

# PROJECT REPORT

## Of

# GEAR BLANKS MANUFACTURING

## PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **Gear Blanks Manufacturing**.

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 Entrepreneur : xxxxxxxxxx
- 2 Constitution (legal Status) : xxxxxxxxxx
- 3 Father / Spouse Name : xxxxxxxxxxxxxx
- 4 Unit Address : xxxxxxxxxxxxxxxxxxxxxxxx
- District : xxxxxxxx  
Pin: xxxxxxxx State: xxxxxxxxxx  
Mobile : xxxxxxxx
- 5 Product and By Product : **GEAR BLANKS**
- 6 Name of the project / business activity proposed : **GEAR BLANKS MANUFACTURING UNIT**
- 7 Cost of Project : Rs.38.89 Lakhs
- 8 Means of Finance  
Term Loan : Rs.27 Lakhs  
Own Capital : Rs.3.89 Lakhs  
Working capital : Rs.8 Lakhs
- 9 Debt Service Coverage Ratio : 2.37
- 10 Pay Back Period : 5 Years
- 11 Project Implementation Period : 5-6 Months
- 12 Break Even Point : 36%
- 13 Employment : 10 Persons
- 14 Power Requirement : 50.00 HP
- 15 Major Raw materials : Steel Rods, Die steel, Fuels, Packing material
- 16 Estimated Annual Sales Turnover (Max Capacity) : 167.74 Lakhs
- 17 Detailed Cost of Project & Means of Finance

**COST OF PROJECT**

(Rs. In Lakhs)

Particulars	Amount
Land	Own/Rented
Plant & Machinery	27.00
Furniture & Fixtures	3.00
Working Capital	8.89
<b>Total</b>	<b>38.89</b>

**MEANS OF FINANCE**

Particulars	Amount
Own Contribution	3.89
Working Capital(Finance)	8.00
Term Loan	27.00
<b>Total</b>	<b>38.89</b>

# **GEAR BLANKS MANUFACTURING**

**Introduction:** Gear Blanks are produced by forging process of metal forming in which hot metal at particular temperature, where the metal having the plastic state, is pressed in die. Forging can be carried out either in open or closed die. Dies are prepared by special steels like hot work tool steels and suitably heat treated to have proper hardness and toughness so that the dies can be capable of pressing hot metal without any deformation in the die during forging. The properties of forged Gear Blanks are considered to be better properties than any other metal forming process. Machined Forged Gear Blanks are used in Automobile sector for Two-Wheeler and Three Wheeler.



**Market and Demand Aspects:** Machined Forged Gear Blanks are consumed by various Automobile Industries of Two & Three Wheeler Sector. At present Automobile Industry growth is very fast in the country. The major consumers of the Gear Blanks are Bajaj Auto, Bajaj Tempo, Hero Honda, Kinetic Honda, TVS, Yamaha, Honda, etc. So the future prospects of the Unit are very bright and even the Unit can think for spares market.

**Raw materials:** The main raw materials are steel rods, Die steel, fuels, etc which are locally available. Medium Carbon Steel of EN8, EN16R, etc are recommended grades.

**Manufacturing Process:** Medium Carbon Steel Rods will be cut to the required length. Then cut blanks will be heated in Furnace to a temperature of 1350- 1450° C. After attaining the required temperature, heated blanks are removed one by one from the furnace and pressed in the dies for forging operation. Forged Gear Blanks have to be trimmed and pierced for removal of excess material for getting finished products. The forged gear blanks have to be sent for heat treatment of normalising to impart the refine grain structure and requisite properties as specified by the customer.

**Machinery requirements:** Major machines and equipments that are required are as follows:

<b>Description</b>	<b>Quantity</b>	<b>Rate</b>	<b>Value</b>
Power Hammer, Capacity of 1 MT with 25 HP Motor along with other accessories	1	1000000	1000000
Solid Frame type Trimming Press of 60T Capacity	1	300000	300000
Oil fired Heating Furnace with blower of 3 HP Motor and other accessories	1	300000	300000
Oil fired Normalising Furnace with 2 HP Motor	1	200000	200000
Shot Blasting Machine with 5 HP Motor of 100 Kg. capacity	1	250000	250000
Power Hacksaw Machine with 1 HP Motor	3	50000	150000
Centre lathe heavy duty Machine	1	250000	250000

with Motor and accessories of 10' length			
Other machines & equipments	Ls		250000
<b>Total Amount</b>			<b>2700000</b>

**Area:** The industrial setup requires space for Inventory, workshop or manufacturing area, space for power supply utilities and auxiliary like Generator setup. Also some of the area of building is required for office staff facilities, documentation, office furniture, etc. Thus, the approximate total area required for complete industrial setup is 1500 to 2000Sqft.

