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| Laboratory | Electrical Research and Development Association, ERDA Road, Makarpura Industrial Estate, Makarpura, Vadodara, Gujarat | | |
| Accreditation Standard | ISO/IEC 17025: 2005 | | |
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| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|--|---|--|--|---|
| I. MECHANICAL PROPERTIES OF MATERIALS | | | | |
| 1. | Aluminum Stranded Conductors | Joints in Wires | IS 398 (Part 1): 1996 Amd. 1 Clause. 8.2 | Qualitative |
| | | Direction of Lay | IS 398 (Part 1): 1996 Amd. 1 Clause. 3.3 | Qualitative |
| | | Measurement of Lay Ratio | IS 398 (Part 1): 1996 Amd. 1 Clause. 3.4 | (5 to 30)/ 0.1 |
| | | Measurement of Diameter (Nominal Sizes) | IS 398 (Part 1): 1996 Amd. 1 Clause. 7.1.1, 12.2 & Table 1 | 0 mm to 25 mm / 0.001 mm |
| | | Breaking Load Test | IS 398 (Part 1): 1996 Amd. 1 Clause. 12.3 & Table 1 | (0 kN to 100 kN) / 0.01 kN |
| | | Wrapping Test | IS 398 (Part 1): 1996 Amd. 1 Clause. 12.4 | Qualitative |
| 2. | Aluminum Conductors, Galvanised Steel Reinforced | Joints in Wires | IS 398 (Part 2): 1996 Amd. 1 to 3 Clause. 9 | Qualitative |
| | | Freedom from Defects | IS 398 (Part 2): 1996 Amd. 1 to 3 Clause. 7 | Qualitative |
| | | Direction of Lay | IS 398 (Part 2): 1996 Amd. 1 to 3 Clause. 3.3, 10.4 & 13.8 | Qualitative |
| | | Measurement of Lay Ratio | IS 398 (Part 2): 1996 Amd. 1 to 3 Clause. 3.4, 10.5, 13.8 & Table 4 | (5 to 30) / 0.1 |

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|--------------|---|---|--|---|
| | Aluminum Conductors, Galvanised Steel Reinforced | Measurement of Diameter | IS 398 (Part 2): 1996 Amd. 1 to 3 Clause. 13.2 & Table 1 & 2 | (0 mm to 25 mm) / 0.001 mm |
| | | Breaking Load Test | IS 398 (Part 2): 1996 Amd. 1 to 3 Clause. 13.3.1 Table 1 & 2 | (0 kN to 100 kN) / 0.01 kN |
| | | Ductility Test | IS 398 (Part 2): 1996 Amd. 1 to 3 Clause. 13.4 | |
| | | (i) Torsion Test | | Qualitative |
| | | (ii) Elongation Test | | (0.05 % to 150 %) /0.01 |
| | | Wrapping Test | IS 398 (Part 2): 1996 Amd. 1 to 3 Clause. 13.5 | Qualitative |
| | | Ultimate Load Test & Surface Condition Test (On Stranded Conductor) | IS 398 (Part 2): 1996 Amd. 1 to 3 Clause. 13.9, 13.10 Table 1 to 3 | (0 kN to 200 kN) / 0.05 kN |
| | | Galvanizing Test | IS 398 (Part 2): 1996 Amd. 1 to 3 Clause.13.7 | Qualitative |
| | | Uniformity Of Zinc Coating | | (0 g to 600 g)/0.01g |
| | | Mass Of Zinc Coating | | (0 mm to 25 mm) / 0.001 mm |
| | Stress- Strain Test | IS 398 (Part 2): 1996 Amd. 1 to 3 Clause. 13.11 | (0 kN to 200 kN)/ 0.05 kN | |

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| 3. | Aluminum Alloy Stranded Conductor | Freedom From Defects | IS 398 (Part 4): 1994 Amd. 1 Clause. 6 | Qualitative |
| | | Joints In Wires | IS 398 (Part 4): 1994 Amd. 1 Clause. 8 | Qualitative |
| | | Direction Of Lay | IS 398 (Part 4): 1994 Amd. 1 Clause. 3.1.3 & 9.3 | Qualitative |
| | | Measurement Of Lay Ratio | IS 398 (Part 4): 1994 Amd. 1 Clause.3.1.4, 9.2 & Table 3 | (5 to 30) /0.1 |
| | | Measurement Of Diameter (Nominal Sizes) | IS 398 (Part 4): 1994 Amd. 1 Clause. 7.1.1 & Table 1 | (0 mm to 25 mm) / 0.001 mm |
| | | Breaking Load Test | IS 398 (Part 4): 1994 Amd. 1 Clause. 12.2 & Table 1 | (0 kN to 100 kN) / 0.01 kN |
| | | Elongation Test | IS 398 (Part 4): 1994 Amd. 1 Clause. 12.3 | 0.05 % to 150 % / 0.01 |
| 4. | Aluminum Conductors, Galvanised Steel Reinforced for Extra High Voltage | Joints In Wires | IS 398 (Part 5): 1992 Amd. 1 to 2 Clause. 9 | Qualitative |
| | | Visual Examination & Freedom From Defects | IS 398 (Part 5): 1992 Amd. 1 to 2 Clause. 13.2 & 7 | Qualitative |
| | | Direction Of Lay | IS 398 (Part 5): 1992 Amd. 1 to 2 Clause. 10.4 | Qualitative |
| | | Measurement Of Lay Ratio | IS 398 (Part 5): 1992 Amd. 1 to 2 Clause. 10.5, 13.4 & Table 4 | (5 to 30)/ 0.1 |

