PROJECT REPORT

Of

ALUMINIUM CASTINGS

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **Aluminium Castings**.

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 A GLANCE

1	Name of the Entreprenuer		xxxxxxxxxx	
2	Constitution (legal Status)	:	xxxxxxxxxx	
3	Father / Spouse Name		xxxxxxxxxxxx	
4	Unit Address	:	xxxxxxxxxxxxxxxxxxxxxxx	
			District : xxxxxxx	
			Pin: xxxxxxx	State: xxxxxxxxxx
			Mobile xxxxxxx	
5	Product and By Product	:	**Aluminium Castings**	
6	Name of the project / business activity proposed	:	**Aluminium Castings Manufacturing Unit**	
7	Cost of Project	:	Rs.17.87 Lakhs	
8	Means of Finance			
	Term Loan		Rs.10.39 Lakhs	
	Own Capital		Rs.1.79 Lakhs	
	Working Capital		Rs.5.7 Lakhs	
9	Debt Service Coverage Ratio	:	2.36	
10	Pay Back Period	:	5	Years
11	Project Implementation Period	:	5-6	Months
12	Break Even Point	:	52%	
13	Employment	:	13	Persons
14	Power Requirement	:	15	HP
15	Major Raw materials	:	2 tones of commercial aluminium and Aluminium alloy in-gots conforming to LM-6, LM-5, LM-24 specificaions	
16	Estimated Annual Sales Turnover (Max Utilized Capacity)	:	175.03	Lakhs
17	Detailed Cost of Project & Means of Finance			

COST OF PROJECT

(Rs. In Lakhs)

Particulars	Amount
Land	Own/Rented
Building /Shed 2000 Sq ft	Own/Rented
Plant & Machinery	10.54
Furniture & Fixtures	1.00
Working Capital	6.33
Total	**17.87**

MEANS OF FINANCE

Particulars	Amount
Own Contribution	1.79
Term Loan	10.39
Working Capital	5.70
Total	**17.87**

PROJECT REPORT ON
ALUMINIUM CASTINGS

PRODUCT AND ITS USES:

Aluminium plays a major role in the modern world through its innumerable applications, because of its intrinsic and versatile properties of lightness, strength to weight ratio, corrosion resistance, electrical and thermal conductivity, non- toxicity etc. In the form of castings, either as cast or heat treated, aluminium is gradually replacing Gunmetal, bronze, stainless steel and many grey iron and malleable iron castings. The typical products and fields of use are mentioned below.

Engine components like automobile and diesel pistons, automotive timing gear, gear boxes, crank cases, clutch housing, pump bodies, bracket, arms and hangers for different industries, components, fittings for chemical and marine uses, railways, storage tanks, flywheel housing and propellers, artificial limbs, omamental hardwares, ashtrays, water jugs, art metal work, moulding flasks, core drying plates and pattern castings, rotor of ceiling fans and many other components in different fields are made of A1-castings.

MARKET POTENTIAL:

It is difficult to assess the exact market for each and every item of Aluminium castings mentioned. However, there is a good demand for the following items in the country:-

1. Moulding flasks
2. Core drying plates
3. Pattern castings.

These items are very much required by the ferrous and non-ferrous foundries whose number is increasing day by day. Similarly, the rotor of ceiling fans, which is normally made of grey iron, is now gradually being replaced by Aluminium rotor. Besides, there are many components and fittings made out of Aluminium castings which are very much needed by chemical, marine industries, railways, breweries, electrical industries, pump manufacturers etc. In view of the above the market potential for Aluminium castings is good and also expected to be bright in near future.

PRODUCTION TARGETS (PER ANNUM):

Production targets is fixed at 120 tones of finished sand mould and permanent mould and permanent mould (gravity die casting) castings of different Aluminium alloys corresponding mostly to LM-5, LM-6, LM-24 etc. per annum.

BASIS AND PRESUMPTION:

The production target fixed is on the basis of single shift of 8 hours and 300 working days in a year. In this scheme, only sand mould castings and gravity die

casting methods (permanent mould casting methods) are included. The pressure die casting method is excluded since this is covered under reserved item. The process is economical only if the items are mass produced in thousands per day. In the initial phase, the production will be restricted to only such items like- Aluminium patterns, moulding flasks, various components and fittings for chemical; marine and electrical industries, railways, pump housing and rotor of ceiling fans for which there is a good demand. In the 2nd phase, the production of more sophisticated items like automobile and diesel pistons, gear box, crank cases, flywheel housing and propeller etc. will be taken up.

