

## Deutsche Akkreditierungsstelle GmbH

**Entrusted according to Section 8 subsection 1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV**

Signatory to the Multilateral Agreements of EA, ILAC and IAF for Mutual Recognition

# Accreditation



The Deutsche Akkreditierungsstelle GmbH attests that the testing laboratory

**Siemens Gas and Power GmbH & Co. KG**  
**Werner-von Siemens-Straße 1, 80333 München**

**Location:**  
**Siemens Gas and Power GmbH & Co. KG**  
**PSW (Prüffeld der Schaltwerke)**  
**Nonnendammallee 104, 13629 Berlin**

is competent under the terms of DIN EN ISO/IEC 17025:2018 to carry out tests in the following fields:

**High-Voltage Switch and Controlgear**  
**Power Engineering Equipment**


The accreditation certificate shall only apply in connection with the notice of accreditation of 19.12.2019 with the accreditation number D-PL-21472-05. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 11 pages.

Registration number of the certificate: **D-PL-21472-05-00**

Frankfurt am Main,  
19.12.2019

Dipl.-Ing. (FH) Ralf Egner  
Head of Division

Translation issued:  
02.02.2021

  
Head of Division

*The certificate together with the annex reflects the status as indicated by the date of issue.  
The current status of any given scope of accreditation may be found respectively in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH <https://www.dakks.de/en/content/accredited-bodies-dakks>.*

This document is a translation. The definitive version is the original German accreditation certificate.

See notes overleaf.

# Deutsche Akkreditierungsstelle GmbH

Standort Berlin  
Spittelmarkt 10  
10117 Berlin

Standort Frankfurt am Main  
Europa-Allee 52  
60327 Frankfurt am Main

Standort Braunschweig  
Bundesallee 100  
38116 Braunschweig

The publication of extracts of the accreditation certificate is subject to the prior written approval by Deutsche Akkreditierungsstelle GmbH (DAkKS). Exempted is the unchanged form of separate disseminations of the cover sheet by the conformity assessment body mentioned overleaf.

No impression shall be made that the accreditation also extends to fields beyond the scope of accreditation attested by DAkKS.

The accreditation was granted pursuant to the Act on the Accreditation Body (AkkStelleG) and the Regulation (EC) No 765/2008 of the European Parliament and of the Council setting out the requirements for accreditation and market surveillance relating to the marketing of products. DAkKS is a signatory to the Multilateral Agreements for Mutual Recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Co-operation (ILAC). The signatories to these agreements recognise each other's accreditations.

The up-to-date state of membership can be retrieved from the following websites:

EA: [www.european-accreditation.org](http://www.european-accreditation.org)

ILAC: [www.ilac.org](http://www.ilac.org)

IAF: [www.iaf.nu](http://www.iaf.nu)

## Deutsche Akkreditierungsstelle GmbH

### Annex to the Accreditation Certificate D-PL-21472-05-00 according to DIN EN ISO/IEC 17025:2018

**Valid from:** 19.12.2019

Date of issue: 02.02.2021

Holder of certificate:

**Siemens Gas and Power GmbH & Co. KG  
Werner-von Siemens-Straße 1, 80333 München**

**Location:**

**Siemens Gas and Power GmbH & Co. KG  
PSW (Prüffeld der Schaltwerke)  
Nonnendammallee 104, 13629 Berlin**

Tests in the fields:

**High-Voltage Switch and Controlgear  
Power Engineering Equipment**

**The testing laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, to use standards or equivalent testing methods listed here with different issue dates.**

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

*The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of testing laboratories. Laboratories that conform to the requirements of this standard, operate generally in accordance with the principles of DIN EN ISO 9001.*