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|--------------|--|---|--|---|
| | Aluminum Conductors, Galvanised Steel Reinforced for Extra High Voltage | Measurement Of Diameter (Nominal Sizes) | IS 398 (Part 5): 1992 Amd. 1 to 2 Clause. 13.3, 8.1 & Table -1, 2 | (0 mm to 25 mm) / 0.001 mm |
| | | Breaking Load Test | IS 398 (Part 5): 1992 Amd. 1 to 2 Clause. 13.5.2 & Table 1, 2 | (0 kN to 100 kN) / 0.01 kN |
| | | Ductility Test | IS 398 (Part 5): 1992 Amd. 1 to 2 Clause. 13.6 | Qualitative |
| | | Torsion Test | | 0.05 % to 150 % / 0.01 |
| | | Elongation Test | | |
| | | Wrapping Test | IS 398 (Part 5): 1992 Amd. 1 to 2 Clause. 13.7 | Qualitative |
| | | Ultimate Load Test & Surface Condition Test (On Stranded Conductor) | IS 398 (Part 5): 1992 Amd. 1 to 2 Clause. 13.5.1, 13.10 | (0 kN to 200 kN) /0.05 kN |
| | | Galvanizing Test : | IS 398 (Part 5): 1992 Amd. 1 to 2 Clause. 13.2 & 7 | Qualitative |
| | | Uniformity of Zinc Coating | | (0.02g to 600g) /0.01g |
| | Mass of Zinc Coating | | (0 mm to 25 mm) / 0.001mm | |
| 5. | EC Grade Aluminum Rod | Finish and Freedom From Defects | IS 5484: 1997 Amd. 1 Clause. 12 | Qualitative |
| | | Dimensions and Permissible Variations | IS 5484: 1997 Amd. 1 Clause. 10 | (0 mm to 25 mm) / 0.001 mm |

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| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|--------------|---------------------------------------|---------------------------------------|--|---|
| | EC Grade Aluminum Rod | Tensile Strength | IS 5484: 1997 Amd. 1 Clause. 8 | (0 kN to 100 kN) / 0.01 kN |
| 6. | Aluminum Alloy Rod | Finish & Freedom From Defects | IS 9997: 1991 Amd. 1 Clause. 11 | Qualitative |
| | | Dimension & Permissible Variations | IS 9997: 1991 Amd. 1 Clause. 9 | (0 mm to 25 mm) / 0.001 mm |
| | | Tensile Strength | IS 9997: 1991 Amd. 1 Clause. 7 | (0 kN to 100 kN) / 0.01 kN |
| | | Percentage Elongation | IS 9997: 1991 Amd. 1 Clause. 7 | (0.05 % to 150 %) /0.01 |
| 7. | Galvanized Steel Sheets | Freedom From Defect | IS 277: 2003 Amd. 1 to 4 | Qualitative |
| | | Dimension & Tolerances | IS 277: 2003 Amd. 1 to 4 | (0 mm to 300mm) / 0.01mm |
| | | Galvanizing Test | IS 277: 2003 Amd. 1 to 4 | Qualitative |
| | | Uniformity of Zinc Coating | | (0.02 g to 600 g) / 0.01g |
| | | Mass of Zinc Coating | | (0 mm to 25 mm) / 0.001mm |
| | | Adhesion Test | | Qualitative |

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| 8. | Mild Steel Wires For General Use Purposes | Freedom from Defect | IS 280: 2006 Amd. 1 Clause. 13 | Qualitative |
| | | Tolerance on Diameter | IS 280: 2006 Amd. 1 Clause. 8.0 & Table 1 | (0 mm to 25mm) / 0.001mm |
| | | Tensile Test | IS 280: 2006 Amd. 1 Clause. 9.1 | (0 kN to 100 kN) / 0.01 kN |
| | | Wrapping Test | IS 280: 2006 Amd. 1 Clause. 9.2 | Qualitative |
| | | Bend Test | IS 280: 2006 Amd. 1 Clause. 9.3 | Qualitative |
| | | Coating Test | IS 280: 2006 Amd. 1 Clause. 11.1 | |
| | | Uniformity of Zinc Coating | | Qualitative |
| | | Mass of Zinc Coating | | (0.02 g to 600 g) / 0.01g |
| | | Adhesion Test | | (0 mm to 25 mm) / 0.01 mm |
| 9. | Hot Dipped Galvanized Stay Strand | Freedom From Defect | IS 2141: 2000 Amd. 1 Clause. 7 | Qualitative |
| | | Lay | IS 2141: 2000 Amd. 1 Clause. 6.1.1 | Qualitative |
| | | Lay Length | IS 2141: 2000 Amd. 1 Clause. 6.1.2 | (0 mm to 300 mm) / 0.01 mm |

