



ONKAR ENGINES &  
GENERATORS  
PRIVATE LIMITED  
An ISO 9001 : 2008 Certified Company

To,

Date: 01/01/2021

The Director,  
Ghaziabad Branch Office,  
Bureau of Indian Standards,  
Central Laboratory (Chemical Lab Block), Ground & First Floor,  
Plot No.: 20/9, Site 4, Industrial Area, Sahibabad,  
Ghaziabad (UP) 201010

Sub: Consent Letter & test report from approved BIS lab

Dear Sir,

This letter is reference to the discrepancy-cum-advisory report raised on 04.11.2020 during visit.

As per discrepancy report we are attached herewith required product test report & Lab Consent letter from BIS approved outsource lab.

So please kindly acknowledge the same.

Authorized Signatory

Onkar Engine & Generator (P) Limited

*Manoj Khandelwal*  
Manoj Khandelwal  
Authorized Signatory

MANOJ KHANDELWAL (Director)  
Onkar Engine & Generator (P) Ltd.  
E-14, Sec-63, Noida (UP)

**Works:** Khasra No. 283, Maganpura, Nalagarh Road, Tehsil Nalagarh Distt. Solan, (H.P.)-174 101  
**Phone :** 01795-265305 **E-mail :** baddi@omegaappliances.com  
**Corp Office :** D-255, Sector-63, Distt. : Gautam Budh Nagar, Noida (U. P.)-201301  
**Phone :** 0120- 4204395, TeleFax : 91-120-4163603  
**Email :** npandey@omegaappliances.com **Website :** www.omegaappliances.com





# Akshat Test Lab & Calibration Services

A-2/49, G.D. STEEL COMPOUND, SITE-IV, INDUSTRIAL AREA,  
SAHIBABAD, GHAZIABAD, U.P. PINCODE-201010  
(NABL ACCREDITED & BIS RECOGNISED LABORATORY)



To,

DATE: 05/12/2020

Onkar Engine & Generator (P) Limited  
E14, Sec-63, Noida. UP.

SUB: Consent Letter of Testing

Dear Sir,

We state that we have complete testing facility for Electric Ceiling Fans As Per IS 374:2019 & 302-2-80 with latest amendment available in our Testing Laboratory.

We are ready to undertake the testing of above mentioned product for your company & we are willing to test your product in future on paid basis.

Thank you for anticipation.

Regards;



Ankur Bishnoi  
Quality Manager

Akshat Test Lab & Calibration Services

Onkar Engine & Generator (P) Limited

*Mangal Khandelwal*  
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Certificate No. TC-6104

## TEST REPORT

|   |   |
|---|---|
| Report No.: ATLCS/R/1211200001<br>ULR No.: TC610420000000327F   | Page 1 of 19  |
| Name and Address of Customer – Onkar Engine & Generator P Ltd.<br>E-14, Sector-63, Noida.   | Start Date of Analysis – 12.11.2020                                     |
|   | End Date of Analysis – 07.12.2020                                       |
|   | Report Issue Date – 07.12.2020  |
|   | Reference standard – IS:374-2019 & IS:302-2-80 :2017 & IS:302-1-2008+A4 |
|   | DISCIPLINE – Electrical   |
|   | GROUP – Rotating Electrical Machines                                    |
| <b>Description of Sample –</b> Electric ceiling fan, Sweep Size-1200 mm, Rated Voltage- 230V, Rated frequency- 50Hz, AC, Rated Input- 49 Watt (max), Rated Speed- 350 ( $\pm 10\%$ ) RPM, Air Delivery: 215 $m^3/min$ , Service Value- 4.38 $m^3/min/w$ , Pollution Degree-3, Material group- IIIa /IIIb, Power factor -0.90(min), Class-II, IPX0, Class of insulation- B, capacitor: 1.50 $\mu$ fd. Brand: Omega |   |
| <b>Grade/Type/Size –</b> 1200mm Ceiling Fan.  |   |
| <b>Coding –</b> Nil   |   |
| <b>Date of Receipt –</b> 12.11.2020   |   |
| <b>Condition of Sample Received -</b> Good  |   |
| <b>Any Other Information –</b> Nil  |   |

Onkar Engine & Generator (P) Limited

*Manoj Khandelwal*  
Authorized Signatory

| Checked By:      | Authorized By:   | Issued By:       |
|------------------|------------------|------------------|
|                  |                  |                  |
| Rahul Singh      | Ankit Bishnoi    | Ankur Bishnoi    |
| Date: 07.12.2020 | Date: 07.12.2020 | Date: 07.12.2020 |



