Profile No.: 6 **NIC Code: 28132**

MANUFACTURING OF DOMESTIC PUMP SETS

1. INTRODUCTION:

Domestic Pump sets are used for lifting water to overhead storage tanks. There are normally of centrifugal type, mono-set construction i.e. both pump and motors are housed in integral body and on single shaft. These pumps have low head and flow rates. These pumps are made from cast or aluminum extrusion section and its impellers are sometimes made of injection molded plastics. On account of their low cost, simplicity of construction and easy maintenance, they are cheaper and compact in construction. Sometimes these pumps are also used for in line pumping to boost the water pressure for supply in domestic use, when pressure is very low.

2. PRODUCT & ITS APPLICATION:

Normally domestic pump set is used in large quantities – as almost all houses or buildings require pumping to fill overhead water storage tanks. These pumps are offered of lower power range of 0.25 KW to 5 KW range. Some submersible mono sets are also used to lift and transfer water from underground storage tanks to overhead tanks.

In the domestic range 0.5 HP to 1.0 HP, pump sets can be designed and manufactured from Aluminum extruded body housing. This is mainly reduces the weight of the pump and make it corrosion resistance and aesthetic purposes thus giving better life.

3. DESIRED QUALIFICATIONS FOR PROMOTER:

Graduate with mechanical engineering background and experience.

4. MARKET POTENTIAL AND MARKETING ISSUES. IF ANY:

Domestic pump sets have very good market potential as its demand emerges mostly from new and replacement needs of domestic users. The single houses, housing flat buildings, co-operative societies, and commercial buildings need these pumps for 24 hr. water supply. Due to massive expansion of residential and commercial buildings in our country, there is huge demand for new installations in urban, semi—urban and rural areas. Besides there is regular demand from replacement markets.

5. RAW MATERIAL REQUIREMENTS:

The pump sets material consists of from cast iron or steel pipes to house body and pump impellers. Steel bars are required for shafts. The motor will requires electrical stamping and enameled / plastic insulated winding wires of copper in different gauges. Other parts are ball bearings or bushes of brass/ bronze. Injection moulded impellers for may also be considered.

6. MANUFACTURING PROCESS:

The following items are main components of a Mono set pump:

Cast Iron body /Aluminum Extruded Section as a body.
Electrical Stamping and enameled copper wire winding
En-8 rod for Shaft
CI /Gun Metal/ Plastic Impeller
Mechanical Seal / o rings and gasket.
Ball bearings
Foot valve.

The process of manufacture involves getting the castings from foundry as per design and machining. The Stator Lamination stamping are Staked in motor body and the Stator Winding is carried out. The rotor is assembled from machined Shaft followed by assembly of Rotor Core, Brazing of rotor core with copper conductors and end rings. The rotor core is pressed

and fitted on shaft Insulation coating is applied on Rotor. The assembly of Motor and pump is carried out as per design and it is tested and packed for dispatch.

7. MANPOWER REQUIREMENT:

The unit shall require highly skilled service persons. The unit can start from 8 employees initially and increase to 21 or more depending on business volume.

Sr. No	Type of Employees	Monthly Salary	No of Employees				
			Year 1	Year 2	Year 3	Year 4	Year 5
1	Skilled Operators	18000	1	2	2	2	3
2	Semi-Skilled/ Helpers	8000	2	4	6	8	9
3	Supervisor/ Manager	30000	1	1	1	1	1
4	Accounts/ Marketing	18000	1	1	1	1	1
5	Other Staff	8000	1	1	1	1	1
	TOTAL		6	9	11	13	15

8. IMPLEMENTATION SCHEDULE:

The unit can be implemented within 6 months from the serious initiation of project work.

