Report on Import Reduction and Domestic Manufacture of

DOMESTIC ELECTRIC APPLIANCES
(FOOD MIXER, WET GRINDER AND FOOD PROCESSOR)

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A. Introduction

India is one of the top ten nations having the highest foreign reserves of 590 billion US dollars at number 8 position in the ranking. Having adequate foreign reserve keeps the nation in high esteem club of nations and derives certain advantages such as maintaining the value of the country's currency, helps to manage the local market steady, builds the confidence of the foreign investors and finally to meet the external obligations in the international arena. It helps us to strengthen the bargaining power in international commerce as well as commands respect in geo-political negotiations.

Countries with the largest trade surpluses are the ones with the greatest foreign reserves and apparently every nation aims to accumulate maximum reserve. The first step in this direction is to curtail the imports whatever is possible and at the same time without hampering the nation's progress. Simultaneously efforts are to be made to steadily increase exports particularly from MSME sector which is having a huge potential. As the say goes in the management of electricity conservation, 'every one unit of power saved is equal to one unit of power generated' and in this case of foreign reserve management, it is not an exaggeration to state that 'every single dollar saved by import substitution is equivalent to a dollar of foreign reserve earned'.

In this direction DC (MSME) has rightly pointed out the crux of prevailing unwanted imports taking place among the products of 358 items exclusively reserved for purchase from MSMEs. It is indeed expected that these items are supposed to be manufactured domestically in our country and the policy is existing to compulsorily purchase these items from MSMEs by central government agencies as a measure of market support. But the irony is that these items are lavishly imported even though they can be manufactured locally by our own MSMEs and thereby avoid the out flow of forex. Moreover, considering the demographic strength of our nation, creating suitable job for millions of youth is a paramount responsibility of the nation. As a twofold strategy, following the clarion call of "vocal for local" of our Honorable Prime Minister which emphasizes and encourages the products to be manufactured domestically, using locally available resources, thereby reducing imports and generating employment opportunities. This will lead to achieve one of the objectives of "Aatmanirbhar Bharat".

As part of this mission, O/o DC (MSME), New Delhi has assigned the task of preparing a report for domestic manufacturing of " **Domestic Electric Appliances – Food mixer, wet grinder and food processor** " which is being imported considerably at present. Domestic Electric Appliances refers to hundreds of electrical appliances such as Electric water pump, refrigerator, Wet grinder, Television, Air conditioner, ceiling Fans etc. But this report is prepared with a focus on Food mixer, Wet grinder and Food processor. Because of their uses in automation of domestic works especially in food processing, these domestic electric appliances have got good domestic and export market potential. This report is a techno economic document which talks about the domestic potential for Food mixer, Wet grinder & Food processor, Manufacturing process, Government of India support for the clusters of such products and preparation of bankable project report. This report will be a guide for the prospective entrepreneurs/unemployed youth to start a MSME unit to manufacture the domestic electric appliances. This will also serves as a reference to the existing entrepreneurs to understand the various schemes of Government of India.

B. COMMERCIAL DETAILS

1. National Industrial Classification Code *:*

The National Industrial Classification Code ("NIC Code") is a statistical standard for developing and maintaining a comparable data base for various economic activities. This code has been developed with an intent to ascertain and analyse as to how each economic activity is contributing towards national wealth. The Department of Policy and Promotion in their Press Note 4 (2014 series) dated 26 June 2014 decided to switch over to the NIC 2008 from NIC 1987 version. Since then, all Indian Companies are advised to follow NIC 2008. NIC 2008 is more compatible with the international system of classification. This enables the compliance processes for registration to flow in a smooth manner.

Division 27: Manufacture of electrical equipment

Group 275: Manufacture of domestic appliances

Class 2750: Manufacture of domestic appliances

This class excludes:

- manufacture of commercial and industrial refrigerators and freezers, room air-conditioners, attic fans, permanent mount space heaters and commercial ventilation and exhaust fans, commercial-type cooking equipment; commercial-type laundry, dry-cleaning and pressing equipment; commercial, industrial and institutional vacuum cleaners, see division 28
- manufacture of household-type sewing machines, see 2826
- installation of central vacuum cleaning systems, 4329

Sub-class 27501 : Manufacture of domestic electric appliances such as refrigerators, washing machines, vacuum cleaners, mixers, grinders etc.

2. HSN Code

HSN code stands for "Harmonized System of Nomenclature". This system has been introduced for the systematic classification of goods all over the world. HSN code is a 6-digit uniform code that classifies 5000+ products and is accepted worldwide. It was developed by the World Customs Organization (WCO), formerly known as the Customs Co-operation Council and it came into effect from 1988.

The HS provides a coding system that is based on a hierarchical structure, starting with the Section at the higher level and getting more specific at Chapter, heading and subheading levels. Chapters, headings and subheadings are coded according to their positions in the hierarchy.

An HS code can be sub-divided into the next lower level to provide greater detail and definition of a product than the higher level. The HS consists

of around 1200 four-digit headings and 5000 six-digit subheadings, which are organized in 21 Sections and 97 Chapters, which theoretically cover all commodities in international trade. These headings and subheadings, along with the General Rules of Interpretation and Section and Chapter Notes comprise the legal text of the Harmonized System.

As the basic building-blocks of the HS, subheadings are identified by six-digit codes. A six digit subheading code comprises three parts which provide information on its three different levels of detail. The first two digits represent the Chapter in which the goods are classified, the next two digits identify the heading within the Chapter where the goods are described, and the last two digits represent the most detailed subdivisions of the HS.

For instance, the code 0102.10 indicates that it belongs to Chapter 01, under heading 0102. An undivided heading has a six-digit code ending in "00". An HS subheading at six- digit level is the most detailed level of the HS. However, in order to fulfill national needs, the HS Convention allows contracting parties to subdivide the HS classification into even more specific levels by inserting additional national codes.

For instance, it is common for many countries to use two additional digits for tariff duties and another two digits for more specificity in their trade statistics. These additional breakouts beyond the six-digit codes are referred to as national tariff lines, or national breakouts. It should however be stressed that different countries often create different breakouts and national codes under the same HS subheading, except for customs unions, which normally tend to use identical tariff structures.

HS code	8509	Electro-mechanical domestic appliances, with self-contained electric motor, other than vacuum cleaners of heading 8508
HS code	85094	Juice extractors:
HS code	85094010	Food grinders and mixers; Fruit or vegetable juice extractors
HS code	85094090	Food grinders and mixers; Fruit or vegetable juice extractors

3. Existing clusters of the product

a. Wet Grinder Industrial Cluster Coimbatore Tamil Nadu

Coimbatore has emerged as the natural wet grinder industry cluster due to the availability of the natural stones suitable for wet grinders nearby. Also Coimbatore is one of the leading industrial cities in India. Many engineering and fabrication units functioning in and around Coimbatore had started manufacturing wet grinders. Foundries, mechanical fabrication units and electroplating units in and around Coimbatore supported this cluster for its development.

4. Possibility to create cluster & Probable areas or the district where the product can be manufactured

The possibility to create clusters is a strategic decision wherein the influencing and deciding factors can be the following:

- Concentration/ Proximity of source of raw material suppliers.
- Concentration/ proximity to end-users or market
- Existing manufacturers
- Proximity to ancillary units involved in manufacturing of parts and components.

Based on these factors and the information available, it is proposed that the possibility of establishing clusters for Food Mixer. These Food mixer cluster can be created at Regional Capital / Labour intensive area of Delhi, Maharastra and Tamil Nadu states.

5. Number of industries registered as MSME available in the manufacturing of the product

Based on information available from Udyam Registration portal, the list of MSMEs engaged in the manufacturing of products falling under NIC Code 27501 is given below.

A total of 3388 MSMEs spread over the country which are involved in the manufacture of domestic electric appliances and it's components. Maharastra stands at number one place with 832 registered MSMEs, followed by Tamil Nadu with 514 units and Delhi with 321 units.

