Air Conditioner Window Type

PRODUCT CODE	:	355204002
QUALITY AND STANDARDS	:	IS 1391 : 1971 IS 7613 : 1975 IS 8148 : 1976
PRODUCTION CAPACITY	:	Value : Rs. 216 Lakhs (per annum)
MONTH AND YEAR OF PREPARATION	:	February, 2003
PREPARED BY	:	Small Industries Service Institute Masat Industrial Estate, Silvassa–396230 U.T. of Dadra And Nagar Haveli. Phone Nos. : (0260): 2640933, 2643103

Introduction

Air Conditioners perform cleaning, circulating, temperature controlling and humidity controlling of air function within a specified area. Window type Air Conditioners being a compact unit, is installed near the space to be air conditioned.

Market Potential

Now a days, not only human beings but Machines, Computers, & Processors also require conditioned air for proper functioning e.g. CNC Machines, Testing Labs, Calibration Centre etc. The demand of Air Conditioners has emerged, in a bigway.

In middle upper class families, Air Conditioners have become very popular. These are used in Offices, Showrooms, Houses, Hotels etc.

Large Companies like Shri Ram, Carrier Aircon, Lllyods, Jainson, L.G., Videocon, Samsung, Voltas etc. are doing very good business in Air Conditioners upto the capacity of 2 Tonnes rating. As the society is moving towards materialism and a lot of emphasis is put on purchasing modern utilities/ amenities and domestic appliances with maximum facilities, the demand of Window type AC is bound to increase in times to come. Therefore, there is good demand of Window type Air Conditioners.

Basis and Presumptions

General Assumptions

In carrying out financial analysis, it is assumed that the unit price of raw material, utilities, and finished goods shall increase by 5% every year.

Number of Days and Shifts

It is assumed that unit would be working 300 days in a year on single shift basis.

Installed Capacity

Installed Capacity is based on assembly of Air Conditioners and Testing Performance Test. Four Air Conditioners can be assembled every day.

Hence capacity (per month) = 4 × 25 = 100

Capacity (per annum) = 100 × 12 = 1200

Capacity Utilization

On the basis of general industrial experience, capacity utilization in terms of Installed Capacity is assumed as under:

Year	1st	2nd	3rd
Capacity Utilization	70%	75%	80%

Interest

Interest has been taken @ 16% per annum.

Depreciation

Depreciation on Plant and Machinery has been taken @ 10%.

Administrative and Selling Expenses

Administrative and Selling Expenses have been assumed to be 10% of the total gross sale.

This includes salary of Administrative and Technical Staff, Commission, Trade Discount, Printing Publication of Literatures, etc.

Sales Price

Market Price of the Window type Air Conditioner is around Rs. 20,000 (1.5 Tonne Capacity)

Sales Value Computation

Particulars	Ist Yr.	IInd Yr.	IIIrd Yr.
Capacity Utilization	70%	75%	80%
Production (Nos.)	840	900	960
Rate (each)	18000	19000	19500
Sale Value (in lakh)	151.20	171.00	187.20

Excise Duty

Excise duty on Air Conditioner is 24% afer the budget 2003-2004.

Raw Material

Basic Raw Materials for manufacturing of Air Conditioners are Compressor, G.I. Sheet, Fan Motor, Blower, Condenser Fan, Starting Capacitor, Running Capacitor, Wires, Relay Knob, Switch, Plastic Grill, F-22/134 A Gas.

TECHNICAL ASPECTS

Process of Manufacture

Manufacturing of Window type Air Conditioner involves procuring of various components like Compressor, Conductor, Coil, Copper Pipe Cabinet, Frame, Grill, Switches, Wire etc.

Testing of equipments

Assembly

Charging of Gas

Final Testing.

The Various Components used are:

Condensing Unit

Compressor (Kirloskar, Carrier, Shriram)

Condensor

Fan with motor (960 RPM)

Outer Casing

Evaporative Unit

Evaporative Coil (Feeder Lllyods or local)

Plastic Grill

Blower with motor

Air Filter

Other items required are : starting Capacitor, Insulated Copper Pipe, F22/ 134A Gas, Nut Bolts, Rivets, Wires, etc.