**Power Requirement:** The power consumption required to run all the machinery could be approximated as 50 Hp

**Manpower Requirement:** There are requirement of skilled machine operators to run the machine set. Experience quality engineers are required for desired quality control. Some helpers are also required to transfer the material from one work station to other. Office staffs are required to maintain the documentation. The approximate manpower required is 10 including 1 Supervisor, 2 Plant operator, 2 unskilled worker, 1 Helper and 1 Security guard. 3 Skilled worker including Accountant, Manager and Sales person.

**Bank Term Loan:** Rate of Interest is assumed to be at 11%

**Depreciation:** Depreciation has been calculated as per the Provisions of Income Tax Act, 1961

## **Approvals & Registration Requirement:**

Basic registration required in this project:

- GST Registration
- Udyog Aadhar Registration (Optional)
- Choice of a Brand Name of the product and secure the name with Trademark if require.
- NOC from State Pollution Control Board

## **Implementation Schedule:**

S No.	Activity	Time required
1.	Acquisition of premises	1-2 Months
2.	Procurement & installation of Plant & Machinery	1-2 Months
3.	Arrangement of Finance	1.5-2 Months
4.	Requirement of required Manpower	1 Month
5.	Commercial Trial Runs	1 Month
	Total time Required (some activities shall run concurrently)	5-6 Months

## **FINANCIALS**

<b>PROJECTED BALANCE SHEET</b>					
<b>PARTICULARS</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<b>SOURCES OF FUND</b>					
<b>Capital Account</b>					
Opening Balance	-	6.95	10.74	15.96	20.60
Add: Additions	3.89	-	-	-	-
Add: Net Profit	9.06	10.79	12.72	12.64	14.16
Less: Drawings	6.00	7.00	7.50	8.00	9.00
<b>Closing Balance</b>	<b>6.95</b>	<b>10.74</b>	<b>15.96</b>	<b>20.60</b>	<b>25.76</b>
CC Limit	8.00	8.00	8.00	8.00	8.00
Term Loan	24.00	18.00	12.00	6.00	-
Sundry Creditors	1.46	1.68	1.82	1.96	2.09
<b>TOTAL :</b>	<b>40.42</b>	<b>38.42</b>	<b>37.77</b>	<b>36.55</b>	<b>35.85</b>
<b>APPLICATION OF FUND</b>					
<b>Fixed Assets ( Gross)</b>	30.00	30.00	30.00	30.00	30.00
Gross Dep.	4.35	8.06	11.23	13.94	16.25
Net Fixed Assets	25.65	21.94	18.77	16.06	13.75
<b>Current Assets</b>					
Sundry Debtors	3.45	4.07	4.56	5.06	5.59
Stock in Hand	7.76	8.81	9.72	10.67	11.64
Cash and Bank	3.55	3.59	4.72	4.76	4.87
<b>TOTAL :</b>	<b>40.42</b>	<b>38.42</b>	<b>37.77</b>	<b>36.55</b>	<b>35.85</b>