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| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|--------------|--|--|--|--|
| | Hot Dipped Galvanized Stay Strand | Tolerance on Wire Diameter | IS 2141: 2000 Amd. 1 Clause. 8.2 & Table 2 | (0 mm to 25mm) / 0.001 mm |
| | | Tensile Strength (Minimum Breaking Force) | IS 2141: 2000 Amd. 1 Clause. 5, 9.1.3 | (0 kN to 200 kN)/ 0.1 kN |
| | | Elongation Test | IS 2141: 2000 Amd. 1 Clause. 9.1.1 | (0.05 % to 150 %) /0.01 |
| | | Galvanizing Test | IS 2141: 2000 Amd. 1 Clause.9.2 | Qualitative |
| | | Uniformity Of Zinc Coating | | (0.02 g to 600 g) /0.01g |
| | | Mass Of Zinc Coating | | (0 mm to 25 mm) / 0.001mm |
| | | Adhesion Test | | Qualitative |
| 10. | Armour Rods, Binding Wires & Tapes for Conductors | Visual Examination | IS 2121 (Part 1): 1981 Clause. 7.2 | Qualitative |
| | | Verification of Dimensions | IS 2121 (Part 1): 1981 Clause. 7.3 | (0 mm to 300 mm) / 0.01 mm 1 m scale/1 mm (1 m to 15 m) /2 mm |
| | | Tensile Strength | IS 2121 (Part 1): 1981 Clause. 7.4 | (0 kN to 100 kN)/ 0.01 kN |
| | | Wrapping Test | IS 2121 (Part 1): 1981 Clause. 7.6 | Qualitative |
| | | Slip Strength Test | IS 2121 (Part 1): 1981 Clause. 7.2 | (0 kN to 200 kN)/ 0.05 kN |

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|--------------|--|---------------------------------------|--|---|
| | Armour Rods, Binding Wires & Tapes for Conductors | Bend Test | IS 2121 (Part 1): 1981 Clause. 7.10 | Qualitative |
| | | Resilient Test For Armor- Rod Only | IS 2121 (Part 1): 1981 Clause. 7.11 | Qualitative |
| 11. | Mid-Span Joints and Repair Sleeves For Conductors | Visual Examination | IS 2121 (Part 2): 1981 Clause. 6.2 | Qualitative |
| | | Dimensional Verification | IS 2121 (Part 2): 1981 Clause. 6.3 | (0 mm to 300 mm) / 0.01mm 1 m scale/1 mm (0 m to 15 m) /2 mm |
| | | Failing Load Test | IS 2121 (Part 2): 1981 Clause. 6.4 | (0 kN to 200 kN)/ 0.05 kN |
| | | Galvanizing Test | IS 2121 (Part 2): 1981 Clause. 6.7 | Qualitative |
| | | Uniformity Of Zinc Coating | | (0.02 g to 600 g) /0.01g |
| | | Mass Of Zinc Coating | | (0 mm to 300 mm) / 0.01mm |
| 12. | Accessories for Earth Wire | Visual Examination | IS 2121 (Part 3): 1992 Clause. 5.2 | Qualitative |
| | | Dimensional Verification | IS 2121 (Part 3): 1992 Clause. 5.2 | (0 mm to 300mm)/ 0.01 mm 1m scale/1 mm (0 m to 15 m)/2 mm |
| | | Slip Strength Test | IS 2121 (Part 3): 1992 Clause. 5.4 | (0 kN to 200 kN)/ 0.05 kN |

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|--------------|---------------------------------------|--------------------------------|--|---|
| | Accessories for Earth Wire | Mechanical Strength Test | IS 2121 (Part 3): 1992 Clause. 5.5 | (0 kN to 200 kN)/ 0.05 kN |
| | | Galvanizing Test | IS 2121 (Part 3): 1992 Clause. 5.7 | Qualitative |
| | | Uniformity Of Zinc Coating | | (0.02 g to 600 g) /0.01g |
| | | Mass Of Zinc Coating | | (0 mm to 300 mm) / 0.01mm |
| 13. | Non-Tension Joints | Visual Examination | IS 2121 (Part 4): 1991 Clause. 6.2 | Qualitative |
| | | Verification of Dimensions | IS 2121 (Part 4): 1991 Clause. 6.3 | (0 mm to 300mm)/ 0.01mm 1 m scale/1 mm (0 m to 15 m)/ 2 mm |
| | | Mechanical Test | IS 2121(Part 4): 1991 Clause. 6.5 | (0 kN to 200 kN)/ 0.05 kN |
| | | Galvanizing Test | IS 2121 (Part 4): 1991 Clause. 6.7 | Qualitative |
| | | Uniformity Of Zinc Coating | | 0.02 g to 600 g /0.01g |
| | | Mass Of Zinc Coating | | (0 mm to 300 mm) / 0.01 mm |