SL.NO	State Name	UAM	SL.NO	State Name	UAM
1	ANDAMAN AND NICOBHAR ISLANDS	14	20	LAKSHADWEEP	0
2	ANDHRA PRADESH	63	21	MADHYA PRADESH	108
3	ARUNACHAL PRADESH	0	22	MAHARASHTRA	832
4	ASSAM	4	23	MANIPUR	1
5	BIHAR	76	24	MEGHALAYA	0
6	CHANDIGARH	9	25	MIZORAM	0
7	CHHATTISGARH	14	26	NAGALAND	1
8	DADAR AND NAGAR HAVELI	5	27	ODISHA	36
9	DAMAN AND DIU	7	28	PUDUCHERRY	4
10	DELHI	321	29	PUNJAB	117
11	GOA	4	30	RAJASTHAN	166
12	GUJARAT	235	31	SIKKIM	0
13	HARYANA	162	32	TAMIL NADU	514
14	HIMACHAL PRADESH	39	33	TELANGANA	91
15	JAMMU AND KASHMIR	10	34	TRIPURA	1
16	JHARKHAND	44	35	UTTAPRADESH	287
17	KARNATAKA	110	36	UTTRAKHAND	22
18	KERALA	45	37	WEST BENGAL	46
19	LADAKH	0			
TOTAL					3388

Source: www.udyamregistration.gov.in

6. Number of industries available in large scale industries for Squirrel Cage Induction Motor

(i) Bosh India Ltd, No. 42, II-phase, Sector-2, KIADB Industrial Area, Shanumangala Bidadi Hobli, Ramanagar District 562 109

(ii) Philips India Limited
3rd Floor, Tower A, DLF IT Park, 08 Block AF, Major Arterial Road, New Town (Rajarhat) Kolkata, West Bengal- 700156

(iii) MITTAL ELECTRONICS, 38 S.S.I CO-OPERATIVE INDUSTRIAL ESTATE, G.T KARNAL ROAD DELHI 110033

(iv) TTK Prestige Limited
11th Floor, Brigade Towers, 135 Brigade Road, Bangalore-560025

(v) Butterfly Gandhimathi Appliances Ltd, 143 Pudupakkam Village, Kelambakkam-Vandalur Road, Kancheepuram District 603103

(vi) Wonderchef, B-Wing, Supreme Business Park, Unit No. 303, 3rd, Hiranandani Gardens, Powai, Mumbai, Maharashtra 400076.

(vii) Bajaj Electricals Ltd, Rustomjee Aspire, 6th Floor, Bhanu Shankar Yagnik Marg, Sion East, Mumbai- 400022

(viii) Havells India Ltd. QRG Towers, 2D, Sector-126, Expressway, Noida - 201304. U.P.

(ix) Inalsa Home Appliances Pvt Ltd, C-175, Sector 63, Noida 201301

(x) Panasonic Appliances India Company Ltd, Cholavaram, Tamil Nadu 600067

7. **Data on imports for last three years**

Globally, demand for the domestic electric appliance is being driven by its increasing usage owing to its economic cost and low maintenance. India is importing mostly the components for manufacturing the domestic electrical appliance from various parts of the word especially from China.

IMPORT (RS LAKHS) OF Food grinders and mixers; Fruit or vegetable juice extractors

Sl.No.	Year	85094010			85094090		
		Import value	%Share of total Import	%Growth	Import value	%Share of total Import	%Growth
1	2017-18	969.07	0.0003	170.72	13012.63	0.0043	27.03
2	2018-19	1548.81	0.0004	59.82	17488.64	0.0049	34.39
3	2019-20	1296.92	0.0004	-16.26	9994.35	0.0030	-42.85
4	2020-21 (Apr-Feb)	875.16	0.0003	---	9781.08	0.0038	---

Source: Export Import Data Bank, Ministry of Commerce, Govt. of India.

It can be observed from the yearly trend of imports that, from 2017-18 to 2018-19 the import of Food grinders and mixers; Fruit or vegetable juice extractors is in increasing trend. During 2019-20 import of Food grinders and mixers; Fruit or vegetable juice extractors is showing a negative growth.

Food grinders and mixers; Fruit or vegetable juice extractors are majorly(98%) imported from China.

8. Data on exports for last three years

The data for exports of Food grinders and mixers; Fruit or vegetable juice extractors presented below for HS Codes 85094010and 85094090.

The top export destinations of Squirrel cage induction motors during 2019-20 are Bangladesh, United Arab Emeritus, Japan, Saudi Arabia, China P RP, U S A, Russia, Spain, Nigeria, Indonesia.

EXPORT (RS LAKHS) OF Food grinders and mixers; Fruit or vegetable juice extractors

Sl.No.	Year	85094010			85094090		
		Export value	%Share of total Export	%Growth	Export value	%Share of total Export	%Growth
1	2017-18	16000.37	0.0082	9.47	5112.19	0.0026	6.35
2	2018-19	21105.10	0.0091	31.9	7840.56	0.0034	53.36
3	2019-20	21197.86	0.0095	0.44	8,658.09	0.0039	10.42
4	2020-21 (Apr-Feb)	20922.84	0.0110	---	6,917.22	0.0036	---

Source: Export Import Data Bank, Ministry of Commerce, Govt. of India.

A cursory glance at the exports shows that the total exports of Food grinders and mixers; Fruit or vegetable juice extractors is 160 -200 times of the their imports and showing both upswing trend. A breakup of these brings to our notice that only Food grinders and mixers; Fruit or vegetable juice extractors - finished goods are mostly exported and Food grinders and mixers; Fruit or vegetable juice extractors - Components are mostly imported. The Food grinders and mixers; Fruit or vegetable juice extractors are mostly exported to Sri Lanka, Bangladesh and UAE. JNPT, Madras Sea, Tuticorin Sea, Kattupalli are the main ports where bulk of HS Code: 85094010,85094090 is exported to the above mentioned countries.

9·Scope for number of units which can be established in future

The production of Food grinders and mixers; Fruit or vegetable juice extractors can be promoted for export. The import of components for Food grinders and mixers; Fruit or vegetable juice extractors can be reduced by encouraging such manufacturing activities under Atmanirbhar Bharat Abhiyan by giving them special incentive. Around 200 units every state and be setup considering the increasing demand of domestic and export market in the next 5 years.

10·Demand in the domestic market

Food is the primary need of any human being. Food grinders and mixers; Fruit or vegetable juice extractors are used in domestic and commercial food processing sector because of it there is always growing demand for them.

11·Demand in export market

From the export data it is found that Srilanka, Bangladesh and UAE are the major importers of Food grinders and mixers; Fruit or vegetable juice extractors from India. A detailed study may be conducted to assess the quality parameter of other countries so that the export of such goods can be extended to the rest of the world.

C. TECHNICAL DETAILS

1. **Sector in which the product is falling:** Electrical for domestic and commercial food processing usage

2. **End users of the product/sector:**

Food grinders and mixers; Fruit or vegetable juice extractors are commonly used in domestic kitchen, commercial food processing industries, Hotels and restaurants.

A juicer, also known as a juice extractor, is a tool used to extract juice from fruits, herbs, leafy greens and other types of vegetables in a process called juicing. It crushes, grinds, and/or squeezes the juice out of the pulp. Some types of juicers can also function as a food processor. Mixer grinder mainly used for grinding, blending and jucing operations with some special attachment. Wet grinders are used to make pastes from grains and lentils, such as those used in cooking dosas and idlis in South Indian cuisine. These grinders generally consists of a few granite stone plates that are rolled against another stone plate with the items to be ground between them.

3. **Governing Indian Specification/Standard:**

1. IS 4250 : 1980 (Reaffirmed Year : 2014) Domestic Electric Food-Mixers (Liquidizes and Grinders)
2. Table Top Wet Grinder - Conforming to safety Provisions of IS 302 Part-I 1979
3. Wet Grinder - Motor – IS 996

