PROJECT REPORT

OF

AUTOMOTIVE AIR FILTER PRODUCTION UNIT

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding Automotive Air Filter Manufacturing Unit.

The objective of the pre-feasibility report is primarily to facilitate potential entrepreneurs in project identification for investment and in order to serve his objective; the document covers various aspects of the project concept development, start-up, marketing, finance and management.

[We can modify the project capacity and project cost as per your requirement. We can also prepare project report on any subject as per your requirement.]

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PROJECT AT GLANCE

1	**Name of Proprietor/Director**	XXXXXXXX	
2	**Firm Name**	XXXXXXXX	
3	**Registered Address**	XXXXXXXX	
4	**Nature of Activity**	XXXXXXXX	
5	**Category of Applicant**	XXXXXXXX	
6	**Location of Unit**	XXXXXXXX	
7	**Cost of Project**	21.78	Rs. In Lakhs
8	**Means of Finance**		
i)	**Own Contribution**	2.18	Rs. In Lakhs
ii)	**Term Loan**	12.60	Rs. In Lakhs
iii)	**Working Capital**	7.00	Rs. In Lakhs
9	**Debt Service Coverage Ratio**	1.65	
10	**Break Even Point**	0.29	
11	**Power Requiremnet**	15	KW
12	**Employment**	8	Persons
13	**Major Raw Materials**	CRCA Sheets, Aluminium/ Zinc/ molded plastics, Filter paper/ Non woven fabric, wire mesh & PU foams.	

14 Details of Cost of Project & Means of Finance

Cost of Project

Particulars	Amount in Lacs
Land	Owned/Leased
Building & Civil Work	Owned/Leased
Plant & Machinery	12.50
Furniture & Fixture	0.50
Other Misc Assets	1.00
Working Capital Requireme	7.78
Total	**21.78**

Means of Finance

Particulars	Amount in Lacs
Own Contribution	2.18
Term Loan	12.60
Working capital Loan	7.00
Total	**21.78**

1. INTRODUCTION

A particulate air filter is a device composed of fibrous materials which removes solid particulates such as dust, mold, and bacteria from the air.

A chemical air filter consists of an absorbant or catalyst for the removal of airborne molecular contaminants such as volatile organic compounds or ozone. Air filters are used in applications where air quality is important, in building ventilation systems and in engines. All Modern cars are fitted with an Air cleaner on Carburetor intake. It's Most Important function to prevent dust and other particles from getting in to the Carburetor and Engine Cylinder.

Liquid and Air gas needs to be cleaned from particulate contaminants in most industrial applications using filters. Filter paper, non-woven fabrics, wire mesh, PU/PE foam etc. filter media are used to filter fluids. Normally, a semi-permeable paper barrier is used as filter and it is placed perpendicular to a liquid or air flow.

Air filters are used in every internal combustion engine to remove particulates as these filters are very vital to improve operational efficiency of engines and prevent damage and wear to vital parts. Air filters are nothing but filters that clean up the air that goes inside our bike to help burn the fuel. Remember one thing here, the cleaner and purer the air, the better will be the combustion and hence the better efficiency and power delivery. Else to deliver the same amount of power you will end up burning more amount of fuel because the air quality was

not up to the mark. The very reason that was a major cause of incomplete combustion in the older vehicles resulting in a lot of smoke coming out of the exhaust.

2. PRODUCT DESCRIPTION

2.1 PRODUCT USES

Air filter is a device composed of fibrous materials which removes solid particulates such as dust, midland bacteria from the air so that only cleaned air reaches the automotive.

2.2 RAW MATERIAL REQUIREMENT

Main materials are CRCA sheets for canisters and perforated barrels. Cast aluminium/ zinc / molded plastic parts used for top and bottom holding rim, and enclosures. Filter media chosen are filter paper/ non-woven fabric, wire mesh and PU foams. The filter assembly needs rivets/ fasteners all the materials are available in the country. Filter paper/ non-woven fabrics come in various porosity and grades depending on the applications the important parameters are wet strength, porosity, particle retention, volumetric flow rate, compatibility, efficiency and capacity.