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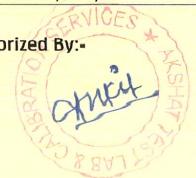
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| S.No. | Test and Clauses                      | Method                            | Requirement of IS Specification   | Test Result  |         |
|-------|---------------------------------------|-----------------------------------|---|--|---------|
|       |                                       |                                   |   | A  | B       |
| 1.    | Rating (Cl. 6 of IS:374:2019)         | IS:374:2019                       | Cl.6.2- The size of ceiling fans shall be 900mm, 1050mm, 1200mm, 1400mm, and 1500mm Size of fans are subject to a tolerance of $\pm 5$ mm   | 1201 mm  | 1201 mm |
| 2.    | Classification (Cl. 7 of IS:374:2019) | IS:302-1-2008<br>IS:302-2-80:2017 | <p>Cl.6.Appliances shall be class-I, class-II or Class-III.</p> <p>Duct fans shall be at least IPX2.</p> <p>Appliances shall have the appropriate degree of protection against harmful ingress of water.</p> <p><b>6.101.</b>Fans shall be of one of the following classes with respect to climates condition:-</p> <p>a)fans for temperature climates; and</p> <p>b) `Fans for tropical climates.</p>  | <p>Class- II</p> <p>Not Applicable</p> <p>Not Applicable</p> <p>Not Applicable</p> <p>Not Applicable</p>   |         |
| 3.    | Marking (Cl. 8 of IS: 374:2019)       | IS:374:2019                       | <p>1) <b>Cl. 8.1-</b> Each fan shall be indelibly marked with the following information</p> <p>a) Manufacturers name, trade name of fan(if any) &amp; number</p> <p>b) Rated voltage (s) or voltage range.</p> <p>c) Type of Fan ac or dc</p> <p>d) Frequency or frequency range of power supply if of ac.</p> <p>e) Input in watts.</p> <p>f) Size of fan</p> <p>g) Country of manufacturer</p> <p>2) <b>Cl. 8.2-</b> In, case of fan &amp; regulator provided with an earthing terminal or contact. It shall be indelibly marked with the symbol</p> <p>3) <b>Cl. 8.3-</b> For additional information the manufacturer may be requested to supply the following:</p> <p>a) Power factor</p> <p>e) Numbers of blades</p> <p>f) Type of regulator &amp; number of running positions.</p> <p>h) Type of bearing; and</p> <p>d) Service value</p> | <p>Not marked</p> <p>230 V</p> <p>ac</p> <p>50 Hz, ac</p> <p>49 Watt</p> <p>1200 mm</p> <p>INDIA</p> <p>Not Applicable</p> <p>0.9</p> <p>3 blades</p> <p>Speed Regulator with 5 No of Running Position</p> <p>Ball Bearing</p> <p>4.38 m<sup>3</sup>/min/w</p> |         |

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| S.No. | Test and Clauses | Method                          | Requirement of IS Specification  | Test Result                      |
|-------|------------------|---------------------------------|--|----------------------------------|
|       |                  |                                 |  | A B                              |
|       |                  | IS:374:2019<br>IS:302-2-80:2017 | 4) Cl. 8.4- Electric ceiling type fans may also be marked with the Standard Mark.<br><br>Cl. 7.1 Fans for tropical climates shall be marked with the letter T. Fans intended for operation in locations where the local ambient temperature exceed 40°C shall be marked with the ambient operating temperature | Not marked<br><br>Not Applicable |
|       |                  |                                 | Cl.7.12. If the instructions state that the guard has to be removed for cleaning purposes, the instructions shall state the substance of the following:<br>Ensure that the fan is switched off from the supply mains before removing the guard.  | Not Applicable                   |
|       |                  |                                 | ii)The installation instructions shall include the substance of the following :<br>a)The model of type reference of a luminaries that may be installed in a fan constructed for this purpose;  | Not Applicable                   |
|       |                  |                                 | b) Whether the fan is intended for mounting in outside windows or walls (for partitions fans)  | Not Applicable                   |
|       |                  |                                 | c)That the fan is to be installed so that the blades are more than 2.3 m above the floor (for fans intended to be mounted at high level )  | Satisfactory                     |
|       |                  |                                 | d)That precautions must be taken to avoid the back-flow of gases into the room from the open flue of gas or other fuel-burning appliances (For duct and partition fans)  | Not Applicable                   |

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|-------|---|-------------|--|---------------------------------|-----------|
|       |   |             |  | A                               | B         |
| 4.    | Speed regulator<br>(Cl. 10 of<br>IS:374:2019) | IS:374:2019 | <b>Cl. 10.1-</b> Regulators operated manually and using remote control shall be capable of reducing the speed of the fan by at least 50 percent of the full speed at the voltage and frequency specified for the test. Fans shall be capable of running continuously on any of the contacts of the regulators at the rated voltage or voltages or within the whole rated voltage range, whichever is applicable. | Satisfactory                    |           |
|       |   |             | 177<br>222<br>265<br>312<br>353  | 176<br>220<br>266<br>311<br>351 |           |
|       |   |             | <b>Cl.10.2</b> The speed difference at any running position shall not deviate by more than $\pm 50$ percent (for induction motor) and $\pm 20$ percent (for BLDC motor) from the ideal speed difference calculated on the basis of maximum and minimum speeds divided by the number of steps provided in the speed regulator.  | 44.00 rpm                       | 43.75 rpm |
|       |   |             | <b>Cl. 10.3-</b> Where a regulator is provided with a capacitor not permanently connected across the motor terminals, provision shall be made so that the capacitor is discharged when the regulator is moved to 'off' position.   | Not applicable                  |           |
|       |   |             | <b>Cl. 10.4-</b> The regulator handle or knob shall either be an insulating material or, if of metal, shall be adequately insulated electrically and thermally so that temperatures rise above ambient is limited to $20^{\circ}\text{C}$ . All metallic parts associated with it shall be protected from accidental contact.  | 2.8°C                           | 2.5°C     |
|       |   |             | <b>Cl. 10.5-</b> The mechanism of the regulator shall be so designed as to ensure positive contact at each running position  | Satisfactory                    |           |
|       |   |             | <b>Cl. 10.6-</b> Adequate precautions shall be taken to prevent accidental contact of moving current carrying parts with the metallic body of the regulator.   | Satisfactory                    |           |