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|--------------|--|---|--|--|
| 14. | Metal Fittings of Insulators for Overhead Power Lines with Nominal Voltage Greater than 1000 V (General Requirements and Tests) | Freedom From Defects (Visual Examination & Protection Against Corrosion) | IS 2486 (Part 1): 1993 Clause. 5 & 6 | Qualitative |
| | | Verification Of Dimensions | IS 2486 (Part 1): 1993 Clause.8 & 9.2.2 | (0 mm to 300 mm)/ 0.01mm 1 m scale/1 mm (0 m to 15 m) /2 mm |
| | | Slip Strength Test | IS 2486 (Part 1): 1993 Clause. 11.1 | (0 kN to 200 kN)/ 0.05 kN |
| | | Mechanical Strength Test (Ultimate Strength Test) | IS 2486 (Part 1): 1993 Clause: 9.5 & 11.2 | (0 kN to 200 kN)/ 0.02 kN |
| | | Galvanizing Test | IS 2486 (Part 1): 1993 Clause. 9.4 | Qualitative |
| | | Uniformity Of Zinc Coating | | (0.02g to 300g)/0.0001g |
| 15. | Steel Item for Structural Purpose | Freedom Form Defect | IS 2062: 2011 Amd. 1 Clause. 7 | Qualitative |
| | | Verification Of Dimensions | IS 2062: 2011 Amd. 1 Clause. 15 & 16 | 300 mm/0.01mm |
| | | Tensile Strength, Yield Stress | IS 2062: 2011 Amd. 1 & As per IS 1608: 2005 Clause. 10.3 | (0 kN to 200 kN)/ 0.01 kN |

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|--------------|---|--------------------------------|---|---|
| | Steel Item for Structural Purpose | Percentage Elongation | IS 2062: 2011 Amd. 1 & As per IS 1608: 2005 Clause. 10.3 | (0.05 % to 150 %) /0.01 |
| | | Bend Test | IS 2062: 2011 Amd. 1 & As per IS 1599: 2012 Clause. 11 & Table 2 | Qualitative |
| | | Calculation Of Mass | IS 2062: 2011 Amd. 1 Clause. 18 | (50 g to 15 kg)/1 g 1 m scale/1 mm |
| 16. | High Strength Deformed Steel Bars And Wires For Concrete Reinforcement | Tolerance On Dimensions | IS 1786: 2008 Amd. 2 Clause.7 | (0 mm to 300 mm)/ 0.01mm |
| | | Nominal Mass | IS 1786: 2008 Amd. 2 Clause.6.2, 7.2 Table 1 & Table 2 | (50 g to 15 kg)/1 g 1m scale/1 mm |
| | | Tensile Strength, Yield Stress | IS 1786: 2008 Amd. 2 & As per IS 1608: 2005 Clause.8, 9.2 | (0 to 200 kN) / 0.01 kN |
| | | Percentage Elongation | IS 1786: 2008 Amd. 2 & As per IS 1608: 2005 Clause. 8, 9.2 | (0.05 % to 150 %) /0.01 |
| | | Bend Test | IS 1786: 2008 Amd. 2 & As per IS 1599: 2012 Clause.8, 9.3 & Table 4 | Qualitative |

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| 17. | Metallic Components | Tensile Test | IS 1608: 2005 | (0 kN to 400 kN)/0.1 kN |
| | | Bend Test | IS 1599: 2012 | Qualitative |
| | | Uniformity of Zinc Coated Articles | IS 2633: 1986 Amd. 1 | Qualitative |
| | | Mass of Zinc Coated Iron and Steel Articles | IS 6745: 1972 Amd. 2 to 5 | (0.02 g to 300 g)/ 0.01 g (0 mm to 300 mm)/ 0.01 mm |
| | | Wrapping Test | IS 1755: 1983 Amd. 1 | Qualitative |
| 18. | Hot-Dipped Galvanized Coatings On Round Steel Wires | Freedom From Defect | IS 4826: 1979 Amd. 1 to 3 Clause. 4.3 | Qualitative |
| | | Galvanizing Test Uniformity of Zinc Coating | IS 4826: 1979 Amd. 1 to 3 Clause. 4 & 5 | Qualitative |
| | | Mass of Zinc Coating | | (0.02g to 600g)/0.01g |
| | | Adhesion of Zinc Coating | | Qualitative |
| 19. | Hot-Dip Galvanizing Of Iron And Steel | Galvanizing Test Uniformity of Zinc Coating | IS 2629: 1985 Amd. 1 to 3 Clause. 6.2, 6.3& 6.4 | Qualitative |
| | | Mass of Zinc Coating | | (0.02 g to 600g) /0.01g |
| | | Adhesion Test | | Qualitative |
| 20. | Porcelain Electrical Insulators | Visual Examination | IS 731: 1971 Amd. 7 Clause. 10.13 | Qualitative |

