

# Deutsche Akkreditierungsstelle GmbH

## Annex to the Accreditation Certificate D-PL-11097-02-01 according to DIN EN ISO/IEC 17025:2005

Period of validity: 2018-11-19 to 2021-09-15

Date of issue: 2018-11-19

Holder of certificate:

**TÜV Rheinland (Shanghai) Co., Ltd**

Location for tests in the range of Photovoltaic:

**1st Floor of No. 10, No, 153, 165, 177, 178, 179, 182, 189,  
192, 198, Lane 777, West Guangzhong Road, Jing'an District  
SHANGHAI 200072  
P. R. CHINA**

Location for tests in the range of Solar Thermal Systems:

**No.24, Lingyuan Road, Yongding Town  
YONGREN CITY, YUNAN, 651400  
P. R. CHINA**

Tests in the fields:

**Photovoltaic and Solar Thermal Systems**

**Within the scopes of accreditation marked with an \*, the laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, to use standard test methods listed here with different issue dates or revision status updates.**

**The testing laboratory maintains a current list of all testing within the flexible scope of accreditation.**

Department	Standard / in house procedure / Version	Title of standard or in house procedure (deviations / modifications of standard)	Test area / reductions
Photovoltaic	IEC 60904-1: 2006	Photovoltaic devices - Part 1: Measurement of photovoltaic current-voltage characteristics	*

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Photovoltaic	IEC 60904-2:2015	Photovoltaic devices - Part 2: Requirements for reference solar cells	*
Photovoltaic	IEC 60904-3: 2008	Photovoltaic devices - Part 3: Measurement principles for terrestrial photovoltaic (PV) solar devices with reference spectral irradiance data	*
Photovoltaic	IEC 60904-4: 2009	Photovoltaic devices - Part 4: Reference solar devices - Procedures for establishing calibration traceability	*
Photovoltaic	IEC 60904-5: 2011	Photovoltaic devices - Part 5: Determination of the equivalent cell temperature (ECT) of photovoltaic (PV) devices by the open-circuit voltage method	*
Photovoltaic	IEC 60904-7: 2008	Photovoltaic devices - Part 7: Computation of spectral mismatch error introduced in the testing of a photovoltaic device	*
Photovoltaic	IEC 60904-9: 2007	Photovoltaic devices - Part 9: Solar simulator performance requirements	*
Photovoltaic	IEC 60904-10: 2009	Photovoltaic devices - Part 10: Methods of linearity measurement	*
Photovoltaic	IEC 61215: 2005	Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval	*
Photovoltaic	IEC 61215-1: 2016	Terrestrial photovoltaic (PV) modules –Design qualification and type approval-Part 1:Test requirements	
Photovoltaic	IEC 61215-1-1: 2016	Terrestrial photovoltaic (PV) modules –Design qualification and type approval-Part 1-1:Special requirements for testing of crystalline silicon photovoltaic(PV) modules	*
Photovoltaic	IEC 61215-1-2: 2016	Terrestrial photovoltaic (PV) modules –Design qualification and type approval-Part 1-2:Special requirements for testing of thin-film Cadmium Telluride (CdTe) based photovoltaic(PV) modules	*
Photovoltaic	IEC 61215-1-3: 2016	Terrestrial photovoltaic (PV) modules –Design qualification and type approval-Part 1-3:Special requirements for testing of thin-film amorphous silicon based photovoltaic(PV) modules	*

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Photovoltaic	IEC 61215-1-4: 2016	Terrestrial photovoltaic (PV) modules –Design qualification and type approval-Part 1-4:Special requirements for testing of thin-film Cu(In,Ga)(S,Se) <sub>2</sub> based photovoltaic(PV) modules	*
Photovoltaic	IEC 61215-2: 2016	Terrestrial photovoltaic (PV) modules –Design qualification and type approval-Part 2 : Test procedures	*
Photovoltaic	IEC 61646: 2008	Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval	*
Photovoltaic	ANSI/UL 1703-2015	Flat-Plate Photovoltaic Modules and Panels	* Reductions: 31 Fire test
Photovoltaic	IEC 61853-1: 2011	Photovoltaic (PV) module performance testing and energy rating-Part 1: Irradiance and temperature performance measurements and power rating	*
Photovoltaic	Pre IEC 61853-2	Photovoltaic (PV) Module Performance Testing And Energy Rating - Part 2: Spectral Response, Incidence Angle And Module Operating Temperature Measurements	*
Photovoltaic	JIS Q 8901:2012	Terrestrial photovoltaic (PV) modules -- Requirement for reliability assurance system (design, production and product warranty)	*
Photovoltaic	IEC 61701: 2011	Salt mist corrosion testing of photovoltaic (PV) modules	*
Photovoltaic	EN 50380:2003	Datasheet and nameplate information for photovoltaic modules	*
Photovoltaic	IEC TS 62782:2016	Dynamic Mechanical Load Testing	*
Photovoltaic	2 PfG 2387/04.14	System voltage durability qualification test for crystalline silicon modules (Potential Induced Degradation (PID))	
Photovoltaic	IEC 60068-2-1: 2007	Environmental testing - Part 2-1: Tests. Tests A: Cold	*
Photovoltaic	IEC 60068-2-2: 2007	Environmental testing - Part 2-2: Tests. Tests B: Dry heat	*
Photovoltaic	IEC 60068 2-78: 2012	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	*