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|-------|---|-------------|--|--------------------|------------|
|       |   |             |  | A                  | B          |
|       |   |             | <b>Cl. 10.7-</b> Electronic type regulators and remotes shall be provided with radio and television interference suppressing devices, if required, so as to ensure that there is no appreciable noise/disturbance on radio/television when operated outside a radius of 2 m from the regulator. Electronic type fan regulators and remotes shall comply with the requirement given in IS 11037 and IS 14700 (Part3/Sec2).  | Not applicable     |            |
|       |   |             | <b>Cl. 10.8-</b> The voltage drop across the electronic type regulator at the maximum sped position shall not exceed 2 percent of the rated voltage of the fan.  | 0.8%               | 0.7%       |
| 5.    | Starting(Cl. 11 of IS:374-2019)                           | IS:374-2019 | <b>Cl. 11.1-</b> The fan shall be capable of starting up from rest with the regulator or remote, if any, at the lowest speed step when 85 percent of the rated voltage or 85 percent of the lowest declared voltage in the voltage range is applied.<br><b>Cl. 11.2-</b> For BLDC type fan should start its rotation in its normal direction of rotation, as specified by the manufacturer. During 'start' it should not move in the reverse direction before resuming its normal direction of rotation. | Start satisfactory |            |
| 6.    | Interchangeability (Cl.12 of IS:374-2019)                 | IS:374-2019 | <b>Cl. 12.</b> The motor of the fan of the particular size & model and its associated regulator & set of blades shall be interchangeable such that the performance of the fan keeps within limits specified in this standard.  | Interchangeable    |            |
| 7.    | Silent operation (Cl. 13 of IS:374-2019)                  | IS:374-2019 | <b>Cl. 13.</b> Precautions shall be taken in the manufacture of fans and regulators to ensure a reasonable degree of silence at all speeds.  | Satisfactory       |            |
| 8.    | Measurement of speed of the Fan (Cl. 14.4 of IS:374-2019) | IS:374-2019 | <b>Cl. 14.4</b> The speed of rotation of the fan shall be determined by running the fan at the test voltage and its rated frequency. The method of measurement shall be such that the speed of the fan is not affected. The regulator, if any, shall be at the highest speed position. The measured speed shall not differ from the rated or declared value by $350 \pm 10$ percent.   | 353<br>RPM         | 351<br>RPM |

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|-------|--|--------------------------|---|----------------|-------------------------------|----------------|----------|
|       |  |                          | Cl. 14.4.1 The peripheral speed of the fan at test voltage and rated frequency shall be as follows:   |                | A                             | B              |          |
|       |  |                          | Sr no.  | Size of fan    | Maximum peripheral speed(m/s) |                |          |
|       |  |                          | 1.  | 900 to 1400 mm | 30                            | 22.21m/s       | 22.08m/s |
|       |  |                          | 2.  | 1500 mm        | 20                            | Not Applicable |          |
| 9.    | Measurement of power factor and power input(Cl. 14.5 of IS:374-2019) | IS:374-2019              | Cl. 14.5 Power input (W) shall be noted and power factor of the fan shall be either measured directly with the help of a power factor meter or calculated from the readings of ammeter, voltmeter and wattmeter. The power factor under above condition shall not be less than 0.90 |                | 49.2 Watt                     | 49.3 Watt      |          |
| 10.   | Performance requirements (Cl.no.15.1 of IS:374-2019)                 | IS:374-2019              | Ambient temperature of the test room  |                | 26°C                          | 27°C           |          |
|       |  |                          | Cl. 15.1 The minimum air delivery (declared value) 215 m³/min   |                | 217.45 m³/min                 | 217.73 m³/min  |          |
|       |  |                          | The minimum service value (declared value) 4.38 m³/min/w  |                | 4.42 m³/min/w                 | 4.41 m³/min/w  |          |
| 11.   | Endurance (Cl. 16 of IS:374-2019)                                    | IS:374-2019              | Cl. 16 Fans are subjected to 1000 cycles of operation at rated voltage and frequency, each cycle of operation shall comprise the blades to reach maximum rated speed and then shutting off the fan and allow the blades to come to a complete.                                      |                | Passes the test               |                |          |
|       |  |                          | Speed regulators shall be subjected to 2500 operations. The regulator shall be connected to a fan of locked rotor or an electrical load of equivalent impedance supplied at the maximum rated voltage.  |                | Passes the test               |                |          |
| 12.   | Test for harmonic distortion (Cl. 17 of IS:374-2019)                 | IS: 14700 (Part3/Sec 2). | Cl. 17 This test is applicable for brushless dc motor fans. The BLDC fan shall comply with the requirements given in IS 14700 (Part3/Sec 2). Total harmonic distortion shall be less than 20 percent.   |                | Not applicable                |                |          |

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|-------|--|----------------------------------|---|-------------------|-----------|
|       |  |                                  |   | A                 | B         |
| 13.   | Protection against access to live parts (Cl.8 of IS 302-2-80:2017) | IS 302-1:2008 & IS 302-2-80:2007 | Cl. 8.1 Appliance shall be constructed and enclosed so that there is adequate Protection against accidental contact with live parts.  | Satisfactory      |           |
|       |  |                                  | Cl.8.1.1 Lamps are not removed. however during insertion or removal lamps ,protection against contact with live parts of the lamp cap shall be ensured  | Not applicable    |           |
|       |  |                                  | Cl.8.2 After the removal of detachable parts for the purposes of user maintains ,the basic insulation of internal wiring may be touched provided that it is electrically equivalent to the insulation of cord complying with IS 694 or 9968 part1 | Not applicable    |           |
| 14    | Power input and current (Cl.10 of 302-2-80:2017)                   | IS 302-1:2008                    | The power input at normal operating temperature shall not deviate by +20 percent for rated input between 25W and 300W(declared value). Declared value: 49W  | 49.2 Watt         | 49.3 Watt |
|       |  |                                  | For more than 300W The power input at normal operating temperature shall not deviate by +15 percent or 60W (Whichever is the greater).  | Not applicable    |           |
| 15    | HEATING (Cl. 11 of IS 302-2-80:2017)                               | IS 302-1:2008 & IS 302-2-80:2017 | Cl. 11.4 Heating appliances are operated under normal operation and at 1.15 times rated power input.  | No Such appliance |           |
|       |  |                                  | Cl. 11.5 Motor-operated appliances are operated under normal operation and supplied with the most unfavorable voltage between 0.94 times and 1.06 times the rated voltage.  | Satisfactory      |           |
|       |  |                                  | Cl. 11.6 Combined appliances are operated under normal operation and supplied with the most unfavorable voltage between 0.94 times and 1.06 times the rated voltage.  | No Such appliance |           |
|       |  |                                  | Cl. 11.7 The appliances are operated until steady state conditions are established  | Satisfactory      |           |