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Testing field	Standard / In-House Procedure / Version	Title of Standard or In-House Procedure (Deviations / Modifications of Standard)	Test Range / Restrictions
Electrical engineering	IEC 62271-1:2017	High-voltage switchgear and controlgear - Part 1: Common specifications	
	IEEE 4:2013	IEEE Standard Techniques for High-Voltage Testing	
	IEEE Std C37.20.2:1999	IEEE Standard for Metal-Clad Switchgear	
	IEEE Std C37.20.3:2013	IEEE Standard for Metal-Enclosed Interrupter Switchgear	
	IEEE Std C37.100:1992	IEEE Standard Definitions for Power Switchgear	
	IEEE Std C37.100.1:2007	Common requirements for high voltage power switchgear rated above 1000 V	
	GOST 1516.3-96	Electrical equipment for a.c. voltages from 1 to 750 kV - Requirements for electric strength of insulation	
<b>Circuit breakers</b>			
Electrical engineering	IEC 62271-100:2012 STL Guide:2017	High-voltage switchgear and controlgear - Part 100: High-voltage alternating-current circuit-breakers	
	IEC 62271-101:2012 STL Guide:2018	High-voltage switchgear and controlgear - Part 101: Synthetic testing	
	IEC 62271-108:2005	High-voltage switchgear and controlgear - Part 108: High-voltage alternating current disconnecting circuit-breakers for rated voltages of 72,5 kV and above	
	IEC 62271-109:2013	High-voltage switchgear and controlgear - Part 109: Alternating-current series capacitor by-pass switches	
Electrical engineering	IEC 62271-110:2017	High-voltage switchgear and controlgear - Part 110: Inductive load switching	

Testing field	Standard / In-House Procedure / Version	Title of Standard or In-House Procedure (Deviations / Modifications of Standard)	Test Range / Restrictions
	IEC 62271-111:2012 IEEE Std C37.60:2012	High voltage switchgear and controlgear - Part 111: Overhead, pad-mounted, dry vault, and submersible automatic circuit reclosers and fault interrupters for alternating current systems up to 38 kV	
	DIN EN 50152-1:2014 VDE 0115-320-1:2014 EN 50152-1:2013	Railway applications - Fixed installations - Particular requirements for AC switchgear - Part 1: Single-phase circuit-breakers with Un above 1 kV	
	DIN EN 50152-2:2013 VDE 0115-320-2:2013 EN 50152-2:2012	Railway applications - Fixed installations - Particular requirements for a.c. switchgear - Part 2: Single-phase disconnectors, earthing switches and switches with Un above 1 kV	
	IEC 60077-1:2017	Railway applications - Electric equipment for rolling stock - Part 1: General service conditions and general rules	
	IEC 60077-2:2017	Railway applications - Electric equipment for rolling stock - Part 2: Electrotechnical components - General rules	
	IEC 60077-4:2017	Railway applications - Electric equipment for rolling stock - Part 4: Electrotechnical components; Rules for AC circuit-breakers	
	DIN EN 61166:1994 VDE 0670-111:1994 EN 61166:1993	High-voltage alternating current circuit-breakers - Guide for seismic qualification of high-voltage alternating current circuit-breakers	
	IEC/TR 62271-300:2006	High-voltage switchgear and controlgear - Part 300: Seismic qualification of alternating current circuit-breakers	
	IEC/TR 62271-302:2010	Alternating current circuit breakers with internationally non-simultaneous pole operation	
Electrical engineering	IEC/TR 62271-310:2008	High-voltage switchgear and controlgear - Part 310: Electrical endurance testing for circuit-breakers of rated voltage 72,5 kV and above	
	IEEE Std C37.04:2009 IEEE Std C37.04A:2003 IEEE Std C37.04B:2008	IEEE Standard Rating Structure for AC High-Voltage Circuit Breakers	

Testing field	Standard / In-House Procedure / Version	Title of Standard or In-House Procedure (Deviations / Modifications of Standard)	Test Range / Restrictions
	IEEE C37.06:2009	AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis - Preferred Ratings and Related Required Capabilities	
	IEEE Std C37.09:2007 IEEE Std C37.09A:2005 IEEE Std C37.09B:2010	IEEE Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis	
	IEEE Std C37.010:2016	IEEE Application Guide for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis	
	IEEE Std C37.011:2011	IEEE Application Guide for Transient Recovery Voltage for AC High-Voltage Circuit Breakers	
	IEEE Std C37.012:2014	IEEE Application Guide for Capacitance Current Switching for AC High-Voltage Circuit Breakers	
	IEC/IEEE 62271-37-013: 2015	High-voltage switchgear and controlgear – Part 37-013: Alternating current generator circuit-breakers	
	IEEE Std C37.015:2017	IEEE Application Guide for Shunt Reactor Switching	
	IEEE Std C37.016:2006	AC high-voltage circuit switchers rated 15.5 kV through 245 kV	
	IEEE Std C37.081:1981 IEEE Std C37.081A:1997	IEEE Guide for Synthetic Fault Testing of AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis	
	IEEE Std C37.083:1999	IEEE Guide for Synthetic Capacitive Current Switching Tests of AC High-Voltage Circuit Breakers	
Electrical engineering	IEEE Std C37.11:2014	IEEE Standard Requirements for Electrical Control for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis	



