

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>UKAS TESTING 7782</p> <p>Accredited to ISO/IEC 17025:2017</p>	<p>Al-Ahleia Switchgear Co., K.S.C.C.</p> <p>Issue No: 013 Issue date: 08 November 2021</p>	
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<p>Testing performed at the above address only</p>		

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 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	IEC62271-100 Edition 2.2 2017-06 IEC62271-200 Edition 3 2021-05 IEC62271-102 Edition 2.0 2018-05 IEC62271-103 Edition 2 2021-05 IEC62271-105 Edition 3 2021-06 IEC62271-106 Edition 1 2011-08 IEC62271-1 Edition 2 2017-07 IEC61869-1 Edition 1 2007-10 IEC61869-2 Edition 1 2012-09 IEC60060-1 Edition 3.0 2010-09
	Dielectric test on auxiliary and control circuit a. Power Frequency withstand voltage - up to 4.5 kV b. Insulation resistance test - up to 5 kV / 950 GΩ	IEC62271-100 Edition 2.2 2017-06 IEC62271-200 Edition 3 2021-05 IEC62271-102 Edition 2.0 2018-05 IEC62271-103 Edition 2 2021-05 IEC62271-105 Edition 3 2021-06 IEC62271-106 Edition 1 2011-08 IEC62271-1 Edition 2 2017-07 IEC61869-1 Edition 1 2007-10 IEC61869-2 Edition 1 2012-09 IEC61869-3 Edition 1 2011-07
	Measurement of resistance of main circuit	IEC62271-100 Edition 2.2 2017-06 IEC62271-200 Edition 3 2021-05 IEC62271-102 Edition 2.0 2018-05 IEC62271-103 Edition 2 2021-05 IEC62271-105 Edition 3 2021-06 IEC62271-106 Edition 1 2011-08 IEC62271-1 Edition 2 2017-07



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Medium voltage switchgear (continued)	Temperature rise test Up to 5000 A, 3 phase AC* <i>See note at end of Schedule</i>	IEC62271-100 Edition 2.2 2017-06
		IEC62271-200 Edition 3 2021-05
		IEC62271-102 Edition 2.0 2018-05
		IEC62271-103 Edition 2 2021-05
		IEC62271-105 Edition 3 2021-06
		IEC62271-106 Edition 1 2011-08
		IEC62271-1 Edition 2 2017-07
		IEC61869-1 Edition 1 2007-10
		IEC61869-2 Edition 1 2012-09
		Verification of Degree of protection Up to IP55
Mechanical operation test at ambient temperature on circuit breaker, switch and switch-fuse. Mechanical endurance test on disconnecter, earthing switch and vacuum contactor	IEC62271-100 Edition 2.2 2017-06 IEC62271-102 Edition 2.0 2018-05 IEC62271-103 Edition 2 2021-05 IEC62271-105 Edition 3 2021-06 IEC62271-106 Edition 1 2011-08 IEC62271-1 Edition 2 2017-07	
Test to prove the satisfactory operation of switchgear, including switching device and removable parts – Mechanical operation	IEC62271-200 Edition 3 2021-05 IEC62271-1 Edition 2 2017-07	
Tests to prove the strength of gas filled compartment up to 6 bar, gauge pressure	IEC62271-200 Edition 3 2021-05 IEC62271-1 Edition 2 2017-07	
Tightness test of gas filled switchgear	IEC62271-200 Edition 3 2021-05 IEC62271-1 Edition 2 2017-07	
Partial discharge test	IEC62271-200 Edition 3 2021-05 IEC62271-1 Edition 2 2017-07	
Electrical continuity of earthed metallic parts test	IEC62271-1 Edition 2 2017-07	
Low voltage switchgear	Verification of Temperature rise, up to 5000 A, 3 phase AC* <i>See note at end of Schedule</i>	IEC 61439-1 Edition 3 2020-05 IEC 61439-2 Edition 3 2020-07



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



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Low voltage bus duct (continued)	<p>Verification of structural strength Up to 5000 kg</p> <p>Verification of resistance to crushing - up to 5000 kg</p> <p>Electrical continuity of earthed metallic parts test</p>	<p>IEC 61439-6 Edition 1 2012-05</p> <p>IEC 61439-6 Edition 1 2012-05</p> <p>IEC 61439-1 Edition 3 2020-05</p>
Medium voltage bus duct	<p>Temperature rise test Up to 5000 A, 3 phase AC* <i>See note at end of Schedule</i></p> <p>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</p> <p>Verification of degree of protection Up to IP55</p> <p>Electrical continuity of earthed metallic parts test</p>	<p>IEC62271-200 Edition 3 2021-05 IEC62271-1 Edition 2 2017-07</p> <p>IEC62271-200 Edition 3 2021-05 IEC62271-1 Edition 2 2017-07 IEC60060-1 Edition 3.0 2010-09</p> <p>IEC 60529 Edition 2.2 2013-08 IEC62271-200 Edition 3 2021-05 IEC62271-1 Edition 2 2017-07</p> <p>IEC62271-1 Edition 2 2017-07</p>
<p>Distribution and Power transformers</p> <p>- Oil filled - Cast resin transformers</p>	<p>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</p> <p>Temperature rise test up to 50 MVA* <i>See note at end of Schedule</i></p> <p>Induced AC voltage test (ACSD) with partial discharge measurement</p>	<p>IEC 60076-1 Edition 3 2011-04 IEC 60076-3 Edition 3.1 2018-03 IEC 60076-11 Edition 2 2018-08</p> <p>IEC 60076-1 Edition 3 2011-04 IEC 60076-11 Edition 2 2018-08 IEC 60076-2 Edition 3 2011-02</p> <p>IEC 60076-1 Edition 3 2011-04 IEC 60076-3 Edition 3.1 2018-03 IEC 60076-11 Edition 2 2018-08</p>



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Distribution and Power transformers - Oil filled - Cast resin transformers (continued)	Sound level test	IEC 60076-1 Edition 3 2011-04 IEC 60076-10 Edition 2.0 2016-03
	Sweep frequency response analysis	IEC 60076-1 Edition 3 2011-04 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 IEC 60156 Edition 3 2018-08
	Measurement of dissolved gases in oil	IEC 60076-1 Edition 3 2011-04 ASTM D3612-2 2017 IEC 60567 Edition 4 2011-10
	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	



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Distribution and Power transformers - Oil filled - Cast resin transformers (continued)	Test on on-load tap changer	IEC 60076-1 Edition 3 2011-04
	Leak testing with pressure for oil filled transformer	IEC 60076-1 Edition 3 2011-04
	Verification of Degree of protection Up to IP55	IEC 60529 Edition 2.2 2013-08
High-voltage/low-voltage prefabricated substation (UDS)	Temperature rise tests	IEC 62271-202 Edition 2 2014-03 NOTE: The tests are limited to the products and standards marked (*) elsewhere in this Schedule.

END