PRODUCT MANUAL FOR

Domestic Electric Food Mixers (Liquidizers & Grinders) and Centrifugal Juicers

ACCORDING TO IS 4250: 1980

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2019 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	**Product**	:	IS 4250: 1980
	Title	:	Domestic Electric Food Mixers (Liquidizers & Grinders) and Centrifugal Juicers
	No. of Amendments	:	9
2.	**Sampling Guidelines:**		
a)	**Raw material**	:	-
b)	**Grouping guidelines**	:	Please refer ANNEX – A
c)	**Sample Size**	:	One piece
3.	**List of Test Equipment**	:	Please refer ANNEX – B.
4.	**Scheme of Inspection and Testing**	:	Please refer ANNEX – C.
5.	**Possible tests in a day**	:	Please refer ANNEX - D

6.	**Scope of the Licence :**	
	Name of the Product	Domestic Electric Food Mixers
	Functions	Liquidizer/Grinder/ Centrifugal Juicer
	Rated Input (wattage)	
	Rated Voltage	
	Rated Capacities for each function	
	Normal Load (in terms of recipe)	
	Time Rating	Continuous/ Short term (on time)/ Intermittent (on time, off time)
	Class of appliance	I / II
	Insulation class	
	Suitability / unsuitability for certain functions	

ANNEX A

Grouping Guidelines

1(a). Samples of each variety of Domestic Electric Food Mixers shall be tested considering the following:

i. Rated voltage
ii. Rated input (wattage)
iii. Function (grinder/ liquidizer/ centrifugal juicer)
iv. Rated Capacity (for a function)
v. Normal Load (in terms of recipe)
vi. Time rating
vii. Class of appliance
viii. Insulation class

1(b). All other parameters remaining the same, the following relaxation may be given when a variety is tested for all the requirements:

i. To cover a range of rated inputs, samples of minimum and maximum Wattages may be tested.
ii. If higher capacity of a particular function (liquidizer/grinder/ centrifugal juicer) is tested, lower capacities may be covered.
iii. If higher normal load is tested, lower normal load may be covered.
iv. If higher time rating is tested, lower time rating may be covered.

2. The Firm shall declare the varieties they intend to cover in the Licence. The Scope of Licence may be restricted based on the manufacturing and testing capabilities of the manufacturer.

3. During the operation of the Licence, BO shall ensure that all the varieties covered in the Licence are tested in rotation to the extent possible.

ANNEX B

List Of Test Equipment

Major test equipment required to test as per the Indian Standard

Sr. No.	Test Equipment	Tests used in with Clause Reference
1	Accessibility test panel with jointed and unjointed test finger	Protection Against Electric Shock, Cl. 8
2	Silver wire with Box, Voltmeter, Wattmeter and Variable Auto Transformer, consumables to provide normal load	Starting, Cl. 9, Input test Cl 10,
3	Temp Indicator, Thermocouples, lubricating oil/paper pulp, Test Corner	Temperature rise Cl 11
4	Leakage Current Tester	Leakage current Cl 13
5	Humidity Chamber with Temp and Humidity Indicator	Moisture resistance, Cl. 15
6	High Voltage Test panel, Megger	Insulation resistance and Electric Strength at Operating Temperature, Cl. 16
7	Endurance test panel, programmable on-off timer, artificial load	Endurance test, Cl. 18
8	Facility to lock the rotor	Abnormal Operation, Cl. 19.1
9	Inclination Plane with Test Panel	Stability & Mechanical Hazards, Cl. 20.
10	Spring Loaded Impact Apparatus and Finger Nail	Mechanical Strength, Cl. 21
11	Vernier callipers, Micrometer, measuring tape Cord Anchorage tester – for pull and torque	Supply Connection & External Flexible Cable & Cord, Cl. 25 Screws & Connection, Cl. 28 Creepage Distance clearance and Distance through Insulation, Cl. 29
12	Earth Resistance Test Apparatus Torque Screw Driver	Provision for Earthing, Cl. 27
13	Heating Oven with Temp controller, Ball pressure Apparatus, Glow wire test apparatus	Resistance to Heat, Fire & Tracking, Cl. 30

