

# Deutsche Akkreditierungsstelle GmbH

## Annex to the Accreditation Certificate D-PL-20575-01-00 according to DIN EN ISO/IEC 17025:2005

Period of validity: 2018-03-05 to 2021-07-28

Date of issue: 2018-03-27

Holder of certificate:

**innogy SE**  
**Opernplatz 1, 45128 Essen**

At the location:

**innogy SE**  
**Eurotest**  
**Unterste-Wilms-Straße 52, 44143 Dortmund**

Tests in the fields:

**High-voltage appliances and installations, Low-voltage switchgear and controlgear assemblies, Cables, Power cable accessories, Pressed connectors and Detachable cable clamps, EMC-testing, Oil-examinations, earthing systems and protective clothing against the thermal hazards of an electric arc**

**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.**

**Flexible scope of accreditation Table 1 Pages 2 to 9**

**No flexibility of accreditation Table 2 page 9**

**Table 1:**  
**Flexible scope of accreditation:**

Technical Area	Standard / in-house procedures /version	Title of the Standard or the in-house methods	Testing / restrictions
High-Voltage appliances and installations	VDE 0432-1:2011-10 DIN EN 60060-1: 2011-10 EN 60060-1:2010 IEC 60060-1:2010	High-voltage test techniques - Part 1: General definitions and test requirements	Test range: AC voltage up to 600 kV DC voltage up to 350 kV Impulse voltage 1,2/50 $\mu$ s up to 1,6 MV 250/2500 $\mu$ s up to 1,2 MV
	VDE 0434:2016-11 DIN EN 60270:2016-11	High-voltage test techniques - Partial discharge measurement	
	VDE 0682-411: 2010-09 DIN EN 61243-1: 2010-09 EN 61243-1:2005+ A1:2010 IEC 61243-1:2003 + Cor. 1 : 2005 + A1 :2009	Live working - Voltage detectors - Part 1: Capacitive type to be used for voltages exceeding 1 kV a.c.	Limitation: no <ul style="list-style-type: none"> <li>• Clear perceptibility of visual indication, clause 6.2.2</li> <li>• Clear perceptibility of audible indication, clause 6.2.3</li> <li>• frequency dependence, clause 6.2.4</li> <li>• Power source dependability, clause 6.2.6</li> <li>• checking of the testing element, clause 6.2.7</li> <li>• Vibrations resistance, clause 6.4.3</li> <li>• Drop resistance, clause 6.4.4</li> <li>• Climatic dependence, clause 6.4.6</li> </ul>

Technical Area	Standard / in-house procedures /version	Title of the Standard or the in-house methods	Testing / restrictions
	VDE 0682-431-1:2015-09 DIN EN 61481-1:2015-09 EN 61481-1:2014 IEC 61481-1:2014	Live working - Phase comparators - Part 1: Capacitive type to be used for voltages exceeding 1 kV a.c.	Limitation: no <ul style="list-style-type: none"> <li>• Clear perceptibility, clause. 5.2.6</li> <li>• frequency dependence, clause 5.2.7</li> <li>• Power source dependability, clause 5.2.9</li> <li>• Check of testing element, clause 5.2.10</li> <li>• Vibrations resistance, clause 5.4.3</li> <li>• Drop resistance, clause 5.4.4</li> <li>• Climatic resistance, clause 5.4.6.</li> </ul>
	VDE 0682-431-2:2015-09 DIN EN 61481-2:2015-09 EN 61481-2:2014 IEC 61481-2:2014	Live working - Phase comparators - Part 2: Resistive type to be used for voltages from 1kV to 36 kV a.c.	Limitation: no <ul style="list-style-type: none"> <li>• Clear perceptibility, clause. 5.2.5</li> <li>• frequency dependence, clause 5.2.6</li> <li>• Power source dependability, clause 5.2.8</li> <li>• Check of testing element, clause 5.2.9</li> <li>• Vibrations resistance, clause 5.4.4</li> <li>• Drop resistance, clause 5.4.5</li> <li>• Climatic resistance, clause 5.4.7.</li> </ul>
	VDE 0101-2:2011-11 DIN EN 50522:2011-11 EN 50522:2010	Earthing of power installations exceeding 1 kV	Limitation: only earth measurement according annex L