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|-------|--|---------------|---|--|---|
|       |  |               |   | A  | B |
|       |  |               | Cl. 11.8 During the test, the temperature rises are monitored continuously and shall not exceed the values shown in Table 3. However, if the temperature rise of the motor winding exceeds the value specified in Table 3 or if there is doubt with regard to the temperature classification of the insulation of the motor, the tests of Annex C are carried out | Satisfactory   |   |
|       |  |               | i) Insulation winding of fan motor Class-B insulation, Temperature rise , max 95K   | 56.4K  |   |
|       |  |               | ii) Wooden support, Wall, ceiling and floor of test corner Max- 65K   | 0.6K   |   |
|       |  |               | iii) Terminal for external conductor Max- 60K   | 2.7K   |   |
|       |  |               | iv) Rubber or PVC insulation of internal and external wiring, including supply cord.<br>a) Without temperature rating 50K   | 7.1 K  |   |
|       |  |               | b) With temperature rating T-25K  | Not applicable   |   |
|       |  |               | iv) Ambient of switches, thermostats and temperature limiters .<br>a) without T-marking 30K   | Not applicable   |   |
|       |  |               | b) with T-marking, T-25K  | Not applicable   |   |
|       |  |               | v) Room Temperature   | 27°C   |   |
|       |  |               | IS 302-2-80:2007  | Cl. 11.8 The temperature rise limits for appliances for tropical climates are reduced by 15 K.<br>The temperature rise limits for fans marked with an ambient operating temperature are reduced by the difference between the marked value and 25°C. |   |
| 16    | LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE (Cl.13 of IS 302-2-80:2017) | IS 302-1:2008 | Cl. 13.1 Motor-operated appliances and combined appliances are supplied at 1.06 times the rated voltage   | Satisfactory   |   |
|       |  |               | Cl. 13.2 Leakage current:-<br>The leakage current shall not exceed 0.21mA(Max.)   | 0.016mA  |   |
|       |  |               | Cl. 13.3ii) Electric strength<br>Appliance shall withstand at 1750 volt for one minute.   | Withstood the test   |   |
|       |  |               | No breakdown shall occur during test  | Satisfactory   |   |

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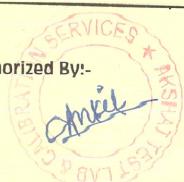
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| S.No. | Test and Clauses   | Method        | Requirement of IS Specification   | Test Result   |
|-------|--|---------------|---|---|
|       |  |               |   | A B   |
| 17    | TRANSIENT OVER VOLTAGES<br>(Cl 14 of IS 302-2-80:2017)                                   | IS 302-1:2008 | Appliances shall withstand the transients over voltage<br>The impulse test voltage is applied three times for each polarity with intervals of at least 1s. The impulse test voltage is specified in Table 6 of IS:302-1:2008  | Not applicable  |
| 18    | MOISTURE RESISTANCE<br>(Cl.15 of IS 302-2-80:2017)                                       | IS 302-1:2008 | <b>Cl. 15.1</b> The enclosure of appliance shall provide the degree of protection against moisture in accordance with the classification of appliances.<br><b>Cl. 15.3</b> Appliances shall be proof against humid conditions that may occur in normal use. The test is carried out for 48 hr in humidity cabinet with relative humidity not less than 90% & temperature shall between 15°C to 35°C<br><b>ii) Electric strength</b><br>Appliance shall withstand at 1250 volt for one minute.                             | IPX0<br>Satisfactory<br>Withstood the test                    |
| 19    | LEAKAGE CURRENT AND ELECTRIC STRENGTH<br>(Cl.16 of IS 302-2-80:2017)                     | IS 302-1:2008 | <b>Cl. 16.2</b> Appliances are supplied at 1.06 times rated voltage<br><b>ii) Leakage current</b><br>0.21mA (Max)<br><b>iii) Electric strength</b><br>Appliance shall withstand at 1750 volt for one minute.<br>No breakdown shall occur during test  | Satisfactory<br>0.035mA<br>Withstood the test<br>Satisfactory |
| 20    | Overload Protection of Transformers & Associated circuits<br>(Cl.17 of IS 302-2-80:2017) | IS 302-1:2008 | <b>Cl. 17</b> Appliance incorporating circuits supplied from a transformer shall be constructed so that in the event of short circuits which are likely to occur in normal use excessive temperature do not occur in the transformer in the circuit associated with the transformer. Compliance is checked by applying the most unfavorable short circuit or overload which is likely to occur in normal use, the appliance being supplied with 1.06 times or 0.94 times rated voltage, whichever is the more unfavorable | Not Applicable  |
| 21    | ABNORMAL OPERATION<br>(Cl.19 of IS 302-2-80:2017)  | IS 302-1:2008 | <b>Cl. 19.1</b> Appliances shall be constructed so that as a result of abnormal or careless operation, the risk of fire, mechanical damage impairing safety or protection against electric shock is obviated as far as practicable.   | Satisfactory  |

