

PROJECT PROFILE ON M.S. AND HIGH TENSILE NUTS AND BOLTS

NAME OF THE PROJECT : M.S. AND HIGH TENSILE NUTS AND BOLTS

QUALITY AND STANDARDS : IS 1363:1992
IS 1367:1994
IS 2389:1968
IS 4206:1987

PRODUCTION CAPACITY : Qty. : 360 M.T. (Per annum)
Value : Rs. 252 Lakhs

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INTRODUCTION:

An industrial fastener comprises a very wide range of items like nuts and bolts, washers, studs, nails etc. Nuts and bolts consist a major link in the family of industrial fasteners and are used by every industry. Bolt is a piece of metal rod, whose one end is unsettled and other end is threaded. Nut is the item, which rolls on these threads. Nut and bolts are available in various shapes, designs and sizes.

Nuts and bolts are used for fastening purpose in industries where the replacement of pieces and the parts is necessary. There are many industries producing these nuts and bolts of various sizes, but the demand too is increasing as well as the raw material for the product is easily and indigenously available. The main raw material is mild steel wire coil/rod of required diameter. The composition of materials controls the quality of the bolts and nuts. The recommended composition for nuts and bolts raw material is given as under:

Carbon	0.22 to 0.23%
Phosphorus	0.40%
Manganese	0.39 to 0.60%
Sulphur	0.50%

Nuts and bolts are classified by two ways: i) Their uses, ii) Shape of head.

In terms of use, nuts and bolts are of several types:

Larger dia bolts, machine bolts, stand bolts, joint bolts, foundation bolts and nuts etc. in terms of shape, bolt and nuts are classified by head shape like hexagonal head, square head, round head, pan head, truss head etc.

MARKET POTENTIAL:

The demand of nuts and bolts is influenced by the following factors:

- a) Transportation industries, Railways, aircraft, wagon, bicycles, automobile, body builders, etc.
- b) Electrical industries like manufacturing of transformer, electric motors, fans etc.
- c) Building activities such as construction of bridges, fabrication of various steel structures etc.
- d) Other heavy and light industries, steel and wooden furniture, machine tools, Agricultural machines and agricultural implements etc.

As various types of MS and HT nuts and bolts are used in above sectors, the market demand is directly proportionate to the development of these industrial segments.

BASIS AND PRESUMPTIONS:

1. Capacity Utilization : 75% on single shift basis
2. Time period of 1 year : 300 days
3. Labour wages : Estimated on the minimum wages
4. Rate of interest : 16%
5. Margin Money : 25% varying from state to state
6. Operation period of project : 10 years
7. Rental charges for land and building: 20,000 per month

IMPLEMENTATION SCHEDULE:

<u>Sl. No.</u>	<u>Activity</u>	Period in Weeks
1	Selection of site	2
2	Preparation of project report	4
3	Provisional Registration	1
4	Financial arrangement	8
5	Procurement of machinery	8

6	Installation, electrification and commissioning of machinery	6
7	Selection and placement of staff	2
8	Procurement of raw materials, tools etc.	2

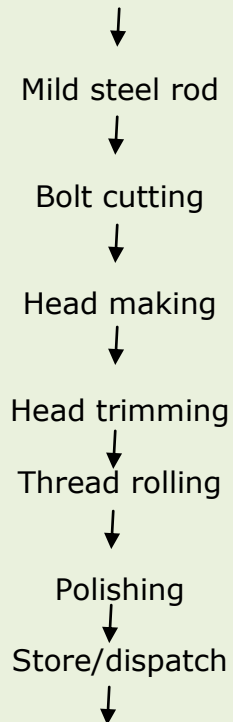
TECHNICAL ASPECTS:

Process of Manufacture:

