

ELECTRIC HORN

1. INTRODUCTION:

A vehicle horn is a sound-making device used to warn others of the approach of the vehicle or of its presence. Auto-mobiles, trucks, ships, and trains are all required by law in some countries to have horns. A horn is a sound-making device that can be equipped to motor vehicles, buses, bicycles, trains, trams, and other types of vehicles. The sound made usually resembles a "honk". The vehicle operator uses the horn to warn others of the vehicle's approach or presence, or to call attention to some hazard. Motor vehicles, ships and trains are required by law in some countries to have horns. Like trams, trolley cars and street cars, bicycles are also legally required to have an audible warning device in many areas, but not universally, and not always a horn.

2. PRODUCT & ITS APPLICATION:

Car horns are usually electric, driven by a flat circular steel diaphragm that has electromagnet acting on it and is attached to a contractor that repeatedly interrupts the current to that electromagnet. This arrangement works like a buzzer or electric bell and is commonly known as "sounding" or "honking" one's horn. There is usually a screw to adjust the distance/tension of the electrical contacts for best operation. A spiral exponential horn shape is cast into the body of the horn, to better match the acoustical impedance of the diaphragm with open air, and thus more effectively transfer the sound energy. Sound levels of typical car horns are approximately 107–109 decibels, and they typically draw 5–6 amperes of current. Horns can be used singly, but are often arranged in pairs to produce an interval consisting of two notes, sounded together; although this only increases the sound output by 3 decibels, the use of two differing frequencies with their beat frequencies and missing fundamental is more perceptible than the use of two horns of identical frequency, particularly in an environment with a high ambient noise level. Typical frequencies of a pair of horns of this design are 500 Hz and 405–420 Hz. Some cars, and many motor scooters or

motorcycles, now use a cheaper and smaller alternative design, which, despite retaining the name "horn," abandons the actual horn ducting and instead relies on a larger flat diaphragm to reach the required sound level. Sound levels of such horns are approximately 109–112 decibels, and they typically draw 2.5–5 amperes of current. Again, these horns can be either single, or arranged in pairs; typical frequencies for a pair are 420–440 Hz and 340–370 Hz.

3. DESIRED QUALIFICATIONS FOR PROMOTER:

Graduate in any discipline. The knowledge of engineering design and electrical parts and the characteristic of transformer are necessary.

4. INDUSTRY LOOK OUT AND TRENDS

Horns are mostly required electrical equipment to warn the passerby for Automobiles. As the utilization/Registration of automobiles is increasing day by day due to increase in population and living standards of countrymen, the use of this product also increases. Transportation/Roads are the basic infrastructural facilities to divide a place as developed and undeveloped class. There are largest concentration of traffic in highways and state highways in the state of Madhya Pradesh; Intensity of vehicles passing is very high. It becomes difficult for drivers to proceed further especially in crowded places metropolitans, school zones. Hence Electric Horn (Auto) is a safety electrical equipment required in Automobiles for accident free driving, saving of costly human life. With reference to Vindhya region of M.P. where mode of transportation safety depends on Automotive such units manufacturing this products are very much essential. So far as known no entrepreneur has ventured in the field of manufacturing this particular product. However, repairing assembly works are going on in large scale. This project profile envisages for manufacturing of 18,000 No. of Electric Horns for small/ medium vehicles and 18,000 for use on two/three wheelers.

