

<b>UL International Italia Srl</b>  Via delle Industrie, 6 20061 Carugate MI	Numero di accreditamento: <b>1363</b> Sede <b>A</b>
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## ELENCO PROVE ACCREDITATE - CATEGORIA: 0

### Automatic disconnection device between a generator an the public low-voltage grid

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Functional safety (par.6.1); - Switch-on condition (par.6.2) - Voltage monitoring (par.6.3); - Frequency monitoring (par.6.4); - Direct current monitoring (par.6.5); - Detection of island operation (par.6.6);	DIN VDE V 0126-1-1 (VDE V 0126-1-1):2013-08

### Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Unintentional islanding test (par.5.7.1) (<120kVA)	IEEE 1547.1:2005

### Degrees of protection provided by enclosures

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
12 Tests for protection against access to hazardous parts indicated by the first; 13 Tests for protection against solid foreign objects indicated by the first characteristic numeral; 14 Tests for protection against water indicated by the second characteristic numeral; 15 Tests for protection against access to hazardous parts indicated by the additional letter; characteristic numeral	IEC 60529:2013; EN 60529:1991 + A1:2000 + A2:2013

### Electric and electronic equipment

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
Electrical fast transient / burst immunity test	IEC 61000-4-4:2012, EN 61000-4-4:2012
Electrostatic discharge immunity test	IEC 61000-4-2:2008, EN 61000-4-2:2009
Immunity to conducted disturbances, induced by radio-frequency fields	IEC 61000-4-6:2013, EN 61000-4-6:2014
Radiated, radio-frequency, electromagnetic field immunity test	IEC 61000-4-3:2006 + A1:2007 + A2:2010, EN 61000-4-3:2006 + A1:2008 + IS1:2009 + A2:2010
Surge immunity test	IEC 61000-4-5:2014, EN 61000-4-5:2014
Testing and measurement techniques – Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests	IEC 61000-4-13:2002 + A1:2009; EN 61000-4-13:2002 + A1:2009
Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests	IEC 61000-4-11:2004; EN 61000-4-11:2004
Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current more than 16 A per phase	IEC 61000-4-34:2005 + A1:2009; EN 61000-4-34:2007 + A1:2009

### Electromagnetic compatibility (EMC) - Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated current <=75 A and subject to conditional connection

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Voltage changes, voltage fluctuations and flicker measurement	IEC 61000-3-11:2000, EN 61000-3-11:2000

### Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and <=75 A per phase)

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Harmonic current measurement	IEC 61000-3-12:2011, EN 61000-3-12:2011

### Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current <= 16A per phase)

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Harmonic current measurement	IEC 61000-3-2:2014, EN 61000-3-2:2014

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**Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current  $\leq 16$  A per phase and not subject to conditional connection**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Voltage changes, voltage fluctuations and flicker measurement	IEC 61000-3-3:2013, EN 61000-3-3:2013

**Ensayos de detección de funcionamiento en isla de múltiples inversores fotovoltaicos conectados a red en paralelo / Performance tests for islanding detection of multiple grid-connected photovoltaic inverters in parallel**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Procedure of evaluation (par.4)	UNE 206006 IN:2011

**Erection of electrical installations with rated voltages up to AC 1000 V and DC 1500 V - Part 4-712: Photovoltaic power-systems - Erection and safety requirements systems**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Functional safety (Annex A.3.1); - Voltage monitoring (Annex A.3.2); - Frequency monitoring (Annex A.3.3); - Direct current monitoring (Annex A.3.4); - Detection of island operation (Annex A.3.5); - Residual current monitoring (Annex A.3.6)	ÖVE/ÖNORM E 8001-4-712:2009

**Fire hazard testing**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
Glowinghot-wire based test methods – Glow-wire apparatus and common test procedure	IEC 60695-2-10:2013
Glowinghot-wire based test methods – Glow-wire flammability index (GWFI) test method for materials	IEC 60695-2-12:2010
Glowinghot-wire based test methods – Glow-wire ignition temperature (GWIT) test method for materials	IEC 60695-2-13:2010
Glowinghot-wire based test methods –Glow-wire flammability test method for end products	IEC 60695-2-11:2000
Test flames – 50 W horizontal and vertical flame test methods	IEC 60695-11-10:2013
Test flames – Needle-flame test method - Apparatus, confirmatory test arrangement and guidance	IEC 60695-11-5: 2004