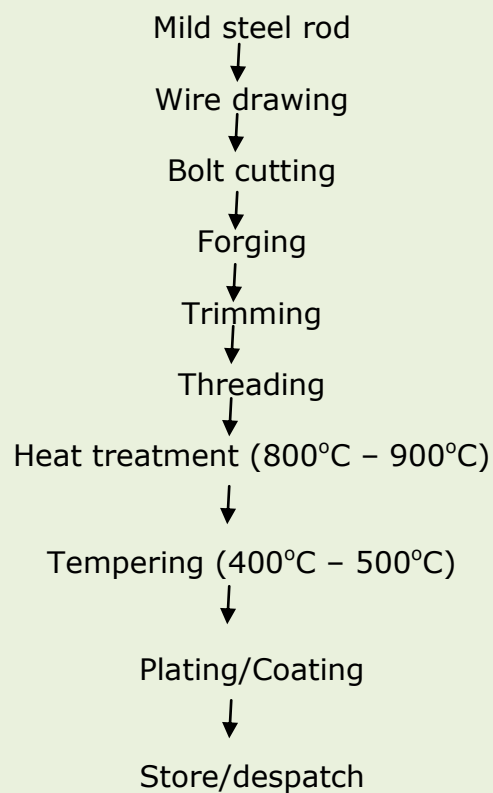
The raw material used for manufacture of bolt is M.S. Rounds. As some of the rounds available are rusty and not perfectly round and straight, it is necessary to make them round. The rounds are pickled in the acid tanks, washed and drawn in a drawing machine. The cleaned rod is fed into the cold heading machine. In the machine, one end of the rod is cut into the desired length with cutting stroke and simultaneously the head formation takes at another end. For the HT bolts, forging is done on hot forging press. The pins are then trimmed in the trimming machine. In quality bolts, the lower side of the head is also faced. Threading is done in the thread rolling machines.

While manufacturing nuts, the hexagonal rod of desired size is procured and the nuts are cut on the automatic nut-cutting machine. Cutted nuts blanks are drilled and tapped on the nut-tapping machine. Finally, these are deburred in the polishing barrel.

Process Flow Chart (M.S. Bolts)



Process Flow Chart (H.T. Bolts)



Quality Control and Standards:

The Bureau of Indian Standards has laid down the following quality standards for M.S. and High tensile fasteners such as Bolts and Nuts:

IS 1363 : 1992

IS 1367 : 1994

IS 4206 : 1987

Production Capacity:

<u>Quantity</u>	<u>Value (In Rs.)</u>
Nuts and Bolts of various sizes - 360 MT	2,52,00,000/-

Motive Power: 85 HP

Pollution Control:

This industry involves pollution to some extent for which State Pollution Control Board has to be approached.

Energy Conservation:

The unit is equipped with electric powered machinery. The energy conservation efforts need in unit is the creation of awareness among the workers.

FINANCIAL ASPECTS:

A. Fixed Capital

<u>Land and Building</u>	(Rs.)
Covered area 1600 Sq. mtrs.	20,000/-

Machinery and Equipment (per month)

<u>Sl. No.</u>	<u>Description</u>	<u>Qty.</u>	<u>Total (in Rs.)</u>
1	Double stroke solid die cold head Forging machine suitable for bolt Dia 6 mm to 18 mm and length 20 mm to 150 mm, with 15 HP Electric motor	1 No.	8,40,000/-
2	Head trimming machine upto 18 mm dia bolt x 150 mm length With 10 HP electric motor	1 No.	5,64,000/-

<u>Sl. No.</u>	<u>Description</u>	<u>Qty.</u>	<u>Total</u> (in Rs.)
3	Thread rolling machine suitable for upto 18 mm dia bolt x length 150 mm with 15 HP electric motor	1 No.	5,04,000/-
4	Bull block wire drawing machine	1 No.	1,20,000/-
5	Wire pointing machine with 1 HP motor	1 No.	18,000/-
6	Steel polishing barrel with electric motor	1 No.	54,000/-
7	Automatic nut forming plant, five Station capacity 18mm dia with 25 HP motor, lubricant and coolant pump	4 Nos.	15,00,000/-
8.	Nut tapping machine with 3 HP Motor and starter	4 Nos.	2,64,000/-
9.	Semi muffle oil fired furnace	1 No.	1,86,000/-
10.	Tempering furnace H.T. air circulated type electrically heated temp. upto 500°C 3 KW rating	1 No.	90,000/-
11.	Die, tools gauge and measuring Instruments	L.S.	1,80,000/-
	Electrification and installation @ 10%		4,14,000/-
	Office equipment and furniture		30,000/-
		Total :	47,64,000/-

B. Working Capital (Per Month)

(i)

<u>Sl. No.</u>	<u>Description</u>	<u>Qty.</u>	<u>Salary</u>	<u>Total</u> (in Rs.)
	Manager	1	9,000/-	9,000/-
	Office Assistant/Clerk	1	5,000/-	5,000/-
	Skilled Worker	6	5,000/-	30,000/-
	Semi-skilled Worker	2	4,000/-	8,000/-
	Un-skilled Worker	3	3,500/-	10,500/-
	Watchman-cum-Peon	1	3,000/-	3,000/-
			Total :	65,500/-
	Perquisites @ 10%			6,500/-
			Total :	72,000/-

(ii)

Raw Material (Indigenous)

<u>Sl. No.</u>	<u>Particulars</u>	<u>Qty.</u>	<u>Amount</u> (in Rs.)
1.	M.S. Wire/Rod 6 mm – 18 mm dia @ Rs. 44,000/MT	19.25 MT	8,47,000/-
2.	Hexagonal M.S. rod 6 mm - 18mm dia @ Rs. 45,000 per MT	10.75 MT	4,83,750/-
3.	Packing/Polishing materials and Consumables	L.S.	5,000/-
Total :			----- 13,35,750/- =====
			(In Rs.)