5. MARKET POTENTIAL AND MARKETING ISSUES, IF ANY:

Demand of this product has enormous scope besides units manufacturing. This product can be ancillary to major auto-mobile manufacturers of the country. Auto-mobile manufactured association itself will provide a tremendous market potential for this product. Main aspect of Market for this product in new installation as well as replacement. Entrepreneurs are advised to look on both aspects. Some of the potential customers are - (i) Automobile manufacturers. (ii) Servicing Agencies. (iii) Repairing Agencies. Quality concept is the main factor to popularize in market. Contact points, castings, Diaphragm are to be of proven quality Today, the component maker's product portfolio comprises both electro-mechanical and electronic horns. Electric horns range from the disc variety to the trumpet type; overall, horns are in the 12-80 volt category and are targeted at cars, trucks and off-road vehicles in the local market. In India, the louder-sounding disc horns are more popular as an OE fitments due to the prevailing road and climatic conditions. The company says it holds a 48 percent share in horns in India in the four-wheeler segment. Only Skoda and Volkswagen in India are believed to be harnessing trumpet horns in their cars while all other OEMs in the country prefer to equip their cars with disc horns. Globally though the scenario is different with trumpet horns more popular especially in Brazil, Europe and America due to their soothing tone. Moreover, drivers in these countries do not use their horns as much as their counterparts do in India where they say, the louder the horn the better it is, despite the fact that it adds to the ever-increasing levels of noise pollution. In India, the disc horn scores over the trumpet horn in terms of longer life (almost 50 percent more) despite having a shriller and sharper sound. Air horns are banned by regulations in India. The earlier variety of trumpet horns used a technology with a hole in the diaphragm that became clogged with dust; hence, customers stopped using them. But with new technologies coming in, the trumpet horn has evolved and become suitable for cars in the aftermarket.

6. RAW MATERIAL REQUIREMENTS:

Horn Component is available in different sizes and other related specifications according to requirements. The offered range is manufactured using optimum grade raw material and

sophisticated technology in compliance with set market standards. Besides this, offered range is examined by quality experts in order to deliver high quality range.

Features: Rugged construction, Rust proof, Durability

Brake Brackets, Metal Cores, Metal Couplers, Lubrication Fittings, Lubrication Pumps, Metal Manifolds, Metering Cartridges, Panel Components, etc. are the product range available with precisely designed and manufactured with the aid of advanced technology in compliance with international quality standards. The raw material used in the manufacturing of these products should be procured from certified vendors of the industry. These products should be good for robust design, high durability, perfect finish and accurate dimension.

7. MANUFACTURING PROCESS:

The basic Steps for electric horn manufacturing are 1. Coin Winding, 2. Edge Cleaning, 3. Burr Cleaning, 4. Coil Setting Coil Patti, 5. Terminal block brass terminal, 6. Point fitting ghoraPatti, 7. Pin, diaphragm and washer arrangement, 8. Diaphragm assembly fixed on housing, 9. Nuts and Bolt tightened. 10. Stud and bracket fitted on assembly, 11. Testing

8. MANPOWER REQUIREMENT:

The enterprise requires 9 employees as detailed below:

Sr. No.	Designation Of Employees	Salary Per Person	Monthly Salary ₹	Number of employees required				
				Year-1	Year-2	Year-3	Year-4	Year-5
1	Production Manager	18000	18000	1	1	1	1	1
2	Operators	12000	24000	2	2	2	2	2
3	Helpers	10000	30000	3	3	3	3	3
4	Admin Manager	15000	15000	1	1	1	1	1
5	Accounts/Stores Assistant	12500	12500	1	1	1	1	1
6	Office Boy	9000	9000	1	1	1	1	1
	Total		108500	9	9	9	9	9

9. IMPLEMENTATION SCHEDULE:

The project can be implemented in 4 months' time as detailed below:

Sr. No.	Activity	Time Required
1	Acquisition of premises	1.00
2	Construction (if applicable)	1.00
3	Procurement & installation of Plant & Machinery	2.00
4	Arrangement of Finance	2.00
5	Recruitment of required manpower	1.00
	Total time required (<i>some activities shall run concurrently</i>)	4.00

10. COST OF PROJECT:

The project shall cost ₹ **18.45** lacs as detailed below:

Sr. No.	Particulars	₹ in Lacs
1	Land on rent	0.00
2	Building	0.00
3	Plant & Machinery	4.50
4	Furniture, Electrical Installations	1.00
5	Other Assets including Preliminary / Pre-operative expenses	0.45
6	Working Capital	12.50
	Total	18.45

11. MEANS OF FINANCE:

Bank term loans are assumed @ 75 % of fixed assets.