IMPLEMENTATION SCHEDULE:

Project implementation will take a period of 8 months the date of approval of the project. Break-up of activities with time-period for each activity is shown below:

Sr. No.	Nature of activities	period in moths (Estimated)
1.	Scheme preparation and approval	0-1
2.	SSI Provisional registration	1-2
3.	Sanction of loan	2-5
4.	Clearance from Pollution Control Board	3-4
5.	Placement of order for delivery of machinery	4-5
6.	Installation of machines	6-7
7.	Power connection	6-7
8.	Trial run	7-8
9.	Commencement of production	9 months

TECHNICAL ASPECTS:

PRODUCTION DETAILS & PROCESS OF MANUFACTURING:

1. The Aluminum alloy ingots along with other additions are melted in oil fired crucible furnace.
2. The molten metal at specified temperature is transferred by crucibles/ladles into the prepared sand mould or permanent mould.
3. The casting are taken out from the moulds when cold and fettled.
4. The fettled castings are inspected and sent for dispatch.
5. The fettlings and rejected castings constitute the foundry returns (generated scrap) and are returned to melting furnace for re-use.

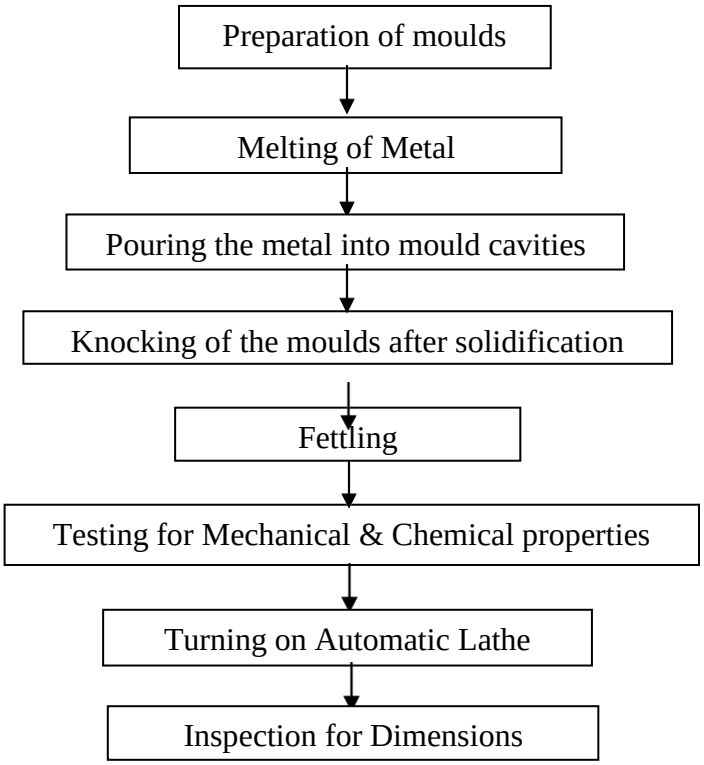
QUALITY CONTROL AND STANDARDS:

In the present scheme, ingots of required specification are selected as raw

material.Accordingly, composition adjustment is normally not necessary. But in using the scrap, composition adjustment will be necessary since during each melting the loss of alloying elements or the bags metal Aluminium has to be compensated by suitable addition of Virgin Aluminium or master alloys. The correct amount of addition can be arrived at only if the bath composition is ascertained by chemical analysis which may take some time. However, control of composition is important and is to be resorted to particularly when the customer's specification is quite rigid. Melting of Aluminium and its alloys must be controlled as per the norms for a sound casting to be produced. Similarly, quality control of moulding sand with respect to sand grain size, moisture, permeability and green compression strength is equally important. A proper surface either in the sand mould or in the permanent mould for gravity die csting must be ensured for soundness and good surface finish of the casting.

Casting alloys selected are those conforming to B.S. 1490, LM-5, LM-6, and LM-24 since these do not require any heat treatment and can be disposed of as cast condition duly fettled.

