# Schedule of Accreditation

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# United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

**7782**

**Accredited to ISO/IEC 17025:2017**

## Al-Ahleia Switchgear Co., K.S.C.C.

**Issue No:** 016 **Issue date:** 04 February 2025


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**Testing performed at the above address only**

DETAIL OF ACCREDITATION

| Materials/Products tested | Type of test/Properties measured/Range of measurement | Standard specifications/ Equipment/Techniques used |
|---|---|---|
| Medium voltage switchgear | Dielectric Test on main circuit<br>a. Power Frequency withstand voltage - up to 110 kV<br>b. Impulse withstand voltage - up to 350 kV peak<br>c. Insulation resistance test - up to 5 kV/ 950 GΩ | IEC62271-100 Edition 3 2021-07<br>IEC62271-200 Edition 3.1 2024-06<br>IEC62271-102 Edition 2.1 2022-04<br>IEC62271-103 Edition 2 2021-05<br>IEC62271-105 Edition 3 2021-06<br>IEC62271-106 Edition 2 2021-04<br>IEC62271-1 Edition 2.1 2021-10<br>IEC61869-1 Edition 2 2023-06<br>IEC61869-2 Edition 1 2012-09<br>IEC60060-1 Edition 3.0 2010-09 |
| | Dielectric test on auxiliary and control circuit<br>a. Power Frequency withstand voltage - up to 4.5 kV<br>b. Insulation resistance test - up to 5 kV / 950 GΩ | IEC62271-100 Edition 3 2021-07<br>IEC62271-200 Edition 3.1 2024-06<br>IEC62271-102 Edition 2.1 2022-04<br>IEC62271-103 Edition 2 2021-05<br>IEC62271-105 Edition 3 2021-06<br>IEC62271-106 Edition 2 2021-04<br>IEC62271-1 Edition 2.1 2021-10<br>IEC61869-1 Edition 2 2023-06<br>IEC61869-2 Edition 1 2012-09<br>IEC61869-3 Edition 1 2011-07 |
| | Measurement of resistance of main circuit | IEC62271-100 Edition 3 2021-07<br>IEC62271-200 Edition 3.1 2024-06<br>IEC62271-102 Edition 2.1 2022-04<br>IEC62271-103 Edition 2 2021-05<br>IEC62271-105 Edition 3 2021-06<br>IEC62271-106 Edition 2 2021-04<br>IEC62271-1 Edition 2.1 2021-10 |

| Materials/Products tested | Type of test/Properties measured/Range of measurement | Standard specifications/ Equipment/Techniques used |
|---|---|---|
| Medium voltage switchgear (continued) | Temperature rise test<br>Up to 5000 A, 3 phase AC*<br>*See note at end of Schedule* | IEC62271-100 Edition 3 2021-07<br>IEC62271-200 Edition 3.1 2024-06<br>IEC62271-102 Edition 2.1 2022-04<br>IEC62271-103 Edition 2 2021-05<br>IEC62271-105 Edition 3 2021-06<br>IEC62271-106 Edition 2 2021-04<br>IEC62271-1 Edition 2.1 2021-10<br>IEC61869-1 Edition 2 2023-06<br>IEC61869-2 Edition 1 2012-09 |
| | Verification of Degree of protection<br>Up to IP55 | IEC 60529 Edition 2.2 2013-08<br>IEC62271-200 Edition 3.1 2024-06<br>IEC62271-1 Edition 2.1 2021-10 |
| | Mechanical operation test at ambient temperature on circuit breaker, switch and switch-fuse. Mechanical endurance test on disconnector, earthing switch and vacuum contactor | IEC62271-100 Edition 3 2021-07<br>IEC62271-102 Edition 2.1 2022-04<br>IEC62271-103 Edition 2 2021-05<br>IEC62271-105 Edition 3 2021-06<br>IEC62271-106 Edition 2 2021-04<br>IEC62271-1 Edition 2.1 2021-10 |
| | Test to prove the satisfactory operation of switchgear, including switching device and removable parts – Mechanical operation | IEC62271-200 Edition 3.1 2024-06<br>IEC62271-1 Edition 2.1 2021-10 |
| | Tests to prove the strength of gas filled compartment up to 6 bar, gauge pressure | IEC62271-200 Edition 3.1 2024-06<br>IEC62271-1 Edition 2.1 2021-10 |
| | Tightness test of gas filled switchgear | IEC62271-200 Edition 3.1 2024-06<br>IEC62271-1 Edition 2.1 2021-10 |
| | Partial discharge test | IEC62271-200 Edition 3.1 2024-06<br>IEC62271-1 Edition 2.1 2021-10 |
| | Electrical continuity of earthed metallic parts test | IEC62271-1 Edition 2.1 2021-10 |
| Low voltage switchgear | Verification of Temperature rise, up to 5000 A, 3 phase AC*<br>*See note at end of Schedule* | IEC 61439-1 Edition 3 2020-05<br>IEC 61439-2 Edition 3 2020-07 |