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| 22    | STABILITY AND MECHANICAL HAZARDS (Cl.20 of IS 302-2-80:2017) | IS 302-1:2008<br>IS 302-2-80:2017 | <p><b>Cl. 20.1</b> Appliances, other than fixed appliances and hand held appliances, intended to be used on a surface such as the floor or a table shall have adequate stability.</p> <p><b>Cl. 20.1</b> Portable pedestal fans having a height exceeding 1.7 m and a mass exceeding 10kg are placed on a horizontal surface. A force 40 N is applied to the appliance at height of 1.5 m in the most unfavorable horizontal direction. The appliance shall not overturn. In fans provide with oscillatory mechanism, means shall be provided to ensure that when properly installed, the fan is not stalled or overturned.</p> <p><b>Cl. 20.101.</b> Fan blades, other than those of fans for mounting at high level, shall be guarded unless their leading edges and tips are rounded.</p> <p>a) They have a hardness less than D60 shore,</p> <p>b) They have a peripheral speed less than 15m/s when the is supplied at rated voltage.</p> <p>c) The fan has a power output not exceeding 2 w when supplied at rated voltage.</p> <p><b>Cl. 20.102.1</b> A blade brackets used on a ceiling suspended fan shall be subjected to the static load described in 20.102.2</p> | No Such appliance<br>No Such appliance<br>Satisfactory<br>Satisfactory<br>Passes the test |
| 23    | MECHANICAL STRENGTH (Cl.21 of IS 302-2-80:2017)              | IS 302-1:2008<br>IS 302-2-80:2017 | <p><b>Cl. 21.1</b> Appliances, shall have adequate mechanical strength and be constructed to withstand such rough handling that may be expected in normal use. Appliance is subjected to three blows of spring hammer having impact energy of 0.5 joule</p> <p><b>Cl. 21.2</b> Accessible parts of solid insulation shall have sufficient strength to prevent penetration by sharp implements.</p> <p><b>Cl. 21.101.</b> Fan guards are subjected to a push force and a pull force of 19 N applied along the axis of the fan motor. After the test, it shall not be possible to touch dangerous moving parts with a test probe that is similar to test probe B of IS 1401, but having a circular stop face with a diameter of 50 mm instead of the non-circular face. The test probe is applied with a force not exceeding 5 N.</p> <p><b>Cl. 21.102</b> Ceiling fans shall have adequate strength. Ceiling fan are mounted in accordance with the installation instruction. A load of 10000 N is suspended from the body of the fan for 1 min</p>  | No Damage Observed<br>Satisfactory<br>No fans guards in ceiling fan<br>Withstood the test |

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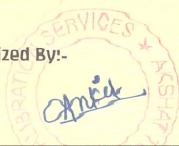
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|-------|---|--------------------------------|--|---|
|       |   |                                | A  | B   |
|       |   | IS 302-2-80:2017               | <p>A torque of 50Nm is then applied to the fixed body of fan for 1 min the test is repeated with the torque applied in reverse direction.</p> <p>Metal parts used in the suspension system shall have a minimum wall thickness of 1.5 mm .No parts of any hole or slot shall be closer than 5 mm from the edge. A safety cord shall be provided as a back up to the main suspension system and shall be strong enough to take 20 times the weight of complete fan.</p>   | Withstood the test  |
| 24    | CONSTRUCTION<br>(Cl.22 of IS 302-2-80:2017) | IS 302-1:2008<br>IS 302-1:2008 | <p><b>Cl.22.1</b> If the appliance is marked with the first numeral of the IP system, the relevant requirements of IS/IEC 60529:2001 shall be fulfilled.</p> <p><b>Cl.22.2</b> For stationary appliances, means shall be provided to ensure all pole disconnection from supply mains. Such means shall be one of the following</p> <ul style="list-style-type: none"> <li>a) a supply cord fitted with a plug</li> <li>b) a switch</li> <li>c) a statement in the instructions that a disconnection incorporated in the fixed wiring is to be provided</li> <li>d) an appliance inlet</li> </ul> <p><b>Cl.22.9</b> Appliances shall be so constructed so that parts such as insulation, internal wiring, windings, commutators and slip rings are not exposed oil grease or similar substances, unless the substance has adequate insulating properties so that compliance with the standard is not impaired</p> <p><b>Cl.22.11</b> The 50N force is applied to clip used to fasten fan guard. Instead, a force of 15N is applied in any direction to the clip</p> <p><b>Cl.22.12</b> Handles, knobs, grips, livers and similar parts shall be fixed in a reliable manner so that they will not work loose in normal use</p> <p><b>Cl.22.14</b> Appliance shall have no ragged or sharp edges.</p> <p><b>Cl.22.18</b> Current carrying parts and other metal parts, the corrosion of which could result in a hazard, shall be resistant to corrosion under normal conditions of use; the relevant parts show no sign of corrosion.</p> | <p>Ordinary<br/>(IPX0)</p> <p>Not applicable</p> <p>Not applicable</p> <p>Instructions provided</p> <p>Not applicable</p> <p>Satisfactory</p> <p>Not applicable</p> <p>Satisfactory</p> <p>Satisfactory</p> <p>Satisfactory</p> |

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|       |                  |               | A   | B  |
|       |                  | IS 302-1:2008 | <b>Cl.22.21</b> Wood, cotton. Silk, ordinary paper and similar fibrous or hygroscopic material shall not be used as insulation, unless impregnated  | Satisfactory                               |
|       |                  |               | <b>Cl.22.22</b> Appliance shall not contain asbestos  | No Asbestos                                |
|       |                  |               | <b>Cl.22.23</b> Oil containing polychlorinated biphenyl shall not be used in appliances   | No Oil containing polychlorinated biphenyl |
|       |                  |               | <b>Cl.22.30</b> Parts of Class II construction which serve as supplementary or reinforced insulation, and which could be omitted after reassembly.  | Satisfactory                               |
|       |                  |               | <b>Cl.22.31</b> Clearance and creepage distances over supplementary insulation & reinforced insulation shall not be reduced below the value specified in 29 as a result of wear, if a part such as a wire, screw, nut or spring becomes loose or falls out of position, clearances and creepage distances between live parts and accessible parts shall not be reduced below the value specified for supplementary insulation. Compliance is checked by inspection, by measurement and by manual test . | Satisfactory                               |
|       |                  |               | <b>Cl.22.34</b> Shafts of opening knobs, handles, levers and similar parts shall not be live unless the shaft is inaccessible when the part is removed.   | Satisfactory                               |
|       |                  |               | <b>Cl.22.37</b> For Class II appliances, capacitors shall not be connected to accessible metal parts unless they comply with the requirements.  | Satisfactory                               |
|       |                  |               | <b>Cl.22.38</b> Capacitors shall not be connected between the contacts of a thermal cut-out .   | No thermal cut-out used                    |
|       |                  |               | <b>Cl.22.39</b> Lamp holders shall be used only for connection of lamps.  | No such appliance                          |
|       |                  |               | <b>Cl.22.40</b> Motor operated appliances and combined appliances which are intended to be moved while in operation or which have accessible moving parts, shall be fitted with a switch to control the motor. The actuating member of this switch shall be easily visible and accessible.  | Satisfactory                               |

