PROJECT PROFILE ON HACKSAW BLADE MANUFACTURING

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PREPARED BY

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INTRODUCTION

A hacksaw is a fine-tooth saw with a blade under tension in a frame, used for cutting materials such as metal. Hand-held hacksaws consist of a metal frame with a handle, and pins for attaching a narrow disposable blade. A screw or other mechanism is used to put the thin blade under tension.

A power hacksaw (or electric hacksaw) is a type of hacksaw that is powered by electric motor. Most power hacksaws are stationary machines but some portable models do exist. Stationary models usually have a mechanism to lift up the saw blade on the return stroke and some have a coolant pump to prevent the saw blade from overheating

MARKET POTENTIAL

The demand of hacksaw blade is considerably increasing day by day with the growth of industrilisation,engineering sector,real estate,automobile sector etc.It is used in almost every sector for cutting of materials like angle, channel, flat plates, rods and such other things. It is also required in auto repairing shops,general repairing workshops,fitting shops,welding shops and technical institutes.Govt. department like Railway,Defence,PWD,Postal & Telegraph and others are one of the main user of it. In India large nos. of small enterprises are engaged in its manufacturing. By considering its demand, new production unit has great prospect.

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BASIS AND PRESUMPTIONS

- The information supplied is based on a standard type of manufacturing activity utilizing conventional techniques of production and optimum level of performance.
- 75% of the envisaged capacity is taken as efficiency on single working shift of 8 hrs & 300 working days in a year..
- Labour and wages are required as per present circumstances.
- The cost in respect of land & building, machine & equipment, raw material & selling price of finished product etc are those generally obtained at the time of preparation of project profile and may vary depeding upon the location, make and for variety of resons.
- The interest on total capital has been assumed @ 14% p.a

IMPLEMENTATION SCHEDULE

- Selection of site & Preparation of bankable project report — 3 months
- Filing of EM part-I with GM, DIC — 3 days
- Submission of project report & sanction of finance from financial institution/ Bank — 4 months
- Procurement of Plant, machinery & equipment — 1 month
- Commissioning and erection of Plant & machinery and trial run — 3 months
- Purchase of raw material & recruitment of labour & staff — 1 month
- Start of commercial production — Immediately as soon as above activities completed
- Filing of EM Part-II with GM, DIC — Immediately after the Enterprises has gone into regular production

TECHNICAL ASPECTS

DESIGN

Blades are available in standardized lengths, and with anywhere from three to thirty-two teeth per inch (tpi). The blade used is based on the thickness of the material being cut, with a minimum of three teeth in the material. Hacksaw blades are normally quite brittle, so care needs to be taken to prevent brittle fracture of the blade. Bi-metal blades are meant to minimize this risk.

RECOMMENDED TEETH PER 25MM (TPI) FOR EACH MATERIAL TYPE:

Material	Material diameter (mm)		
	10-30	30-100	100-250
	Teeth per inch (25mm)		
Free machining steel Building irons Structural steel	14-8	8-6	6-4
Heat-treated steel	14-8	8-6	6-4

Material	Material diameter (mm)		
	10-30	30-100	100-250
	Teeth per inch (25mm)		
Nitridated steel			
Spring steel	14-8	8-6	6-4
High temperature steel Stainless steel	8-6	6-4	6-4
Cast iron	10-8	8-6	6-4
Aluminium Brass	6-4	6-4	6-4

The common sizes of hexablades are:

High carbon steel

Dimension (mm)	TPI
250x12.5x0.60	18,24
300x25x0.80	18,24
300x12.5x0.60	14,18,24,32

High speed steel

Dimension (mm)	TPI
250x12.5x0.60	14,18,24
300x12.5x0.60	14,18,24

Power hacksaw blade

Dimension (mm)	TPI
350x25x1.20	10,14

MANUFACTURING PROCESS

Hacksaw blades (both hand & power hacksaw) are generally made up of carbon steel or high speed steel strip rolls. The blank of required size is obtained by fixing the strip rolls on the stand of semi automatic strip cutting machine and punched a hole at their both ends. Then, teeth are being made on the blank by milling or hobbing process. Once teeth are being cut, the

hacksaw blades are heat treated and tempered for the required hardness. The last step in the manufacturing process is surface cleaning, painting, printing and packing of the hacksaw blades for market supply.

The flow chart of the manufacturing process is given below:

Raw material

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Strip rolls

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Cutting of blanks & punching at their ends

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Teeth making on milling machine

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Heat treatment & surface preparation

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Painting & packing

PRODUCTION CAPACITY (per year)

Sr. no.	item	quantity
1	Carbon steel hand hacksaw blade 250x12.5x0.60	7,00,000
2	Carbon steel power hacksaw blade 350x25x1.20	3,00,000
3	High speed steel power hacksaw blade 350x25x1.20	3,00,000

QUALITY CONTROL

The job should be checked after completion of each stage so that chance of rejection at the end is eleminated. Hacksaw blades are manufactured as per IS : 2594-1963. For the inspection process proper callibarated gauges & equipment should be used.

POLLUTION CONTROL

As these unit do not create pollution, so there is no requirement of No Objection Certificate from pollution control board.

