

S.S. Ingots

PRODUCT CODE	: 71126
QUALITY AND STANDARDS	: IS 6529:1972; IS 6529:1978; IS 6529:1996; AISI 304 and 410
MONTH AND YEAR OF PREPARATION	: November, 2002
PREPARED BY	: Small Industries Service Institute Kanjani Road, Ayyanthole, Thrissur-680003 - Kerala Fax and Phone:0487-2360686, 2360536 Telegram : Smallind E-Mail: trc_@sancharnet.in Website:www sisikerala.org.

INTRODUCTION

The project profile envisages the production of stainless steel ingots of $3\frac{1}{4}'' \times 4\frac{1}{4}'' \times 52''$ in medium frequency induction furnace. Stainless Steel ingots are the raw material for Stainless Steel Casting and Re-rolling units. Stainless steel castings in various shapes and sizes are widely used in chemical, pharmaceutical industry and in dairy equipments for its excellent corrosion resistance properties. Another special property namely its non-toxicity and strength establishes its use in large measure in the aforesaid industries. Probably no other better substitute can be found. Majority of the castings conform to the austenitic non-magnetic grade in the form of branches, valves, valve bodies, propellers for agitators, pipe fittings, pumps, machine parts etc. relating to the above type of industries

though there are some ingots conforming to the other grades as well. These stainless steel ingots are converted into stainless steel sheets which have wide applications in domestic utensil making industry, automobile industries, etc.

MARKET POTENTIAL

In a fast developing country like ours which is progressing in every sphere, stainless steel ingots are the basic raw material for stainless steel sheet, strips, and stainless steel casting, there is a good market potential for this type of industry.

BASIS AND PRESUMPTIONS

The unit when set up is expected to work for 8 hours a day on single shift basis with 25 working days a month (300 days a year) and these details have been

worked out consistently. Five per cent (5%) melting losses and five per cent (5%) wastage of raw materials and rejection of margin during the whole process of manufacture of this item has been taken into account in this scheme and the turnover has been worked out accordingly.

IMPLEMENTATION SCHEDULE

The major activities and the time required for completion of each activity and their implementation are illustrated below:

Sl.No.	Activity	Months	Weeks
1.	Selection of Site	-	2
2.	Preparation of Project Report	1	-
3.	Provisional Registration	-	2
4.	Financial Arrangements	3	-
5.	Procurement of Machinery	3	-
6.	Procurement of Essential Raw Materials	1	-
7.	Installation, Electrification and Commissioning of Machinery	2	-
8.	Trial and Commercial Production	1	-
	Total	11	4

TECHNICAL ASPECTS

Process of Manufacture

Scrap is first degreased, cleaned, segregated grade wise, weighted and then stainless steel scrap is charged in the furnace and melted. Measured quantity of Ferro alloys mainly Ferro chrome is added to make up the required composition. Melt sample is taken out for chemical testing and accordingly, alloy additions are made and again sample is taken out for final adjustment of the composition. Then metal is poured into chilled cast iron

moulds. Fast fan cooling should be given. Then they are removed from moulds. Ingots are ground on grinding machines and fettled and are ready for rolling.

Quality Control and Standards

Product is manufactured as per IS: 6529-1972, IS: 6529-1978, IS: 6529-1996 and AISI Standard Specification: 304, and 410.

Production Capacity (per annum)

Present project profile envisages the production of stainless steel ingots of $3\frac{1}{4}'' \times 4\frac{1}{4}'' \times 52''$ size, weighing approx. 120 Kgs. Production capacity is 675 M.T. per annum valuing Rs. 3,64,50,000 on single shift basis.

Motive Power

The Electric Motive Power required for this project would be around 50,000 KWH.

Pollution Control

Foundry being a pollution intensive industry needs to obtain No Objection Certificate from the Pollution Control Board. Every care should be taken to minimize the gaseous as well as solid pollution.