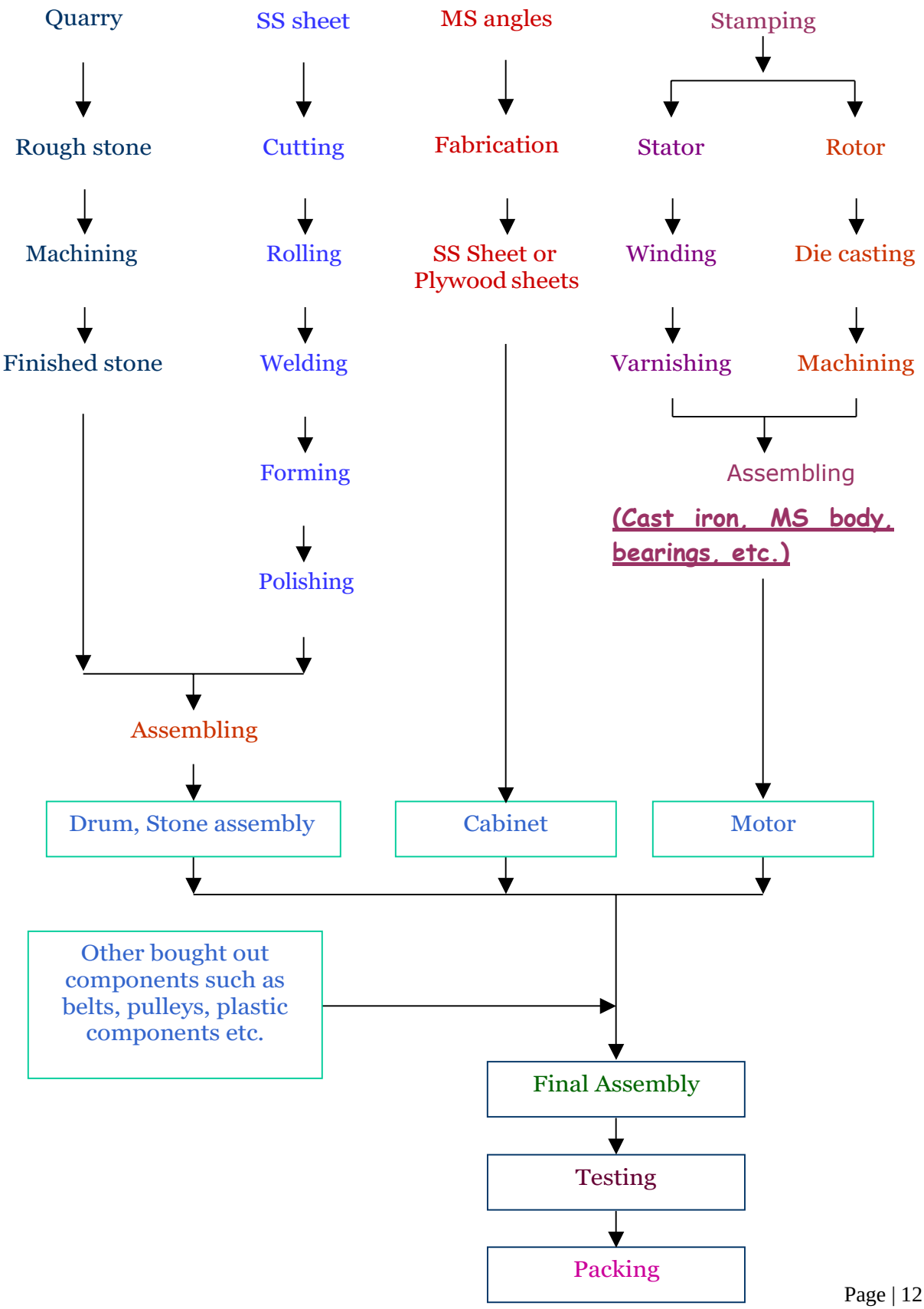
4. **Governing International Standards:**

IEC 60335-2-14:2016 Household and similar electrical appliances - Safety - Part 2-14: Particular requirements for kitchen machines

5. **Flow Process Chart of the manufacturing:**

The production of wet grinders does not involve highly technical operations. But it requires a degree of specialization in manufacturing the components required for wet grinders. Simple machineries such as lathes, drilling machines, welding machines are sufficient. Only few of the units are manufacturing all the components in house. Many units are outsourcing the components from the suppliers. The production process in general isgiven below:

PRODUCTION PROCESS – FLOW CHART



6. **Qualitative Parameters of the product:**

Wet Grinder

Motor: Motor specified for rated voltage @ 230 / 240 V, AC, 50 Hz, operated at Low speed or preferred with proper transmission system and delivering *Rated output power 150 watts (min), however this will vary according to the capacity of wet grinder in Liters.* Conforms as per IS: 996 - 1979 with Class "F" insulation and copper wire winding (capacitor start and run).Body of motor housing is generally by cast Aluminium, Sheet metal, virgin, high impact strength thermosetting plastic or thermo plastic like Acrylonitrile-Butadiene-Styrene (ABS).
The motor should capable for Grinding Rice / Black gram of rated capacity at max.30 minutes and the temperature rise in the motor should be as per IS 302.

Power Cord : ISI marked 3 pin moulded type plug with power cord of minimum 2 metres long Poly Vinyl Chloride insulated, sheathed, 3 core, copper cable, Cross sectional area not less than 0.75 mm^2

Drum material :*Stainless Steel* ***SSLN4 OR) Equivalent Grade of 26 Gauge thick***

Body and Switch knob material : High impact strength, virgin, food grade, ABS plastic of minimum 2.5 mm thick.

Lid: Fully covered with virgin, high impact strength, food grade, ***Poly carbonate*** *transparent lid.*

Grinding stones and its fittings :
a) Circular type base stone properly secured with SS drum – leak proof
b) Roller stone – twin, Cylindrical type, placed opposite to each other, fitted on the central stainless steel shaft of ***SSLN4 OR) Equivalent Grade, 8-10 mm.,*** *minimum diameter and food grade poly propylene coupler attached with spade made up of high impact strength, food grade, virgin, Poly Propylene material, properly secured with lock and spring.*
c) All the metal parts used in this area should be of AISI 304 Grade Stainless Steel material only.
d) The stone material should be of Natural Black Hard Stone of high quality, first grade, duly machined to the surface finish required as per industrial standards.
e) The diameter of the base stone should be 238 mm., and thickness 20 mm. Roller Stone diameter 100 mm., minimum and thickness 50 mm., minimum.

Drum pulley wheel : V-groove pulley of diameter not less than 200mm, ribs suitably strengthened, made up of 30% glass filled nylon material suitable for fractional Horse Power belt, fitted with life lubricated ball bearings.
Dimension:*The drawing for overall dimension and shape is desired by every manufacturer. The shape and dimensions are only indicative by manufacturer. However*

the product available in the market at a common uniform design and shape with minor changes.

Class of Appliances : Class 1 protection against electric shock

Operating performance of wet grinder for normal load: The operating time specified as its product, quanitiy, soaking time and grinding time such as :
1) Rice – Quantity- soaking time – Final grinding time.
2) Black gram – Quantity- soaking time – Final grinding time.

Food Mixer :

The machine shall be compact, self-contained, and of rigid construction. All parts required to be cleaned and kept in a hygienic condition shall be readily accessible without the use of special tools.
All castings and mother materials required to be handled shall be smooth, round edged, free from blow holes, pits, foreign matter and surface imperfections. Machined and formed parts shall be made to ensure complete interchangeability and parts subject to wear shall easily replaceable.

In the case of liquidizers, a lid shall be provided to retain food during preparation. It shall be designed as-to remain secured to the appliance during its extended -operation. A breather incorporated either in the lid or in a stopper to be connected to the lid shall also be provided.

In the case of grinder with the bowl of the open type a lid shall be provided. The design shall ensure that no accidental bodily contact is made with the cutters or blades during the operation of the machine.

The machine shall be designed to ensure that lubricants do not contaminate the food and that food is prevented from reaching the moving parts of the machine except blades and cutters. The cutters and such other exposed parts of the machine in contact with food shall be of such material as to prevent fouling of foodstuffs and to resist corrosion and rusting. Stainless steel is one such material which can meet the above-requirements.

COMPONENTS

Main body: It shall be made of cast iron, cast aluminium, sheet metal, high impact thermosetting plastics or thermoplastics like *Acrylonitrile Butadiene Styrene (ABS) of minimum 2.5 mm thickness for main body* of adequate strength, *Heat resistant, durable, food grade, virgin, high impact strength* and shall provide stability to the machine and shall also withstand all stresses encountered during normal use. Openings for ventilation of the motor shall be properly screened to ensure that no water, dirt or vermin can enter the housing during normal use.

Electric Motor :For satisfactory performance of food-mixers, it is recommended that the motors used shall generally conform to the requirements of IS : 996-1979. The motor rated at 230 / 240 V, AC, 50 Hz and minimum 550 watts. It may be provided with facility to operate at more than one speed with rated operating time 30 minutes.The motor housing by Cast Aluminium, sheet metal, high impact thermosetting plastic or thermo plastic like ABS.
Appliances rated with Class I Protection against electric shock, moisture and over load protection as per IS : 302 Part-I-1979. The motor is of class 'F' of insulation, and Copper wire winding for low every loss and less heat on appliances. The motor mounted by 4 rubber vaccum bushes to ensure grip mounting in operation.

Controls : Switches shall conform to the provisions of IS 4250. They may have stable positions for operation at various speeds. However, they may have a non-holding quick action position for instantaneous operation extending over controlled short durations.

