tonnes of Castings and Rejects  
Value : Rs. 1,50,000

(3) Profit (per annum)	(Rs.)
Sales	1,00,50,000
Cost of Production	84,89,642
<b>Total</b>	<b>15,60,358</b>

(4) **Profitability Analysis**

a) **% of Profit on Sales**

$$= \frac{\text{Profit per annum} \times 100}{\text{Sales per annum}}$$

$$= \frac{1,560,358 \times 100}{10,050,000}$$

$$= \mathbf{15.53\%}$$

b) **% of Profit on Investment**

$$= \frac{\text{Profit per annum} \times 100}{\text{Total Capital investment}}$$

$$= \frac{1,560,358 \times 100}{5485300}$$

$$= \mathbf{28.45\%}$$

**5. Break-even Point**

(i) Fixed Cost (per annum)	(Rs.)
Depreciation	3,90,900
Interest on investment	7,67,942
40% of salary and wages	3,75,840
40% of other expenses and Utilities	7,48,800
<b>Total</b>	<b>22,83,482</b>

(ii) **Profit (per annum)** **Rs. 15,60,358**

**B.E.P.**

$$= \frac{\text{Fixed Cost per annum} \times 100}{\text{Fixed cost per annum} + \text{profit per annum}}$$

$$= \frac{22,83,482 \times 100}{22,83,482 + 15,60,358}$$

$$= \mathbf{59.41\%}$$

**Addresses of Machinery and Equipment Suppliers**

1. M/s. Beco Engineering Co.  
Agra Road, H.T. Mills Compound,  
Vikhroli, Mumbai-400 079.
2. M/s. Brady and Morris  
Engineering Co. Limited  
12/14, Veer Nariman Road,  
Brady House,  
Mumbai-400 023.
3. M/s. Commercial Engineering Works  
P-17, Benaras Road,  
Bamangachi, Salkia,  
Howrah - 700 006.
4. M/s. Federal Engineers,  
Plot No.: A-81, Road No.: 16-R,  
Thana-400 604.

**Addresses of Raw Material Suppliers**

1. M/s. National Iron Traders  
364 Kurichi Pirivu, Coimbatore-23
2. M/s. NR Traders  
Pollachi Road, Karumbukadai,  
Coimbatore-1
3. M/s. PA Ponnusamy and  
Chandran Co.  
P.N. Palayam,  
Coimbatore-641 020