Sr. No.	Particulars	₹ in Lacs
1	Promoter's contribution	4.61
2	Bank Finance	13.84
	Total	18.45

12. WORKING CAPITAL CALCULATION:

Sr. No.	Particulars	Gross Amt	Margin %	Margin Amt	Bank Finance
1	Inventories	6.25	0.25	1.56	4.69
2	Receivables	3.13	0.25	0.78	2.34
3	Overheads	3.13	100%	3.13	0.00
4	Creditors	-		0.00	0.00
	Total	12.50		5.47	7.03

13. LIST OF MACHINERY REQUIRED:

Power Press Spot Welding Machine, Winding Machine for Resistors, Coil Winding Machine, Hand Presses, Drill Machine, Bench Grinder, Fully Automatic Moulding Machine, Hand Moulding Machine, Hydraulic Bakelite Moulding Machine, Oven, DG Sets, Moulding Dies, Jigs and Fixtures.

Sr. No.	Particulars	UOM	Qty	Rate (₹)	Value
					(₹ in Lacs)
	Plant & Machinery / Equipments				
a)	Main Machinery				
i.	Winding Department	NO	1	0.70	0.70
ii.	Machining Division	NO	1	1.00	1.00
iii.	Milling And Other Division	NO	1	0.50	0.50
iv.	Finishing Division	L.S.	1	1.00	1.00
v.	Laboratory Division	NO	1	0.50	0.50
vi.	Installation, Electrification, Taxes And Transportation.	L.S.	1	0.80	0.80
	<i>Sub-Total Plant & Machinery</i>				4.50
	Furniture / Electrical Installations				
a)	Office Furniture	LS	1	50000	0.50
	Particulars	UOM	Qty	Rate (₹)	Value

b)	Stores Cup Boards	LS	1	0	0.00
c)	Computer & Printer	L. S.	1	50000	0.50
	<i>Sub Total</i>				1.00
	Other Assets				
a)	Preliminary And Preoperative				0.45
	<i>Sub-Total Other Assets</i>				0.45
	Total				5.95

All the machines and equipment are available from local manufacturers. The entrepreneur needs to ensure proper selection of product mix and proper type of machines and tooling to have modern and flexible designs. It may be worthwhile to look at reconditioned imported machines, dies and tooling. Some of the machinery and dies and tooling suppliers are listed here below:

1. Bhavya Machine Tools

A-601, 6th Floor, Sapath-4, Opp. Karnavati Club,
S.G. Highway Road, Satellite, Ahmedabad-380051, Gujarat, India.
Phone No: +91- 79 - 4024 2800, +91- 79- 4024 2880

2. Hifine Machine

5, New India Estate, Inside Relief Hotel,
Sanand Char Rasta, Sarkhej, Ahmedabad-382210, Gujarat
Phone: 079 26891274, 079 26890274

3. Heena Machine Product

No. 1, Samrat Industrial Area,
Near Ban Labs, Rajkot - 360004, Gujarat, India

4. Sagar Engineering Works

A-129, Road No. 9 D,
V. K. I. Area, Jaipur - 302013,
Rajasthan, India

Phone: +91-9829024358, +91-141-4064876

5. Uday Enterprises

Khasra No. 1108, Village Makanpur, Behind Indian Child School

Opposite Janta Flat No. 433, Nyay Khand 1,

Indirapuram, Ghaziabad - 201010, Uttar Pradesh, India

Phone: +91-9212320224.

14. PROFITABILITY CALCULATIONS:

Sr. No.	Particulars	UOM	Year-1	Year-2	Year-3	Year-4	Year-5
1	Capacity Utilization	%	60%	70%	80%	90%	100%
2	Sales	₹. In Lacs	45.00	52.50	60.00	67.50	75.00
3	Raw Materials & Other direct inputs	₹. In Lacs	35.70	41.65	47.60	53.55	59.50
4	Gross Margin	₹. In Lacs	9.30	10.85	12.40	13.95	15.50
5	Overheads except interest	₹. In Lacs	1.66	1.77	1.98	2.04	2.08
6	Interest	₹. In Lacs	1.38	1.38	0.92	0.69	0.55
7	Depreciation	₹. In Lacs	3.15	2.25	1.58	1.13	1.01
8	Net Profit before tax	₹. In Lacs	3.10	5.45	7.93	10.09	11.85

The basis of profitability calculation:

The growth of selling capacity will be increased 10% per year. (This is assumed by various analysis and study; it can be increased according to the selling strategy.)