2.3 MANUFACTURING PROCESS

The main activity of the unit is fabrication as per the design and fitments of filter element and producing major components. The steps normally involve:

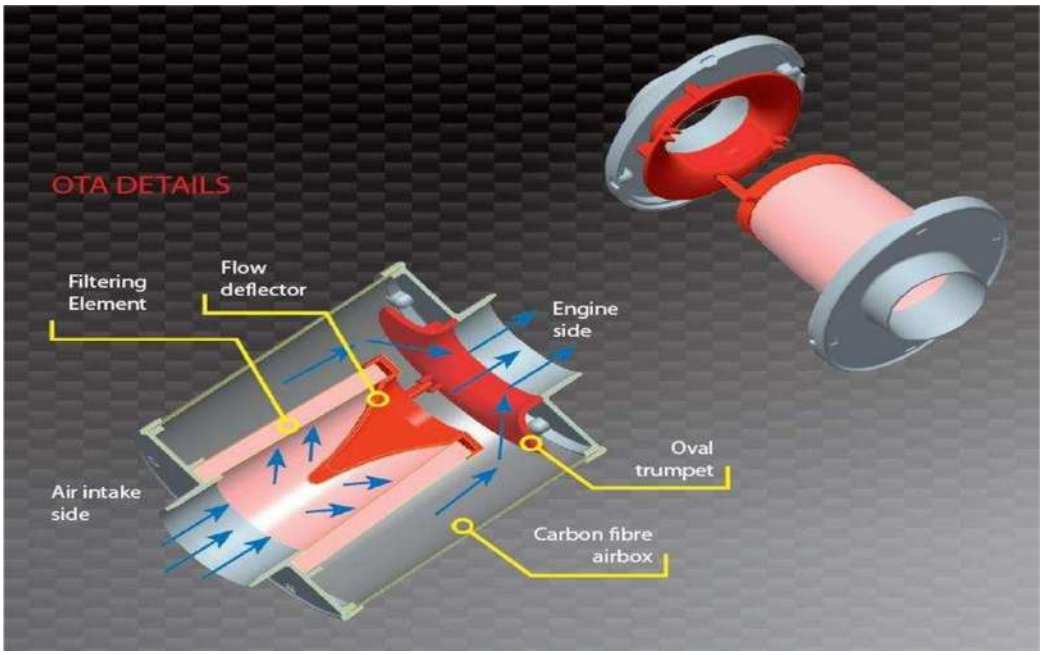
Sheet metal embossing and cutting of canister and top /bottom caps, machining of cast bottoms/tops caps of or get finished sheet metal/ plastic filter canisters and rims.

Perforation and cutting of steel sheet on power press and rolling in to barrels to hold filter media.

Drilling of fitment holes on bottoms/top. Pleating/ corrugation/ winding of Filter paper/ cloth /foam and assembly/ riveting to get the desired filter element.

Assembly of complete filter element with top and bottom caps with/ without canister units.

Inspection and packing of filter elements for specified parameters followed by testing samples for specified parameters viz. flow rate, pressure drop, filtration efficiency and life cycle. Final Products are packed and dispatched.



FLOW CHART

Die casting of bottoms/tops by filling of dies by molten material. The material is melted in tilting furnace/pit furnace.

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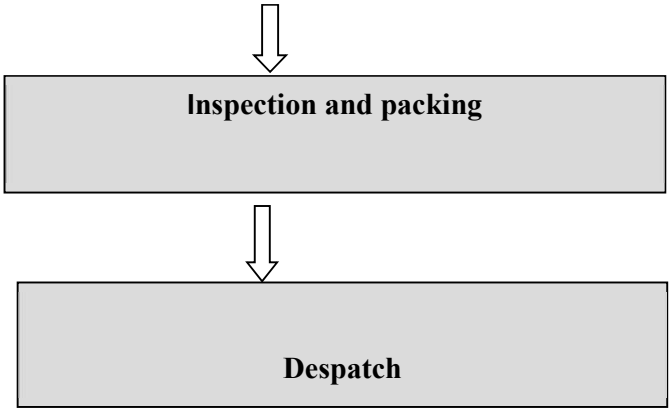
Processing of sheet on 5 ton power press.