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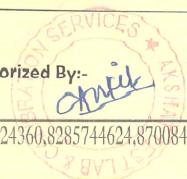
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|-------|--|-----------------------------------|--|--|
|       |  |                                   | A  | B  |
|       |  |                                   | <p><b>Cl.22.41</b>Appliance shall not incorporate components other than lamp, containing mercury.</p> <p><b>Cl.22.43</b>Appliance which can be adjusted for different voltages shall be constructed so that accidental changing of setting is unlikely to occur.</p> <p><b>Cl.22.44</b>Appliances shall not have an enclosure that is shaped and decorated so that the appliance is likely to be treated as a toy of children.</p>   | Satisfactory   |
|       |  | IS 302-2-80:2017                  | <p><b>Cl.22.101.</b>Appliances having provision for attaching a luminaries shall incorporate appropriate terminals and internal wiring.</p> <p><b>Cl.22.102</b>Thermal cut-out, if any incorporated in duct fans in order to comply with 19 shall be non self resetting.</p> <p><b>Cl.22.103</b>Electrical insulation for which clearances and creepage distances are specified shall not be located in air duct unless adequate precautions are taken to reduce the effects of contamination.</p>   | <p>No luminaries provide in fan</p> <p>No thermal cut out</p> <p>Satisfactory</p>  |
| 25    | INTERNAL WIRING<br>Cl.23 of IS:302-2-80:2017 | IS 302-1:2008<br>IS 302-2-80:2017 | <p><b>Cl.23.1 a)</b> Wireways shall be smooth &amp; free from sharp edges.</p> <p>b) Wire shall be protected from coming in contact with burrs, cooling fins or similar edges.</p> <p>c) Holes in metal through which insulated wires pass shall have smooth well-rounded surface or be provided with bushings.</p> <p>d) Wiring shall be effectively prevented from coming into contact with moving parts.</p> <p>e) Internal wiring and electrical connections between different parts shall be adequately protected or enclosed.</p> <p><b>Cl.23.2</b> Beads &amp; Similar ceramic insulators on live wires shall be fixed or located so that they cannot change their position or rest on sharp edges.</p> <p><b>Cl.23.4</b> Instead of moving the movable parts backwards and forwards, fans with an oscillating mechanism are tested as follows. Fans are supplied at rated voltage and operated under normal operation, the angle of oscillation being the maximum allowed by the construction. The test is carried out for 10,000 cycles of oscillation.</p> | <p>Satisfactory</p> <p>Satisfactory</p> <p>Satisfactory</p> <p>Satisfactory</p> <p>Satisfactory</p> <p>No such insulation used</p> <p>Not applicable</p> |

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|-------|---|---------------|---|--|----------------|
|       |   |               |   | A  | B              |
|       |   | IS 302-1:2008 | <p><b>Cl. 23.4</b> Bare internal Wiring shall be rigid &amp; fixed so that, in normal use, clearances or creepage distances cannot be reduced.</p> <p><b>Cl. 23.5</b> The insulation of internal Wiring shall withstand the electrical stress likely occur in normal use, The basic insulation shall be electrically equivalent to the basic insulation of cords complying with IS 694 or IS 9968(p-1) A Voltage of 1900V is applied for 15min, There shall be no breakdown</p> <p><b>Cl. 23.6</b> When sleeving is used as supplementary insulation on internal wiring, it shall be retained in position by positive means.</p> <p><b>Cl. 23.7</b> Conductors identified by the colour combination green/yellow shall only be used for earthing conductors.</p> <p><b>Cl. 23.8</b> Aluminum wires shall not be used for internal wiring.</p> <p><b>Cl. 23.9</b> Stranded conductor shall not be consolidated by lead-tin soldering.</p> <p><b>Cl. 23.10</b> The insulation and sheath of internal wiring, incorporated in external hose for the connection of an appliance to the water mains, shall be at least equivalent to that of PVC sheathed flexible cord.</p> | Not Applicable                                       | Not Applicable |
| 26    | COMPONENTS<br>(Cl.24 of IS 302-2-80:2017) | IS 302-1:2008 | <p><b>Cl. 24.1</b> Components shall comply with the safety requirements specified in relevant Indian standard standards where ever exist as far as they reasonably apply.</p> <p><b>Cl. 24.2</b> Appliances shall not be fitted with</p> <ul style="list-style-type: none"> <li>a) switches or automatic controls in flexible cords;</li> <li>b) devices that cause the protective device in the fixed wiring to operate in the event of a fault in the appliance</li> <li>c) thermal cut-outs that can be reset by a soldering operation.</li> </ul> <p><b>Cl. 24.2</b> Appliance having a rated input not exceeding 25W may be fitted with a switch in the supply cord</p>  | Satisfactory<br><br>Not fitted<br><br>Not applicable |                |

