Asbestos Pressure Pipes and Fittings

PRODUCT CODE	:	94407
QUALITY AND STANDARDS	:	IS 1592 : 1988
PRODUCTION CAPACITY	:	3000 MT (per annum)
MONTH AND YEAR OF PREPARATION	:	January, 2003
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Introduction

Asbestos pressure Pipes and Fittings are manufactured out of Chrysotile Asbestos (Long Fibre Asbestos) and ordinary Portland Cement ranges in different length and diameter. Generally these are 4 meter in length and 80 degree and 80mm in diameter and fittings of various designs are 90 degree and above, single equal function and double equal function.

Market Potential

In the light of economic liberalization, all round development is taking place in the country. There is a very good demand of AC pressure pipes and fittings in the Government department and domestic market. These pipes and fittings are extensively used for the drainage of rainwater and irrigation purpose. With the upsurge in the building construction and housing, the demand has further increase. There is a good scope for setting up the industry for the manufacture of these products.

Basis and Presumptions

It is considered that the unit will work for 300 days in a year on single shift basis:

i. The efficiency of the plant has been considered at 80% of installed capacity. In case of pressure pipe unit, the bottleneck operation in pipe-moulding machines.

ii. The unit may achieve a production of 60% and 70% in the first and second year of its operation.

iii. Labour and wages has been taken as per minimum wages prescribed by the authorities or more as per the market trend.

iv. An average rate of interest is taken @ 14% for the working and fixed capital requirements.

v. The promoter is expected to put in 25% margin money.

IMPLEMENTATION SCHEDULE

Sl. No.	Activity	Period		
		Starting		Completion
1.	Survey for collection of date in respect of demand, raw materials, power and fuel, availability of technology, pollution control etc.	0	to	2nd month
2.	Arrangement for margin money	2nd	to	3rd month
3.	Preparation for project document and registration	2nd	to	3rd month
4.	Financial assistance	4th	to	6th month
5.	Selection of site and development of land	4th	to	6th month
6.	Make shifts office	–	to	7th month
7.	Clearance for pollution Control	3rd	to	6th month
8.	Electricity, Water etc.	4th	to	6th month
9.	Construction/modification	7th	to	10th month
10.	Identification/selection of machines	–	to	5th month
11.	Placement of orders (Machines)	–	to	6th month
12.	Transportation and installation of Machines and equipments	10th	to	11th month
13.	Selection of raw material and placement of orders	–	to	9th month
14.	Receipt of material	10th	to	11th month
15.	Installation of Laboratory equipments	9th	to	10th month
16.	Trial production		12th month	

TECHNICAL ASPECTS

Process of Manufacture

a) Raw Materials

Asbestos is a naturally occurring mineral mainly consisting of magnesium silicate in fibrous form. There are two principal types of asbestos, chrysotile, soft and coiled serpentine variety which is greenish white and Amphibole occurring in five different forms. For the manufacture of AC pressure pipes chrysotile (long fibre) asbestos and ordinary part land cement is used the ratio of 10:90 (approx.) depending upon the quality. The availability of this type of Asbestos is very less in the country. Generally imported Asbestos from Brazil is used by the industry. It produces diverse characteristics in combination with cement such as resistance to fire, corrosion humidity and is very stable, durable and possessed considerable strength.

b) Ordinary Portland Cement

Pipes are manufactured on pipe moulding machine and mandrels. The mixture of cement and asbestos is pumped into mandrel which rotates in between two rollers. The feeding of slurry is done by manual operation. After required thickness the pipe is taken out with the help of trolley lined with cloth. In case of pressure pipe, this is again kept on other rollers for giving more strength and kept in shed for 24 hours for setting or hardening and them kept in curing tanks filled with water for 14-15 days. During the manufacturing process vacuum is created inside the mould so that desire thickness of the mixture of asbestos and cement can be deposited. The water which comes out through the holes of mandrels is re-cycled. The composition varies with the length of pipe. By and large asbestos to cement ratio is 1:9. However, ratio varies depending upon quality. Imported variety chrysolite is used for the manufacture of A.C. Pressure pipes and fittings. Generally 10-15% of asbestos is used for manufacture of the products. These pipes are 4 meters long with diameter ranging from 80mm to 300mm.