⇩

Drilling of fitment holes on die casted bottoms/top.

⇩

Assembling by riveting and covering with filter cloth.



3. PROJECT COMPONENTS

3.1 Land /Civil Work

The land require for this manufacturing unit will be approx. around 2500-3000 square feet.

We have not considered the cost of Land purchase & Building Civil work in the project. It is assumed that land & building will be on rent & approx. rental of the same will be Rs.30,000-50,000 per month.

3.2 Plant & Machinery

This plant will be semiautomatic type.

- **Treadle Guillotine Shearing machines**

- **Power press**

- **Tilting Furnace 10 Kgs Aluminium melting capacity HSD fired with 1 KVA Blower**

- **Lathe Adda Type with 1 KW motor & electricals**

- **Milling Machine Adda Type with 1 KW motor & electricals**

- **Surface Grinding Machine Manual Feed with 2 KW motor & electricals**

- **Fly Press of different sizes**

- **Hand Shearing Machine (Sheet Cutter) motorized**

- **Spot Welding Machine 1 KVA**

- **Gas Welding Sets**

- **Buffing Machine 8” dia of wheel**

- **Bench Drilling Machine 13 mm cap.**

Other Equipment’s

- **Tools:** While assembling the product these tools will be required- Screwdriver, Twisters, Wire cutter, Wire strippers, etc.

4. LICENSE & APPROVALS

- GST
- NOC from Fire Department.
- NOC From Pollution Department (if applicable)
- Udyam Registration is required.
- BIS certification
- Labour license.
- Trademark (optional)

PROJECTED BALANCE SHEET **(in Lacs)**

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
Liabilities					
Capital					
Opening Balance		4.77	7.45	9.44	11.50
Add:- Own Capital	2.18				
Add:- Retained Profit	4.84	7.18	8.49	10.06	12.54
Less:- Drawings	2.25	4.50	6.50	8.00	9.50
Closing Balance	4.77	7.45	9.44	11.50	14.53
Term Loan	11.20	8.40	5.60	2.80	-
Working Capital Limit	7.00	7.00	7.00	7.00	7.00
Sundry Creditors	2.15	2.87	3.30	3.99	4.49
Provisions & Other Liabilities	0.75	1.00	1.20	1.00	1.20
TOTAL :	**25.87**	**26.72**	**26.53**	**26.29**	**27.22**
Assets					
Fixed Assets (Gross)	14.00	14.00	14.00	14.00	14.00
Gross Depriciation	2.08	3.84	5.34	6.62	7.71
Net Fixed Assets	**11.93**	**10.16**	**8.66**	**7.38**	**6.29**
Current Assets					
Sundry Debtors	4.26	4.53	4.82	5.04	5.66
Stock in Hand	6.48	7.72	8.86	10.04	11.29
Cash and Bank	0.72	0.81	2.20	1.83	0.99
Loans and advances/other current assets	2.50	3.50	2.00	2.00	3.00
TOTAL :	**25.87**	**26.72**	**26.53**	**26.29**	**27.22**