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|-------|---|------------------|--|---|--------------|
|       |   |                  |  | A   | B            |
|       |   | IS 302-2-80:2017 | <p><b>Cl. 24.5</b> Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance and shall be used in accordance with these marking.</p> <p>In addition, for Capacitors connected in series with a motor winding. It is verified that when the appliance is supplied at 1.1 times rated voltage across the capacitor does not exceed 1.1 times rated voltage.</p> <p>Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42V.</p> <p><b>Cl. 24.101.</b> Thermal cut outs incorporated in duct fans in order to comply with 19 shall not be self resetting.</p> <p>Compliance is checked by inspection.</p> <p><b>Cl. 24.102</b> Stamping of fan motor shall be made from low loss electrical sheet steel conforming to IS 648 or any other suitable low loss electrical sheet steel.</p> <p><b>Cl. 24.103</b> Fans shall be fitted with two or more well balanced blades made from metal or other suitable metal material.</p> <p><b>Cl. 24.103</b> The blades and motor shall be securely fixed so that they do not loosen in operation.</p> <p><b>Cl. 24.104</b> Capacitor shall be easily replaceable and clearly marked with the maximum safe temperature, and corresponding voltage and capacitance. capacitor shall comply with IS 1709.</p> <p><b>Cl. 24.105</b> Bearing shall be free from noise. Proper lubrication of bearing shall be carried out by the manufacturers.</p> | Satisfactory                                    |              |
| 27    | SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS (Cl.25 of IS 302-2-80:2017) | IS 302-1:2008    | <p><b>Cl. 25.1</b> Appliances, other than those intended to be permanently connected to fixed wiring shall be provided with one of the following means for connection to the supply mains:</p> <ol style="list-style-type: none"> <li>Supply cord fitted with a plug.</li> <li>Appliance inlet</li> <li>Pins for insertion into socket-outlets</li> </ol> <p><b>Cl. 25.2</b> Appliances, other than stationary appliances for multiple supply, shall not be provided with more than one means of connections to the supply mains.</p>  | Permanently connected to fixed wiring appliance | Satisfactory |

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|       |                  |        |  | A                        | B              |
|       |                  |        | Cl. 25.2 Stationary appliances for multiple supply may be provided with more than one means of connections provided that the relevant circuits are adequately insulated from each other.   | Not applicable           |                |
|       |                  |        | Cl. 25.2A Voltage of 1250V of substantially sinusoidal waveform and having a frequency of 50 Hz is applied for 1 min between each means of connection to the supply mains. Cl. 25.2 of IS 302-1:2008.  | Withstood the test       |                |
|       |                  |        | Cl.25.3Appliances intended to be permanently connected to fixed wiring shall allow the connection of the supply conductors after the appliance has been fixed to its support and shall be provided with one of the following means for connection to the supply mains:<br>a)a set of terminal allowing the connection of cables of fixed wiring having the nominal cross-sectional areas specified in 26.6; and<br>b) a set of terminals allowing the connection of a flexible cord. | Set of terminal provided |                |
|       |                  |        | Cl.25.5Supply cords shall be assembled to the appliance by one of the following methods:<br>Type X attachment;<br>Type Y attachment;<br>Type Z attachment;   | Type Y attachment        |                |
|       |                  |        | Type Z attachment is allowed for portable fans.  |                          | Not applicable |
|       |                  |        | Cl. 25.6Plugs shall not be fitted with more than one flexible cord   | No plug used             |                |
|       |                  |        | Cl. 25.9Supply cords shall not be in contact with sharp points or edges of the appliances.   | No Supply cord           |                |
|       |                  |        | Cl. 25.10The supply cord of class-I appliance shall have a green/yellow core that is connected to the earthing terminal of the appliance and to the earthing contact of the plug.  | Not Applicable           |                |
|       |                  |        | Cl. 25.11Conductors of the supply cords shall not be consolidated by lead-tin soldering where they are subjected to contact pressure, unless the clamping means is constructed so that there is no risk of a bad contact due to cold flow of the solder.   | No - soldering           |                |
|       |                  |        | Cl. 25.13Inlet openings for supply cords shall be constructed so that the sheath of the supply cord can be introduced without risk of damage.  | No Supply cord           |                |

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|       |   |                            |  | A B  |
|       |   | IS 302-1:2008 <sup>#</sup> | <p><b>Cl. 25.15</b> Appliances provided with a supply cord shall have a cord anchorage as per Cl.25.15. During the test as per Cl.25.15 of IS 302-1:2008, the cord shall not be damaged and shall show no appreciable strain at the terminals. After pull force is reapplied the cord shall not be longitudinally displaced by more than 2 mm.</p> <p><b>Cl. 25.17</b> For type Y attachment and type Z attachment, cord anchorage shall be adequate. Compliance is checked by the test .</p> <p><b>Cl. 25.18</b> Cord anchorages shall be arranged so that so that they are only accessible with the aid of a tool or shall be constructed so that the cord can only be fitted with the aid of a tool.</p> <p><b>Cl. 25.20</b> The insulated conductors of the supply cord for type Y attachment and type Z attachment shall be additionally insulated from accessible metal parts by basic insulation for class I appliance and by supplementary insulation for Class II appliances. This insulation may be provided by the sheath of the supply cord or by other means.</p>   | No Supply cord   |
| 28    | TERMINALS FOR EXTERNAL CONDUCTORS (Cl.26 of IS 302-2-80:2017) | IS 302-1:2008              | <p><b>Cl. 26.1</b> Appliances shall be provided with terminals or equally effective devices for connection of external conductors. Terminals shall only be accessible after removal of a non-detachable cover. However, earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection.</p> <p><b>Cl. 26.8</b> Terminals for the connection to fixed wiring, including the earthing terminal, shall be located close to each other .</p> <p><b>Cl. 26.9</b> Terminals of the pillar type shall be constructed and located so that the end of a conductor introduced into the hole is visible, or can pass beyond the threaded hole for a distance equal to half the nominal diameter of the screw but at least 2.5mm.</p> <p><b>Cl. 26.10</b> Terminals with screw clamping and screwless terminals shall not be used for flat twin tinsel cords, unless conductors ends are fitted with means suitable for screw terminals.</p> <p><b>Cl. 26.11</b> For type Y or Z attachment: soldered, welded, crimped and similar connections may be used.</p> | <p>Satisfactory</p> <p>Satisfactory</p> <p>Satisfactory</p> <p>Not applicable</p> <p>Type V attachment</p> |