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|--------------|--|--|--|--|
| | Porcelain Electrical Insulators | Verification Of Dimensions | IS 731: 1971 Amd. 7 Clause. 10.5 | (0 mm to 300mm)/ 0.01mm 1 m scale/1 mm (0 m to 15 m)/2 mm |
| | | Temperature Cycle Test | IS 731: 1971 Amd. 7 Clause. 10.6 | (-)10 °C to 100 °C)/ 0.1°C |
| | | Mechanical Failing Load Test | IS 731: 1971 Amd. 7 Clause. 10.8 | (0 kN to 400 kN)/0.1 kN |
| | | Electro-Mechanical Failing Load Test | IS 731: 1971 Amd. 7 Clause. 10.4 | (0 kN to 200 kN)/ 0.02 kN |
| | | Mechanical Performance Test. | IS 731: 1971 Amd. 7 Clause.10.9.1 | (0 kN to 200 kN)/ 0.02 kN |
| | | Thermal Mechanical Performance Test | IS 731: 1971 Amd. 7 Clause. 10.9.2 | (0 kN to 200 kN) / 0.02 kN |
| | | Porosity Test | IS 731: 1971 Amd. 7 Clause. 10.11 | Qualitative |
| | | Galvanizing Test (Uniformity Of Zinc Coating) | IS 731: 1971 Amd. 7 Clause. 10.12 | Qualitative |
| 21. | Porcelain Post Insulators for Systems with Nominal Voltages Greater than 1000 V | Visual Examination | IS 2544: 1973 Amd. 1 to 4 Clause. 9.12 | Qualitative |
| | | Verification of Dimensions | IS 2544: 1973 Amd. 1 to 4 Clause. 9.7 | (0 mm to 300mm)/ 0.01mm 1m scale/1 mm (0 m to 15 m)/2 mm |

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| | Porcelain Post Insulators for Systems with Nominal Voltages Greater than 1000 V | Temperature Cycle Test | IS 2544: 1973 Amd. 1 to 4 Clause. 9.8 | (-)10°C to 100°C)/ 0.1°C |
| | | Mechanical Failing Test | | |
| | | Tensile & Compression | IS 2544: 1973 Amd. 1 to 4 Clause. 9.6.5.3 | (0 kN to 400 kN)/ 0.1 kN |
| | | Bending | IS 2544: 1973 Amd. 1 to 4 Clause. 9.6.5.1 | 0 to 30 kN/0.01 kN |
| | | Torsion | IS 2544: 1973 Amd. 1 to 4 Clause. 9.6.5.2 | (1 kNm to 100 kNm)/ 0.05 kNm |
| | | Porosity Test | IS 2544: 1973 Amd. 1 to 4 Clause. 9.10 | Qualitative |
| | | Galvanizing Test (Uniformity Of Zinc Coating) | IS 2544: 1973 Amd. 1 to 4 Clause. 9.11 | Qualitative |
| 22. | Tests on Indoor and Outdoor Post Insulators of Ceramic Material or Glass for Systems with Nominal Voltages Greater than 1000 V | Visual Examination | IEC 60168: 2001 Amd. 1 to 2 Clause. 5.8 | Qualitative |
| | | Verification Of Dimensions | IEC 60168: 2001 Amd. 1 to 2 Clause. 5.1 | (0 mm to 300mm)/ 0.01mm 1m scale/1 mm (0 m to 15 m)/2 mm |
| | | Temperature Cycle Test | IEC 60168: 2001 Amd. 1 to 2 Clause. 5.4 | (-)10 °C to 100 °C)/ 0.1 °C |
| | | Mechanical Failing Test | | |
| | Tensile & Compression | IEC 60168: 2001 Amd. 1 to 2 Clause. 5.2.7 & 5.2.6 | (0 kN to 400 kN)/ 0.1 kN | |

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|--------------|---|---|--|---|
| | Tests on Indoor and Outdoor Post Insulators of Ceramic Material or Glass for Systems with Nominal Voltages Greater than 1000 V | Bending | IEC 60168: 2001 Amd. 1 to 2 Clause. 5.2.4 | (0 kN to 30 kN)/ 0.01 kN |
| | | Torsion | IEC 60168: 2001 Amd. 1 to 2 Clause. 5.2.5 | (1 kNm to 100 kNm)/ 0.05 kNm |
| | | Porosity Test | IEC 60168: 2001 Amd. 1 to 2 Clause. 5.8 | Qualitative |
| | | Galvanizing Test (Uniformity Of Zinc Coating) | IEC 60168: 2001 Amd. 1 to 2 Clause. 5.7 | Qualitative |
| 23. | Tests on Hollow Insulators for Use In Electrical Equipment | Visual Inspection | IEC 62155: 2003 Clause.10.3 | Qualitative |
| | | Verification Of Dimensions | IEC 62155: 2003 Clause. 7.1 | (0 mm to 300mm)/ 0.01 mm 1 m scale/1 mm (0 m to 15 m)/2 mm |
| | | Temperature Cycle Test | IEC 62155: 2003 Clause.7.1 | (-)10 °C to 100 °C)/ 0.1°C |
| | | Mechanical Failing Test | | |
| | | Tensile & Compression | IEC 62155: 2003 Clause.7.2.4 & 7.2.5 | (0 kN to 400 kN)/ 0.1 kN |
| | | Bending | IEC 62155: 2003 Clause.8.3 | (0 kN to 30 kN)/ 0.01 kN |
| | | Torsion | IEC 62155: 2003 Clause.7.2.3 | (1 kNm to 100 kNm)/ 0.05 kNm |
| | | Porosity Test | IEC 62155: 2003 Clause.7.4 | Qualitative |
| | | Internal Pressure Test | IEC 62155: 2003 Clause.8.2 | (0 kg to 70 kg)/cm ² |