**Grid Connection Code for RPPs in South Africa**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Tolerance of Frequency and Voltage Deviations (par.5); - Frequency Response (par.6); - Reactive Power Capabilities (par.7); - Reactive Power and Voltage Control Functions (par.8); - Power Quality (par.9); - Protection and Fault levels (par.10); - Active Power Constraint Functions (par.11)	Grid Connection Code for Renewable Power Plants (RPPs) connected to the Electricity Transmission System (TS) or the Distribution System (DS) in South Africa:2012 (Version 2.6)

**Grid connection of energy systems via inverters - Part 2: Inverter requirements**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Power flow direction (par.4.3); - Power factor (par.4.4); - Harmonic currents (par.4.5); - Voltage fluctuations and flicker (par.4.6); - Impulse protection (par.4.7); - Transient voltage limits (par.4.8); - Direct current injection (par.4.9) (AS/NZS 3100 and AS/NZS 60950.1 excluded)	AS 4777.2:2005

**Grid connection of energy systems via inverters - Part 3: Grid protection requirements**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
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- Voltage flicker (par.4.4); AS 4777.3:2005
- Impulse protection (par.4.5);
- Disconnection device (par.5.2);
- Voltage and frequency limits (passive anti-islanding protection) (par.5.3);
- Active anti-islanding protection (par.5.5);
- Reconnection procedure (par.5.6);
- Security of protection settings (par.5.7);
- Grid protection device tests (appendix B) (AS/NZS 3100 and AS/NZS 60950.1 excluded)

**Grid integration of generator plants - Low-Voltage- Test requirements for generator units to be connected to and operated in parallel with low-voltage distribution networks**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Rapid Voltage changes (par.5.1.2) - Flicker (par.5.1.3) -Harmonics and inter-harmonics (par 5.1.4) - Proof of the symmetrical behavior of rotary current converter units (par.5.2) -Proof of the behavior of the generation unit on the grid (par. 5.3) - Proof of NS protection (par. 5.4) - Connection conditions and synchronization (par. 5.5) (Tutto)	DIN V VDE V 0124-100:2012

**Grid interconnection of embedded generation - Part 2: Small-scale embedded generation - Section 1: Utility interface**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Flicker (par. 4.1.3); - Harmonics and waveform distortion (par.4.1.6); - Power factor (par.4.1.7); - Synchronization (par.4.1.8); - Overvoltage and undervoltage (par.4.2.2.3.2); - Overfrequency and underfrequency (par.4.2.2.3.3); - Prevention of islanding (par.4.2.2.4); - DC current injection (par.4.2.2.5)	NRS 097-2-1:2010

**Household and similar electrical appliances - Safety - Part 2-100: Particular requirements for hand-held mains-operated garden blowers, vacuums and blower vacuums**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards	IEC 60335-2-100:2002 (ed.1)

**Metodi di misura dei campi elettromagnetici degli apparecchi elettrodomestici e similari in relazione all'esposizione umana**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
5.5.2 - Time domain evaluation of magnetic fields, 5.5.3 - Line spectrum evaluation, 5.5.4 - Simplified test methods	IEC 62233:2005 (ed.1); EN 62233:2008

**Photovoltaic (PV) systems - Characteristics of the utility interface**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Voltage, current and frequency (par.4.1); - Normal voltage operating range (par.4.2); - Flicker (par.4.3); - DC injection (par.4.4); - Normal frequency operating range (par.4.5); - Harmonics and waveform distortion (par.4.6); - Power factor (par.4.7); - Loss of utility voltage (par.5.1); - Over/under voltage and frequency (par.5.2); - Islanding protection (par.5.3); Response to utility recovery (par.5.4) (Tutto tranne 5.5, 5.6, 5.7)	IEC 61727:2004; EN 61727:1995

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**Photovoltaic systems - Power conditioners - Procedure for measuring efficiency**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Efficiency measurement (par.4,5,6);
- Loss measurements (par.7) (Tutto)

IEC 61683:1999;  
EN 61683:2000

**Power generation systems connected to the low-voltage distribution network - Technical minimum requirements for the connection to and parallel operation with low-voltage distribution networks.**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

Vedere dettagli della norma DIN V VDE V 0124-100:2012 (Tutto)

VDE-AR-N 4105:2011

**Prescriptions techniques spécifiques pour les installations de production décentralisées fonctionnant en parallèle sur le réseau de distribution / Specific technical requirements for decentralized production facilities operating in parallel on the distribution network**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Connection issue (par.2);
- Disconnection and protection devices (par.3)

C10/11:2012

**Procedimento de ensaio de anti-ilhamento para inversores de sistemas fotovoltaicos conectados à rede elétrica / Test procedure of islanding prevention measures for utility-interconnected photovoltaic inverters**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Test for single or multi-phase inverter (par.6)