14	Humidity Chamber with Temp and Humidity Controller Measuring Cylinder 500 ml Ammonium Chloride, Carbon Tetrachloride, Distilled Water	Resistance to Rusting, Cl. 31
15	Coffee Seeds , Urad Dal, Boiled Rice, Eggs, Stop watch Measuring jar, Sieves set 710,500, 355,1000,1400 microns, Weighing Balance	Operational Tests, Cl. 34
16	Voltmeter, Ammeter, Arrangement to stall the motor	Test for Controls, Cl. 36
17	Hotplate	Temperature withstand test for bowl , Cl. 35
18	Arrangement to apply force on the bowl assembly	Strength of Assembly, Cl. 37
19	Air conditioner	To maintain ambient temperature

The above list is indicative only and may not be treated as exhaustive.

ANNEX C

Scheme Of Inspection And Testing

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipment.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. LABELLING AND MARKING – As per the requirements of IS 4250: 1980.

4. CONTROL UNIT – All Food Mixers (Liquidizers and Grinders and Centrifugal juicers) of the same type (functionality) and rating (Voltage, Wattage, Capacity) manufactured in one day shall constitute a control unit.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

6. REJECTIONS – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE 1

(1)				(2)	(3)	
Test Details				Test equipment requirement R: required (or) S: Sub- contracting permitted	Levels of Control	
Cl.	Requirement	Test Methods			No. of Sample	Frequency
		Clause	Ref			
8	Protection against electric shock	8	IS 302-1	R	Each mixer	
13	High Voltage test	13		R	Each mixer	
27	Provision for earthing	27		R	Each mixer	
38.3	Simple running test	38.3		R	Each mixer	
13	Electrical insulation and Leakage current at operating temperature	13		R	One	Each control unit
16	Insulation resistance and Electric strength	16		R		
10	Input	10	IS 4250	R		
34	Operational tests	34		R	One	Once a week for each type and rating
15	Moisture resistance	15		R	One	Once a week for each rating
35	Temperature withstand test for bowl	35		R	One	Once a month for each rating
11	Temperature rise	11		R		
20	Stability and Mechanical hazards	20.1		R		
36	Test for controls	36.1		R		
9	Starting	9		R		
18	Endurance	18		S	One	Once a year for each rating
33	Finish	33	IS 302-1	S		
21	Mechanical strength	21		S		
37	Strength of assembly	37	IS 4250	S		
30	Resistance to heat fire and tracking	30.1, 30.2	IS 302-1	S		
25	Supply connection and external flexible cables and cords	25	IS 4250	S		
28	Screws and connections	28		S		
29	Creepage distances, clearances and distances through insulation	29		S		
19	Abnormal operation	19.1		S		
14	Radio and Television interference suppression	14		S		
23	Internal wiring	23		S		
26	Terminals for external conductors	26		S		

(1)				(2)	(3)	
Test Details				Test equipment requirement R: required (or) S: Sub- contracting permitted	Levels of Control	
Cl.	Requirement	Test Methods			No. of Sample	Frequency
		Clause	Ref			
31	Resistance to rusting	31	IS 4250	S	One	Once a year

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: Levels of control given in column 3 are obligatory in nature.

ANNEX D

Possible Tests in a day

a. Protection Against Electric Shock (Cl. 8)
b. Input (Cl. 10)
c. Electric Insulation and Leakage Current at Operating Temperature (Cl. 13)
d. Provisions of Earthing (Cl. 27)
e. Insulation Resistance & Electric Strength (Cl. 16)
f. High Voltage (Cl. 13)
g. Temp withstand test for Bowl (Cl.35)
h. Stability and Mechanical Hazards (Cl.20.1)
i. Test for control (Cl. 36.1)
j. Starting (Cl.9.3)