Energy Conservation

Foundry industries, particularly where Induction furnace is used require huge energy in the form of electricity and optimum use of electricity leads to reduced production cost. So it is in the interest of the unit as well as the nation to minimize the wastage of electricity by using right equipment or motor so that optimum use of electricity is possible. Energy audit will certainly help to decide the right equipment or motor for specific

application without hampering the production or process.

FINANCIAL ASPECTS

A. Fixed Capital

(i) **Land and Building - covered area**
300 sq.mtrs rented Rs.10,000 (per month)

(ii) **Machinery and Equipments**

Sl. No.	Description	Qty.	Amount (In Rs.)
1.	One box type 500 kg./250 KW/1200 HZ pouring temperature 1650°C basic type of lining medium frequency induction melting furnace with interchangeable crucible 389 kg./hr.+ 5% and 691 KW H/T + 5% energy consumption hydraulic tilting type	1	20,31,000
2.	Water cooling system consisting of (heat exchanger for DM Water and pump, furnace water and pump, raw water pump, cooling tower, one over head tank, one under ground tank, cooling tower with pipe lines. etc.	1	3,50,000
3.	Auxiliary transformer	1	2,00,000
4.	E.OT crane of 7.5 metric ton capacity with overhead rails and structure	1	4,40,000
5.	Pillar type drilling machine with 1 HP motor 1" cap.	1	15,000
6.	Flexible shaft grinder with 1 HP motor	2	15,000
7.	Swing frame grinder with 10 HP motor	1	15,000
8.	Welding transformer		25,000
9.	Weighing machine 500 kgs capacity	1	15,000
10.	Ladle 50,500,750 Kg Cap.	1 Each	15,000
11.	Air Compressor 3 HP	1	70,000
12.	Cast Iron Moulds	15 Nos	1,05,000
13.	Base plate trump pet	1 Set	40,000
14.	Chemical equipment and accessories	L.S.	1,00,000
	Total		34,36,000

15. Installation and Electrification	3,43,600
16. Instruments, Tools and Fixtures	30,000
17. Office Furniture	30,000
18. Pre-operative Expenses	10,000
Total	38,49,600
Say	38,50,000

B. Working Capital (per month)

(i) **Personnel**

Sl. No.	Designation	No.	Salary (In Rs.)	Amount (In Rs.)
1.	Works Manager	1	6,000	6,000
2.	Foreman/Supervisor	1	4,000	4,000
3.	Chemist	1	3,000	3,000
4.	Melter	1	4,000	4,000
5.	Peon/Watchman	1	1,500	1,500
6.	Skilled Workers	2	3,000	6,000
7.	Semi skilled workers	2	2,500	5,000
8.	Helpers	5	1,500	7,500
9.	Office Clerk/Store Keeper	1	2,500	2,500
	<i>Add perquisites @ 15% of salary</i>			5,925
	Total			45,425
	Say			45,000

(ii) **Raw Materials and Consumables (per month)**

Sl. No.	Description	Indigenous /Imported	Qty. (Nos.)	Amount (In Rs.)
1.	S.S. Scrap of various qualities @ Rs. 35,000 Ton	Indigenous	60 MT	21,00,000
2.	Ferro Alloys	"	LS	75,000
3.	Refractories	"	LS	25,000
4.	Ramming Mass	"	LS	10,000
5.	Other Consumables	"	LS	15,000
	Total			22,25,000

(iii) Utilities		(Rs.)
1.	Electric Power, 50,000 KWH	2,00,000
2.	Water	5,000
	Total	2,05,000

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

1. Rent	10,000
2. Transportation and Handling	5,000
3. Repairs and Maintenance	15,000
4. Stationery, Postage and Telephone	5,000
5. Advertisement/Sales Promotion	5,000
6. Miscellaneous Expenditure like cotton waste, coating materials etc.	10,000
Total	50,000

