Profile No.: 41 **NIC Code: 26101**

TRANSFORMERS PARTS AND ACCESSORIES

1. INTRODUCTION:

A transformer is an electrical device that transfers electrical energy from one circuit to another by electromagnetic induction (also called transformer action). It is used to step up or step down AC voltage. These are the basic components of a transformer. Laminated core, Insulating materials, Transformer oil, Tap changer Oil Conservator, Breather, Cooling tubes, Buchholz Relay, Explosion vent, Of this, laminated soft iron core, winding and insulating material are the primary parts and are present in all transformers, whereas the rest can be seen only in transformers having a capacity of more than 100 KVA. We propose to manufactures of all kinds of Metal Parts for power and distribution transformer in all sizes of quality as per IS and Non Is. We have also propose wide range of other brass electrical components for transformers.

2. PRODUCT & ITS APPLICATION:

Some of the parts for transformers are listed as under: Brass Wing Nut, Brass Hex Nut, Industrial Brass Nut, Heavy Brass Nut, Brass Wing & Fly Nut, Brass Check Nut, Brass Fasteners, Brass Compression Fitting, Brass Flare Fitting, Brass Pneumatic Fitting, Brass Union Fitting, Brass Gas Kit Fitting, Brass Bolts, Brass Carriage Bolt, Brass Bolt Hex Head, Copper Bolts, Brass Knurling Bolts Brass U Bolts, Brass Fasteners, Industrial Brass Washer, Brass Spring Washer, Brass Washer, Brass Shim Washer, Brass Fasteners, Brass Machine Screw, Brass Fastener Screw, Brass File Screws, Brass Wood Screw, Brass Head Screw, Brass Screw, Brass Fasteners, Brass Screws, Brass Nipple, Brass Hose Nipple, Brass Studs, Industrial Brass Stud, Brass Stud, Brass Fasteners, Industrial Brass Fasteners, Brass Molding Insert, Brass Inserts, Brass Female Insert, Industrial Brass Inserts, Brass Male Insert, Brass Insert, Brass PPR Insert, Industrial Brass Male Inserts, Brass Parts, Submersible Brass Parts, Brass Fasteners, Split Bolt Connectors, Industrial Brass Anchor, Brass Fasteners Anchors,

Bushing Metal Parts M 20,Bushing Metal Parts M12 HV, Primary Terminal, Bushing Metal Parts M20 HV, Distribution Transformer Metal Parts, Brass Transformer Bushing, Bushing Metal Parts Accessories, Bushing Metal Parts M20 HV Duly Tin Plated, Bushing Metal Parts M30, Bushing Metal Parts M12 C, Bushing Metal Parts M 42,Bushing Metal Parts M42 HV, Bushing Metal Parts M16 HV, Brass Connecting Lug, Bushing Metal Parts CB-1,Bushing Metal Parts M 42 C, Bushing Metal Parts M30 C, Bushing Metal Parts M30 Conventional, Brass Electrical Parts, Brass HRC Fuse Contacts, Brass Strip Connectors, Battery Terminal Brass, Brass Spacer, Brass Elbow, Tee Elbow, Battery Terminal Brass, Brass Battery Terminal, Male Female Brass Connector, Brass PC Connector, Hex Tank Connector, Brass Male Gas Connector, Flange Tank Connector, U-Bolt Rod, Brass Earth Rod, Reducing Hex Bush, Brass Male Female Bush, Brass Flare Fitting, Brass Mix Item Parts, Brass Electrical Parts, Brass Gas Parts, Brass Extension Piece, Brass Waste Complete Set, Extension Reducer, Brass Tank Connectors, Brass Sprinkler Parts, Brass Pressure Gauge Parts, Brass Turned Components, Brass Round Headed Bush, Brass Earth Tags, Brass Split Bolts, Copper Bonded Earth Rods, DC Tape Clip, Cast Ground Plate, Brass Electrical Earthing Accessories, Brass Earthing Accessories, Brass Electrical Cable Gland, Brass Cable Gland, Brass Wiping Gland, Brass Male Bush, Brass Flexible Connector, Brass Adapter, Brass Neutral Link, Brass Stop Plug,

