

AUTO BRAKE DRUMS

1. INTRODUCTION:

Most rotating machines including automobiles require control of motion with the help of brakes. Drum brake is a brake that uses friction caused by a set of shoes or pads that press and grip the rotating cylinder-shaped part called a brake drum. Lifting machines and other heavy earth moving machines also use drum brakes as they are very safe and secure in operation.

It is recommended to take up manufacture of brake drums and other components by entrepreneurs.

2. PRODUCT & ITS APPLICATION:

The term drum brake usually means a brake in which shoes press on the inner surface of the drum. When shoes press on the outside of the drum, it is usually called a clasp brake. Drum brakes are mostly used to achieve compact and light weight construction in automobiles for speed control.

Advantages of drum brakes:

- less expensive to produce
- Lower frequency of maintenance due to better corrosion resistance compared to disks.
- Built-in self-energizing effect requires less input force (such as hydraulic pressure).
- Wheel cylinders are somewhat simpler to recondition compared to calipers.
- Minor weight savings, primarily from much smaller and lighter hydraulic cylinders vs. calipers.

Brake drums are mostly made of cast iron to fit in to wheel rim housing. Drum brake components include the backing plate, brake drum, shoe, wheel cylinder, and various springs and pins.

3. DESIRED QUALIFICATIONS FOR PROMOTER:

The promoter with experience of foundry metal casting and auto component trading with mechanical / metallurgical engineering background will be suitable for the project.

4. MARKET POTENTIAL AND MARKETING ISSUES. IF ANY:

All auto vehicles use brake drums fitted with their wheel rims/ axles. In view of the huge volume of Most of the passenger vehicles like 2, 3, small 4 auto vehicles use brake drum.

The automotive industry in India is one of the largest in the world with an annual production of 23.96 million vehicles in 2015–16. The automobile industry accounts for 7.1 per cent of the country's gross domestic product (GDP). The Two Wheelers segment, with 81 per cent market share, is the leader of the Indian Automobile market; it is growing steadily due to a growing middle class and a young population. Moreover, the Indian two wheelers companies are expounding in the rural markets and also emerging as a leading exporter.

In view of this Brake drums and auto components have good domestic and export potential.

5. RAW MATERIAL REQUIREMENTS:

Brake drums are most made from cast iron. The main raw material is cast iron scrap and pig iron.

6. MANUFACTURING PROCESS:

The brake drum is generally made of a special type of cast iron that is heat-conductive and wear-resistant. It rotates with the wheel and axle. This braking friction generates substantial

heat. The main activity involved is to cast the metal of suitable grade and machining to specifications.

7. MANPOWER REQUIREMENT:

The unit shall require highly skilled service persons. The unit can start from _6_ employees initially and increase to _18_ 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
	Variable Labour/ Workers :						
1	Skilled Operators	15000	2	2	3	3	3
2	Semi-Skilled/ Helpers	8000	4	6	6	9	12
	subtotal :		6	8	9	12	15
	Fixed Staff						
1	Supervisor/ Manager	25000	0	0	1	1	1
2	Accounts/ Marketing	15000	0	0	1	1	1
3	Other Staff	7000	0	0	1	1	1
	subtotal :		0	0	3	3	3
	TOTAL		6	8	12	15	18

8. IMPLEMENTATION SCHEDULE:

The unit can be implemented within 3 months from the serious initiation of project work.

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

9. COST OF PROJECT:

The unit will require total project cost of Rs 24.26 lakhs as shown below:

Sr. No	Particulars	In Lakhs
1	Land	0.00
2	Building	0.00
3	Plant and Machinery	13.75
4	Fixtures and Electrical Installation	2.10
5	Other Assets/ Preliminary and Preoperative Expenses	1.50
6	Margin for working Capital	6.91
	TOTAL PROJECT COST	24.26

10. MEANS OF FINANCE:

The project will require promoter to invest about Rs 11.25 lakhs and seek bank loans of Rs 13.01 lakhs based on 70% loan on fixed assets.

Sr. No	Particulars	In Lakhs
1	Promoters Contribution	11.25
2	Loan Finance	13.01
	TOTAL :	24.26

11. WORKING CAPITAL REQUIREMENTS:

Working capital requirements are calculated as below:

Sr No	Particulars	Gross Amount	Margin %	Margin Amount	Bank Finance
1	Inventories	3.87	40	1.55	2.32
2	Receivables	5.06	50	2.53	2.53
3	Overheads	1.28	100	1.28	0.00
4	Creditors	3.87	40	1.55	2.32
	TOTAL	14.08		6.91	7.17

12. LIST OF MACHINERY REQUIRED:

Sr. No	Particulars	UOM	Quantity	Rate	Total Value
	Main Machines/ Equipment				
1	Induction Melting Furnace for cast iron alloys	Nos	1	400000	400000
2	Centrifugal Casting machines	Nos	2	60000	120000
3	Pin Lift Molding Machine		2	60000	120000
4	Sand Mixer, sieves etc.	Nos	1	80000	80000
5	Shot blasting machine		1	80000	80000
6	Lathe Machine		3	100000	300000
7	Drilling Machine		1	65000	65000
8	Bench/ Flexible shaft grinders		2	30000	60000
	subtotal :				1225000
	Tools and Ancillaries				
1	Patterns tools and gauges	LS	1	50000	50000
2	Mold boxes , Misc. tools etc.	LS	1	100000	100000
	subtotal :				150000
	Fixtures and Elect Installation				
	Storage racks and trolleys	LS	1	15000	15000
	Other Furniture	LS	1	20000	20000
	Telephones/ Computer	LS	1	25000	25000
	Electrical Installation	LS	1	150000	150000
	subtotal :				210000
	Other Assets/ Preliminary and Preoperative Expenses	LS	1	150000	150000
	TOTAL PLANT MACHINERY COST				1735000

13. PROFITABILITY CALCULATIONS:

Sr. No	Particulars	UOM	Year Wise estimates				
			Year 1	Year 2	Year 3	Year 4	Year 5
1	Capacity Utilization	%	35	45	60	70	80
2	Sales	Rs Lakhs	60.74	78.09	104.12	121.48	138.83
3	Raw Materials & Other Direct Inputs	Rs Lakhs	46.40	59.66	79.55	92.80	106.06
4	Gross Margin	Rs Lakhs	14.34	18.43	24.58	28.67	32.77
5	Overheads Except Interest	Rs Lakhs	13.59	13.59	13.59	13.59	13.59
6	Interest	Rs Lakhs	1.82	1.82	1.82	1.82	1.82
7	Depreciation	Rs Lakhs	1.74	1.74	1.74	1.74	1.74
8	Net Profit Before Tax	Rs Lakhs	-2.81	1.29	7.43	11.53	15.62

14. BREAKEVEN ANALYSIS

The project is can reach break-even capacity at 41.86 % of the installed capacity as depicted here below:

Sr. No	Particulars	UOM	Value
1	Sales at Full Capacity	Rs Lakhs	173.54
2	Variable Costs	Rs Lakhs	132.58
3	Fixed Cost incl. Interest	Rs Lakhs	17.15
4	Break Even Capacity	% of Inst Capacity	41.86