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<b>PROJECTED PROFITABILITY STATEMENT</b>					
PARTICULARS	I	II	III	IV	V
<b>A) SALES</b>					
Gross Sale	103.46	122.25	136.75	151.92	167.74
<b>Total (A)</b>	<b>103.46</b>	<b>122.25</b>	<b>136.75</b>	<b>151.92</b>	<b>167.74</b>
<b>B) COST OF SALES</b>					
Raw Material Consumed	62.70	71.82	77.81	83.79	89.78
Electricity Expenses	3.99	4.35	4.71	5.08	5.44
Repair & Maintenance	2.07	2.44	4.10	6.08	6.71
Labour & Wages	12.47	13.72	16.47	19.76	23.71
Depreciation	4.35	3.71	3.17	2.71	2.31
<b>Cost of Production</b>	<b>85.58</b>	<b>96.05</b>	<b>106.26</b>	<b>117.41</b>	<b>127.95</b>
<b>Add: Opening Stock /WIP</b>	<b>-</b>	<b>4.63</b>	<b>5.22</b>	<b>5.83</b>	<b>6.48</b>
<b>Less: Closing Stock /WIP</b>	<b>4.63</b>	<b>5.22</b>	<b>5.83</b>	<b>6.48</b>	<b>7.15</b>
<b>Cost of Sales (B)</b>	<b>80.95</b>	<b>95.46</b>	<b>105.64</b>	<b>116.76</b>	<b>127.27</b>
<b>C) GROSS PROFIT (A-B)</b>	<b>22.50</b>	<b>26.79</b>	<b>31.11</b>	<b>35.15</b>	<b>40.47</b>
	<b>21.75%</b>	<b>21.91%</b>	<b>22.75%</b>	<b>23.14%</b>	<b>24.12%</b>
D) Bank Interest (Term Loan )	2.93	2.39	1.73	1.07	0.41
ii) Interest On Working Capital	0.88	0.88	0.88	0.88	0.88
E) Salary to Staff	6.55	7.86	9.43	11.32	13.59
F) Selling & Adm Expenses Exp.	2.07	3.67	4.10	6.08	6.71
<b>TOTAL (D+E)</b>	<b>12.43</b>	<b>14.80</b>	<b>16.15</b>	<b>19.35</b>	<b>21.59</b>
H) NET PROFIT	10.07	11.99	14.96	15.80	18.88
	<b>9.7%</b>	<b>9.8%</b>	<b>10.9%</b>	<b>10.4%</b>	<b>11.3%</b>
I) Taxation	1.01	1.20	2.24	3.16	4.72
J) PROFIT (After Tax)	9.06	10.79	12.72	12.64	14.16



<b>PROJECTED CASH FLOW STATEMENT</b>					
<b>PARTICULARS</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<b>SOURCES OF FUND</b>					
Own Contribution	3.89	-			
Reserve & Surplus	10.07	11.99	14.96	15.80	18.88
Depriciation & Exp. W/off	4.35	3.71	3.17	2.71	2.31
Increase In Cash Credit	8.00				
Increase In Term Loan	27.00	-	-	-	-
Increase in Creditors	1.46	0.21	0.14	0.14	0.14
<b>TOTAL :</b>	<b>54.77</b>	<b>15.91</b>	<b>18.27</b>	<b>18.65</b>	<b>21.33</b>
<b>APPLICATION OF FUND</b>					
Increase in Fixed Assets	30.00	-	-	-	-
Increase in Stock	7.76	1.05	0.92	0.94	0.97
Increase in Debtors	3.45	0.63	0.48	0.51	0.53
Repayment of Term Loan	3.00	6.00	6.00	6.00	6.00
Taxation	1.01	1.20	2.24	3.16	4.72
Drawings	6.00	7.00	7.50	8.00	9.00
<b>TOTAL :</b>	<b>51.22</b>	<b>15.87</b>	<b>17.14</b>	<b>18.61</b>	<b>21.22</b>
Opening Cash & Bank Balance	-	3.55	3.59	4.72	4.76
Add : Surplus	3.55	0.04	1.13	0.04	0.11
Closing Cash & Bank Balance	<b>3.55</b>	<b>3.59</b>	<b>4.72</b>	<b>4.76</b>	<b>4.87</b>

<b>COMPUTATION OF MAKING OF GEAR BLANKS</b>			
<b>Item to be Manufactured Gear Blanks</b>			
Manufacturing Capacity per day		1,100	No.s
No. of Working Hour		8	
No of Working Days per month		25	
No. of Working Day per annum		300	
Total Production per Annum		3,30,000	No.s
Total Production per Annum		3,30,000	No.s
Year		Capacity	GEAR BLANKS
		Utilisation	
I		55%	1,81,500.00
II		60%	1,98,000.00
III		65%	2,14,500.00
IV		70%	2,31,000.00
V		75%	2,47,500.00

**COMPUTATION OF RAW MATERIAL**

Item Name	Quantity of Raw Material	Unit	Unit Rate of	Total CostPer Annum (100%)
Medium Carbon Steel of EN8, EN16R, grade etc.	180.00	MT	55,000.00	99,00,000.00
Consumables like Lubricating Oil, Shots,Packing Material, Cotton Waste, etc	Ls			10,00,000.00
Packing Material	Ls			5,00,000.00
<b>Total</b>				<b>1,14,00,000.00</b>
<b>Total Raw material in Rs lacs</b>				<b>114.00</b>