Quality Control and Standards

The products have to be tested according to IS 1582: 1989 issued by Bureau of Indian Standards.

Production Capacity (per annum)

Quantity : 3, 000 MT.

Value : Rs. 3, 37, 18, 500

Motive Power 100 HP

Pollution Control

To avoid health hazard to workers due to air borne, asbestos and cement, it is recommended to install dust collecting system and adopt safe work practice. The following are the simple recommendations to control dust in this industry:

a) it is recommended to prohibit smoking inside the working place.

b) The floor should be well built. The clearing of floors at various places is recommended by water mopping

c) A centralized dust collecting system of suitable capacity should be provided with extension of ducts fitted with control valves to the following machines:

   i) Fibre opening machine with suitable charging platform hood and water mist spray system.

   ii) Turbo mixer with a hood and charging platform.

   iii) Pipe cutting machine provided with a hood and spray system.

d) Carrying of slurry with basket to pipe forming machine should be replaced by a pump and flexible pipe system.

e) Workmen working in the area with potential to release asbestos dust should wear mask while working.

f) The used bags should be reversed in wet condition in a water tank and rinsed. The water can be used in mixer with the help of pump at frequent intervals. The empty bags free from fibres can be disposed off.

Working hoods with dust cover may be provided for moulding and should be suitably connected with suctions devices.

FINANCIAL ASPECTS

A. Fixed Capital

(i) Land and Building	(Rs.)
Land-2.000 sq. mtrs. @Rs. 200 per sq. mtrs.	4,00,000
Built-up area	
Office and Stores 10 sq. mtrs: @ 3,000 per sq. mtrs.	3,00,000
Shed for Plant 400 sq. mtr. @ 2,000 per sq. mtrs.	8,00,000
Total	15,00,000

(ii) Machinery and Equipments

Production unit	Qty.	(Rs.)
Pipe making machine along with mandrels of 80mm dia and 4 meter long with 30HP motor	INo.	43,12,000
Vacuum Pump with 30HP motor	INo.	2,30,000
Mixer with 10 HP motor	2No.	1,72,000
Misc. items like pipe racks line etc.	-	
Lab and Testing equipments		2,87,000
Pollution control Equipments like dust collector, asbestos handling and storing equipment	–	1,15,000
Curing tanks size 18′ × 16 × 5 × 10 Nos. @Rs. 15,000 each		1,50,000
Cost of moulds for pipe of 22 Nos.@ Rs. 86,000 each		18,92,000
Installation and electrification charges @ 10%		3,45,000
Cost of fittings		2,30,000
Office furniture and equipment		90,000
Pre-operative expenses		50,000
Total		78,73,000

Total Fixed Capital	(Rs.)
1. Land and Building	15,00,000
2. Machinery and Equipments	78,73,000
Total	93,73,000

B. Working Capital (per month)

(i) Staff and Labour (per month)

Particulars	Nos.	Salary (Rs.)	Amount (Rs.)
Technical Manager	1	6,000	6,000
Supervisor	1	4,000	4,000
Accountant cum cashier	1	2,500	2,500
Skilled workers	5	2,500	12,500
Moulders	5	2,500	12,000
Un-skilled workers	10	2,000	20,000
Clerk cum Typist	1	2,500	2,500
Peon	1	2,000	2,000
Watchman	1	2,500	2,000
	Total		64,000
Perquisites @ 20%			12,800
	Total		76,800
	or Say		77,000