ABNT NBR IEC 62116:2012

**Recommendations for the connection of generating plant to the distribution systems of licensed distribution network operators**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Disconnection times (par.13.8.3.1);
- Over / Under Voltage (par.13.8.3.2);
- Over / Under Frequency (par.13.8.3.3);
- Loss of Mains Protection, Inverter connected machines (par.13.8.3.4A);
- Reconnection (par.13.8.3.5);
- Frequency Drift and Step Change Stability test (par.13.8.3.6)
- Harmonics (par.13.8.4.1);
- Power Factor (par.13.8.4.2);
- Voltage Flicker (par.13.8.4.3);
- DC Injection (par.13.8.4.4);
- Over current Protection (par.13.8.3.4.5)
- Short circuit Current Contribution inverter connected Generating Units (par.13.8.4.6A);
- Self Monitoring - Solid State Disconnection (par.13.8.4.7)

ENA G59/3-1:2014

**Recommendations for the Connection of Type Tested Small-scale Embedded Generators (Up to 16A per Phase) in Parallel with Low-Voltage Distribution Systems**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Disconnection times (par.A1.3.1);
- Over / Under Voltage (par.A1.3.2);
- Over / Under Frequency (par.A1.3.3);
- Loss of Mains (LoM) Protection (par.A1.3.4);
- Re-connection (par.A1.3.5);
- Frequency Drift and Step Change Stability test (par.A1.3.6);
- Harmonics (par.A1.4.1);
- Power Factor (par.A1.4.2);
- Voltage Flicker (par.A1.4.3);
- DC Injection (par.A1.4.4);
- Short circuit Current Contribution (par.A1.4.6);
- Self Monitoring - Solid State Disconnection (par.A1.4.7) (Type Verification Functional Testing of the Interface Protection (Appendix A1.3))

ENA G83/2:2012

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**Regola tecnica di riferimento per la connessione di Utenti attivi e passivi alle reti AT ed MT delle imprese distributrici di energia elettrica**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Misura di correnti armoniche (par.N.3.1);
- Misura di fluttuazioni di tensione dovute a manovre di sezionamento/separazione (par.N.3.2);
- Misura di fluttuazioni di tensione (flicker) in condizioni di funzionamento continuo (par.N.3.3);
- Verifica del campo di funzionamento in tensione e frequenza (par.N.4);
- Verifica delle condizioni di sincronizzazione e presa di carico (par.N.5);
- Verifica dei requisiti costruttivi circa lo scambio di potenza reattiva (par.N.6);
- Verifica dei requisiti costruttivi circa la regolazione di potenza attiva (par.N.7);
- Verifica della insensibilità agli abbassamenti di tensione (VFRT capability) (par.N.8);
- Verifica della insensibilità alle richiuse automatiche in discordanza di fase (par.N.9)
- Misura di correnti armoniche (par.Nbis.3.1);
- Misura di fluttuazioni di tensione dovute a manovre di sezionamento/separazione (par.Nbis.3.2);
- Misura di fluttuazioni di tensione (flicker) in condizioni di funzionamento continuo (par.Nbis.3.3);
- Verifica del campo di funzionamento in tensione e frequenza (par.Nbis.4);
- Verifica delle condizioni di sincronizzazione e presa di carico (par.Nbis.5);
- Verifica dei requisiti costruttivi circa lo scambio di potenza reattiva (par.Nbis.6);
- Verifica dei requisiti costruttivi circa la regolazione di potenza attiva (par.Nbis.7);
- Verifica della insensibilità agli abbassamenti di tensione (VFRT capability) (par.Nbis.8);
- Verifica della insensibilità alle richiuse automatiche in discordanza di fase (par.Nbis.9) (<120kVA)

CEI 0-16:2014-09 + V1:2014-12

**Regola tecnica di riferimento per la connessione di Utenti attivi e passivi alle reti BT delle imprese distributrici di energia elettrica**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Emissione armonica di corrente (par. B.1, punti a, b);
- Fluttuazioni di tensione e flicker (par. B.1, punto c);
- Connessione, riconnessione ed erogazione graduale della potenza (par. B.1.1);
- Erogazione della potenza reattiva (par. B.1.2);
- Limitazione della potenza attiva (par.B.1.3);
- Verifica della componente continua della corrente di uscita (par.B.1.4);
- Verifica della insensibilità agli abbassamenti di tensione (par. B.1.5);
- Verifica dell'assenza di danneggiamenti in caso di richiuse automatiche da parte del Distributore (par.B.1.6)