Quality Control and Standards

Air Conditioner is a consumer durable item and hence its performance should be assured by strict Quality Control. All bought out components should be tested to avoid any gas leakage. After assembly, the performance of the Air Conditioner should be tested as IS 1391, IS 7613 and IS 8148.

Pollution Control

The Freon 22 Gas is considered harmful for Ozone layer and hence its escape to atmosphere must be avoided at all costs. The Unit should adopt a strategy to adopt new ozone friendly coolants such as HCFC; 134A etc.

FINANCIAL ASPECTS

A. Fixed Capital

(i) Land and Building	(Rs. in Lakh)
1. Land and Site Development Land 200 Sq. Mtr. @ 2000/ Sq. mtr.	4.00
2. Cost of Building 2000 Sq. ft @ Rs. 350/Sq. ft.	7.00
Total	11.00

(ii) Machinery and Equipment

Sl. No.	Particulars	No.	Amount (In Rs.)
1.	Sheet Bending Machine	1	12,000
2.	Sheet Cutting Machine	1	15,000
3.	Hand Press	1	10,000
4.	Portable Grinder - 1/2 HP	1	4,000
5.	Drilling Machine - 1/2 HP	1	7,000
6.	Riveting Machine - 1/2 HP	1	4,000
7.	Vacuum Pump for charging 1 HP	1	15,000
8.	Pressure Pump for Testing 1 HP	1	14,000
9.	Charging Panel	1 Set	5,000
10.	Accetylene, Oxygen Cylinder, Torch, hose etc.	2 Sets	23,000
11.	Swagging, Flaring, Soldering Tools and Fixture	L.S.	12,000
12.	Spot Welding Machine	1	15,000
13.	Clamp Meter (digital)	1	3,000
14.	Spray Gun, Compressor, etc.	1 Set	12,000
15.	Working Table, Chair and Office equipments	–	15,000
	Electrification and Installation		14,000
	Total		1,80,000

(iii) Pre-operative Expenses 20,000

Total Fixed Capital Investment	(Rs. in lakh)
1. Land and Building	11.00
2. Plant and Machinery	1.80
3. Pre-Operative Expenses	0.20
Total	13.00

B. Working Capital (per month)

(i) Personnel

Sl. No.	Category	No.	Salary (Rs.)	Amount (In Rs.)
1.	Manager	1	7000	7,000
2.	Sales Engineer	1	6000	6,000
3.	Supervisor	1	5000	5,000
4.	Clerk-cum-Accountant	1	4000	4,000
5.	Skilled workers	6	3000	18,000
6.	Un-skilled Workers	5	2000	10,000
7.	Watchman-cum-Peon	2	2000	4,000
		Total		54,000
Add Perquisites @ 15%				8,000
		Total		62,000

(ii) Raw Material (per month)

Sl. No.	Particulars	Qty.	Rate (Rs.)	Amount (In Rs.)
1.	Compressor 1.5 Tonne A/c	100 Nos.	8000	8,00,000
2.	G.I. Sheet	100 Nos	1000	1,00,000
3.	Fan Motor	100 Nos.	1000	1,00,000
4.	Blower	100 Nos.	1700	1,70,000
5.	Condenser Fan	100 Nos.	300	30,000
6.	Starting Capacitor	100 Nos.	250	25,000
7.	Running Capacitor 36 MFD	100 Nos.	320	32,000
8.	Wires, Relay, Knob, Switch, etc.	100 Set	1000	1,00,000
9.	Capillary Copper	100 Set	800	80,000
10.	Plastic Grill	100 Set	300	30,000
11.	F-22/134 Gas	200 Kg	250	50,000
12.	Other Pretty items Materials like Screw, Nut Bolts, Flux, etc.			10,000
			Total	15,27,000

(iii) Utilities	(Rs.)
Power requirement 10 HP Electricity Charges (per annum)	2000
Water and consumables	250
Total	2,250