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Technical Area	Standard / in-house procedures /version	Title of the Standard or the in-house methods	Testing / restrictions
Low-voltage switchgear and controlgear assemblies	VDE 0660-600-1:2012-06 DIN EN 61439-1:2012-06 EN 61439-1:2011 IEC 61439-1:2011	Low-voltage switchgear and controlgear assemblies - Part 1: General rules	
	VDE 0660-600-5:2015-10 DIN EN 61439-5:2015-10 EN 61439-5:2015 IEC 61439-5:2014 + Cor.:2015	Low-voltage switchgear and controlgear assemblies - Part 5: Assemblies for power distribution in public networks	
	VDE 0660-505:1998-10 DIN VDE 0660-505:1998-10	Low-voltage switchgear and controlgear assemblies - Part 505: Specification for house connection boxes and fuseboxes	
	Draft-Standard VDE 0660-505:2017-07 DIN VDE 0660-505:2017-07	Low-voltage switchgear and controlgear assemblies - Part 505: Specification for house connection boxes and fuseboxes	
	VDE 0682-306-1-2:2015-08 DIN EN 61482-1-2:2015-08 EN 61482-1-2:2014 IEC 61482-1-2:2014	Live working - Protective clothing against the thermal hazards of an electric arc - Part 1-2: Test methods - Method 2: Determination of arc protection class of material and clothing by using a constrained and directed arc (box test)	
	VDE 0122-1:2012-01 DIN EN 61851-1:2012-01 EN 61851-1:2011 IEC 61851-1:2010	Electric vehicle conductive charging system - Part 1: General requirements	
	Draft-Standard VDE 0122-1:2013-04 DIN EN 61851-1:2013-04	Electric vehicle conductive charging system - Part 1: General requirements	
	VDE 0122-2-2:2002-10 DIN EN 61851-22:2002-10 EN 61851-22:2002 IEC 61851-22:2001	Electrical equipment of electric road vehicles - Electric vehicles conductive charging system - Part 2-2: AC electric vehicle charging station	

Technical Area	Standard / in-house procedures /version	Title of the Standard or the in-house methods	Testing / restrictions
EMC	DIN EN 50160:2011-02 EN 50160:2010 + Cor.:2010	Voltage characteristics of electricity supplied by public distribution networks	Test range: measurements up to 1000V and 1000 A
	VDE 0848-1:2009-08 DIN EN 50413:2009-08 EN 50413:2008	Basic standard on measurement and calculation procedures for human exposure to electric, magnetic and electromagnetic fields (0 Hz - 300 GHz)	Test range: measurements of the electric field up to 0-30 kHz
Cables	VDE 0271:2007-01 DIN VDE 0271:2007-01	Power cables - Specifications for power cables 0,6/1 kV and above for special applications	Limitation: no flammability test
	VDE 0276- 603:2010-03 DIN VDE 0276-603:2010-03 HD 603 S1:1994 + A3:2007 parts 0; 1; 3-G and 5-G	Power cables - Part 603: Distribution cables of rated voltage 0,6/1 kV	Limitation: no flammability test
	VDE 0276-605:2009-07 DIN VDE 0276-605:2009-07 HD 605 S2:2008	Electric cables - Additional test methods	Limitation: no: <ul style="list-style-type: none"> <li>• tear resistance</li> <li>• Compression test</li> <li>• hardness for elastomeric insulation and sheath</li> <li>• Resistance to environment; Climatic withstand;</li> <li>• Wrapping test</li> <li>• Torsion tests</li> <li>• Bending tests</li> <li>• Abrasion test</li> <li>• Sheath cut-through test</li> <li>• measurements of rigidity</li> <li>• Zinc coatings</li> <li>• Thermogravimetric tests</li> <li>• Water absorption determined by capacitance measurement</li> <li>• Degree of cross-linking</li> <li>• Spark tests</li> <li>• Flame propagation tests</li> </ul>

Technical Area	Standard / in-house procedures /version	Title of the Standard or the in-house methods	Testing / restrictions
	VDE 0276-620:2010-11 DIN VDE 0276-620:2010-11 HD 620 S2:2010 Part 0, 1, 10-C and 10-F	Power cables - Distribution cables with extruded insulation for rated voltages from 3,6/6 (7,2) kV up to and including 20,8/36 (42) kV;	Limitation: - no flammability test - no long-term tests
	VDE 0276-626 + A1:1998-07 DIN VDE 0276-626 + A1:1998-07 HD 626 S1 + A1:1997	Power cables - Overhead distribution cables of rated voltage $U_0/U(U_m)$ : 0,6/1 (1,2) kV	Limitation: HD 626 S1 + A1 only part 4 F
	IEC 60840:2011-11	Power cables with extruded insulation and their accessories for rated voltages above 30 kV ( $U_m = 36$ kV) up to 150 kV ( $U_m = 170$ kV) – Test methods and requirements.	Limitation: no flammability test
Power cable accessories	VDE 0278-393:2015-10 DIN EN 50393:2015-10 EN 50393:2015	Test methods and requirements for accessories for use on distribution cables of rated voltage 0,6/1,0 (1,2) kV	
	VDE 0278-442:2006-01 DIN EN 61442:2006-01 EN 61442:2005 IEC 61442:2005	Test methods for accessories for power cables with rated voltages from 6 kV ( $U_m = 7,2$ kV up to 36 kV ( $U_m = 42$ kV)	
	VDE 0278-629-1:2009-07 DIN VDE 0278-629-1:2009-07 HD 629.1 S2:2006 + A1:2008	Test requirements on accessories for use on power cables of rated voltage from 3,6/6 (7,2) kV up to 20,8/36 (42) kV - Part 1: Cables with extruded insulation	
	VDE 0278-629-2:2009-07 DIN VDE 0278-629-2:2009-07 HD 629.2 S2:2006 + A1:2008	Test requirements on accessories for use on power cables of rated voltage from 3,6/6 (7,2) kV up to 20,8/36 (42) kV - Part 2: Cables with impregnated paper insulation	
	IEC 60502-1:2009-11	Power cables with extruded insulation and their accessories for rated voltages from 1 kV ( $U_m = 1,2$ kV) up to 30 kV ( $U_m = 36$ kV) – Part 1: Cables for rated voltages of 1 kV ( $U_m = 1,2$ kV) and 3 kV ( $U_m = 3,6$ kV).	

