

BRASS/BRONZE ITEMS – CASTINGS
(On Job Work Basis)

Product Code(ASICC) : 72102 / 72105

Quality & Standards : As per Customer's Requirements

Production Capacity : 60 MT per year

Month & Year of : March, 2012

Preparation

Prepared by : MSME DEVELOPMENT INSTITUTE,
(Metallurgy Division)

C.G.O. Complex, Block“C”,
Seminary Hills, Nagpur – 6.

1. INTRODUCTION:

An alloy of Copper & Zinc is known as Brass. The proportion of Copper & Zinc varies in this alloy depending upon requirements of mechanical properties and end-use of the product. Normally 60% copper & 40% Zinc variety is very common for castings. However, where more ductility is required percentage of copper is increased and zinc is reduced. Apart from above other alloying elements are also added to achieve any special properties.

Copper alloyed with Tin (Sn) is known as Gun Metal or Tin Bronze and has wide applications in engineering, marine and automobile industry. Copper alloyed with Aluminium is known as Aluminium Bronze. It is also extensively used in above industries where higher strength of material is required.

In addition to above, Brass & Bronze are very commonly used in manufacturing decorative items and hardware for our daily life use.

2. MARKET POTENTIAL :

Brass & Bronze items have very good market potential in engineering as well as household decorative items and hardware items for our daily life use.

3. BASIS & PRESUMPTIONS:

The project profile is drawn on the basis of following presumptions.

1. Target has been fixed at production of 60 MT/Annum of finished good quality Brass/ Bronze castings (on job work basis) on the basis of single shift working and on average of 15 working days/month, which comes to 5 MT in a month.
2. The efficiency of the plant has been presumed at 70% for the first year of production with a projection of 75% and 80% utilization of capacity for 2nd & 3rd year of production respectively.
3. The skilled, semi-skilled & unskilled labor will be engaged @ Rs. 3,000/-, Rs. 2,500/- and Rs. 2,200/- respectively for each type of labor.
4. Interest rate for fixed and working capacity being 12% Per Annum.
Margin money will be the 15% of the total cost of project.
5. Payback period being 9 years with a moratorium period of 1 ½ years.
Costs in respect of machinery and equipment, raw materials are those generally obtained at the time of preparation of project profile and may vary depending upon various factors.

4. Implementation Schedule:

- | | | | |
|----|---|---|------------------|
| 1. | Scheme preparation and approval | - | 3 months |
| 2. | Selection of site | - | 1 month |
| 3. | Sanction of loan | - | 2 months |
| 4. | SSI Provisional registration | - | 1 day |
| 5. | Machinery procurement, erection & commissioning | - | 2 months |
| 6. | Power connection | - | 1 month |
| 7. | Trial run | - | 2 months |
| 9. | Commencement of production | - | 5 months onwards |

5. TECHNICAL ASPECTS:

a. PRODUCTION DETAILS AND PROCESS OF MANUFACTURING:

The process of casting involves preparation of moulds cavities of sand, melting of metal of desired composition, pouring the molten metal into the mould cavity, knocking the mould after solidification & cooling of the castings, fettling and cleaning.

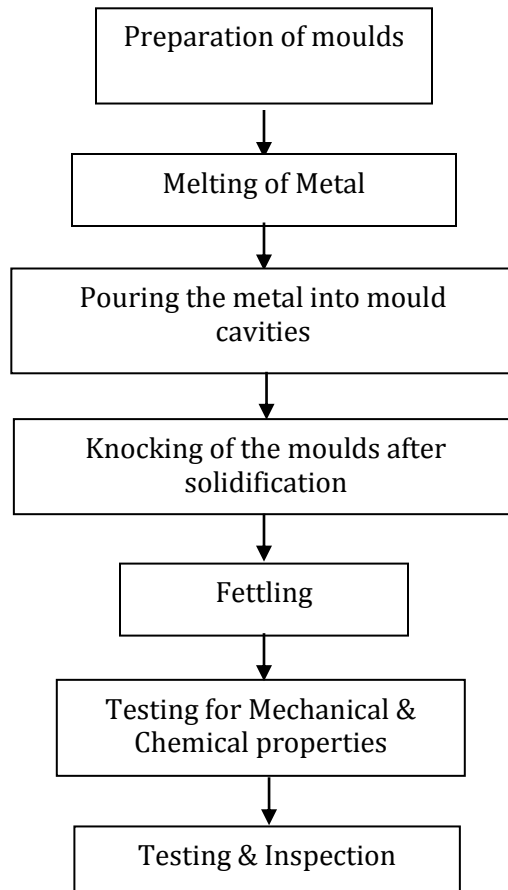
Products like bush bearings, valve body, water meter body, impellers, leaded brass bearings, gun metal bearing, engineering & automobile components, decorative brass & bronze items etc. can be manufactured.

b. QUALITY CONTROL AND STANDARDS:

In general, quality of the castings are required to meet the customer’s specifications or requirements. However, for specific mechanical & chemical properties relevant IS or other standard should be followed.

Tests for mechanical and chemical properties may be carried out at any nearest commercial lab. For producing sound and defect free castings proper melting, moulding and pouring system should be followed.

6. PROCESS FLOW CHART:



7. PRODUCTION CAPACITY:

Quantity : 60 M.T. PER ANNUM
Value : Rs. 12,60,000/-

8. MOTIVE POWER REQUIREMENTS: 5 HP

9. POLLUTION CONTROL MEASURES:

While heating 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.