Mechanical Power Coupling :The coupling shall be flexible and shall be fabricated out of materials which shall not deteriorate with extended normal use of 500 cycles as indicated in 18. It shall be able to withstand shocks and vibrations of power transmission and speed changes (in case of multi-speed machine). It shall be easily replaceable.

Bearings : The bearings may be of the sleeve or ball type. They shall be permanently lubricated. The bearings shall have a life of at least 500 cycles as indicated in 18.

Assembly : The bowl shall hale arrangements for its stable and easy mounting on the motor housing without the use of any tools. Accurate guides shall be provided to ensure correct mounting. Where the bowl is detachable from base plate, a proper gasket shall be provided, also mechanical seal for leak-proof assembly shall be provided. It shall be possible to remove the bowl with base plate if provided separately as one assembly for the purposes of emptying the contents.

Bowl : The container or the bowl in which food is converted into slurry, pulp or other liquids or in which dry food is pulverized shall be made out of materials which are neutral to food acids and salts, which do not deteriorate with age and which are able to withstand temperatures without change in their physical, mechanical and chemical structures and properties. Preferred materials are clear or coloured or milky glass, clear or coloured high impact thermosetting plastic or stainless steel. The bowl shall be easily removable from the machine, and shall be free from pits, cracks and crevices. It shall be smooth and shall not have corners and niches, to facilitate cleaning.

The fixing arrangement of the bowl shall be adequately strong to stand repeated operations. It may be fitted witch handling grips. The Jars are generally of 1 litre capacity, 0.5 litre capacity made up of Stainless Steel, SSLN4 (OR) Equivalent Grade, 26 Gauge thick minimum. The jar base made up of Acrylonitrile Butadiene Styrene (ABS) / Glass Filled Nylon of minimum 2.5 mm thickness with qualities such as Heat resistant, durable, food grade, virgin, high impact strength.

Blades of Cutters : The material of the blades of cutters shall be stainless steel*, SSLN4 (OR) Equivalent Grade, machine ground and polished and 1.5 mm thickness*

Lid :*Food grade, virgin, high impact strength, transparent poly Carbonate minimum 2.5 mm thick.*
Spatula : In built with box type spanner on one end, food grade poly propylene minimum 2.5 mm thick.
Motor coupler : High impact strength, high temperature resistant, 20% glass filled nylon–6 material, suitable for high speed operation, properly secured with motor shaft and leak proof connection.

Power Cord : ISI marked 3 pin moulded type plug power cord of 2 meter long, Poly Vinyl Chloride insulated, sheathed, 3 core copper cable, Cross sectional area not less than 0.75 mm^2
Speed control : Rotary switch 3 speed, whipping and OFF position marked, *handles and switch knob made by Acrylonitrile Butadiene Styrene (ABS) / PolyPropylene of minimum 2.5 mm thickness for Heat resistant, durable, food grade, virgin, high impact strength.*

7. Details of the product licenses to obtained:

Food Processor / Mixer is mandatory
IS :4250- 1980 (Reaffirmed 1999) DOMESTIC ELECRRIC FOOD-MIXERS (LIQUIDIZERS AND GRINDERS)

There is no product BIS specification available for wet grinder hence Wet Grinder License is not mandatory. But the motor used in wet grinder shoul meet the requirement as per IS 996.

Testing shall be done in NABL Accredited Testing laboratory.

8. Equipment required for manufacturing of the product:

- Coil winding machine
- Core stamping machine
- Oven – varnish
- Soldering station
- Injection moulding machine
- Hydraulic press
- Sheet cutting machine
- Buffing & polishing machine

9. Testing Facilities required for the product:

IS 4250 standard covers general and safety requirements of domestic electric food-mixers used for mixing liquids, making slurries or pulps of food and for pulverizing dry food stuffs. Determinaion of performance of food-mixers is also a very important aspect for evaluating the quality of food-mixers. This necessitates conducting some actual operational tests for which the food-mixers are designed.

Further in this standard reference with regard to general and safety requirements and methods of test have been made to IS : 302-1979* which is a necessary adjunct to this standard. The clauses of this standard correspond to the clauses of IS : 302-1979*.

Test requirement is categorized as three type:

Routine Tests — Simple running tests to be carried out at manufacturers premises to verify satisfactory functioning shall be conducted on every food-mixture is called as routine-tests: the detailed test procedure maintained in respective clause of Indian Standard – IS 4250

a) Protection against electric shock	Cl. 8
b) High voltage	Cl. 13
c) Provision for earthing	Cl. 27

To accept the product by customer the following test are required to improve customer confidence, This test facilities should be available at manufacturers place: A recommended sampling procedure for acceptance test is given in Appendix B of IS: 302-1979.

a) Protection against Electric shock	Cl. 8
b) Input	Cl. 10
c) Electrical insulation and leakage current at operating temperature	Cl. 13
d) Moisture resistance	Cl. 15
e) Insulation resistance and electric strength	Cl. 16
f) Provision for earthing	Cl. 27
g) Operational tests	Cl. 34
h) Temperature withstand test for bowl	Cl. 35

Type Tests : The tests specified in IS 4250 - Table 1 shall be carried out on 2 samples of the food-mixers, All the-samples shall successfully pass all the type tests for proving conformity with the requirements of this specification. If any of the samples should fail in any of the type tests, the testing authority, at its discretion, may call for fresh samples not exceeding twice the original number and subject them to all the tests or the test(s) in which the failure(s) occurred. No failure shall be permitted in the repeat test(s).

Protection against electric shock	Cl. 8
starting	Cl. 9
Input	Cl. 10
Temperature-rise	Cl. 11
Electrical insulation and leakage current at operating temperature	Cl. 13
Moisture resistance	Cl. 15
Insulation resistance and electric strength	Cl. 16
Endurance	Cl. 18
Abnormal operation	Cl. 19
Stability and mechanical hazards	Cl. 20
Mechanical strength	Cl. 21
Supply connections and external flexible cables and cords	Cl. 25
provision for earthing	Cl. 27
Screws and connections	Cl. 28
Creepage distances, clearances and distances through insulation	Cl. 29
Resistance to heat, fire and tracking	Cl. 30
Finish	Cl. 33
Operational tests	Cl. 34
Temperature withstand test for bowl	Cl. 35
Test for controls	Cl. 36
Strength of assembly	Cl. 37

i. Type Tests requirement as per IS 4250

Sl.No.	Test	Equipent	Specification
1	TEST FOR PROTECTION AGAINST ELECTRIC SHOCK	Test finger with indicator	Conforms to IS:302(p1)-1979.
2	**TEST FOR INPUT**	Stable voltage source	Up to 275 volts, 50Hz, ± 1%
		Analog /Digital voltmeter	Range 0 to 300V, Accuracy ± 1%
		Analog /Digital Wattmeter	Range 4 Kw, Accuracy ± 1%
		Digital Weighing balance	Upto 1 Kg
		Energy Meter	Range 240 V / 5 Amps.
		Time clock or stop watch	0 to 30 minutes
3.	**LEAKAGE CURRENT AT OPERATING TEMPERATURE**	Stable voltage source	: Up to 275 volts, 50Hz, ± 1%
		Analog /Digital voltmeter	Range 0 to 300V, Accuracy ± 1%
		Analog /Digital Ammeter	Range 0-5 / 10A , Accuracy ± 1%
		Analog /Digital Wattmeter	Range 0 to 4 Kw, Accuracy ± 1%
		Ac micro Ammeter	Range 0 to 500µA, Accuracy + 1%
		Time clock or stop watch	0 to 30 minutes
		Copper foil	size 20cm × 10cm.
4.	**TEST FOR MOISTURE RESISTANCE**	Humidity chamber with constant air circulation inside	Size 60 ×60×60cm
		High voltage Break down tester	Range : 0 to 5 KV, Ac,500 VA Capacity Accuracy : ± 3%
		Insulation tester (or) Megger	500 V DC, 0 to 100 MΩ
		Digital / Analog stop watch	0 to 30 Minutes.
		Measuring jar	500ml
5	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**	High voltage Break down tester	Range : 0 to 5 KV, Ac,500 VA Capacity, Accuracy : ± 3%
		Insulation tester (or) Megger	500 V DC, Insulation Resistance Range (0 to 100 MΩ)
		Digital / Analog stop	0 to 30 Minutes.