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	IEC 60502-2:2014	Power cables with extruded insulation and their accessories for rated voltages from 1 kV ( $U_m = 1,2$ kV) up to 30 kV ( $U_m = 36$ kV) – Part 2: Cables for rated voltages from 6 kV ( $U_m = 7,2$ kV) up to 30 kV ( $U_m = 36$ kV).	
	IEC 60502-4:2010-12	Power cables with extruded insulation and their accessories for rated voltages from 1 kV ( $U_m = 1,2$ kV) up to 30 kV ( $U_m = 36$ kV) – Part 4: Test requirements on accessories for cables with rated voltages from 6 kV ( $U_m = 7,2$ kV) up to 30 kV ( $U_m = 36$ kV).	
Pressed connectors and Detachable cable clamps	VDE 0220-100:2004-03 DIN EN 61238-1:2004-03 EN 61238-1:2003 IEC 61238-1:2003	Compression and mechanical connectors for power cables for rated voltages up to 36 kV ( $U_m = 42$ kV) - Part 1: Test methods and requirements	

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Oil-examinations and Insulating material	VDE 0370-2:2013-11 DIN EN 60422:2013-11 EN 60422:2013 IEC 60422:2013	Mineral insulating oils in electrical equipment - Supervision and maintenance guidance	Limitation: no <ul style="list-style-type: none"> <li>• Colour and appearance, clause 5.2</li> <li>• Inhibitor content and oxidation stability, clause 5.7</li> <li>• Sediment and sludge, clause 5.8</li> <li>• Interfacial tension (IFT), clause 5.9</li> <li>• Particle count, clause 5.10</li> <li>• Flash point, clause 5.11</li> <li>• Compatibility of insulating oils, clause 5.12</li> <li>• Pour point, Abs. 5.13</li> <li>• Density, clause 5.14</li> <li>• Viscosity, clause 5.15</li> <li>• Polychlorinated biphenyls (PCBs), clause 5.16</li> <li>• Corrosive sulphur, clause 5.17</li> <li>• Dibenzyl disulphide (DBDS), clause 5.18</li> <li>• Passivator, clause 5.19.</li> </ul>
	VDE 0370-5:1996-03 DIN EN 60156:1996-03 EN 60156:1995 IEC 60156:1995	Insulating liquids - Determination of the breakdown voltage at power frequency - Test method	
	VDE 0370-20:1999-03 DIN EN 60814:1999-03 EN 60814:1997 IEC 60814:1997	Insulating liquids - Oil-impregnated paper and pressboard - Determination of water by automatic coulometric Karl Fischer titration	
	VDE 0380-2:2005-01 DIN EN 60247:2005-01 EN 60247:2004 IEC 60247:2004	Insulating liquids - Measurement of relative permittivity, dielectric dissipation factor ( $\tan \delta$ ) and d.c. resistivity	



Technical Area	Standard / in-house procedures /version	Title of the Standard or the in-house methods	Testing / restrictions
	VDE 0370-31:2004-04 DIN EN 62021-1:2004-06 EN 62021-1:2003 IEC 62021-1:2003	Insulating liquids - Determination of acidity - Part 1: Automatic potentiometric titration	
	E VDE 0278-655-1:2015-08 E DIN EN 50655-1:2015-08 prEN 50655-1:2015	Electric cables - Accessories - Material characterization - Part 1: Fingerprinting for resinous compounds	Limitation: no volume shrinkage
	VDE 0355-3-8:2014-03 DIN EN 60455-3-8:2014-03 EN 60455-3-8:2013 IEC 60455-3-8:2013	Resin based reactive compounds used for electrical insulation- Part 3: Specifications for individual materials - Sheet 8: Resins for cable accessories	Limitation: no volume shrinkage

**Table 2**  
**No flexibility of accreditation**

Technical Area	Standard / in-house procedures /version	Title of the Standard or the in-house methods	Testing / restrictions
	GS-ET-29:2011-05	DGUV Test: Supplementary requirements for the testing and certification of faceshields for electrical works	
	PIP001:2016-07	RWE International SE - RWE Eurotest: Arc tests on protective clothing	