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|--------------|--|--|--|---|
| 24. | Composite Insulators For A.C. Overhead Lines With A Nominal Voltage Greater Than 1000 V | Damage Limit Proof Test and Test of Tightness of the Interface Between End Fittings & Insulator Housing | IEC 61109: 2008 Clause. 11.2 | |
| | | Visual Examination | IEC 61109: 2008 Clause.13.2 | Qualitative |
| | | Verification Of Dimensions | IEC 61109: 2008 Clause. 12.2 | (0 to 300mm)/ 0.01 mm 1 m scale/1 mm (0 m to 15 m)/2 mm |
| | | Mechanical Routine Test | IEC 61109: 2008 Clause. 13.1 | (0 to 200 kN)/ 0.02 kN |
| | | Performance Of The Test | IEC 61109: 2008 Clause. 11.2.2 | (0 to 200 kN)/ 0.02 kN |
| | | Verification Of Tightness Of The Interface Between End Fittings And Insulator Housing And Of Specified Mechanical Load (SML) | IEC 61109: 2008 Clause. 12.4 | (0 to200 kN)/ 0.02 kN (0 to 400 kN)/ 0.1 kN |
| | | Galvanizing Test | IEC 61109: 2008 Clause. 12.5 | Qualitative |
| | | Assembled Core - Load Time Test | IEC 61109: 2008 Clause. 10.4 | (0 kN to 400 kN)/0.1 kN |
| 25. | Porcelain Insulators For Overhead Power Lines With A Nominal Voltage Up To And Including 1000 V | Visual Examination | IS 1445: 1977 Amd. 5 Clause. 8.4 | Qualitative (Visual Examination) |
| | | Verification Of Dimensions | IS 1445: 1977 Amd. 5 Clause. 8.5 | (0 mm to 300 mm)/ 0.01 mm |

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|--------------|--|--------------------------------|--|--|
| | Porcelain Insulators For Overhead Power Lines With A Nominal Voltage Up To And Including 1000 V | Temperature Cycle Test | IS 1445: 1977 Amd. 5 Clause. 8.8 | (-)10 °C to 100 °C/ 0.1 °C |
| | | Mechanical Failing Load Test | IS 1445: 1977 Amd. 5 Clause. 8.9 & Table 1 | (0 to 200 kN)/ 0.02 kN |
| | | Porosity Test | IS 1445: 1977 Amd. 5 Clause. 8.11 | Qualitative |
| 26. | Porcelain Guy Strain Insulators | Visual Examination | IS 5300: 1969 Amd. 1 Clause. 7.8 | Qualitative |
| | | Verification Of Dimensions | IS 5300: 1969 Amd. 1 Clause. 7.5 | 0 to 300mm/0.01 mm 1 m scale/1 mm (0 m to 15 m)/ 2 mm |
| | | Temperature Cycle Test | IS 5300: 1969 Amd. 1 Clause. 7.6 | (-)10 °C to 100 °C/ 0.1 °C |
| | | Mechanical Strength Test | IS 5300: 1969 Amd. 1 Clause. 7.4 & Table 1 | (0 to 200 kN)/ 0.02 kN |
| | | Porosity Test | IS 5300: 1969 Amd. 1 Clause. 7.7 | Qualitative |
| 27. | Hollow Insulators for Use In Electrical Equipment | Visual Inspection | IS 5621: 1980 Amd. 1 to 2 Clause. 3.2 | Qualitative |
| | | Verification Of Dimensions | IS 5621: 1980 Amd. 1 to 2 Clause. 3.4 | (0 to 300 mm)/ 0.01 mm 1 m scale/1 mm (0 to 15 m)/ 2 mm |

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|-----------------------------|---|---|---|--|
| | Hollow Insulators for Use In Electrical Equipment | Temperature Cycle Test | IS 5621: 1980 Amd. 1 to 2 Clause. 3.6 | (-10 °C to 100 °C/ 0.1 °C |
| | | Porosity Test | IS 5621: 1980 Amd. 1 to 2 Clause. 3.5 | Qualitative |
| 28. | Bushing For Alternating Voltages Above 1000 V | Cantilever Load Withstand Test | IS 2099: 1986 Amd. 1 to 2 Clause. 11.10 | (0 kN to 30 kN)/0.01 kN |
| 29. | Power Transformers | A Weighted Sound Power Level | IS 2026-1: 2011 IS 2026-10: 2009 | Upto 140 dB (A) |
| 30. | Any Material | Salt Mist Test Salt Spray (Fog) Test Salt Mist Test | IS 9000 (Part 11): 1983 ASTM B-117: 11 IEC 60068-2-11: 1981 | Qualitative |
| II. PERFORMANCE TEST | | | | |
| 1. | Energy Meter “Ac Static Watt Hour Meter”, “Ac Static Transformer Operated Watt Hour And Var-Hour Meter Class 0.2s & 0.5s” “Ac Watt Hour Meter Class 0.5,1 & 2” | Vibration Test | IS 9000 (Part 8): 1981 IS 13779: 1999 Amd. 1,2,3,4 Clause. 12.3.2 IS 14697: 1999 Amd. 1,2,3 Clause. 12.3.2 IS 13010: 2002 Amd. 1 & 2 Clause. 11.20 | Freq. 5 Hz to 3000 Hz Peak Disp = ± 19 mm Peak Acce.= 50 g |