Testing field	Standard / In-House Procedure / Version	Title of Standard or In-House Procedure (Deviations / Modifications of Standard)	Test Range / Restrictions
	ANSI C37.54:2003	Conformance Test Procedures for Indoor Alternating Current High-Voltage Circuit Breakers Applied as Removable Elements in Metal-Enclosed Switchgear Assemblies	
	CSA C22.2 No. 31-18:2018	Switchgear assemblies	
	GOST R 52565-2006	Alternating-Current Circuit-Breakers for Voltage from 3 to 750 kV	
	IEC 62146-1:2016	Grading capacitors for high-voltage alternating current circuit-breakers – Part 1: General	
<b>Switches</b>			
Electrical engineering	IEC 62271-103:2013 STL-Guide:2018	High-voltage switchgear and controlgear - Part 103: Switches for rated voltages above 1 kV up to and including 52 kV	
	IEC 62271-104:2015	High-voltage switchgear and controlgear - Part 104: Alternating current switches for rated voltages of 52 kV and above	
	IEC 62271-105:2012	High-voltage switchgear and controlgear - Part 105: Alternating current switch-fuse combinations	
<b>Contactors and motorstarters</b>			
Electrical engineering	IEC 62271-106:2011	High-voltage switchgear and controlgear - Part 106: Alternating current contactors, contactor-based controllers and motor-starters	
	UL347:2016 CSA C22.2 No. 253-16:2016 NMX-J-564/106-ANCE:2016	Medium-voltage AC contactors, controllers, and control centers	
<b>Disconnectors and earthing switches</b>			
Electrical engineering	IEC 62271-102:2018 STL Guide:2018	High-voltage switchgear and controlgear - Part 102: Alternating current disconnectors and earthing switches	

Testing field	Standard / In-House Procedure / Version	Title of Standard or In-House Procedure (Deviations / Modifications of Standard)	Test Range / Restrictions
Electrical engineering	IEEE C37.30.1:2011	IEEE Standard Requirements for High-Voltage Switches	
	IEEE C37.41:2016	IEEE Standard Requirements for High-Voltage Switches	
	GOST 52726-2007	Disconnectors and Earthing Switches for AC Voltage above 1 kV and their Drive Units	
<b>Switchgear and controlgear</b>			
Electrical engineering	IEC 62271-200:2011 STL Guide:2013	High-voltage switchgear and controlgear - Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV	
	IEC 62271-201:2014	High-voltage switchgear and controlgear - Part 201: AC insulation-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV	
	IEC 62271-203:2013 STL Guide:2013	High-voltage switchgear and controlgear - Part 203: Gas-insulated metal-enclosed switchgear for rated voltages above 52 kV	
	IEC 62271-205:2008	High-voltage switchgear and controlgear - Part 205: High-voltage switchgear assemblies for operation at rated voltages above 52 kV	
	IEC 62271-209:2007	High-voltage switchgear and controlgear - Part 209: Cable connections for gas-insulated metal-enclosed switchgear for rated voltages above 52 kV - Fluid-filled and extruded insulation cables - Fluid-filled and dry-type cable-terminations	
	IEC 62271-211:2014	High-voltage switchgear and controlgear - Part 211: Direct connection between power transformers and gas-insulated metal-enclosed switchgear for rated voltages above 52 kV	