POWER CONSUMPTION

Approx. power consumption is 50H.P

FINANCIAL ASPECTS

- **FIXED CAPITAL**

1. **Land & building** 600 sq. mtrs. With covered area of 300 sq. mtrs 10,000(approx.)on monthly rent basis

2**. Machinery & Equipments**

Sr. No.	Description	Qty	Price (Rs.)
1	Semi automatic metal strip cutting machine,50mm with 5 H.P. motor	1	3,70,000
2	Strip straighting &cutting m/c cap-50mm width, with 5 H.P. motor	1	4,50,000
3	Universal milling m/c with attachment with 7 H.P. motor	1	4,00,000
4	Stamping m/c	1	25,000
5	Power press 20 T	1	4,50,000
5	Automatic temp. control heat treatment plant,3 H.P motor,70kva LT transformer	1	3,50,000
6	Bench grinder,250mm wheel dia,1H.P motor	1	10,000
7	Rockwell hardness testin m/c	1	20,000
8	Gauges,tools & other equipments	L.S	50,000
			Total= 21,25,000
	Installation & electrification charge @ 10% of cost of machine= 212500		
13	Furniture & office equipment		20000
		TOTAL	23,57,500

WORKING CAPITAL (per month)

1. **Personnel**

Sr. no.	Designation	No.	Salary	Total

			(per month)	
1	Manager	1	7000	7000
2	Supervisor	1	5000	5000
4	Skilled worker	2	4000	8000
5	Unskilled worker	2	3000	6000
7	Store-keeper	1	4000	4000
8	Clerk-cum-Typist	1	4000	4000
9	Peon	1	3000	3000
10	Watchman	1	3000	3000

Total 40,000/-

2. **Raw material (per month)**

Sr. no.	item	Quantity (kg)	amount
1	12.5mm width & 0.60mm thick carbon steel strip @ Rs.55/kg	1200	66000/-
2	25mm width & 1.20mm thick carbon steel strip @ Rs.48/kg	2200	105600/-
3	25mm width & 1.20mm thick high speed steel strip @ Rs.80/kg	2600	208000/-
4	Packing material	L.S	50000/-

Total - 429600/- or say 4,30,000/-

3. **Utilities (per month)**

Electricity & Water Rs 40,000

4. **Other expenses (per month)**

Sr. no.	Description	Amount
1	Stationary	4000
2	Transport charges	5000
3	Telephone	2000
4	Maintenance	4000
5	Insurance	3000
6	Miscellaneous	5000
7	Rent	10000
	TOTAL	**33000**

Total recurring expenditure (per month)
1+2+3+4 = 5,43,000/-

Total working capital (for 3 months)
5,43,000 x 3 = 16,29,000 /-

- **TOTAL CAPITAL INVESTMENT**

1. Fixed capital Rs. 23,57,500/-

2. working capital Rs. 16,29,000/-

Total = Rs. 39,86,500/-

FINANCIAL ANALYSIS

- **Cost of production (per year)**

Total recurring cost per year Rs. 65,16,000

Depreciation on machinery & equipment @ 10% Rs. 2,12,500

Depreciation on office furniture @ 20% Rs. 4,000

Interest on total investment @ 14% Rs. 5,58,110

Total cost of production **Rs. 72,90,610**

- **Turnover (per year)**

Item	Qty.	Value(Rs.)
Carbon steel hand hacksaw blade 250x12.5x0.60 mm	7,00,000 @Rs.1.25/each	8,75,000
Carbon steel power hacksaw blade 350x25x1.20	2,00,000 @Rs.22/each	44,00,000
High speed steel power hacksaw blade 350x25x1.20	1,00,000 @Rs.32/each	32,00,000
	Total -	**84,75,000**

- **Net profit (per year)**

=84,75,000 – 72,90,610

= 11,84,390 or say 11,84,000/-

- **Net profit ratio**

$$= \frac{\text{Net profit per annum} \times 100}{\text{Turnover per annum}}$$

$$= \frac{1184000 \times 100}{8475000}$$

= 13.97 %

= Or say 14%

- **Rate of return**

$$= \frac{\text{Net profit per annum} \times 100}{\text{Total investment}}$$

$$= \frac{1184000 \times 100}{3986500}$$

$$= 29.70\%$$

- **Break even point**

1**. Fixed cost per annum** Rs.

a. Depreciation on machinery & equipments @10% 212500
b. 40% of other expenses (excluding rent & insurance) 96,000
c. Depreciation on office furniture @20% 4,000

d. 40% of salary & wages 1,92,000

e. Interest on capital investment @14% 5,58,110

f. Rent 1,20,000

g. Insurance 36,000

Total= 12,18,610 Or say 12,18,000

2. Breakeven point

$$= \frac{\text{Fixed cost} \times 100}{\text{Fixed cost} + \text{profit}}$$

$$= \frac{12,18,000 \times 100}{12,18,000 + 11,84,000}$$

$$= 50.70\%$$

1. Addresses of Machinery Suppliers –

1. Benco Thermal Technologies Private Limited , Plot Nos 236 And 237, SIDCO Industrial Estate, Thirumudivakkam, Chennai - 600 044, India

2.Quartet Thermal Engineering Pvt. Ltd , **:** No. 2, Sion Vijayanand Chs Plot No. 267, Scheme No. 6, Road No. 31, Near Gandhi Market, Sion, Mumbai - 400 022

3. Gauri Wood Craft , 2 K/46-A, B. P., Opposite FCI Godown, NIT, Faridabad - 121 006

4. Industrial Thermal Engineers Plot 66/13, Phase No. 1, G. I. D. C., Vatva, Ahmedabad - 382 445, India

5.JK Automation Gate No.12, Swami Samarth Indd. Co.- Op. Society, S-116/4 MIDC, Bhosari, Pune - 411 026,

6.United Lathes India: G.T. Road, Jugiana, Opposite UCO Bank,, Ludhiana - 141 017, India

7**.**Asia Machines: No. 50, Balleshwar Upvan, Near Axis Bank, Bopal-Ghuma Road, Ahmedabad - 380 058,