		watch	
		Copper foil	
6	**OPERATIONAL TEST**	Stable voltage source	Up to 275 volts, 50Hz, ± 1%
		Analog /Digital Ammeter	Range 0 to 10 A, Accuracy ± 1%
		Analog /Digital Voltmeter	Range 0 to 300v, Accuracy ± 1%
		Analog /Digital Wattmeter	Range 0 to 1Kw, Accuracy ± 1%
		Digital stop watch	0-30 Minutes
		Standard Sieves	size (1400, 1000, 710, 500,355) microns
		Weighing Scale	upto 1kg
	JAR – CAPACITY a) 1 litre, b) 0.4 litre	Measuring jar - 1 litre and 500 ml	
	JAR Material & Blade AISI 202 Grade & Thickness	Spectro analyzer instrument	
		Ball Micrometer	0-25mm
	LID MATERIAL Poly corbonate, 2.5mm thick	Ball Micrometer Bench vice, Hackshaw blade with frame&knife	0-25mm
	Cross Section ABS Material Body, Jar, Handles	Ball Micrometer	- (0-25)mm
	POWER CORD Length & Area	Measuring tape Flat micrometer High voltage Break down tester	3metre (0-25)mm Range : 0 to 5 KV
	LIMITER SWITCH	Testing Panel	
	CONTROL SWITCH / Knob	Continuity testing panel	
	PC BOX	Electronic Weighing scale	(0-3)kg
	Visual Examnimation		
	Finish		

ii. TESTING EQUIPMENTS FOR TABLE TOP WET GRINDER

SL. NO	TYPE OF TEST	REQUIRED EQUIPMENT
1	**VISUAL EXAMINATION AND INSPECTION**	Visual
2	**SPILLAGE**	Measuring Jar
		Stop Watch
3	**TEST FOR PROTECTION AGAINST ELECTRIC SHOCK**	Test finger with indicator
4	**LEAKAGE CURRENT AT OPERATING TEMPERATURE**	a. Stable voltage source : Upto 275 volts, 50Hz, ± 1%
		b. Analogue /Digital voltmeter : Range 0 to 300V, Accuracy ± 1%
		c. Analogue /Digital Ammeter : Range 0 - 10A , Accuracy ± 1%
		d. Analogue /Digital Wattmeter : Range 0 to 1 Kw, Accuracy ± 1%
		e. Ac micro ammeter : Range 0 to 1000 μA , Accuracy + 1%
		f. Time clock or stop watch : 0 to 30 minutes
		g. Copper Foil (20 cm x 10 cm)
5	**HIGH VOLTAGE TEST**	a.High voltage Break down tester : 0 to 5 KV
		b. Timer : 0 to 10 second
6	**TEST FOR INSULATION RESISTANCE**	a. Digital Insulation Tester (or) megger : 500 V DC, Insulation Resistance Range: 0 to 100 MΩ
		b. Digital / Analogue stop watch : 0 to 30 min, Resolution : 0.01 Sec.
7	**EARTHING RESISTANCE TESTER**	a. Digital / Analogue voltmeter : Range 0 to25 volt Accuracy ± 1%
		b. Digital / Analogue Ammeter : Range 0 to25 A Accuracy ± 1%
		c. Digital megger : Range 0

		to 10 mΩ
8	**TEST FOR MOISTURE RESISTANCE**	a. Humidity chamber : Size 60 ×60×60cm with constant air
		circulation inside
		b. High voltage Break down tester : Range : 0 to 5 KV, Ac,500 VA Capacity,
		Accuracy : ± 3%
		c. Digital insulation tester (or) : 500 V DC, Insulation Resistance
		Megger Range (0 to 100 MΩ)
		d. Digital / Analogue stop watch : 0 to 30 Minutes.
		e. Measuring jar : 500ml
9	**TEST FOR INPUT**	a. Stable voltage source : Up to 275 volts, 50Hz, ± 1%
		b. Analogue /Digital voltmeter : Range 0 to 300V, Accuracy ± 1%
		c. Analogue /Digital Wattmeter : Range 4 Kw, Accuracy ± 1%
		d. Digital Weighing balance : Upto 1 Kg
		e. Energy Meter : Range 240 V / 5 Amps.
		f. Time clock or stop watch : 0 to 30 minutes
10	**TEMPERATURE RISE**	a. Stable voltage source : Up to 275 volts, 50Hz, ± 1%
		b. Analogue /Digital voltmeter : Range 0 to 300V, Accuracy ± 1%
		c. Digital / Analogue Ammeter : Range 0 to 5 A Accuracy ± 1%
		d. Analog /Digital Wattmeter : Range 4 Kw, Accuracy ± 1%
		e. Digital Weighing balance : Upto 3.00 Kg
		f. Digital Temperature Indicator : Range 0-150°C, Accuracy ± 1%
		g. Time clock or stop watch : 0 to 60 minutes

		h. Digital Insulation Tester(or) megger : Range: 0 to 100 MΩ Accuracy + 0.5%
		i. Calculator.
11	**COMPONENTS**	
	a) Motor conforming to IS 996 and	Motor testing as per IS : 996 : 1979
	b) Three pin power guard shall have ISI marking and CM/L No.	a. Visual
		b. Measuring Tape(0 - 5 Metre)
		c. Micrometer(flat type)(0 - 25 mm)

II.MECHANICAL INSTRUMENTS & EQUIPMENTS :

SL. NO	**CHECKING PARAMETER**	**REQUIRED EQUIPMENT**
1	Rated Voltage (230 v/240 VAC,50 HZ)	Voltmeter (0 - 500 VAC)
2	Motor Power/Rpm (960 RPM min)	1.Tachometer with reflection sticker (0 - 10,000 Rpm)
		2. Wattmeter (0 - 1Kw)
3	Capacity (2ltr)	Measuring jar. (0 - 1000 ml)
4	Operational time for grinding	1. Stop Watch.(0 - 30 min)
		2. Test sieves (1.4 mm, 1.0mm,0.5mm)
5	Motor conforming to IS 996 - 1979	Motor testing as per IS : 996 : 1979
6	Powercord (2 metre Long)	a. Visual
		b. Measuring Tape (0 - 5 Metre)
		c. Micrometer(flat type) (0 - 25 mm)
		d.Calculator.
7	Body Of Motor Housing	Visual.
8	**Stainless steel Components:**	1.Spectrometer for checking chemical composition.
	1.Drum material (AISI 202 Grade)	2.Micrometer(Ball) (0 - 25 mm)
		3. Vernier caliper (0 - 300 mm)

	2.Centreshaft,Stoneshaft,Wahers,M6 Bolts	4..Plug Gauge & Ring Gauges (M10,M6)
	CROSS SECTION MEATERIAL	
9	Body ,base,top cover and Switch knob Material (Min 2.5 mm Thick)	
		1. .Ball micrometer.(0 - 25 mm)
10	Polycarbonate Transparent Lid (240.0 mm)	1.Visual
		2.Vernier caliper (0 - 300 mm)
11	**Grinding Stones :**	
	1. Roller stone (Thick 50 x OD 100 mm)	1.Vernier caliper (0 - 300 mm)
	2. Flat stone (OD 238.0 x 20 mm Thick)	2.Visual
12	Driven pulley (200.0 mm Outer dia)	1.Vernier caliper (0 - 300 mm)
		2.Visual
13	Printed Carton Box (150 Gsm& 5 ply)	1.Weighing Balance.(0 - 5 Kg)
		2.Visual

10. The Technology existing for the manufacturing of the Product & Suggested modern technology for implementation in the Market:

MSMEs are having technology for conventional method of stator/rotor manufacturing and testing. The are machineries available in the market for automatic stator, rotor winding and testing. Computerized rotor balancing can be introduced to increase production. End product testing can be done in the specialy made test jigs meant for each product. Designer Jars are imported from china, this requires new technology to manufacture such imported components in the clusters which will reduce imports and reduce the product cost.

11. Raw Material required and availability:

Most of the raw materials are available in India. But Some of the components such as micro switch, motors, etc were imported from china only due to reduction in cost, How ever these product quality is inferior, only for cost reduction these items are imported. More over manufacturing these components at MSME units are not cost effective since the capacity utilization of these machineries are less than 20%.

In view of the above modified MSE-CDP scheme is suggested for the benefit of MSMEs in this sector. In modified CDP, SPV and beneficiaries can spread across the county.