PROCESS FLOW CHART:



PROJECTED BALANCE SHEET

PARTICULARS	I	II	III	IV	V
SOURCES OF FUND					
Capital Account					
Opening Balance	-	2.17	2.91	4.91	9.39
Add: Additions	1.79	-	-	-	-
Add: Net Profit	1.38	2.49	4.50	5.98	8.40
Less: Drawings	1.00	1.75	2.50	1.50	5.50
Closing Balance	2.17	2.91	4.91	9.39	12.28
CC Limit	5.70	5.70	5.70	5.70	5.70
Term Loan	9.23	6.92	4.62	2.31	-
Sundry Creditors	1.31	1.49	1.68	1.89	2.12
TOTAL :	**18.41**	**17.02**	**16.90**	**19.29**	**20.10**
APPLICATION OF FUND					
Fixed Assets (Gross)	11.54	11.54	11.54	11.54	11.54
Gross Dep.	1.68	3.11	4.34	5.38	6.27
Net Fixed Assets	9.86	8.43	7.20	6.16	5.27
Current Assets					
Sundry Debtors	2.45	2.87	3.24	3.57	4.08
Stock in Hand	5.21	5.61	6.11	9.53	10.13
Cash and Bank	0.89	0.12	0.35	0.04	0.62
TOTAL :	**18.41**	**17.02**	**16.90**	**19.29**	**20.10**
	-	-	-	-	-

PROJECTED PROFITABILITY STATEMENT

PARTICULARS	I	II	III	IV	V
A) SALES					
Gross Sale	105.00	122.85	138.92	152.81	175.03
Total (A)	**105.00**	**122.85**	**138.92**	**152.81**	**175.03**
B) COST OF SALES					
Raw Mateiral Consumed	78.54	89.34	101.02	113.65	127.29
Electricity Expenses	1.75	1.89	2.04	2.18	2.33
Repair & Maintenance	0.53	0.61	0.69	0.76	0.88
Labour & Wages	10.76	11.83	13.02	14.32	15.75
Depreciation	1.68	1.43	1.22	1.04	0.89
Cost of Production	93.25	105.11	117.99	131.96	147.13
Add: Opening Stock /WIP	-	2.59	2.63	2.74	5.74
Less: Closing Stock /WIP	2.59	2.63	2.74	5.74	5.89
Cost of Sales (B)	90.66	105.08	117.88	128.97	146.99
C) GROSS PROFIT (A-B)	14.34	17.77	21.04	23.84	28.05
	13.66%	**14.47%**	**15.14%**	**15.60%**	**16.02%**
D) Bank Interest (Term Loan)	1.13	0.92	0.67	0.41	0.16
ii) Interest On Working Capital	0.63	0.63	0.63	0.63	0.63
E) Salary to Staff	8.58	9.44	10.38	11.42	12.56
F) Selling & Adm Expenses Exp.	2.63	4.30	4.86	5.35	6.13
TOTAL (D+E)	**12.96**	**15.28**	**16.54**	**17.81**	**19.47**
H) NET PROFIT	1.38	2.49	4.50	6.03	8.57
	1.3%	**2.0%**	**3.2%**	**3.9%**	**4.9%**
I) Taxation	-	-	-	0.05	0.18
J) PROFIT (After Tax)	1.38	2.49	4.50	5.98	8.40

PROJECTED CASH FLOW STATEMENT

PARTICULARS	I	II	III	IV	V
SOURCES OF FUND					
Own Contribution	1.79	-			
Net Profit	1.38	2.49	4.50	6.03	8.57
Depreciation & Exp. W/off	1.68	1.43	1.22	1.04	0.89
Increase In Cash Credit	5.70				
Increase In Term Loan	10.39	-	-	-	-
Increase in Creditors	1.31	0.18	0.19	0.21	0.23
TOTAL :	**22.24**	**4.10**	**5.92**	**7.29**	**9.69**
APPLICATION OF FUND					
Increase in Fixed Assets	11.54	-	-	-	-
Increase in Stock	5.21	0.40	0.51	3.41	0.60
Increase in Debtors	2.45	0.42	0.37	0.32	0.52
Repayment of Term Loan	1.15	2.31	2.31	2.31	2.31
Taxation	-	-	-	0.05	0.18
Drawings	1.00	1.75	2.50	1.50	5.50
TOTAL :	**21.35**	**4.87**	**5.69**	**7.60**	**9.11**
Opening Cash & Bank Balance	-	0.89	0.12	0.35	0.04
Add : Surplus	0.89	- 0.77	0.23	- 0.31	0.58
Closing Cash & Bank Balance	**0.89**	**0.12**	**0.35**	**0.04**	**0.62**