PROJECTED PROFITABILITY STATEMENT **(in Lacs)**

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation %	**40%**	**45%**	**50%**	**55%**	**60%**
SALES					
AIR FILTER	79.80	96.98	111.16	126.01	141.54
Total	**79.80**	**96.98**	**111.16**	**126.01**	**141.54**
COST OF SALES					
Raw material cost	49.73	57.46	65.94	74.84	84.17
Electricity Expenses	2.88	3.17	3.48	3.83	4.22
Depreciation	2.08	1.77	1.50	1.28	1.09
Wages & labour	6.24	6.86	7.55	8.31	9.14
Repair & maintenance	0.80	0.97	1.11	1.26	1.42
Consumables	2.79	3.39	3.89	4.41	4.95
Packaging cost	2.39	1.94	2.22	2.52	2.83
Cost of Production	66.91	75.56	85.70	96.45	107.81
Add: Opening Stock	-	3.99	4.85	5.56	6.30
Less: Closing Stock	3.99	4.85	5.56	6.30	7.08
Cost of Sales	62.92	74.70	85.00	95.71	107.03
GROSS PROFIT	**16.88**	**22.28**	**26.17**	**30.30**	**34.50**
	21.16%	**22.98%**	**23.54%**	**24.05%**	**24.38%**
Salary to Staff	2.64	3.04	3.49	4.02	4.62
Interest on Term Loan	1.24	2.00	0.78	0.47	0.17
Interest on working Capital	0.77	0.77	0.77	0.77	0.77
Rent	4.20	5.04	6.05	7.26	8.71
Selling & Administration Expenses	3.19	3.88	5.56	6.30	5.66
TOTAL	**12.04**	**14.72**	**16.65**	**18.82**	**19.92**
NET PROFIT	4.84	7.56	9.52	11.48	14.58
Taxation		0.38	1.03	1.42	2.04
PROFIT (After Tax)	**4.84**	**7.18**	**8.49**	**10.06**	**12.54**
	6.07%	**7.79%**	**8.56%**	**9.11%**	**10.30%**

PROJECTED CASH FLOW STATEMENT **(in Lacs)**

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
SOURCES OF FUND					
Own Margin	2.18				
Net Profit	4.84	7.56	9.52	11.48	14.58
Depriciation & Exp. W/off	2.08	1.77	1.50	1.28	1.09
Increase in Cash Credit	7.00	-	-	-	-
Increase In Term Loan	12.60	-	-	-	-
Increase in Creditors	2.15	0.72	0.42	0.69	0.50
Increase in Provisions & Other liabilities	0.75	0.25	0.20	- 0.20	0.20
TOTAL :	**31.60**	**10.29**	**11.64**	**13.26**	**16.36**
APPLICATION OF FUND					
Increase in Fixed Assets	14.00				
Increase in Stock	6.48	1.25	1.13	1.19	1.24
Increase in Debtors	4.26	0.27	0.29	0.22	0.62
Increase in loans and advances	2.50	1.00	- 1.50	-	1.00
Repayment of Term Loan	1.40	2.80	2.80	2.80	2.80
Drawings	2.25	4.50	6.50	8.00	9.50
Taxation	-	0.38	1.03	1.42	2.04
TOTAL :	**30.88**	**10.20**	**10.25**	**13.63**	**17.20**
Opening Cash & Bank Balance	-	0.72	0.81	2.20	1.83
Add : Surplus	0.72	0.10	1.39	-0.37	-0.84
Closing Cash & Bank Balance	**0.72**	**0.81**	**2.20**	**1.83**	**0.99**

CALCULATION OF D.S.C.R

PARTICULARS	1st year	2nd year	3rd year	4th year	5th year
CASH ACCRUALS	6.92	8.94	9.99	11.34	13.63
Interest on Term Loan	1.24	2.00	0.78	0.47	0.17
Total	8.15	10.94	10.77	11.82	13.79
REPAYMENT					
Instalment of Term Loan	1.40	2.80	2.80	2.80	2.80
Interest on Term Loan	1.24	2.00	0.78	0.47	0.17
Total	2.64	4.80	3.58	3.27	2.97
DEBT SERVICE COVERAGE RATIO	**3.09**	**2.28**	**3.01**	**3.61**	**4.65**
AVERAGE D.S.C.R.					**3.33**