3. DESIRED QUALIFICATIONS FOR PROMOTER:

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

4. MARKET POTENTIAL AND MARKETING ISSUES, IF ANY:

Transformer is a machine that transfers electrical energy from one electrical circuit to another without changing frequency by the principle of electromagnetic induction. Since its basic construction requires no moving parts so it is often called the static transformer and it is very rugged machine requiring the minimum amount of repair and maintenance. The term is used to include all transformers of large sizes (250 KVA and above) used in generating stations and substations for transforming the voltage at each end of a power transmission

line. They may be single or three phase and voltage rating of 220/11kv or in high voltage range. They are kept in operation all the 24 hours a day. In such transformer iron loss occur for all the time where copper loss occur only when they are loaded. Electric equipment industry contributes over 2% of GDP which is projected to increase to about 12% in last year. During the period, consumption of electrical equipment is estimated to increase at a CAGR of about 30%. The electrical equipment and accessories industry, with its highly diversified content, may be broadly segmented into (i) generation equipment, (ii) transmission equipment, and (iii) distribution equipment. According to the Power Ministry, the power sector has tied up Rs. 2,240 billion worth of investments to build power plants with 70,000 MW capacity in the next three years. Thus, as an entrepreneur this project offers an exciting opportunity to you. The transformer market in India is estimated to be over Rs 12,000 crores where power transformers contribute 45 per cent of the total market and distribution transformers contribute 55 per cent. The transformer market in India is estimated to be over Rs. 12, 000 crores where power transformers contribute 45 per cent of the total market and Distribution transformers contribute 55 per cent. India's transformer market is predominantly un-organized with many small participants catering to the smaller distribution transformer markets. The India Power & Distribution Transformer market is forecast to reach $ 2.9 billion by 2022. The power transformers market revenues in India are expected to grow at the CAGR of 14 % till 2018. Under the 12^{th} Five Year Plan (2012-17), the government plans to spend USD 200 Billion on developing and strengthening power infrastructure in India. The Government of India has projected an investment of $ 22 billion in power transmission sector by fiscal year 2019 to strengthen the transmission network thus increasing the demand for power transformers. The Global Transformers market is accounted for $ 13. 7 billion in 2015 and is expected to reach $ 24.4 billion by 2022 growing at a CAGR of 8. 6 % from 2015 to 2022. The distribution transformer market is segmented on the basis of power rating, mounting type, phase, and insulating type. In sub segment of insulation type segment, the major share was held with liquid immersed type transformer in 2015. Due to rising usage in the commercial as well as purposes and modern infrastructure.

5. RAW MATERIAL REQUIREMENTS:

The major raw materials are brass, steel, aluminum, copper, etc. However brass is the main. Brass is a metal composed primarily of copper and zinc. Copper is the main component, and brass is usually classified as a copper alloy. 3 The color of brass varies from dark reddish brown to a light silvery yellow depending on the amount of zinc present; the more zinc, the lighter the color. The zinc content can vary between 10% to about 45 %. 4 Brass is specified because of the unique combination of properties, stronger and harder than copper, it is easy to form into various shapes, a good conductor of heat, and generally resistant to corrosion from salt water. Because of these properties, 5 Brass is usually the first – choice material for many of the components for equipment made in the general, electrical and precision engineering industries brass is also used to make pipes and tubes, weather - stripping and other architectural trim pieces, screws, radiators, musical instruments and cartridge casting for firearms. Matched by no other material, those make it indispensable where a long, cost - effective service life is required.

6. MANUFACTURING PROCESS:

The manufacturing of parts and accessories will require Special Purpose Machine (Mini Trauma) Manual Machine (12 mm to 35 mm). Threading Machine, Milling Machine, Drilling Machine, Cutting Machine, Drawer Machine (For Brass Rods). In – house Casting (Brass Foundry) with per day capacity of 2 tones.

LINE DIAGRAM FOR PROCESS OF MANUFACTURING GENERAL MANUFACTURING PROCESS.