Utilities

Electricity and Water	30,000/-
Furnace oil, 3,000 ltrs. @ Rs. 90 per liter.	2,70,000/-
Lubricant oil etc.	3,000/-

Total :	3,03,000/-
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Other Contingent Expenses

(In Rs.)

Rent	20,000/-
Maintenance and repair	3,000/-
Postage, stationery and phone	4,000/-
Packing and transport	5,000/-
Travelling and conveyance	2,000/-
Insurance	1,000/-
Miscellaneous expenses	2,000/-

Total :	37,000/-
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(iii)

Total Recurring Expenditure

(i + ii + iii + iv)

= Rs. 72,000 + 13,35,750 + 3,03,000 + 37,000 = **Rs. 17,47,750/-**

(vi) Total Working Capital for 3 months - Rs. 52,43,250/-

C. Total Capital Investment

(i) Fixed Capital	Rs. 47,64,000/-
(ii) Working Capital (for 3 months)	Rs. 52,43,250/-

Total :	Rs. 1,00,07,250/-

FINANCIAL ANALYSIS

(1) Cost of Production (per annum)

(In Rs.)

Total recurring cost	2,09,73,000/-
Depreciation on machines and equipment @ 10%	4,73,400/-
Depreciation on office and equipment @ 20%	6,000/-
Interest on total Capital Investment @ 16%	16,01,160/-

Total : 2,30,53,560/-

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(2) Total Sales (Per Annum)

(In Rs.)

1. By sale of MS bolts @ Rs. 65 per kg.	120 MT	78,00,000/-
2. By sale of MS nuts @ Rs. 65 per kg.	60 MT	39,00,000/-
3. By sale of HT bolts @ Rs. 75 per kg.	115 MT	86,25,000/-
4. By sale of HT nuts @ Rs. 75 per kg.	65 MT	48,75,000/-

Total: 2,52,00,000/-

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(3) Profit (per year)

Rs. 2,52,00,000 – 2,30,53,560 = **Rs. 21,46,440/-**

(4) Net Profit Ratio on Sale

$$= \frac{\text{Net Profit} \times 100}{\text{Turnover}}$$

$$= \frac{2146440 \times 100}{25200000} = \mathbf{8.5\%}$$

(5) Rate of Return

$$= \frac{\text{Net Profit} \times 100}{\text{Total investment}}$$

$$= \frac{2146440 \times 100}{10007250}$$

$$= \mathbf{21\%}$$

(6) Break-even Point

<u>Fixed Cost (Per annum)</u>	(In Rs.)
Rent	2,40,000/-
Depreciation on machinery and equipment	4,73,400/-
Depreciation on office equipment	6,000/-
Interest on total investment	16,01,160/-
40% of salary and wages	3,45,600/-
40% of other expenses, exc. rent	81,600/-

Total :	27,47,760/-
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$$\begin{aligned}\text{B.E.P.} &= \frac{2747760 \times 100}{2747760 + 2146440} \\ &= 56\%\end{aligned}$$

Addresses of Machinery and Equipment Suppliers:

1. M/s. Sohal Engineering Corporation
61, Ganesh Chandra Avenue
Kolkata – 700 013.
2. M/s. Perfect Machine Tools Co. Pvt. Ltd.
Bell Building
Sir P.M. Road, Fort
Mumbai
3. M/s. Manek Lal and Sons
23, Ganesh Chandra Avenue
Kolkata – 700 013.
4. M/s. Industrial Machine Corporation
F-36-C, Sainik Market
Main Road, Ranchi.
5. M/s. S.S. Sabarwal and Sons
664, Military Road
Anand Parbat Indl. Area
New Delhi-110 005.
6. M/s. Kalihar Machine Tools
Plot No. 18696/1, K.M. Singh St. No. 7
Ludhiana.
7. M/s. H. Mann Industries
Ram Tirath Road
Amritsar - 143 001.

Addresses of Raw Material Suppliers:

1. M/s. Usha Martin Industries
Tatisilwai, Ranchi.
2. M/s. M.V. Wires Pvt. Ltd.
Poddar Estate, Mahilong
Ranchi.
3. Local Market.