COMPUTATION OF ALUMINIUM CASTINGS MANUFACTURING UNIT

Items to be Manufactured Aluminium Castings

Manufacturing Capacity per Day		0.20	MT
No. of Working Hour		8	
No of Working Days per month		25	
No. of Working Day per annum		300	
Total Production per Annum		60	MT
Year		Capacity	Aluminium Castings
		Utilisation	
I		60%	36
II		65%	39
III		70%	42
IV		75%	45
V		80%	48

COMPUTATION OF RAW MATERIAL

Item Name		**Quantity of Raw Material**	**Unit**	**Unit Rate of**	**Total CostPer Annum (100%)**
2 tones of commercial aluminium and Aluminium alloy in-gots conforming to LM-6, LM-5, LM-24 specificaions, at an average rate of Rs. 1,80,000/-		72.00	MT	180,000.00	12,960,000.00
Foundry sand, bentonite, die coats, degreaser,refractories etc.					130,000.00
Total		**72.00**			**13,090,000.00**

Total Raw material in Rs lacs	at 100% Capacity		130.90
Cost per MT		(In Rs)	**218,166.70**

Raw Material Consumed	**Capacity Utilisation**	**Rate**	**Amount (Rs.)**
I	60%	218,166.70	78.54
II	65%	229,075.00	89.34
III	70%	240,528.80	101.02
IV	75%	252,555.20	113.65
V	80%	265,183.00	127.29

COMPUTATION OF CLOSING STOCK & WORKING CAPITAL

PARTICULARS	I	II	III	IV	V
Finished Goods					
(10 Days requirement)	2.59	2.63	2.74	5.74	5.89
Raw Material					
(10 Days requirement)	2.62	2.98	3.37	3.79	4.24
Closing Stock	**5.21**	**5.61**	**6.11**	**9.53**	**10.13**

COMPUTATION OF WORKING CAPITAL REQUIREMENT

Particulars	Amount	Margin(10%)	Net Amount
Stock in Hand	5.21		
Less:			
Sundry Creditors	1.31		
Paid Stock	**3.90**	**0.39**	**3.51**
Sundry Debtors	2.45	0.25	2.21
Working Capital Requirement			**5.71**
Margin			0.63
MPBF			**5.71**
Working Capital Demand			**5.70**

BREAK UP OF LABOUR

Particulars		Wages Per Month	No of Employees	Total Salary
Supervisor		20,000.00	1	20,000.00
Plant Operator		15,000.00	1	15,000.00
Unskilled Worker		8,500.00	4	34,000.00
Helper		5,000.00	1	5,000.00
Security Guard		7,500.00	1	7,500.00
				81,500.00
Add: 10% Fringe Benefit				8,150.00
Total Labour Cost Per Month				89,650.00
Total Labour Cost for the year (In Rs. Lakhs)			8	10.76

BREAK UP OF SALARY

Particulars		Salary Per Month	No of Employees	Total Salary
Accountant cum store keeper		15,000.00	1	15,000.00
Administrative Staffs		12,500.00	4	50,000.00
Total Salary Per Month				65,000.00
Add: 10% Fringe Benefit				6,500.00
Total Salary for the month				71,500.00
Total Salary for the year (In Rs. Lakhs)			5	8.58

COMPUTATION OF DEPRECIATION

Description	Land	Building/shed	Plant & Machinery	Furniture	**TOTAL**
Rate of Depreciation			**15.00%**	**10.00%**	
Opening Balance	Own/Rented		-	-	-
Addition	-		10.54	1.00	11.54
	-		10.54	1.00	11.54
TOTAL		-	10.54	1.00	11.54
Less : Depreciation	-	-	1.58	0.10	1.68
WDV at end of Ist year	-	-	8.96	0.90	9.86
Additions During The Year	-	-	-	-	-
	-	-	8.96	0.90	9.86
Less : Depreciation	-	-	1.34	0.09	1.43
WDV at end of IInd Year	-	-	7.62	0.81	8.43
Additions During The Year	-	-	-	-	-
	-	-	7.62	0.81	8.43
Less : Depreciation	-	-	1.14	0.08	1.22
WDV at end of IIIrd year	-	-	6.47	0.73	7.20
Additions During The Year	-	-	-	-	-
	-	-	6.47	0.73	7.20
Less : Depreciation	-	-	0.97	0.07	1.04
WDV at end of IV year	-	-	5.50	0.66	6.16
Additions During The Year	-	-	-	-	-
	-	-	5.50	0.66	6.16
Less : Depreciation	-	-	0.83	0.07	0.89
WDV at end of Vth year	-	-	4.68	0.59	5.27