Brass Scrap - Sorting of Impurities in The Scrap material – Melting of Scrap - Sand Casting -Die Making – Manual Pouring – Second Operation Machining – Wire Draw Cutting and Resize as per Required Machining – Inspection – Threading – Assembly – Packing – Dispatch – Final Inspection

7. MANPOWER REQUIREMENT:

The enterprise requires 33 employees as detailed below**:**

Sr. No.	Designation of Employees	Salary Per Person	Monthly Salary ₹	Year-1	Year-2	Year-3	Year-4	Year-5
1	Production Manager	18000	18000	1	1	1	1	1
2	Operators	12000	60000	5	5	5	7	7
3	Helpers	10000	110000	11	11	11	14	14
2	Admin Manager	15000	30000	2	2	2	2	2
3	Accounts/Stores Assistant	12500	50000	4	4	4	4	4
	Office Boy	9000	45000	5	5	5	5	5
	Total		313000	28	28	28	33	33

8. IMPLEMENTATION SCHEDULE:

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

Sr. No.	Activity	Time Required *(in months)*
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 *(some activities shall run concurrently)*	4.00

9. COST OF PROJECT:

The project shall cost ₹ 112.63 lacs as detailed below:

Sr. No.	Particulars	₹ in Lacs
1	Land 1500 sq. mt 1000	15.00
2	Building	25.00
3	Plant & Machinery	33.00
4	Furniture, Electrical Installations	3.00
5	Other Assets including Preliminary / Pre-operative expenses	3.30
6	Margin for Working Capital	33.33
	Total	**112.63**

10. MEANS OF FINANCE:

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

Sr. No.	Particulars	₹ in Lacs
1	Promoter's contribution	28.16
2	Bank Finance	84.48
	Total	**112.63**

11. WORKING CAPITAL CALCULATION:

Sr. No.	Particulars	Gross Amt	Margin %	Margin Amt	Bank Finance
1	Inventories	16.67	0.25	4.17	12.50
2	Receivables	8.33	0.25	2.08	6.25
3	Overheads	8.33	100%	8.33	0.00
4	Creditors	-		0.00	0.00
	Total	33.33		14.58	18.75

12. LIST OF MACHINERY REQUIRED:

The main Plant and machinery required are : Center Lathe , Radial drill Machine, Bench Drill Machine, Shaper Stroke, Cylindrical Grinder C.D. Hydraulic Press, Hand Press, Double ended Grinder, Hacksaw Machine, Balancing Machine, Coil Winding Machine ,Hand Shear ,Air Compressor with Accessories, Oxygen Acyteline Cylinder with accessories. Detail of important machinery is given below: Power Requirement: 200 HP

Sr. No.	Particulars	UOM	Qtty	Rate (₹)	Value (₹ in Lacs)
	Plant & Machinery / Equipment				
a)	***Main Machinery***				
i.	Foundry	NO	1	13.00	13.00
ii.	Machining Division	NO	1	8.00	8.00
iii.	Milling And Other Division	NO	1	3.00	3.00
b)	*Packing Finishing Division*	LS.	1	2.00	2.00
i.	Laboratory Division	NO	1	3.00	3.00
ii.	Installation, Electrification, Taxes And Transportation.	LS.	1	4.00	4.00
	Sub-Total Plant & Machinery				**33.00**
	Furniture / Electrical Installations				
a)	Office Furniture	LS	1	50000	0.50
b)	Stores & Cupboards	LS	1	0	0.00
c)	Computer & Printer	L. S.	5	50000	2.50
	Sub Total				**3.00**
	Other Assets				
a)	Preliminary And Preoperative				3.30
	Sub-Total Other Assets				3.30
	Total				**39.30**

13. 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	120.00	140.00	160.00	180.00	200.00
3	Raw Materials & Other direct inputs	₹. In Lacs	100.32	117.04	133.76	150.48	167.20
4	Gross Margin	₹. In Lacs	19.68	22.96	26.24	29.52	32.80
5	Overheads except interest	₹. In Lacs	6.72	7.14	7.98	8.23	8.40
6	Interest	₹. In Lacs	8.45	8.45	5.63	4.22	3.38
7	Depreciation	₹. In Lacs	23.10	16.50	11.55	8.25	7.43
8	**Net Profit before tax**	₹. In Lacs	**-18.59**	**-9.13**	**1.08**	**8.81**	**13.60**

14. BREAK EVEN ANALYSIS:

The project shall reach cash break-even at 35.91 % of projected capacity as detailed below:

Sr. No.	Particulars	UOM	Value
1	Sales at full capacity	₹. In Lacs	200.00
2	Variable costs	₹. In Lacs	167.20
3	Fixed costs incl. interest	₹. In Lacs	11.78
4	BEP = FC/(SR-VC) x 100 =	% of capacity	35.91%