(iv) Other Contingent Expenses	(Rs.)
Postage and Stationery/ Telephone charges	2,000
Repair and Maintenance	1,000
Selling and Marketing	3,000
Travelling Expenses	2,000
Miscellaneous Expenses	1,000
Total	9,000

(v) Total Working Capital (per month)
(i + ii + iii + iv) = Rs. 16,00,250

C. Total Capital Investment

(1) Fixed Capital	Rs. 13,00,000
(2) Working Capital for 1½ months	Rs. 24,00,375
Total	Rs. 37,00,375

FINANCIAL ANALYSIS

(1) Cost of Production (per annum)	(Rs.)
1. Raw materials	183,24,000
2. Salary and wages	7,44,000
3. Utilities	27,000
4. Other Contingent Expenses	1,08,000
5. Depreciation on land and Building @ 5%	55,000
6. Depreciation on Machines/ Equipment @20%	40,000
7. Interest on Investment @ 16%	5,92,000
Total	1,98,90,000

(2) Sales/Turnover (per annum)

By sale of window type 1200 Nos. Rs.2,16,00,000
A-C 1.5 T Cap @ Rs. 18000 Each

(3) Profit (per annum)

Rs. 2,16,00,000 - Rs. 1,98,90,000
= Rs. 17,10,000

(4) Net Profit Ratio $= \frac{\text{Profit} \times 100}{\text{Total Sales}}$

$= \frac{17,10,000 \times 100}{2,16,00,,000}$

$= 7.9\%$

(5) Rate of Return $= \frac{\text{Profit} \times 100}{\text{Total Investment}}$

$= \frac{17,10,000 \times 100}{37,00,375}$

$= 46.2\%$

(6) Break-even Point

Fixed Cost (per year)	(In Rs.)
Depreciation	95,000
Interest on investment	5,92,000
40% of Salary and wages	2,97,600
40% of other contingent expenses	43,200
40% of utilities	10,800
Total	10,38,600

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

$= \frac{10,38,600 \times 100}{10,38,600 + 17,10,000}$

$= 37.8\%$

Addresses of Machinery Suppliers

1. M/s. Fridge Tools
   Darya Ganj,
   Delhi - 110002
2. M/s. Avery India Ltd.
   Plot No. 50-59,
   Sector - 25, Ballabhgarh,
   Faridabad – 121004
3. M/s. Henco Corporation
   P.B. No. 1645, 308,
   Perin Nariman Street,
   Behind Reserve Bank,
   Fort, Mumbai – 400001
4. M/s. Parekh Machine Tools
   5, Khetra Das Lane,
   Beside Broadway Hotel,
   Kolkata – 700012
5. M/s. Keshav Enterprises
   E-211, Kishan Vihar,
   Delhi–100041
6. M/s. Essential Machine Tools Pvt. Ltd.
   5, Nyaymurthi G.N. Vaidya Marg,
   P.O. Box No.2,
   Behind State Bank,
   Fort, Mumbai–400001

Addresses of Raw Material Suppliers

1. M/s. Quality Enterprises
   Shop No. 8, Shree Nath,
   Mulund (E),
   Mumbai–400008
2. M/s. Mistcold Sales and Service Pvt. Ltd.
   F-110, Lado Sarai,
   Near Central Bank,
   New Delhi–110030
3. M/s. Blowtech Air Devices Pvt. Ltd.
   F-53, Sector 11,
   Noida–201301 (U.P.)
4. M/s. Air Conditioning Components Company
   Shop No.3,
   Accord Building,
   Chakala, Opp. Videocon,
   Andheri-Kurla Road,
   Andheri (E),
   Mumbai–400069
5. M/s. Walia Refrigeration Co.
   3796, David Street,
   Darya Ganj,
   New Delhi–110002
6. M/s. Seagul Fabricators Pvt. Ltd.
   Industry House,
   23-B, Mahal Industrial Estate,
   Mahakali Caves Road,
   Andheri (E),
   Mumbai–400093
7. M/s. Kirloskar Copeland Limited
   Shree Meenakshi Nilayam,
   30, Arcot Mudali Street,
   T. Nagar,
   Chennai–600017