Raw Material Consumed	Capacity Utilisation	Amount (Rs.)	
I	55%	62.70	
II	60%	71.82	5% Increase in Cost
III	65%	77.81	5% Increase in Cost
IV	70%	83.79	5% Increase in Cost
V	75%	89.78	5% Increase in Cost

<b>COMPUTATION OF SALE</b>					
Particulars	I	II	III	IV	V
Op Stock	-	9,075.00	9,900.00	10,725.00	11,550.00
Production	1,81,500.00	1,98,000.00	2,14,500.00	2,31,000.00	2,47,500.00
	1,81,500.00	2,07,075.00	2,24,400.00	2,41,725.00	2,59,050.00
Less : Closing Stock(15 Days)	9,075.00	9,900.00	10,725.00	11,550.00	12,375.00
Net Sale	1,72,425.00	1,97,175.00	2,13,675.00	2,30,175.00	2,46,675.00
Sale Price per Pc	60.00	62.00	64.00	66.00	68.00
<b>Sale (in Lacs)</b>	<b>103.46</b>	<b>122.25</b>	<b>136.75</b>	<b>151.92</b>	<b>167.74</b>

<b>COMPUTATION OF CLOSING STOCK &amp; WORKING CAPITAL</b>					
<b>PARTICULARS</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<b>Finished Goods</b>					
(15 Days requirement)	4.63	5.22	5.83	6.48	7.15
<b>Raw Material</b>					
(15 Days requirement)	3.14	3.59	3.89	4.19	4.49
<b>Closing Stock</b>	<b>7.76</b>	<b>8.81</b>	<b>9.72</b>	<b>10.67</b>	<b>11.64</b>

<b>COMPUTATION OF WORKING CAPITAL REQUIREMENT</b>			
<b>Particulars</b>	<b>Amount</b>	<b>Margin(10%)</b>	<b>Net Amount</b>
Stock in Hand	7.76		
Less:			
Sundry Creditors	1.46		
<b>Paid Stock</b>	<b>6.30</b>	<b>0.63</b>	<b>5.67</b>
Sundry Debtors	3.45	0.34	3.10
<b>Working Capital Requirement</b>			<b>8.77</b>
<b>Margin</b>			0.97
<b>MPBF</b>			<b>8.77</b>
<b>Working Capital Demand</b>			<b>8.00</b>

<b>BREAK UP OF LABOUR</b>				
Particulars	Wages Per Month	No of Employees	Total Salary	
Supervisor	25,000.00	1	25,000.00	
Plant Operator	18,000.00	2	36,000.00	
Unskilled Worker	12,000.00	2	24,000.00	
Helper	8,000.00	1	8,000.00	
Security Guard	6,000.00	1	6,000.00	
			99,000.00	
Add: 5% Fringe Benefit			4,950.00	
Total Labour Cost Per Month			1,03,950.00	
Total Labour Cost for the year ( In Rs. Lakhs)		7	12.47	

<b>BREAK UP OF SALARY</b>				
Particulars	Salary Per Month	No of Employees	Total Salary	
Manager	26,000.00	1	26,000.00	
Accountant cum store keeper	22,000.00	1	22,000.00	
Sales	18,000.00	1	18,000.00	
Total Salary Per Month			52,000.00	
Add: 5% Fringe Benefit			2,600.00	
Total Salary for the month			54,600.00	
Total Salary for the year ( In Rs. Lakhs)		3	6.55	

<b>COMPUTATION OF DEPRECIATION</b>				
Description	Land	Plant & Machinery	Furniture	TOTAL
Rate of Depreciation		<b>15.00%</b>	<b>10.00%</b>	
<b>Opening Balance</b>	Leased	-	-	-
Addition	-	27.00	3.00	30.00
	-	27.00	3.00	30.00
		-	-	
TOTAL		27.00	3.00	30.00
Less : Depreciation	-	4.05	0.30	4.35
WDV at end of Ist year	-	22.95	2.70	25.65
Additions During The Year	-	-	-	-
	-	22.95	2.70	25.65
Less : Depreciation	-	3.44	0.27	3.71
WDV at end of IIInd Year	-	19.51	2.43	21.94
Additions During The Year	-	-	-	-
	-	19.51	2.43	21.94
Less : Depreciation	-	2.93	0.24	3.17
WDV at end of IIIrd year	-	16.58	2.19	18.77
Additions During The Year	-	-	-	-
	-	16.58	2.19	18.77
Less : Depreciation	-	2.49	0.22	2.71
WDV at end of IV year	-	14.09	1.97	16.06
Additions During The Year	-	-	-	-
	-	14.09	1.97	16.06
Less : Depreciation	-	2.11	0.20	2.31
WDV at end of Vth year	-	11.98	1.77	13.75