12. Covering raw material standards Indian / International Standards

Material	**Specific Gravity**	**Melt Flow Index at 220° C/ 5 kg load (g / 10 min.)**	**Melt Flow Index at 300° C/ 1.2 kg load (g / 10 min.)**	**Izod impact strength (Notched) (kJ/m²)**	**Tensile Strength (MPa)**	**Heat Distortion Temperature (at 4.6 kg/cm²) (° C)**	**Flammability (Rate of burning) (mm/min)**	**Luminous Transmittance (%)**
ABS for Body Housing	1.03 – 1.07	Min 12.0 Max. 14.0		Min 18.0	Min 35.0	Min 90.0	max.40.0	
PC for Lid	1.15 – 1.20		Min.18.0, Max.21.0	Min .45.0				Min.80.0
Polyacetal (POM) for Grinding wheel fittings	1.37 – 1.40							
Polyprop	0.89 –							

ylene for Wiper	0.91							

Material	**Hardness (shore-A)**	**Specific Gravity**	**Melt Flow Index at 220° C/ 5 kg load (g / 10 min.)**	**Izod impact strength (Notched) (kJ/m²)**	**Tensile Strength (MPa)**	**Heat Distortion Temperature (at 4.6 kg/cm²) (°C)**	**Luminous Transmittance (%)**
ABS for Top cover, Bottom cover, Jar Bottom Adaptor	-	1.03 – 1.07	Min 12.0 Max. 14.0	Min 18.0	Min 35.0	Min 90.0	
PC for Jar Lid	-	1.15 – 1.20	-	-	-	-	Min.80.0
Natural Rubber-Gasket for Lid	55 ±5	-	-	-	-	-	
Nylon 66 for Gear Wheel	-	1.15 – 1.17	-	-	-	-	

PROJECT REPORT

A. GENERAL INFORMATION

1. Introduction :

Domestic Mixer-Grinders or Juicer-Mixer Grinders are small kitchen and applications. In India these appliances have increasing importance given the unique food preparation processes and the culinary style.

The basic functions carried out by these appliances are:

(i) Mixer-Grinder: performs dry and wet grinding of spices, coffee beans etc. and mixing for gravy preparations, Milk shakes, whipping operation etc. MG comes with dry grinding, wet grinding jar and mixer jars and a set ofblades.

(ii) Juicer-Mixer-Grinder(JMG): in addition to the Mixer-Grinder functions the JMG can perform juice extraction function mainly for fruits and similar items like carrotsetc.

Since it is an electrically operated consumer durable item, usually the product design takes care of the high level of safety requirements. Attractive look and finish as well as features enhance the sale of the product. Equally important is the after sales service for increasing the good will of the brand.

2. Market Potential &Scope .

Every house hold is having mixer and grinder, the life of mixer and grinder is approx.. 5 years, since once in 5 years the replacement of these products is inevitable. The demands demand also increasing year by year, the export opportunity alosincreasing this gives good market potential for these products.

3. BASIS AND PRESUMPTIONS:

a) The basis for calculation of production capacity is normally on single shift basis on 75 % efficiency.

b) The maximum capacity utilization on single shift basis for 26 days a month. The unit is expected to achieve full capacity utilization from the first year onward.

c) The salaries and wages, cost of raw materials, utilities, rents, etc. are base on the prevailing rates in and around the state. These cost factors are likely to vary with time to time.

d) Interest on term loan and working capital loan has been taken at the rate of 16% on an average prevailing at the time of preparation of the report. However, this rate may vary depending on the policy of the financial institutions / agencies from time to time.

e) The cost of machinery and equipments as indicated refer to particular make and the prices are approximate, those prevailing at the time of the time of preparation of this report.

f) The break even point percentage indicated is of full capacity utilisation.

g) Non refundable deposits, project preparation costs etc. Whenever needed may be considered pre operative expenses.

h) It is proposed to setup this unit in a rented building of 5000 Sq. Ft area.

i) The margin money recommended in 25 % of the working capital requirement at an average. How ever, the percentage of margin money may vary as per bank's discretion.

j) Capital investment subsidy 25%on machinery. How ever this may be reimbursed on 2nd year only.

4. IMPLEMENTATION SCHEDULE:

a) Preparation of project documents, collection Of information in respect of machinery, raw Material, shed, etc.	1st month
b) Clearance from different promotional Agencies	2nd month
c) Financial arrangement, margin money Arrangement	3-4th month
d) Installation of machinery, construction of Shed/building etc.	5-6th month
e) Receipt of raw materials, recruitment of man power etc.	7th month
f) Trial run	8th month
g) Marketing, legal License and Commercial Production	9th month

B. TECHNICAL ASPECTS

1. PROCESS OF MANUFACTURE:

Manufacturing Process

Given the nature of the product and the process the industry practice is to outsource most of the component/sub- assemblies such as blades, high speed

motors, injection moulded components, and such supplies/vendors are available in manufacturing clusters. Some reputed manufactures, manufacture the motor themselves while others outsource the same.

These days due to the high costs involved in the manufacturing of the dies andmoulds for the plastic body parts, most JMG manufactures provide the design of the moulded parts to independent plastic moulding units and procure main body moulds and other plastic moulded parts from them. The mould preparation cost is usually borne by the moulding units who in turn supply. The additional production to the replacement market to recover their investment in the moulds.

Process Flow

The total manufacturing process usually follows the marketing of various sub-assemblies as mentioned below and carrying out final total assembly, which is followed with inspection and testing and finalpackaging.

1. Jar assembly by providing handles, coupling and blade with spindles.
2. Motor assembly - rotor and carbon brushes assembled in the stator housing.
3. Final assembly - over the top unit - Motor assembly, switch, Over load relay, wiring, bottom unit, coupler (Top)
4. Routine Test(or periodic acceptance test as per sampling plan).
5. Buffing, name plate screen printing before packing.
6. Packaging - Final assembly , jar set, operating manual, etc.

2. QUALITY STANDARDS:

Bureau of Indian standards specification IS:4250:1980 is applicable for Electrical Mixer-Grinders. Periodic acceptance tests need to be carried out at the premises of the manufacturing/assembly location. In addition to these sampling inspection needs to be carried out by the quality testing section in the plant. The type tests for Juicer-Mixer-Grinder are to be carried out at the BISlaboratory.

As the Juicer-Mixer-Grinder is specifically for the Indian Culinary and food preparation related requirements, the Indian standard is most appropriate for themanufacturing.

3. PRODUCTION CAPACITY PER ANNUM:

The proposed capacity and production is based on the factors such as:

- Current demand-supplygap,
- Future demand for theproduct,
- Minimum economic plantsize.

The plant capacity is 100 units / day

The project prepared for production capacity is 60 units/day,i.e1st year 60% capacity utilisation.

4. MOTIVE POWER :

The total connected load requirement is approximately 15 kW (power). This includes the electricity to machineries, Light &Fans and the test equipments,

Approximately, Utilisiation factor 0.8, for 8 hours, 26 days

Total power requirement = 15 x 0.8 x 8 x 26 = 2496 kWh /month

Electricity charges for power consumption @ Rs. 9 per unit = 2496 x 9 = Rs. 22464

Hence Rs. 22,500 /- per month is considered in this project as Electricity charges.

5. POLLUTION CONTROL

The industry does not create extensive pollution hazard. The workshop should be well ventilated, properly lighted and fitted with exhaust fans. Keeping in view of the healthy environment to the working personal at soldering station, varnishing and buffing areas are fitted with an exhaust / ventilator system.

6. ENERGY CONSERVATION

There is little scope for energy conservation in this industry.This is not a power intensifying unit, modern energy conservation techniques are not required. by adopting simple methods like, operating the instruments as per optimum requirement. Switching OFF the fan and lights when not required, etc., energy can be conserved.