Testing field	Standard / In-House Procedure / Version	Title of Standard or In-House Procedure (Deviations / Modifications of Standard)	Test Range / Restrictions
	IEEE Std C37.122:2011 IEEE Std C37.122.1:2014	IEEE Standard for Gas-Insulated Substations	
Electrical engineering	GOST R 54828-2011	Gas-insulated metal-enclosed switchgear for nominal voltages above 110 kV. General technical specification	
<b>Surge arresters</b>			
Electrical engineering	DIN EN 50526-1:2012 VDE 0115-526-1:2012 EN 50526-1:2012	Railway applications - Fixed installations - D.C.surge arresters and voltage limiting devices - Part 1: Surge arresters	
	DIN EN 60099-1:2000 VDE 0675-1:2000 EN 60099-1:1999	Surge arresters; part 1: non-linear resistor type gapped surge arresters for a.c. systems	
	IEC 60099-4:2014 GB11032-2010	Surge arresters - Part 4: Metal-oxide surge arresters without gaps for a.c. systems	
	IEC 60099-8:2017	Surge arresters - Part 8: Metal-oxide surge arresters with external series gap (EGLA) for overhead transmission and distribution lines of a.c. systems above 1 kV	
	IEC 60099-9:2014	Surge arresters - Part 9: Metal-oxide surge arresters without gaps for HVDC converter stations	
	IEC 61643-11:2011	Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power distribution systems - Requirements and testing methods	
	IEEE Std C62.11:2012	IEEE Standard for Metal-Oxide Surge Arresters for AC Power Circuits (> 1 kV)	
	CIGRE WG 33/14-05:1989	Application Guide for Metal oxide Arresters without gaps for HVDC Converter Stations	
GOST R 52725-2007	Surge arresters for AC electrical installations for voltage from 3 kV to 750 kV		
<b>Transmission lines</b>			

Testing field	Standard / In-House Procedure / Version	Title of Standard or In-House Procedure (Deviations / Modifications of Standard)	Test Range / Restrictions
Electrical engineering	IEC 62271-204:2011	High-voltage switchgear and controlgear - Part 204: Rigid gas-insulated transmission lines for rated voltage above 52 kV	
Electrical engineering	IEC 60353:2002	Line traps for a.c. power systems	
	IEC 61284:1997	Overhead lines - Requirements and tests for fittings	
	CISPR/TR 18-2:2017	Radio interference characteristics of overhead power lines and high-voltage equipment – Part 2: Methods of measurement and procedure for determining limits	
	IEC 60358-1:2013	Coupling capacitors and capacitor dividers - Part 1: Common clauses	
<b>Transformers, Reactors</b>			
Electrical engineering	IEC 60076-6:2007	Power transformers - Part 6: Reactors	
<b>Instrument transformers</b>			
Electrical engineering	IEC 61869-1:2007 STL-Guide:2016	Instrument transformers - Part 1: General requirements	
	IEC 61869-2:2012 STL-Guide:1998	Instrument transformers - Part 2: Additional requirements for current transformers	
	IEC 60044-7:1999	Instrument transformers - Part 7: Electronic voltage transformers	
	DIN EN 60044-8:2003 VDE 0414-44-8:2003 EN 60044-8:2002 IEC 60044-8:2002	Instrument transformers - Part 8: Electronic current transformers	
	IEEE Std C57.13:2016	Requirements for instrument transformers	
<b>Insulators, Bushings</b>			
Electrical engineering	IEC 60383-1:1993	Insulators for overhead lines with nominal voltage above 1000 V; part 1: ceramic or glass insulator units for a.c. systems; definitions, test methods and acceptance criteria	

Testing field	Standard / In-House Procedure / Version	Title of Standard or In-House Procedure (Deviations / Modifications of Standard)	Test Range / Restrictions
	IEC 60383-2:1993	Insulators for overhead lines with a nominal voltage above 1000 V; part 2: insulator strings and insulator sets for a.c. systems; definitions, test methods and acceptance criteria	
	IEC 60137:2017	Insulated bushings for alternating voltages above 1000 V	
Electrical engineering	IEC 60168:2001	Tests on indoor and outdoor post insulators of ceramic material or glass for systems with nominal voltages greater than 1000 V	
	IEC 61109:2008	Insulators for overhead lines - Composite suspension and tension insulators for a.c. systems with a nominal voltage greater than 1000 V - Definitions, test methods and acceptance criteria	
	IEC 62217:2012	Polymeric HV insulators for indoor and outdoor use – General definitions, test methods and acceptance criteria	
	IEC 61467:2008	Insulators for overhead lines – Insulator strings and sets for lines with a nominal voltage greater than 1 000 V – AC power arc tests	
	IEC 60437: 1997	Radio interference test on high-voltage insulators	
	IEC 62155:2003	Hollow pressurized and unpressurized ceramic and glass insulators for use in electrical equipment with rated voltages greater than 1000 V	
	IEC/TS 60815-1:2008	Selection and dimensioning of high-voltage insulators intended for use in polluted conditions - Part 1: Definitions, information and general principles	
	IEC/TS 60815-2:2008	Selection and dimensioning of high-voltage insulators intended for use in polluted conditions - Part 2: Ceramic and glass insulators for a.c. systems	
	DIN 48113:1973	Post insulators for switchgears and substation with nominal voltages greater than 1000 V; co-ordination of the definitions for mechanical bending strength	
	IEC 62231:2006	Composite station post insulators for substations with a.c. voltages greater than 1 000 V up to 245 kV - Definitions, test methods and acceptance criteria	