<b>REPAYMENT SCHEDULE OF TERM LOAN</b>							11.0%
<b>Year</b>	<b>Particulars</b>	<b>Amount</b>	<b>Addition</b>	<b>Total</b>	<b>Interest</b>	<b>Repayment</b>	<b>CI Balance</b>
<b>I</b>	Opening Balance						
	Ist Quarter	-	27.00	27.00	0.74	-	27.00
	IInd Quarter	27.00	-	27.00	0.74	-	27.00
	IIIrd Quarter	27.00	-	27.00	0.74	1.50	25.50
	Ivth Quarter	25.50	-	25.50	0.70	1.50	24.00
					2.93	3.00	
<b>II</b>	Opening Balance						
	Ist Quarter	24.00	-	24.00	0.66	1.50	22.50
	IInd Quarter	22.50	-	22.50	0.62	1.50	21.00
	IIIrd Quarter	21.00	-	21.00	0.58	1.50	19.50
	Ivth Quarter	19.50		19.50	0.54	1.50	18.00
					2.39	6.00	
<b>III</b>	Opening Balance						
	Ist Quarter	18.00	-	18.00	0.50	1.50	16.50
	IInd Quarter	16.50	-	16.50	0.45	1.50	15.00
	IIIrd Quarter	15.00	-	15.00	0.41	1.50	13.50
	Ivth Quarter	13.50		13.50	0.37	1.50	12.00
					1.73	6.00	
<b>IV</b>	Opening Balance						
	Ist Quarter	12.00	-	12.00	0.33	1.50	10.50
	IInd Quarter	10.50	-	10.50	0.29	1.50	9.00
	IIIrd Quarter	9.00	-	9.00	0.25	1.50	7.50
	Ivth Quarter	7.50		7.50	0.21	1.50	6.00
					1.07	6.00	
<b>V</b>	Opening Balance						
	Ist Quarter	6.00	-	6.00	0.17	1.50	4.50
	IInd Quarter	4.50	-	4.50	0.12	1.50	3.00
	IIIrd Quarter	3.00	-	3.00	0.08	1.50	1.50
	Ivth Quarter	1.50		1.50	0.04	1.50	-
					0.41	6.00	

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

<b>CALCULATION OF D.S.C.R</b>					
<b>PARTICULARS</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<b><u>CASH ACCRUALS</u></b>	13.41	14.50	15.89	15.35	16.47
Interest on Term Loan	2.93	2.39	1.73	1.07	0.41
Total	16.34	16.89	17.62	16.42	16.88
<b><u>REPAYMENT</u></b>					
Repayment of Term Loan	3.00	6.00	6.00	6.00	6.00
Interest on Term Loan	2.93	2.39	1.73	1.07	0.41
Total	5.93	8.39	7.73	7.07	6.41
<b>DEBT SERVICE COVERAGE RATIO</b>	<b>2.76</b>	<b>2.01</b>	<b>2.28</b>	<b>2.32</b>	<b>2.63</b>
<b>AVERAGE D.S.C.R.</b>			<b>2.37</b>		



<b>COMPUTATION OF ELECTRICITY</b>				
<b>(A) POWER CONNECTION</b>				
Total Working Hour per day		Hours	8	
Electric Load Required		HP	50	
Load Factor			0.7460	
Electricity Charges		per unit	7.50	
Total Working Days			300	
<b>Electricity Charges</b>				6,71,400.00
Add : Minimim Charges (@ 10%)				
<b>(B) DG set</b>				
No. of Working Days			300	days
No of Working Hours			0.3	Hour per day
Total no of Hour			90	
Diesel Consumption per Hour			8	
Total Consumption of Diesel			720	
Cost of Diesel			65.00	Rs. /Ltr
Total cost of Diesel			0.47	
Add : Lube Cost @15%			0.07	
Total			<b>0.54</b>	
Total cost of Power & Fuel at 100%				7.25
Year		Capacity		Amount (in Lacs)
I		55%		3.99
II		60%		4.35
III		65%		4.71
IV		70%		5.08
V		75%		5.44

## **DISCLAIMER**

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