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

1. Personnel	45,000
2. Raw Material	22,25,000
3. Utilities	2,05,000
4. Other Expenses	50,000
Total	25,25,000

Working Capital for 1 Month 25,25,000

(vi) Working Capital (for 3 months) Rs. 75,75,000

C. Total Capital Investment

a) Fixed Capital	Rs. 38,50,000
b) Working Capital for 3 months	Rs. 75,75,000
Total	Rs. 1,14,25,000

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

A. Recurring Expenses	3,03,00,000
B. Depreciation on Machinery and Equipments @ 10%	1,40,500
C. Depreciation on Furnace @ 20%	4,06,200
D. Depreciation on Office Equipments Instruments, Tools @ 20%	12,000
E. Interest on Capital @ 14%	15,99,500
Total	3,24,58,200
Say	3,24,60,000

(2) Sales Proceeds (per annum) (Rs.)

By Sale of 675 M.Tonnes of finished goods @ Rs.54,000/tonne	3,64,50,000
---	-------------

(3) Profit (per year)

Sales - Cost of Production
= Rs. 3,64,50,000 - 3,24,60,000 = **Rs.39,90,000**

(4) Net Profit Ratio on Sales

$$\text{Profit (per year)} = \frac{39,90,000}{3,64,50,000} \times 100$$

$$= \mathbf{10.95\%}$$

(5) Rate of Return

$$\frac{\text{Profit (per year)}}{\text{Total Cap. Inv.}} = \frac{39,90,000}{1,14,25,000} \times 100$$

$$= \mathbf{34.92\%}$$

(6) Break-even Point

Fixed Cost (per annum)	(Rs.)
1. Rent	1,20,000
2. Interest on Capital Investment	15,99,500
3. Depreciation on Machinery, furnace, office equipments, instruments, tools etc.	5,58,700
4. 40% of salaries and wages	2,16,000
5. 40% utilities	9,84,000
6. 40% of other expenses (excluding rent)	1,92,000
Total	36,70,200
Say	36,70,000

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

$$= \frac{36,70,000}{36,70,000 + 39,90,000} \times 100$$

$$= \mathbf{47.9\%}$$

Addresses of Machinery and Equipment Suppliers

1. M/s. Machine Tools Traders
P.O. Box-1260,
218, Linghi Chetty Street,
Chennai – 600001.
2. M/s. Hindustan Machine Crafts
386, Linghi Chetty Street,
Chennai – 600 001.

Furnaces

3. M/s. Electrotherm (India) Ltd.
Survey No. 72,
Palodia (Via Thaltej,
Ahmedabad – 382 115
Gujarat
4. M/s. Pillar (India)
Vidyut Agni Marketing and
Engineering Services,
Block A-23, 2nd Avenue,
Annanagar,
Chennai-600 102

Foundry Equipments

5. M/s. Balaji Equipment Co.
23-A 6th Cross, BR Puram,
VK Road, Thanneer Pandal,
Peelamedu,
Coimbatore-4
6. M/s. Greaves Foscco Ltd.
Works: Mumbai-Pune Road,
Pune - 411019

*Metallographic and Chemical
Laboratory Consumables*

7. M/s. Metallurgical Services (P) Ltd.
5, Lalithapuram Street,

Rayapetah,
Chennai-600 014

8. M/s. Metal Power Analytical (I) Pvt.
Ltd.
8/9, Mehul Premises,
Kanti Nagar,
Andheri (East),
Mumbai-400 059

Addresses of Raw Material Suppliers

9. M/s. Raja Steels Pvt. Ltd.
100, Avarampalayam Road,
Ganapathy,
Coimbatore - 641 006
10. M/s. Virwadia Metal Corporation
Old No.209,
New No. 224,
Linghi Chetty Street,
Chennai-600 001
11. M/s. Coimbatore Metal Mart
Dr. Nanjappa Road,
Gandhipuram,
Coimbatore-641 001
12. Local Market.