Testing field	Standard / In-House Procedure / Version	Title of Standard or In-House Procedure (Deviations / Modifications of Standard)	Test Range / Restrictions
Electrical engineering	IEC 62231-1:2015	Composite station post insulators for substations with AC voltages greater than 1 000 V up to 245 kV - Part 1: Dimensional, mechanical and electrical characteristics	
	IEC 61952:2008	Insulators for overhead lines – Composite line post insulators for A.C. systems with a nominal voltage greater than 1 000 V - Definitions, test methods and acceptance criteria	
	IEC 61462:2007	Composite hollow insulators - Pressurized and unpressurized insulators for use in electrical equipment with rated voltage greater than 1000 V - Definitions, test methods, acceptance criteria and design recommendations	
	ANSI C29.1:2018	Electrical Power Insulators - Test Methods	
	ANSI C29.2A:2013 ANSI C29.2B:2013	Insulators - Wet-Process Porcelain and Toughened Glass - Suspension Type	
	ANSI C29.11:2012	Composite Insulators - Test Methods	
	ANSI C29.12:2013	Insulators - Composite-Suspension Type	
	ANSI C29.13:2012	Insulators - Composite - Distribution Deadend Type	
	ANSI C29.17:2013	Composite Insulators - Distribution Line Post Type	
<b>High-voltage test techniques</b>			
Electrical engineering	IEC 60060-1,2010 STL-Guide:2016	High-voltage test techniques; Part 1: General definitions and test requirements	
	IEC 60060-2:2010 STL-Guide:2016	High-voltage test techniques - Part 2: Measuring systems	
	IEC 60052:2002	Voltage measurement by means of standard air gaps	
	IEC 60270:2015	High-voltage test techniques - Partial discharge measurements	
<b>Mechanical testings, environment- and guardtesting</b>			
Electrical engineering	IEC 60068-2-1:2007	Environmental testing - Part 2-1: Tests - Tests A: Cold	
Electrical engineering	IEC 60068-2-2:2007	Environmental testing - Part 2-2: Tests - Test B: Dry heat	

Testing field	Standard / In-House Procedure / Version	Title of Standard or In-House Procedure (Deviations / Modifications of Standard)	Test Range / Restrictions
	IEC 60068-2-14:2009	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	
	IEC 60068-2-17:1994	Basic environmental testing procedures - Part 2: Tests - Test Q: Sealing	
	IEC 60529:2013	Degrees of protection provided by enclosures (IP code)	
	ISO 3744:2010	Acoustics - Determination of sound power levels of noise sources using pressure - Engineering method in an essentially free field over a reflecting plane	
	DIN 45635-1:1984	Measurement of noise emitted by machines; airborne noise emission; enveloping surface method; basic method, divided into 3 grades of accuracy	
	DIN 45635-12:1978	Measurement of noise emitted by machines; Airborne noise measurement, enveloping surface method; Electrical switchgear and control gear	
	ISO 11201:2010	Acoustics - Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at a work station and at other specified positions - Engineering method in an essentially free field over a reflecting plane	
	ISO 11202:2010	Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections	
	IEC/IEEE 62271-37-082:2012 IEEE 62271-37-082:2012	High-voltage switchgear and controlgear - Part 37-082: Standard practice for the measurement of sound pressure levels on alternating current circuit-breakers	