REPAYMENT SCHEDULE OF TERM LOAN 11.0%

Year	Particulars	Amount	Addition	Total	Interest	Repayment	Cl Balance
I	Opening Balance						
	Ist Quarter	-	10.39	10.39	0.29	-	10.39
	Iind Quarter	10.39	-	10.39	0.29	-	10.39
	IIIrd Quarter	10.39	-	10.39	0.29	0.58	9.81
	Ivth Quarter	9.81	-	9.81	0.27	0.58	9.23
					1.13	1.15	
II	Opening Balance						
	Ist Quarter	9.23	-	9.23	0.25	0.58	8.66
	Iind Quarter	8.66	-	8.66	0.24	0.58	8.08
	IIIrd Quarter	8.08	-	8.08	0.22	0.58	7.50
	Ivth Quarter	7.50		7.50	0.21	0.58	6.92
					0.92	2.31	
III	Opening Balance						
	Ist Quarter	6.92	-	6.92	0.19	0.58	6.35
	Iind Quarter	6.35	-	6.35	0.17	0.58	5.77
	IIIrd Quarter	5.77	-	5.77	0.16	0.58	5.19
	Ivth Quarter	5.19		5.19	0.14	0.58	4.62
					0.67	2.31	
IV	Opening Balance						
	Ist Quarter	4.62	-	4.62	0.13	0.58	4.04
	Iind Quarter	4.04	-	4.04	0.11	0.58	3.46
	IIIrd Quarter	3.46	-	3.46	0.10	0.58	2.89
	Ivth Quarter	2.89		2.89	0.08	0.58	2.31
					0.41	2.31	
V	Opening Balance						
	Ist Quarter	2.31	-	2.31	0.06	0.58	1.73
	Iind Quarter	1.73	-	1.73	0.05	0.58	1.15
	IIIrd Quarter	1.15	-	1.15	0.03	0.58	0.58
	Ivth Quarter	0.58		0.58	0.02	0.58	-
					0.16	2.31	

Door to Door Period	60	Months
Moratorium Period	6	Months
Repayment Period	54	Months

CALCULATION OF D.S.C.R

PARTICULARS	I	II	III	IV	V
CASH ACCRUALS	3.06	3.92	5.72	7.02	9.29
Interest on Term Loan	1.13	0.92	0.67	0.41	0.16
Total	4.19	4.84	6.39	7.44	9.44
REPAYMENT					
Repayment of Term Loan	1.15	2.31	2.31	2.31	2.31
Interest on Term Loan	1.13	0.92	0.67	0.41	0.16
Total	2.28	3.23	2.97	2.72	2.47
DEBT SERVICE COVERAGE RATIO	**1.84**	**1.50**	**2.15**	**2.73**	**3.83**
AVERAGE D.S.C.R.			**2.36**		

COMPUTATION OF SALE

Particulars	I	II	III	IV	V
Op Stock	-	1.00	1.00	1.00	2.00
Production	36.00	39.00	42.00	45.00	48.00
	36.00	40.00	43.00	46.00	50.00
Less : Closing Stock(10 Days)	1.00	1.00	1.00	2.00	2.00
Net Sale	35.00	39.00	42.00	44.00	48.00
Sale Price per MT	300,000.00	315,000.00	330,750.00	347,288.00	364,652.00
Sale (in Lacs)	**105.00**	**122.85**	**138.92**	**152.81**	**175.03**

COMPUTATION OF ELECTRICITY

(A) POWER CONNECTION				
Total Working Hour per day		Hours	8	
Electric Load Required		HP	15	
Load Factor			0.7460	
Electricity Charges		per unit	7.50	
Total Working Days			300	
Electricity Charges				2.01
Add : Minimim Charges (@ 10%)				
(B) DG set				
No. of Working Days			300	days
No of Working Hours			0.5	Hour per day
Total no of Hour			150	
Diesel Consumption per Hour			8	
Total Consumption of Diesel			1,200	
Cost of Diesel			65.00	Rs. /Ltr
Total cost of Diesel			0.78	
Add : Lube Cost @15%			0.12	
Total			**0.90**	
Total cost of Power & Fuel at 100%				2.91
Year		**Capacity**		**Amount**
				(in Lacs)
I		60%		1.75
II		65%		1.89
III		70%		2.04
IV		75%		2.18
V		80%		2.33

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