- Proper heat distribution.
- Complete combustion with minimum excess air.
- Operating at the desired temperature.
- Reducing heat losses from openings.
- Waste heat recovery from fuel gases.
- Control of chimney draught.

11. Financial Aspects

A. Fixed Capital

i) Land & Building, 300 Sq. Meters (rented) per month

5000

ii) Machinery & Equipments:

S.No.	Description of Machines	Quantity	Price (Rs)
1	Oil Fired furnace with Graphite crucible, 100 Kg capacity, with 2 HP Motor Blower & Burner	1	65000
2	Furnace Oil Tank with Pipe line connection & immersion Heater	1	7000
3	Laddles & Tongues	L.S.	2000
4	Handling Equipments	L.S.	2000
5	Drilling Machine, 1" dia.	1	6000
6	Pedestal Grinder Double Ended 8" wheel	1	8000
7	Weighing Machine, 100 Kg. capacity	1	7000
8	Testing Equipments	L.S.	15000
		Total	112000
9	Electrification & installation @ 10% of above cost		11200
10	Office equipments like furniture, fan, Computer etc.	L.S.	40000
11	Pre-operative expenses		15000
		Total	178200

12. Working capital (Per month):**A: Staff & Labour:**

S.No.	Description	Nos.	Salary	Total
1	Melter	1	4500	4500
2	Moulder	1	4000	4000
3	Accountant/Clerk	1	3000	3000
4	Skilled Worker	1	3000	3000
5	Unskilled worker	1	2200	2200
6	Peon	1	2000	2000
7	Watchman	1	2000	2000
			Total	20700
	Add perquisite @15% of salary			3105
			Total	23805

B. Utilities (Per month):

1	Electricity		8000
2	Furnace Oil @Rs. 40 per litre	750	30000
		Total	38000

C. Other Contingent Expenses (Per month):

1	Rent	5000
2	Postage & Stationery	1000
3	Telephone	1500
4	Insurance	4000
5	Repairs & maintenance	2000
6	Consumable Stores	2000
7	Misc. Expenses	2000
8	Transport allowances	3000
	Total	20500

13. Total Working Capital (Per month)**82305****14. Total Capital Investment**

i)	Fixed Capital	178200
ii)	Working Capital	246915
	Total	425115

15. Financial Analysis

a. Cost of Production (Per Year)

i)	Total recurring cost	987660
ii)	Depn. on machinery & equipment @ 10%	4000
iii)	Depn. on furnaces @ 20%	13000
iv)	Depn. On office equipments @ 20%	8000
v)	Interest on Total capital investment @12%	51014
	Total	<u>1063674</u>

b. Turnover (Per Annum)

By sale of 60 MTs of Good Castings @ Rs. 21000 per MT = **1260000**

c. Net Profit per year

Turnover per year - Cost of production = **196326**

d. Net Profit Ratio

(Net profit per year/ Turnover per year) X 100 = **15.58 %**

e. Rate of Return

(Net profit per year/ Total investment) X 100 = **46.18 %**

f. Break-even Point

Fixed Cost

i)	Rent	60000
ii)	Depn. on machinery & equipment @ 10%	4000
iii)	Depn. on furnaces @ 20%	13000
iv)	Depn. On office equipments @ 20%	8000
v)	Interest on Total capital investment @12%	51014
vi)	Insurance	48000
vii)	40% of salary & wages	114264
viii)	40% of other contingent expenses excluding rent & insurance	55200
	Total	<u>353478</u>

Break- Even Point (B.E.P.)

[Fixed Cost/ (Fixed cost + Profit)] X 100 = **64.29 %**

NAMES & ADDRESSES OF MACHINERY AND RAW MATERIAL SUPPLIERS :

1. M/s. Hannu Metallurgical,
B-22,Girikunj Indsutrial Estate, Chakala, Mahakali Caves Road,
Andheri (East), Mumbai – 93 Ph.no. (022)-26875545.
2. M/s. Mahavir Engineering Corpn.,
1, Ambica Estate, B/h. Agarwal I.E.,
off S.V. Road, Jogeshwari West,
Mumbai – 102. Ph.no. (022)-56992785
3. M/s. Divecha Electrtricals,
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.Ph.no. (022)-27684697
5. M/s. Combustion Equipments & Instruments,
Jer Mahal, Dhobi Talaw, 1st Floor,Mumbai –2. Ph.no. (022)-27690171/27600842.
6. M/s. AIMIL Ltd.,
Malhotra House, Opp. G.P.O.,
Walchand Hirachand Marg,Mumbai – 1. Ph.no. (022)- 22642435
7. M/s. Electroil Super Thermal Engineers,
151, Small Factory Area, Lakadganj,Nagpur – 8. Ph.no. (0712)-2286284
8. M/s. G.R.C.
1, Taratala Road,
Kolkata-700024.
9. M/s. Standard Electricals
282, B.B. Chatterjee Road,
Kolkata-700042. Ph no. (033)- 24422063
10. M/s. Associated Engineers
32, G.C. Avenue,
Kolkata-13. Ph. No. (033)-40066117, 22126477, 24731518
11. M/s. Machine Tools Impex
75, S.C. Avenue,
Kolkata-700013. Ph no. (033)- 22377569, 65481114
12. M/s. Rana Udyog (P) Ltd.
NH-6, Vill.: Sulati, Dhulgarh,
Howrah -711303. Ph.no. (033)- 26617891

NAMES & ADDRESSES OF RAW MATERIAL SUPPLIERS :

SAIL, TISCO or Local Metal Traders or Dealers.

*