| Materials/Products tested | Type of test/Properties measured/Range of measurement | Standard specifications/ Equipment/Techniques used |
|---|---|---|
| Low voltage switchgear (continued) | | |
| | Verification of dielectric properties<br>a. Power Frequency withstand voltage up to 4.5 kV<br>b. Impulse withstand voltage up to 20 kV peak<br>c. Insulation resistance test – Up to 5 kV / 950 GΩ | IEC 61439-1 Edition 3 2020-05<br>IEC 61439-2 Edition 3 2020-07 |
| | Verification of clearance and creepage distances | IEC 61439-1 Edition 3 2020-05<br>IEC 61439-2 Edition 3 2020-07 |
| | Verification of degree of protection<br>Up to IP55 | IEC 60529 Edition 2.2 2013-08<br>IEC 61439-1 Edition 3 2020-05<br>IEC 61439-2 Edition 3 2020-07 |
| | Verification of strength of materials and parts (Lifting)<br>Up to 5000 kg | IEC 61439-1 Edition 3 2020-05<br>IEC 61439-2 Edition 3 2020-07 |
| | Verification of mechanical operation | IEC 61439-1 Edition 3 2020-05<br>IEC 61439-2 Edition 3 2020-07 |
| | Electrical continuity of earthed metallic parts test | IEC 61439-1 Edition 3 2020-05 |
| Low voltage bus duct | Verification of Temperature rise<br>Up to 5000 A, 3 phase AC*<br>*See note at end of Schedule* | IEC 61439-1 Edition 3 2020-05<br>IEC 61439-6 Edition 1 2012-05 |
| | Verification of dielectric properties:<br>a. Power Frequency withstand voltage up to 4.5 kV<br>b. Impulse withstand voltage up to 20 kV peak<br>c. Insulation resistance test - Up to 5 kV / 950 GΩ | IEC 61439-1 Edition 3 2020-05<br>IEC 61439-6 Edition 1 2012-05 |
| | Verification of clearance and creepage distances | IEC 61439-1 Edition 3 2020-05<br>IEC 61439-6 Edition 1 2012-05 |
| | Verification of degree of protection<br>Up to IP55 | IEC 60529 Edition 2.2 2013-08<br>IEC 61439-1 Edition 3 2020-05<br>IEC 61439-6 Edition 1 2012-05 |