Energy Costs are considered at Rs 7 per Kwh and fuel cost is considered at Rs. 65 per liter. The depreciation of plant is taken at 10-12 % and Interest costs are taken at 14 -15 % depending on type of industry.

15. BREAKEVEN ANALYSIS:

The project shall reach cash break-even at 40.71 % of projected capacity as detailed below:

Sr. No.	Particulars	UOM	Value
1	Sales at full capacity	₹. In Lacs	75.00
2	Variable costs	₹. In Lacs	59.50
3	Fixed costs incl. interest	₹. In Lacs	2.63
4	$BEP = FC/(SR-VC) \times 100$	% of capacity	16.99%

16. STATUTORY / GOVERNMENT APPROVALS

As per the allocation of business rules under the Constitution, labour is in the concurrent list of subjects. It is dealt with by the MOLE at the Central and Departments of Labour under State Governments in respective States / UTs. The MOLE has enacted workplace safety and health statutes concerning workers in the manufacturing sector, mines, ports and docks and in construction sectors.

Further, other Ministries of the Government of India have also enacted certain statutes relating to safety aspects of substances, equipment, operations etc. Some of the statutes applicable in the manufacturing sector are discussed below:

The Manufacture, Storage and Import of Hazardous Electronic Rules (MSIHC), 1989

These MSIHC Rules are notified under the Environment (Protection) Act, 1986. These rules are aimed at regulating and handling of certain specified hazardous chemicals. The rules stipulate requirements regarding notification of site, identification of major hazards, taking necessary steps to control major accident, notification of major accident, preparation of safety report and on-site emergency plan; prevention and control of major accident, dissemination of information etc. These rules are notified by the Ministry of Environment and Forests (MOEF) but enforced by the Inspectorates of Factories of respective States / UTs in the manufacturing sector. Entrepreneur may contact State Pollution Control Board where ever it is applicable.

17. BACKWARD AND FORWARD INTEGRATIONS

Both forward and backward integration for any Electrical Industry are strategies to gain better control over the supply chain, reduce dependency on the suppliers and increase their competitiveness. The two strategies can help companies reduce their dependency on suppliers and increase their influence over the customers. The benefits of these strategies can be big. Both impact the bottom line directly. Integration happens if a company moves upward or downward in its supply chain. Starting from the suppliers from whom the raw materials are obtained, the chain moves downstream towards the distributors and the retailers. If the suppliers' power is very high, it can create financial burdens for the company. Suppose the number of suppliers of a company is low, then the control in their hands would be low. The burden in that case will fall upon company's shoulders. Its expenditure on raw materials will be high.

18. TRAINING CENTERS AND COURSES

There is no such training required to start this business but, basic Electrical or IC bachelor's degree is plus point for enterpriser. Promoter may train their employees in such specialized institutions to grow up the business. There are few specialized Institutes provide degree certification in chemical Technology, few most famous and authenticate Institutions are as follows:

1. Department of Electrical LD College of engineering
No.120, Circular Road, University Area, Navrangpura,
Opposite Gujarat University, Ahmedabad, Gujarat 380015
2. MIT College of Engineering, Pune
Gate.No.140, Raj Baugh Educational Complex,
Pune Solapur Highway,
LoniKalbhor, Pune – 412201
Maharashtra, India

Udyamimitra portal (link : www.udyamimitra.in) can also be accessed for handholding services viz. application filling / project report preparation, EDP, financial Training, Skill Development, mentoring etc.

Entrepreneurship program helps to run business successfully is also available from Institutes like Entrepreneurship Development Institute of India (EDII) and its affiliates all over India.

Disclaimer:

Only few machine manufacturers are mentioned in the profile, although many machine manufacturers are available in the market. The addresses given for machinery manufacturers have been taken from reliable sources, to the best of knowledge and contacts. However, no responsibility is admitted, in case any inadvertent error or incorrectness is noticed therein. Further the same have been given by way of information only and do not carry any recommendation.