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|--------------|---|--------------------------------|--|---|
| 2. | “Electricity Metering Equipment (Ac) : Static Meter , Class 1 & 2, Static Meter For Active Energy Class 0.2s & 0.5s, Electromechanical Meter Class 0.5, 1 & 2 , Static Meter For Reactive Energy Class 2 & 3” | Vibration Test | IEC 60068-2-6: 2007 IEC 62052-11: 2003 Clause. 5.2.2.3 IEC 62053-21: 2003 Clause.5 IEC 62053-22: 2003 Clause. 5 IEC 62053-23: 2003 Clause. 5 | Freq. 5 Hz to 3000 Hz Peak Disp = ± 19 mm Peak Acce.= 50 g |
| 3. | “Energy Meter For Accuracy Clsss-2” “Common Meter Reading Instrument” “Ac Static Electrical Energy Meters For 0.2, 0.5 & 1.0 Class” | Vibration Test | CBIP Technical Report No.69: 1989 Clause. 18.3.1 CBIP Technical Report No.111: 1997 Clause. 5.1.3 CBIP Technical Pub. No.304: 2008 Clause. 5.2.3 | Freq. 5 Hz to 3000 Hz Peak Disp = ± 19 mm Peak Acce.= 50 g |
| 4. | Ac Motor Capacitor & Motor Starter Capacitor | Vibration Test | IEC 60068-2-6: 2007 IEC 60252-1: 2013 Clause. 5.11.3 IEC 60252-2: 2013 Clause. 5.1.11.3 | Freq. 5 Hz to 3000 Hz Peak Disp = ± 19 mm Peak Acce.= 50 g |
| 5. | Electronics Type Fan Regulator | Vibration Test | IS 9000 (Part 8): 1981 IS 11037: 1984 Amd. 1,2,3 Clause. 9.3.13.4 | Freq. 5 Hz to 3000 Hz Peak Disp = ± 19 mm Peak Acce.= 50 g |

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| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|--------------|--|--------------------------------|---|---|
| 6. | Energy Meter “Ac Direct Connected Static Prepayment Meter For Active Energy (Class 1 & 2)” | Vibration Test | IS 15884: 2010 Clause. 5.2.3 | Freq. 5 Hz to 3000 Hz Peak Disp = ± 19 mm Peak Acce.= 50 g |
| | Rotating Machines | | | |
| 7. | - Small Size Spark Ignition Engine - Diesel Engines for General Purpose - Foot Valves, Reflux Valves or Non Return Valves and Bore Valves - Diesel Engines For Agricultural Purpose - Engine Monoset Pumps For Agricultural Purpose | Marking | IS 10805: 1986 Clause. 8 IS 7347: 1974 Clause. 10 IS 11501: 1986 Clause. 14 IS 11170: 1985 Clause. 7 IS 10001: 1981 Clause. 7 IS 10002: 1981 Clause. 7 | Qualitative |
| 8. | Foot Valves, Reflux Valves or Non Return Valves and Bore Valves | Dimension Test | IS 10805: 1986 Clause. 2 | 0.01 mm to 200 mm Pipe size: 15 mm to 100 mm |
| | | Seat Test | IS 10805: 1986 Clause. 6.1.1 | Qualitative Pipe size: 15 mm to 100 mm |

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|--------------|--|--------------------------------|--|---|
| | Foot Valves, Reflux Valves or Non Return Valves and Bore Valves | Housing Test | IS 10805: 1986 Clause. 6.1.2 | Qualitative Pipe size: 15 mm to 100 mm |
| | | K Value Test | IS 10805: 1986 Clause. 6.2 | K value 0.8 to 1.4 Pipe size: 15 mm to 100 mm |
| | | Checks For Internal Threads | IS 10805: 1986 Clause. 4.2 | Qualitative Pipe size: Upto 85 mm |
| | | Coating | IS 10805: 1986 Clause. 5 | Qualitative Pipe size: 15 mm to 100 mm |
| 9. | Engine Monoset Pumps for Agricultural Purpose | Hydrostatic Test | IS 11501: 1986 Clause. 10.2 | Upto 80 kg/cm ² Qualitative |
| | | Direction of Rotation | IS 11501: 1986 Clause. 6 | Qualitative |
| | | Pump Performance Test | IS 11501: 1986 Clause. 11 | 0.25 kW to 110 kW |
| | | Priming Test | IS 11501: 1986 Clause. 11.3.1 | 0-99r-59 min-59 sec |
| | | Design Features | IS 11501: 1986 Clause. 9 | Qualitative |
| | | General Construction | IS 11501: 1986 | Qualitative |