C. FINANCIAL ASPECTS

i) FIXED CAPITAL

1. Land & Building:

Industrial Building with Covered Area 5000 Sq.ft from industrial estate is taken on Rent @ Rs. 30,000 Per Month

2. Machinery and Equipment :

Plant & Machinery				
Sl.	Description	Qty	Rate	Amount
1	Drilling machine with upto 25 mm drill capacity	1	80,000	80,000
2	Jig type vertical drilling machine with 12.5mm Diameter Drill capacity	1	30,000	30,000
3	Buffing machine with dual wheel 250 mm	1	40,000	40,000
4	Hand press 1 tonne	1	25,000	25,000
5	Fly press 10 tonne capacity	1	1,00,000	1,00,000
6	Air compressor unit and set of pneumaticscrewing units for work stations (Set price)	1	1,00,000	1,00,000
7	Conveyor belt system 1.5 ft width with 0.35 ft/min to 1.5 ft/min variable speed with provision for length upto 75 ft and load upto200 kg	1	1,50,000	1,50,000
8	Soldering station	4	2,000	8,000
9	Screen printing unit	1	30,000	30,000
10	Miscellaneous Eqpt. Incl. pedestal Grinder, tool room bench, tables for jar Assembly,vices, etc.	1	1,00,000	1,00,000
			Total	6,63,000
Tools & Equipment				
11	High voltage testing set	1	20,000	20,000
12	Multi meters	3	3,600	10,800
13	Ammeter 0-10 amps	3	700	2,100
14	Voltmeter 0-500 V	3	700	2,100
15	Wattmeter (1000 watts)	3	5,000	15,000
16	Auto-transformer (270 V x 5Amp)	3	10,000	30,000
17	Vernier caliper andother pr measuring equipment etc.	1 set	15,000	15,000
18	Jig, Fixtures and tools	1 set	1,50,000	1,50,000
19	Storage racks for screenPrinting	10	2,500	25,000
			Total	**2,67,900**

Furniture				
20	Office furniture	LS	1,00,000	1,00,000
21	Working Table	LS	1,00,000	1,00,000
			Total	**2,00,000**
Pre-Operational Expenses				
22	Establishment expenses, project report preparation, loan, tax travelling prior to establishing	50,000	LS	50,000
23	Advertisement & Publicity	50,000	LS	50,000
24	Electrification & A/C Equipment	1,00,000	LS	1,00,000
25	Fire fighting equipment	50,000	LS	50,000
			Total	**2,50,000**

Total Fixed Capital Requirement :

Land & Building	:	Nil
Machinery & Equipment	:	6,63,000
Tools	:	2,67,900
Furniture	:	2,00,000
Preoperative expenses	:	2,50,000
	TOTAL:	**13,80,900**

ii) WORKING CAPITAL PER MONTH :

1. Raw materials per Month :

Sl.	Description	Qty	Amount in Rs	Total in Rs
1	Electrical motor 500 watt	1,560	500	7,80,000
2	Plastic moulded body parts/kit	1,560	450	7,02,000
3	Die cast item/base plates	1,560	75	1,17,000
4	Jars set (2 Nos)	1,560	300	4,68,000
5	SS Sheet	L.S	10,000	10,,000
6	Rubber components sets (bushes, gaskets etc.)	1,560	30	46,800
7	Cable and Switches	1,560	60	93,600
8	Other Small Hardware items	1,560	15	23,400
9	Consumables	L.S	20,000	20,000
10	Packaging material	L.S	80,000	80,000
11	R&D Expenditure	L.S	1,00,000	1,00,000
				24,40,800

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2. Salary Expenses Per Month

Sl.No	**Designation**	Salary Per Staff	Nos.	Salary In Rs
1	Manager cum QC	35,000	1	35,000
2	Production Supervisor	35,000	1	35,000
3	Sales / marketing executive	30,000	1	30,000
4	Store keeper cum Accountant	18,000	1	18,000
5	Technician / Skilled worker	20,000	10	2,00,000
6	Semi skilled workers / helpers	15,000	3	45,000
7	Watchman / Office Assistant	12,000	2	24,000
8	Delivery and Distribution Staff	12,000	2	24,000
			Total of above	4,11,000
			Perquisite - 15%	61,650
			Total	4,72,650

3. Utilities

Sl.	Description	Amount in Rs.
1	Water - Drinking	2,500
2	Electricity - 10 kVA – 3500 units	22,500
3	Internet Connectivity / Telephone	5,000
	Total	30,000

4. Other contingent expenses Per Month :

Sl.	Description	Remarks	Amount in Rs
1	Office Monthly Rent	As per agreement	30,000
2	Repair maintenance	L.S	10,000
3	Insurance	L.S	15,000
4	Misc.	L.S	5,000
5	Transport & conveyance		15,000
		Total	75,000

Total recurring Expenditure per month

a) Raw materials : 24,40,800
b) Salary Expenses : 4,72,650
c) Utilities Expenses : 30,000
d) Other contingent Expenses : 75,000

Recurring Expenditure Per Month : Rs. 30,18,450

Recurring Expenditure for 2 Months considered for this project

= Rs. 30,18,450 x 2 = Rs. 60,36,900

Total Capital Investment :

Total Capital Investment		
	Description	Amount
1	Fixed Capital	13,80,900
2	Recurring Expenditure for 2 Months	60,36,900
	Total	74,17,800

D. FINANCIAL ANALYSIS

1. Cost of Production Per Annum :

Cost of Production Per Annum		
1	Total recurring expenses = 30,18,450 x 12	3,62,21,400
2	Depreciation of machinery and equipment @ 10%	66,300
3	Depreciation of Tools @ 25%	66,975
4	Depreciation of Furniture @ 20%	40,000
5	Interest on Capital Investment @ 15 % for Rs. 74,17,800	11,12,670
	Total	3,75,07,345

2. Annual Turnover:

S.No.	Products	Sales value	Qty / month	Amount
1.	Food Mixer / Mixer Grinder	2300	1560	35,88,000
Annual Turn over = 35,88,000 x 12				4,30,56,000

3. Profit Per Annum before taxes .

= turn over Per annum - Cost of Production per annum

= Rs. 4,30,56,000 - 3,75,07,345 = **Rs. 55,48,655 /-**

4. Net Profit ratio :

$$\text{Net profit ratio} = \frac{\text{Profit per annum x 100}}{\text{Sales per annum}} = \frac{55,48,655 \times 100}{4,30,56,000} = \mathbf{12.88\ \%}$$

5. Rate of return :

$$\text{Rate of return} = \frac{\text{Profit per annum x 100}}{\text{Total Capital investment}} = \frac{55,48,655 \times 100}{74,17,800} = 74.80\ \%$$

6. Break Even Point :

Fixed cost per annum :

Sl. No.	Description	Amount Rs.
1	Rent	3,60,000
2	Depreciation of machinery and equipment @ 10%	66,300
3	Depreciation of Tools @ 25%	66,975
4	Depreciation of Furniture @ 20%	40,000
5	Interest on total capital investment	11,12,670
6	Insurance per annum	1,80,000
7	40% of salary and wages	22,68,720
8	40% of other expenses & Utilities excluding rent and insurance	2,88,000
	Total Fixed cost	43,82,665

$$\text{Break even point} = \frac{\text{Fixed Cost per annum} \times 100}{\text{Fixed cost per annum + profit per annum}}$$

$$= \frac{43,82,665 \times 100}{43,82,665 + 55,48,655} = \frac{43,82,665 \times 100}{99,31,320}$$

$$= 44.12\ \%$$

1. Details of Test facilities available in India

I. MSME-DIs, TCs across India (http://dcmsme.gov.in/All_MSME_DIs_TCs.aspx)

II. Scientific & Industrial Testing & Research Centre, 83 & 84, Avarampalayam Road, K.R. Puram P.O.Coimbatore-641006, Tamilnadu, Tel : 0422-2562612,2560473, Fax : 0422-2562612, Email: sitarcinfo@sitarc.com

III. NSIC Technical Services Centre, Sector B- 24, Guindy Industrial Estate, Ekkaduthangal, Chennai-600032, Tamilnadu, Tel : 044-22251254, Fax : 044-22254500, Email: nsic_energycell@nsic.co.in

IV. Electronics and Quality Development Centre, B 177/178, GIDC Electronics Estate, Sector-25, Gandhinagar-382044, Gujarat. Tel : 079-23287119/20/22, Fax : 079- 23287121, Email: md@eqdc.in, qm@eqdc.in.