| Materials/Products tested | Type of test/Properties measured/Range of measurement | Standard specifications/ Equipment/Techniques used |
|---|---|---|
| Low voltage bus duct (continued) | Verification of structural strength Up to 5000 kg | IEC 61439-6 Edition 1 2012-05 |
| | Verification of resistance to crushing - up to 5000 kg | IEC 61439-6 Edition 1 2012-05 |
| | Electrical continuity of earthed metallic parts test | IEC 61439-1 Edition 3 2020-05 |
| Medium voltage bus duct | Temperature rise test Up to 5000 A, 3 phase AC* *See note at end of Schedule* | IEC62271-200 Edition 3.1 2024-06<br>IEC62271-1 Edition 2.1 2021-10 |
| | Dielectric Test on main circuit a. Power Frequency withstand voltage - Up to 110 kV b. Impulse withstand voltage - Up to 350 kV peak c. Insulation resistance test - Up to 5 kV / 950 GΩ | IEC62271-200 Edition 3.1 2024-06<br>IEC62271-1 Edition 2.1 2021-10<br>IEC60060-1 Edition 3.0 2010-09 |
| | Verification of degree of protection Up to IP55 | IEC 60529 Edition 2.2 2013-08<br>IEC62271-200 Edition 3.1 2024-06<br>IEC62271-1 Edition 2.1 2021-10 |
| | Electrical continuity of earthed metallic parts test | IEC62271-1 Edition 2.1 2021-10 |
| Distribution and Power transformers<br><br>- Oil filled<br>- Cast resin transformers | Dielectric Test on main circuit a. Power Frequency withstand voltage - up to 450 kV b. Lightning Impulse voltage/chopped wave - up to 900 kV peak c. Insulation resistance test - up to 5 kV / 950 GΩ | IEC 60076-1 Edition 3 2011-04<br>IEC 60076-3 Edition 3.1 2018-03<br>IEC 60076-11 Edition 2 2018-08 |
| | Temperature rise test up to 50 MVA* *See note at end of Schedule* | IEC 60076-1 Edition 3 2011-04<br>IEC 60076-11 Edition 2 2018-08<br>IEC 60076-2 Edition 3 2011-02 |
| | Induced AC voltage test (ACSD) with partial discharge measurement | IEC 60076-1 Edition 3 2011-04<br>IEC 60076-3 Edition 3.1 2018-03<br>IEC 60076-11 Edition 2 2018-08 |

| Materials/Products tested | Type of test/Properties measured/Range of measurement | Standard specifications/ Equipment/Techniques used |
|---|---|---|
| Distribution and Power transformers<br>- Oil filled<br>- Cast resin transformers<br>(continued) | Sound level test | IEC 60076-1 Edition 3 2011-04<br>IEC 60076-10 Edition 2.0 2016-03 |
| | Sweep frequency response analysis | IEC 60076-1 Edition 3 2011-04<br>IEC 60076-18 Edition 1 2012-07 |
| | Measurement of voltage ratio & check of phase displacement | IEC 60076-1 Edition 3 2011-04 |
| | Measurement of winding resistance | IEC 60076-1 Edition 3 2011-04 |
| | Measurement of oil BDV up to 100 kV | IEC 60076-1 Edition 3 2011-04<br>IEC 60156 Edition 3 2018-08 |
| | Measurement of dissolved gases in oil | IEC 60076-1 Edition 3 2011-04<br>ASTM D3612-2 2017<br>IEC 60567 Edition 5 2023-12 |
| | Measurement of capacitance and tan δ of oil and transformer | IEC 60076-1 Edition 3 2011-04 |
| | Hydraulic pressure deflection / pressure test on transformer and cable box/Vacuum deflection | IEC 60076-1 Edition 3 2011-04 |
| | Measurement of No load loss and current with testing facility of 1000 kVA regulator, 500 kVA intermediate transformer (11-22-33 kV) | IEC 60076-1 Edition 3 2011-04 |
| | Measurement of zero phase sequence impedance | IEC 60076-1 Edition 3 2011-04 |
| | Measurement of short circuit impedance and load loss, with testing facility of 1000 kVA regulator, 1000 kVA intermediate transformer (1.1 kV to 11.5 kV) and HT capacitor 16.5 MVAR | IEC 60076-1 Edition 3 2011-04 |

| Materials/Products tested | Type of test/Properties measured/Range of measurement | Standard specifications/ Equipment/Techniques used |
|---|---|---|
| Distribution and Power transformers<br>- Oil filled<br>- Cast resin transformers<br>(continued) | Test on on-load tap changer<br><br>Leak testing with pressure for oil filled transformer<br><br>Verification of Degree of protection Up to IP55 | IEC 60076-1 Edition 3 2011-04<br><br>IEC 60076-1 Edition 3 2011-04<br><br>IEC 60529 Edition 2.2 2013-08 |
| High-voltage/low-voltage prefabricated substation (UDS) | Temperature rise tests | IEC 62271-202 Edition 3 2022-06<br><br>NOTE: The tests are limited to the products and standards marked (*) elsewhere in this Schedule. |
| END | | |