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|--------------|---|---|---|--|
| 10. | Engine Monoset Pumps for Agricultural Purpose Diesel Engines for General Purpose Diesel Engines for Agricultural Purpose | Preparation For Test And Measurement Of Wear | IS 11501: 1986 Clause. 11.1 IS 10001: 1981 Clause. 3.1 (a) IS 11170: 1985 Clause. 3.1 (a) IS 10002: 1981 Clause. 3.1 (a) | 0.25kW to 110 kW 0.01 mm to 1000 mm |
| | | Preliminary Test | IS 11501: 1986 Clause. 11.1 IS 10001: 1981 Clause. 3.1 (b) IS 11170: 1985 Clause. 3.1 (b) IS 10002: 1981 Clause. 3.1 (b) | Speed: 100 RPM to 10000 RPM Temperature: 20 °C to 1000 °C SFC: (50 g to 1000 g)/ kwh 0.25 kW to 110 kW |
| | | Initial Performance Test | IS 11501: 1986 Clause. 11.1 IS 10001: 1981 Clause. 3.1 (c) IS 11170: 1985 Clause. 3.1 (c) IS 10002: 1981 Clause. 3.1 (c) | Speed: 100 RPM to 10000 RPM Temperature: 20 °C to 1000 °C SFC: (50 g to 1000 g)/ kWh 0.25 kW to 110 kW |
| | | Endurance Test | IS 11501: 1986 Clause. 11.1 IS 10001: 1981 Clause. 3.1 (e) IS 11170: 1985 Clause. 3.1 (d) IS 10002: 1981 Clause. 3.1 (e) | Speed:100 RPM to 10000 RPM Temperature: 20°C to 1000 °C SFC: (50 g to 1000 g)/ kwh 0.25 kW to 110 kW |

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|--------------|---|---|---|--|
| | Engine Monoset Pumps for Agricultural Purpose Diesel Engines for General Purpose Diesel Engines for Agricultural Purpose | Final Performance Test | IS 11501: 1986 Clause. 11.1 IS 10001: 1981 Clause. 3.1 (g) IS 11170: 1985 Clause. 3.1 (e) IS 10002: 1981 Clause. 3.1 (g) | Speed: 100 RPM to 10000 RPM Temperature: 20 °C to 1000 °C SFC: (50 g to 1000 g)/ kwh 0.25 kW to 110 kW |
| | | Final Inspection Test | IS 11501: 1986 Clause. 11.1 IS 10001: 1981 Clause. 3.1 (h) IS 11170: 1985 Clause. 3.1 (f) IS 10002: 1981 Clause. 3.1 (h) | 0.001 mm to 1000 mm Speed: 100 RPM to 10000 RPM Temperature: 20°C to 1000 °C SFC: (50 g to 1000 g)/ kwh 0.25 kW to 110 kW |
| | | Lubricating Oil Consumption/ Fuel Consumption | IS 10001: 1981 Clause. 3.5.5 IS 11170: 1986 Clause. 3.1 (g) IS 11501: 1986 Clause. 11.1 IS 10002: 1981 Clause. 4.3 | Consumption: (2 ml to 50 ml)/h 0.25 kW to 110 kW |
| | | Final Inspection Test | IS 11501: 1986 Clause. 11.1 IS 10001: 1981 Clause. 3.1 (h) IS 11170: 1985 Clause. 3.1 (f) IS 10002: 1981 Clause. 3.1 (h) | 0.001 mm to 1000 mm Speed: 100 RPM to 10000 RPM Temperature: 20°C to 1000 °C SFC: (50 g to 1000 g)/ kwh 0.25 kW to 110 kW |

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| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|--------------|--|---|--|--|
| 11. | Small Size Spark Ignition Engine Engine Monoset Pumps for Agricultural Purpose | Strip Examination For Checking Various Components | IS 7347: 1974 Clause. 9.1 (g) IS 11501: 1986 Clause. 11.1 | 0.25 to 110 kW 0.01 mm to 1000 mm |
| | | Rating Test | IS 7347: 1974 Clause. 9.1 (a) IS 11501: 1986 Clause. 11.1 | Speed: 100 RPM to 10000 RPM Temperature: 20 °C to 1000 °C SFC: (50 g to 1000 g)/ kwh 0.25 kW to 110 kW |
| | | Endurance | IS 7347: 1974 Clause. 9.1 (e) IS 11501: 1986 Clause. 11.1 | Speed: 100 RPM to 10000 RPM Temperature: 20 °C to 1000 °C SFC: (50 g to 1000 g)/ kwh 0.25 kW to 110 kW |
| 12. | Small Size Spark Ignition Engine Diesel Engines for General Purpose Engine Monoset Pumps for Agricultural Purpose | Governing | IS 7347: 1974 Clause. 9.1 (b) IS 10001: 1981 Clause. 3.1 (d), 3.1 (f) IS 11501: 1986 Clause. 11.1 IS 10002: 1981 Clause. 3.1 (d), 3.1 (f) | Speed: 100 RPM to 10000 RPM Temperature: 20°C to 1000 °C SFC: (50 g to 1000 g)/ kwh 0.25 kW to 110 kW |

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|-------|--|---|--|--|
| | Small Size Spark Ignition Engine Diesel Engines for General Purpose Engine Monoset Pumps for Agricultural Purpose | No Load And Low Speed Test | IS 7347: 1974 Clause. 9.1 (c) IS 11501: 1986 Clause. 11.1 | Qualitative (Visual Examination) 0.25 kW to 110 kW |
| | | Starting Test | IS 7347: 1974 Clause. 9.1 (d) IS 11501: 1986 Clause. 11.1 | Qualitative (Visual Examination) 0.25 kW to 110 kW |
| | | Reassembly, Starting Test And No Load Running | IS 7347: 1974 Clause. 9.1 (h) IS 11501: 1986 Clause. 11.1 | Qualitative (Visual Examination) 0.25 to 110 kW |

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