(ii) Raw Material (per month)	(Rs.)
a. Ordinary Portland Cement 230MT @ Rs. 2600	5,98,000
b. Crytobailite Asbestos 25 MT @ Rs. 5,400	13,50,000
c. Lubricants	4,000
Total	19,52,000

(iii) Other Contingent Expenses (per month) (Rs.)	
Postage and Stationery	1,500
Telegram	1,000
Consumable Stores	1,500
Repair and Maintenance	4,000
Transport Charges	5,000
Advertisement and Publicity	3,000
Insurance	2,000
Misc. Expenses	2,000
Total	20,00

(iv) Utilities (per month)	(Rs.)
1. Power 100HP (100 × 75 × 8 × 25) @ Rs. 4 per unit	60,000
2. Water	1,000
Total	61,000

(v) Recurring cost (per month) Rs. 21,10,000
(i+ii+iii+iv)

(vi) Recurring cost for 3 months Rs. 63,30,000

C. Total Capital Investment

Land and Building	Rs. 15,00,000
Plant and Machinery	Rs. 78,73,000
Working capital for 3 months	Rs. 63,30,000
Total	Rs. 1,57,03,000

MACHINERY UTILISATION

80% utilisation has taken into consideration.

FINANCIAL ANALYSIS

(1) Cost of Production (per year)	(Rs.)
Raw material	2,34,24,000
Staff and labour	9,24,000
Other Contingent Expenses	2,40,000
Utilities	7,32,000
Depreciation on building @ 5%	55,000
Depreciation on machinery @ 10%	5,13,100
Depreciation on moulds, fixtures and furniture @ 20%	4,42,400
Interest on total capital investment @ 14%	21,98,420
Total	2,85,28,920

(2) Annual Turnover	(Rs.)
AC Pipes assorted Sizes (Pressure non pressure)	3000MT
Sale realisation @ 11,239.50 per MT	3,37,18,500
Profit and Loss Account 3,37,18,500–2,85,28,920	51,89,580

(3) Profit Percentage (per annum)

$$= \frac{\text{Profit per year x 100}}{\text{Total Sale}}$$

$$= \frac{51,89,580,x\ 100}{3,37,18,500}$$

$$= 15.39\%$$

(4) Return on Total Investment

$$= \frac{\text{Profit per annum x 100}}{\text{Total Investment}}$$

$$= \frac{51,89.580\ x\ 100}{1,57,03,000}$$

$$= 33.05\%$$

(5) Break-even Point	(Rs.)
Total depreciation	9,60,500
40% of staff and labour	3,69,600
40% of other expenditure/consumable	86,400
Insurance	24,400
Interest on total	21,98,420
Total	36,38,920

B.E.P.

$$= \frac{\text{Fixed cost x 100}}{\text{Fixed cost + Profit}}$$

$$= \frac{36,38,920\ x\ 100}{36,38,920\ +\ 51,89,580}$$

$$= 41.22\%$$

Addresses of Machinery and Equipment suppliers

1. M/s. Jaipur Asbestos
   New Sanganer Road,
   Sodala, Jaipur
2. M/s. T.S. Enterprises
   E-416, Road No. 14,
   V. K. I. Area,
   Jaipur – 302 013
3. M/s. Ganesh Engineering Company
   Ajmer Road,
   Beawar – 305 901

Testing Equipment Suppliers

1. M/s. Joshi Scientific Corporation
   59, Bapu Gam Road,
   Mumbai
2. M/s. Idento (P) Ltd.
   Idento House,
   336, Mitn. Road,
   Mumbai

Raw Material Suppliers

1. M/s. Sneh International
   3052, Section – D,
   Pocket – 3, Basant Kunj,
   New Delhi
2. M/s. Andhra Pradesh Mining Corpn.
   Hyderabad (AP)
3. M/s. Easthfield Product
   5A/6th Floor,
   New Excelsion Building,
   Bastion Road,
   Mumbai – 400 001
4. M/s. Dutta Brog. and Co.
   N. S. Road,
   Kolkata