Sr. No	Activities	Time Required in Months
1	Acquisition of Premises	1
2	Construction (if Applicable)	1
3	Procurement and Installation of Plant and Machinery	2
4	Arrangement of Finance	2
5	Manpower Recruitment and start up	2
	Total Time Required (Some Activities run concurrently)	6

9. COST OF PROJECT:

The unit will require total project cost of Rs 17.49 lakhs as shown below:

Sr. No	Particulars	In Lakhs
1	Land	0.00
2	Building	0.00
3	Plant and Machinery	10.45
4	Fixtures and Electrical Installation	1.45
5	Other Assets/ Preliminary and Preoperative Expenses	0.75
6	Margin for working Capital	4.84
	TOTAL PROJECT COST	17.49

10. MEANS OF FINANCE:

The project will require promoter to invest about Rs 6.96 lakhs and seek bank loans of Rs 9.49 lakhs based on 70% loan on fixed assets.

Sr. No	Particulars	In Lakhs
1	Promoters Contribution	8.01
2	Loan Finance	9.49
	TOTAL:	17.49

11. WORKING CAPITAL REQUIREMENTS:

Working capital requirements are calculated as below:

Sr. No	Particulars	Gross Amount	Margin %	Margin Amount	Bank Finance
1	Inventories	2.26	40	0.90	1.35
2	Receivables	4.19	50	2.10	2.10
3	Overheads	1.39	100	1.39	0.00
4	Creditors	1.13	40	0.45	0.68
	TOTAL	8.97		4.84	4.13

12. LIST OF MACHINERY REQUIRED:

Sr No	Particulars	UOM	Quantity	Rate	Total Value
	Main Machines/ Equipment				
1	Hacksaw machine	Nos	1	25000	25000
2	CNC Lathe machine	Nos	1	300000	300000
3	Milling machine	Nos	1	250000	250000
4	Slotting machine	Nos	1	35000	35000
5	Lathe Machine	Nos	2	60000	120000
6	Drilling Machine	Nos	2	40000	80000
7	Press for Lamination pressing	Nos	1	50000	50000
8	Motor Varnishing tank	Nos	1	20000	20000
9	Motor Testing Equipment	LS	1	15000	15000
10	Pump Test system as per BIS	Nos	1	75000	75000
	subtotal :				970000
	Tools and Ancillaries				
1	Tools and gauges	LS	1	50000	50000
2	Misc. Items	LS	1	25000	25000
	subtotal :				75000
	Fixtures and Elect Installation				
	Storage racks and trolleys	LS	1	20000	20000
	Other Furniture	LS	1	15000	15000
	Telephones/ Computer	LS	1	30000	30000
	Electrical Installation	LS	1	80000	80000
	subtotal :				145000
	Other Assets/ Preliminary and Preoperative Expenses	LS	1	75000	75000
	TOTAL PLANT MACHINERY COST				1265000

13. PROFITABILITY CALCULATIONS:

Sr. No	Particulars	UOM	Year Wise estimates				
			Year 1	Year 2	Year 3	Year 4	Year 5
1	Capacity Utilization	%	40	50	60	70	80
2	Sales	Rs Lakhs	25.16	31.45	37.74	44.02	50.31
3	Raw Materials & Other Direct Inputs	Rs Lakhs	13.55	16.94	20.32	23.71	27.10
4	Gross Margin	Rs Lakhs	11.61	14.51	17.41	20.31	23.22
5	Overheads Except Interest	Rs Lakhs	9.80	9.80	9.80	9.80	9.80
6	Interest	Rs Lakhs	1.33	1.33	1.33	1.33	1.33
7	Depreciation	Rs Lakhs	1.27	1.27	1.27	1.27	1.27
8	Net Profit Before Tax	Rs Lakhs	-0.79	2.11	5.01	7.92	10.82

14. BREAK EVEN ANALYSIS

The project is can reach break-even capacity at 42.72 % of the installed capacity as depicted here below:

Sr. No	Particulars	UOM	Value
1	Sales at Full Capacity	Rs Lakhs	62.89
2	Variable Costs	Rs Lakhs	33.87
3	Fixed Cost incl. Interest	Rs Lakhs	12.40
4	Break Even Capacity	% of Inst Capacity	42.72