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Photovoltaic	IEC 60068-2-30: 2005	Environmental testing - Part 2-30: Tests. Test Db and guidance: Damp heat, cyclic (12 + 12-hour cycle)	*
Photovoltaic	IEC 60068-2-52:1996	Environmental testing - Part 2: Tests; test Ka: Salt mist	*
Photovoltaic	UL 61730-1: 2017	Photovoltaic (PPV) Module Safety Qualification – Part 1: Requirements for Construction	*
Photovoltaic	UL 61730-2: 2017	Photovoltaic (PPV) Module Safety Qualification – Part 2: Requirements for Testing	* Reductions: 31 Fire test
PVM & PVS	IEC 60891: 2009	Procedures for Temperature and Irradiance Corrections to Measured IV Characteristics of Crystalline Silicon Photovoltaic Devices	*
PVM & PVS	IEC 61730-1: 2004 +A2:2013	Photovoltaic module safety qualification – Part 1: Requirements for construction	*
PVM & PVS	IEC 61730-2: 2004+ A1:2011	Photovoltaic module safety qualification – Part 2: Requirements for testing	* Reductions: 31 Fire test
PVM & PVS	IEC 61730-1:2016	Photovoltaic (PV) module safety qualification – Part 1: Requirements for construction	*
PVM & PVS	IEC 61730-2:2016	Photovoltaic (PV) module safety qualification – Part 2: Requirements for testing	* Reductions: 31 Fire test
PVM & PVS	IEC 60664-1: 2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	*
PVS	IEC 62446-1: 2016	Photovoltaic (PV) systems - Requirements for testing, documentation and maintenance - Part 1: Grid connected systems - Documentation, commissioning tests and inspection	*
PVS	IEC 61724: 1998	Photovoltaics system performance monitoring - Guidelines for measurement, data exchange and analysis	*
Solar Thermal Systems	ABNT NBR 15747-1:2009	Thermal solar systems and components - Solar collectors Part 1: General requirements	*

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Solar Thermal Systems	ABNT NBR 15747-2:2009	Thermal solar systems and components - Solar collectors Part 2: Test methods	*
Solar Thermal Systems	AS/NZS 2535.1: 2007	Test methods for solar collectors – Part 1: Thermal performance of glazed liquid heating collectors including pressure drop (ISO 9806-1:1994, MOD)	*
Solar Thermal Systems	AS/NZS 2712: 2007	Solar and heat pump water heaters – Design and construction	* Reductions: Method 1 of Annex B and Annex H
Solar Thermal Systems	ASHRAE 93: 2010	Methods of Testing to Determine the Thermal Performance of Solar Collectors	*
Solar Thermal Systems	EN 12975-1: 2006+A1:2010	Thermal solar systems and components. Solar collectors. General requirements	*
Solar Thermal Systems	EN 12975-2: 2006	Thermal solar systems and components. Solar collectors. Test methods	*
Solar Thermal Systems	EN 12976-1: 2006	Thermal solar systems and components. Factory made systems. General requirements	*
Solar Thermal Systems	EN 12976-2: 2006	Thermal solar systems and components. Factory made systems. Test methods	*
Solar Thermal Systems	GB/T 4271: 2007	Test methods for the thermal performance of solar collectors	*
Solar Thermal Systems	GB/T 6424: 2007	Flat plate solar collectors	*

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Solar Thermal Systems	GB/T 17049: 2005	All-glass evacuated solar collector tubes	* Reductions: 6.1.1 Transmittance 6.1.4 Absorbance 6.1.5 Hemisphere emissivity ratio 6.5.1 Evacuated internal layer gas pressure test 6.5.2 Evacuate quality test
Solar Thermal Systems	GB/T 17581: 2007	Evacuated tube solar collectors	*
Solar Thermal Systems	GB/T 19775: 2005	Glass-metal sealed heat-pipe evacuated solar collector tubes	* Reductions: 7.1.1 Transmittance 7.1.2 Stress testing 7.3.1 Absorbance 7.4 Glass-metal sealed leakage rate test 7.5 Evacuated internal layer gas pressure test
Solar Thermal Systems	ISO 9459-2: 1995	Solar heating -- Domestic water heating systems -- Part 2: Outdoor test methods for system performance characterization and yearly performance prediction of solar-only systems	*
Solar Thermal Systems	ISO 9459-5: 2007	Solar heating -- Domestic water heating systems -- Part 5: System performance characterization by means of whole-system tests and computer simulation	*
Solar Thermal Systems	ISO 9806-1: 1994	Test methods for solar collectors -- Part 1: Thermal performance of glazed liquid heating collectors including pressure drop	*
Solar Thermal Systems	ISO 9806-2: 1995	Test methods for solar collectors -- Part 2: Qualification test procedures	*

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Solar Thermal Systems	ISO 9806:2013	Solar energy -- Solar thermal collectors -- Test methods	*
Solar Thermal Systems	SANS 1307: 2014	Domestic solar water heaters	*
Solar Thermal Systems	SANS 6210: 2013	Domestic solar water heaters - Mechanical qualification tests	* Reduction: 4.3 Mechanical load test
Solar Thermal Systems	SANS 6211-1: 2012	Domestic solar water heaters Part 1: Thermal performance using an outdoor test method	*
Solar Thermal Systems	SRCC 100: 2014	Minimum Standards for Solar Collectors	
Solar Thermal Systems	SRCC Standard 100: 2013	Test Methods and Minimum Standards for Certifying Solar Collectors	