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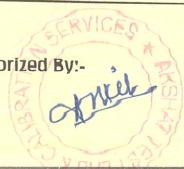
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|-------|---|---------------|--|----------------|---|
|       |   |               |  | A              | B |
| 29    | PROVISION FOR EARTHING<br>(Cl.27 of IS 302-2-80:2017) | IS 302-1:2008 | <b>Cl. 27.1</b> Accessible metal parts of Class-I appliances that may become live in the event of an insulation fault, shall be permanently and reliably connected to an earthing terminal within the appliance or to the earthing contact of the appliance inlet. | Not applicable |   |
|       |   |               | <b>Cl. 27.1</b> Earthing terminals and earthing contacts shall not be connected to the neutral terminal  | Not applicable |   |
|       |   |               | <b>Cl. 27.1</b> Class II and Class III appliance shall have no provision for earthing.   | Satisfactory   |   |
|       |   |               | <b>Cl. 27.1</b> Safety extra low voltage circuits shall not be earthed unless they are protective extra low voltage circuit. connected to the earthing terminal,   | Not applicable |   |
|       |   |               | <b>Cl. 27.2</b> The clamping means of earthing terminals shall be a adequately secured against accidental loosening  | Not applicable |   |
|       |   |               | <b>Cl. 27.3</b> If a detachable part having an earth connection is plugged into another part of the appliance, the earth connection shall be made before the current-carrying connection when removing the part.   | Not applicable |   |
|       |   |               | <b>Cl. 27.4</b> All Parts of the earthing terminal intended for the connection for external conductors shall be such that there is no risk of corrosion.   | Not applicable |   |
|       |   |               | <b>Cl. 27.5</b> A current derived from source having no load voltage not exceeding 12 V (ac or dc) and equal to 1.5 times rated current of the appliance or 25 A, whichever is higher.   | Not applicable |   |
|       |   |               | The resistance calculated from the current and this voltage drop shall not exceed $0.1 \Omega$   | Not applicable |   |
|       |   |               | <b>Cl. 28</b> Screw and connections shall comply with Cl.28 of IS 302-1:2008   | Satisfactory   |   |
| 30    | SCREWS AND CONNECTIONS (Cl.28 of IS 302-2-80:2017)    | IS 302-1:2008 |  |                |   |

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|-------|---|-----------------------------------|--|---|
|       |   |                                   | A  | B   |
| 31    | CLEARANCES,<br>CREEPAGE<br>DISTANCES AND<br>SOLID INSULATION<br>(Cl.29 of IS 302-2-<br>80:2017) | IS 302-1:2008<br>IS 302-2-80:2017 | <p><b>Cl.29.1a)</b> A force of 2 N is applied for bare conductor</p> <p><b>Cl.29.1b)</b> 30 N for accessible surfaces to try to reduce clearances &amp; creepage distances while making the measurements.</p> <p><b>Cl.29.2</b> The micro environment is pollution degree 3 unless the insulation is enclosed or located so that is unlikely to be exposed to pollution during normal use of the appliance.</p> <p>i) Clearance shall not be less than 1.5mm</p> <p>ii) Creepage distance shall not be less than 4.0mm</p>   | Not applicable<br>Passes the test<br>Not applicable<br>Passes the test<br>Passes the test |
| 32    | RESISTANCE TO<br>HEAT, FIRE(CL.30 OF<br>IS:302-2-80-2003)                                       | IS:302-1: 2008                    | External parts of non metallic material, parts of insulating material supporting live parts including connections, and parts of thermoplastic material providing supplementary or reinforced insulation, shall be sufficiently resistant to heat are subjected to Ball Pressure Test as per Cl. 30.1 of IS 302-1:2008<br>a) $75^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , for external parts;<br>b) $125^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , for parts supporting live parts<br>Parts of non metallic material shall be resistant to ignition and spread of fire. Are subjected to glow wire test as per 30.2 of IS 302-1:2008 | Satisfactory<br>Passes the test<br>Passes the test<br>Satisfactory                        |
| 33    | RESISTANCE TO<br>RUSTING<br>(CL.31 OF IS:302-2-<br>80-2003)                                     | IS:302-1: 2008                    | Ferrous Parts, the rusting of which might cause the appliance to fail to comply with this standard, shall be adequately protected against rusting as per Cl.31.1 of IS 302-1:2008  | No corrosion observed   |
| 34    | RADIATION, TOXICITY<br>AND SIMILAR<br>HAZARDS<br>(CL.32 OF<br>IS: 302-2-80-2017)                | IS:302-1: 2008                    | Appliances shall not emit harmful radiation or present a toxic or similar hazard. (Cl.32 of IS: 302-2-80-2017).  | Not Applicable  |

**Remarks:-** The sample conforms to IS 374:2019, IS: 302-2-80:2017 & IS: 302-1:2008 with latest amendment with respect to the above test only.

Authorized By:



**Terms & Conditions:**

1. Test reports are valid only for the particular sample tested in our laboratory.
2. The sample not drawn by us and the analysis conducted as received basis unless specified otherwise.
3. Complaint about this report should be communicated in writing within 10 days of issue of the report.
4. This report will not be valid for judicial purpose.
5. Total liability of our lab is limited to involved amount.

Onkar Engine & Generator (P) Limited

Mangyo Khandelwal  
Authorized Signatory