REPAYMENT SCHEDULE OF TERM LOAN							
						Interest	11.00%
Year	Particulars	Amount	Addition	Total	Interest	Repayment	Closing Balance
ist	Opening Balance	-					
	1st month		12.60	12.60	-	-	12.60
	2nd month	12.60	-	12.60	0.12	-	12.60
	3rd month	12.60	-	12.60	0.12	-	12.60
	4th month	12.60	-	12.60	0.12	-	12.60
	5th month	12.60	-	12.60	0.12	-	12.60
	6th month	12.60	-	12.60	0.12	-	12.60
	7th month	12.60	-	12.60	0.12	0.23	12.37
	8th month	12.37	-	12.37	0.11	0.23	12.13
	9th month	12.13	-	12.13	0.11	0.23	11.90
	10th month	11.90	-	11.90	0.11	0.23	11.67
	11th month	11.67	-	11.67	0.11	0.23	11.43
	12th month	11.43	-	11.43	0.10	0.23	11.20
					1.24	**1.40**	
2nd	Opening Balance						
	1st month	11.20	-	11.20	0.10	0.23	10.97
	2nd month	10.97	-	10.97	0.10	0.23	10.73
	3rd month	10.73	-	10.73	0.10	0.23	10.50
	4th month	10.50	-	10.50	0.10	0.23	10.27
	5th month	10.27	-	10.27	0.09	0.23	10.03
	6th month	10.03	-	10.03	1.00	0.23	9.80
	7th month	9.80	-	9.80	0.09	0.23	9.57
	8th month	9.57	-	9.57	0.09	0.23	9.33
	9th month	9.33	-	9.33	0.09	0.23	9.10
	10th month	9.10	-	9.10	0.08	0.23	8.87
	11th month	8.87	-	8.87	0.08	0.23	8.63
	12th month	8.63	-	8.63	0.08	0.23	8.40
					2.00	**2.80**	
3rd	Opening Balance						
	1st month	8.40	-	8.40	0.08	0.23	8.17
	2nd month	8.17	-	8.17	0.07	0.23	7.93
	3rd month	7.93	-	7.93	0.07	0.23	7.70
	4th month	7.70	-	7.70	0.07	0.23	7.47
	5th month	7.47	-	7.47	0.07	0.23	7.23
	6th month	7.23	-	7.23	0.07	0.23	7.00
	7th month	7.00	-	7.00	0.06	0.23	6.77
	8th month	6.77	-	6.77	0.06	0.23	6.53
	9th month	6.53	-	6.53	0.06	0.23	6.30
	10th month	6.30	-	6.30	0.06	0.23	6.07
	11th month	6.07	-	6.07	0.06	0.23	5.83
	12th month	5.83	-	5.83	0.05	0.23	5.60
					0.78	**2.80**	

4th	Opening Balance						
	1st month	5.60	-	5.60	0.05	0.23	5.37
	2nd month	5.37	-	5.37	0.05	0.23	5.13
	3rd month	5.13	-	5.13	0.05	0.23	4.90
	4th month	4.90	-	4.90	0.04	0.23	4.67
	5th month	4.67	-	4.67	0.04	0.23	4.43
	6th month	4.43	-	4.43	0.04	0.23	4.20
	7th month	4.20	-	4.20	0.04	0.23	3.97
	8th month	3.97	-	3.97	0.04	0.23	3.73
	9th month	3.73	-	3.73	0.03	0.23	3.50
	10th month	3.50	-	3.50	0.03	0.23	3.27
	11th month	3.27	-	3.27	0.03	0.23	3.03
	12th month	3.03	-	3.03	0.03	0.23	2.80
					0.47	**2.80**	
5th	Opening Balance						
	1st month	2.80	-	2.80	0.03	0.23	2.57
	2nd month	2.57	-	2.57	0.02	0.23	2.33
	3rd month	2.33	-	2.33	0.02	0.23	2.10
	4th month	2.10	-	2.10	0.02	0.23	1.87
	5th month	1.87	-	1.87	0.02	0.23	1.63
	6th month	1.63	-	1.63	0.01	0.23	1.40
	7th month	1.40	-	1.40	0.01	0.23	1.17
	8th month	1.17	-	1.17	0.01	0.23	0.93
	9th month	0.93	-	0.93	0.01	0.23	0.70
	10th month	0.70	-	0.70	0.01	0.23	0.47
	11th month	0.47	-	0.47	0.00	0.23	0.23
	12th month	0.23	-	0.23	0.00	0.23	-
					0.17	**2.80**	

DOOR TO DOOR	60	MONTHS
MORATORIUM PERIOD	6	MONTHS
REPAYMENT PERIOD	54	MONTHS

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