V. Bureau of Indian Standard, (Regional Offices in the state) https://bis.gov.in/index.php/product-certification/product-certification-contact-us/

vi. Details of NABL Accredited Laboratories https://nabl-india.org/nabl/index.php?c=searchlab&m=index&Itemid=177

ADDRESSES OF SUPPLIERS FOR MACHINERY MANUFACTURERS:

1. **Hand Press, Fly Press, Drilling Machine,etc**

Perfect Machine tools, Bell Building, Sir PM Road, Mumbai – 400001 Tel- 022-22872211

Modern tools Manufacturers, B-118 Mayapuri Industrial Area, New Delhi 110064 Tel- 011-25132243/25131769

Mankoo India Pvt. Ltd. (MankooPressas) 29/535,G.T. Road opp. DhandariKalan Railway Station, Ludhiana -141010. Punjab, Tel- 0161-2510948

2. **Buffing Machine and Bench grinder**

Grind Master Machines P. Ltd., B-11MIDC Area, Aurangabad- 431005. Tel-0241-376262,376908

Novelty Buff Company Gala, No.2, OppMahakali Temple, Laxmi Nagar, Off. Link Road, Goregaon(W), Mumbai-400090, Tel-022-2083920 Fax- 022-2018107,

Vijoy Machine Tools, 20 WasanUdyogBhabanOffSenapatiBapatMarg, Lower Parel,Mumbai 400123, Tel-022-24950886

3. **Conveyor System and Storage Racks**

Cornpetent Conveyor Systems Pvt. Ltd E-37 & 67 Sec 9 Noida - 201301Uttar Pradesh (lNDlA),Tel- +(91) (120)-244769/2444240/2544522

Vinar Systems 36 LalBahadurShastryStadiurn, Hyderabad 500001

Tel- 040-23232019 Fax-23249811

4. **Soldering U nit**

Klapp Heating Controls Pvt. Ltd, Electronic Sadan Bldg. 1, Unit No. 34 MIDC Bhosari Pune-41102 Tel -020-7121512 Fax-0204114993

Soldron India 157, A/2 Shah and Nahar Industrial Estate, S.J. Marg Lower Parel, Mumbai 400013. India Tel- 24953077,24961286, Fax- 24953076

5. **Pneumatic Screwdrivers Tools**

Sivenara Engineers, 2973, 13th Mani Road 1st Floor, li Stage, D-Block, Rajaji Nagar, Bangalore – 560021,India, Tel- +91-80-3422085 Fax- +91-80-3422085

Electronic Test and Measuring Instruments Meco Instruments P. Ltd. 301

Bharat Industrial Estate T.J. Road Sewree Mumbai – 400015, India
Tel- +91-22-24137423,24437253,24132425, Fax - +91-22-24146234

Bharat Electronics & Electrical, 407. Commerce House 140 N. Master Road Fort, Mumbai Maharashatra India 400001, Tel – 24228057

6. High Voltage Test Setup

SPS Electronic UK Limited, Old Bank House 1 High Street Arundel West Sussex BN 18 9AD +44(0)1903884663, +44(0)1903884629

K.P. Electronics : B23/204, Anand Nagar, C.S. Road, Dahiser, Mumbai, Tel-022-28941714

7. Screen Printing Machinery

Universal Technologies 7/16, 1st Floor Vishal I.E. Navghar, Vasai (E),Thane
Tel- 0240-392922/392780 Fax- 95250-392780

Solar Machines P. Ltd. 22D, Wadia Charities Bldg., 2nd Floor S.A. Brelvi Road. Fort
Mumbai 400001 Tel- 022-22875181
Fax- 022-22870470

ADDRESSES OF SUPPLIERS FOR RAW MATERIALS MANUFACTURERS:

1. FHP Motors

Botisha Home Appliances, PlotNo. 61, Sector-25, Faridabad – 121 005, India Phone- +91-129-5231471/5231470

Usaka Industrial Components Pvt. Ltd., B-11, DSIDC Industrial Complex, New Delhi-110041, India. Phone +91-11-5472433 Fax-+91-11-5474752

Damini Marketing Company, 16, Crown Plaza 27 – 28 Nelam Bata Road Nit, Faridabad – 121001, Phone- +91129- 25022345/25022124/25022125/9810099259

2. Plastic Moulded Body Parts

KantaPlastech, A-696, TTC, Industrial Area, M.I.D.C. Mahape,New Bombay – 400709, Maharashtra India Tel-91-22-27685551 Fax-91-22-27685552

The Progressive Enterprises, 22 Rabindra, Sarani, Calcutta, West Bengal Tel- +91-33-2368641/2374276 Fax- +91-33-4005506

Premium Moulding& Pressing Pvt. Ltd.185 Indl. Estate UdyogVihar Phase-1 Gurgaon – India, Tel- +91-124-340351 Fax- +91-124-341832

3. SS Jars & Blade

Boskina International, 40-1, Mahavir Mkt., 2nd Panjrapole, Lane, C.P.Tank, Mumbai-400004, Tel- +91-22-8174545, Fax- +91-22-8166363

Eastwest Enterprises, Mp-106, Maurya Enclave, Pitampura,Delhi-110034, Tel- +91-11-7138736, Fax-+91-11-7132801

BhalariaMetalcraft Pvt. Ltd., K-1TodiIndl. Est. RadhaswamiSatsangRpad, Off.: Uttan Cross Road, Bhayanadar West, thane- 401101, Tel- +91-22-8198226, Fax- +91-22-8198227

S.K. Beri Pvt. Ltd. A-119, Okhla Industrial Area, Phase II, New Delhi- 110020, India.
Phone - +91-11-26385027/26384462/26385177/ 26386454
Fax - +91-11-26386453/24628275

4. Switches

Namoelectric Controls, 427/2 Gultekdi Industrial Estate, Pune – 411037 Maharashatra,India, Tel- +91-20-4263235 Fax- +91-20-4472484

Anchor Electronics And Electrical Ltd.Basushree Plot No. G-9 , Cross Road, Marol Bus Depot Lane, A. M.I.D.C., Andheri (East), Mimbai-400093, Tel-91-22-6938695, Fax- +91-22-693-8673/74

5. Packaging

Amrat Packaging, A /3 '13 ,Janakpuri, New Delhi 110058
www.amratpackaging.com

YogeshwaPrackers, PlotN o. 13/4,Mohitel.E. Wanadongri, MIDC Hingna Road, Nagpur- 440016 Tel.0 710 4-2235497Fax. 07104-2237665.

E. SCHEMES AND CONSULTANCY SERVICES

1. Existing schemes available and their details

(I) Projects for Food mixer grinder may be accorded priority in consideration under CGTMSE scheme of our Ministry.

(II) Under CLCS Scheme, an existing unit can be supported for purchasing new machineries uptoRs. 100 lakh with 15% subsidy from M/o MSME for upgradation of technology for producing Squirrel Cage Induction motors.

(III) Units may be encouraged to set up in this sector and such groups of units may be facilitated under MSE-CDP.

2. Proposed Scheme (if existing not suitable):

Under the Production-Linked Incentive Scheme of Atma Nirbhar Bharat, an incentive of 4% to 6% on incremental sales (over base year) of goods manufactured in India and covered under target segments, to eligible companies, for a period of five (5) years subsequent to the base year as defined is provided.

The scheme benefits may be extended to manufacturing of such domestic electrical appliances specifically for manufacturing the components for food mixer grinder, to give a fillip to their domestic manufacturing while bringing down their cost and reducing imports.

A similar Scheme like **Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS) which** aims to strengthen the manufacturing ecosystem for electronic components and semiconductors may be proposed for promoting manufacturing of Domestic electrical appliance. Under SPECS, Incentive of 25% on Capital Expenditure pertaining to plant, machinery, equipment, associated utilities and technology, including Research & Development on reimbursement basis is provided to New Units as well as Expansion of Existing Units.

(Ref:https://static.investindia.gov.in/2020-04/SPECS%20Gazette%20Notification%20-%2001.04.20.pdf)

3. Details of agencies who can provide guidance:

I. MSME-DIs, TCs across India (http://dcmsme.gov.in/All_MSME_DIs_TCs.aspx)

II. Scientific & Industrial Testing & Research Centre, 83 & 84, Avarampalayam Road, K.R. Puram P.O.Coimbatore-641006, Tamilnadu, Tel : 0422-2562612,2560473, Fax
: 0422-2562612, Email: sitarcinfo@sitarc.com

III. NSIC Technical Services Centre, Sector B- 24, Guindy Industrial Estate, Ekkaduthangal, Chennai-600032, Tamilnadu, Tel : 044-22251254, Fax : 044-22254500, Email: nsic_energycell@nsic.co.in

IV. Electronics and Quality Development Centre, B 177/178, GIDC Electronics Estate, Sector-25, Gandhinagar-382044, Gujarat. Tel : 079-23287119/20/22, Fax : 079- 23287121, Email: md@eqdc.in, qm@eqdc.in.

V. Bureau of Indian Standard, (Regional Offices in the state) https://bis.gov.in/index.php/product-certification/product-certification-contact-us/

F. Conclusion

From the above study, it is found that India has been importing mainly the components of electrical domestic appliances in particular electrical motor used in domestic appliance mainly from China. A Detailed bankable project report is prepared to help the unemployed youth of our country to start the MSME unit for the manufacture of domestic electric appliance and it's components to cut down the imports there by supporting the Indian economic growth and taking India in the path of self reliance.

G. Reference

1. DPR of Coimbatore wet grinder cluster
2. Manufacturing process study of Gandhimathi Appliances (Butterfly)
3. Quality manual of MSME Testing Centre, Chennai
4. BIS Specifications IS 4250, IS 302, IS 996

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