CEI 0-21:2014-09 + V1:2014-12

**Requirements for the connection of micro-generators in parallel with public low-voltage distribution networks**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Over / Under Voltage (par.D.2.3);
- Over / Under Frequency (par.D.2.4);
- Loss of Mains (LoM) detection (par.D.2.5);
- Operating range (par.D.3.1);
- Active power feed-in at under-frequency (par.D.3.2);
- Power response to over-frequency (par.D.3.3);
- Reactive power capability (par.D.3.4);
- Connection and starting to generate electrical power (par.D.3.6);
- Short-circuit current contribution (par.D.3.7);
- Harmonic current emission (par.D.3.8);
- Voltage fluctuations and flicker (D.3.9);
- DC injection (par.D.3.10)

EN 50438:2013

**Requisitos de conexi3n a la red el3ctrica – Parte 1: Inversores para conexi3n a la red de distribuci3n / Requirements for connecting to the power system. Part 1: Grid-connected inverters**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

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- Injection of direct current to main supply (par. 5.1);
- Behavior under isolation failure (par. 5.2);
- Detection of fault currents in the PV generator (par. 5.3);
- Disconnection due voltage and frequency (par. 5.4);
- Automatic reconnection (par. 5.5);
- Detection of island operation (par. 5.6);
- Generation surges (par. 5.7);
- Network quality (par. 5.8);
- Reconnection out of sync (par. 5.9)

UNE 206007-1 IN:2013

**Resolució de 4 de octubre de 2006, de la Secretaria General de Energia, por la que se aprueba el procedimiento de operaci3n 12.3 Requisitos de respuesta frente a huecos de tensi3n de las instalaciones e3licas**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Respuesta frente a cortocircuitos (par.4)

P.O. 12.3:2006

**Sicurezza degli apparati di conversione di potenza utilizzati in impianti fotovoltaici di Potenza. Parte 1: Prescrizioni generali**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

4 General testing requirements, 5 -Marking and documentation, 6 - Environmental requirements and conditions, 7 -Protection against electric shock and energy hazards, 8 - Protection against mechanical hazards, 9 Protection against fire hazards, 10 - Protection against sonic pressure hazards, 11 - Protection against liquid hazards, 12 - Chemical hazards, 13 Physical requirements, 14 - Components (eccetto 8.4, 8.5)

EN 62109-1: 2010 (ed.1.0)      IEC 62109-1: 2010

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 1: Norme generali**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Creepage distances clearances and distances through insulation, 30 - Resistance to heat fire and tracking, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (Tutto tranne 22.16, 22.32, Annex L, Annex Q)

IEC 60335-1:1991 (ed.3) +A1:1994 +A2:1999; EN 60335-1:1994 +A1:1996 +A2:2000 +A11:1995 +A12:1996 +A13:1998 +A14:1998 +A15:2000 +A16:2001

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (Tutto tranne 22.16, 22.32, Annex F)

IEC 60335-1:2004 (ed.4) +A1:2004 +A2:2006; EN 60335-1:2002 +A1:2004 +A2:2006 +A11:2004 +A12:2006 +A13:2008 +A14:2010 +A15:2011

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (Tutto tranne 22.16, 22.32, Annex F)

IEC 60335-1:2010 (ed.5)+A1:2013; EN 60335-1:2012 +A11:2014

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**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per apparecchi da cucina**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-14:2006 (ed.5) +A1:2008 +A2:2012; EN 60335-2-14:2006 +A1:2008 +A11:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per apparecchi per massaggio**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-32:2002 (ed.4) +A1:2008 +A2:2013; EN 60335-2-32:2003 + A1:2008

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per apparecchi per l'igiene orale**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-52:2002 (ed.3) +A1:2008; EN 60335-2-52:2003 +A1:2008 +A11:2010 +A11/EC:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per apparecchi di grigliatura per uso esterno**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-78:2002 (ed.2) +A1:2008; EN 60335-2-78:2003 + A1:2008

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per apparecchi per il riscaldamento di liquidi**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

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7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-15:2002 (ed.5) +A1:2005 +A2:2008; EN 60335-2-15:2002 +A1:2005 +A2:2008 +A11:2012

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-15:2012 (ed.6)

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per apparecchi elettrici di riscaldamento per locali**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-30:2002 (ed.4) +A1:2004 +A2:2007; EN 60335-2-30:2003 + A1:2004 +A2:2007

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-30:2009 (ed.5); EN 60335-2-30:2009 +A11:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per apparecchi elettrici annessi ad acquari e bacini da giardino**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-55:2002 (ed.3) +A1:2008; EN 60335-2-55:2003 + A1:2008



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**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per apparecchi per vaporizzare sostanze insettifughe o deodoranti**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-101:2002 (ed.1) +A1:2008 +A2:2014; EN 60335-2-101:2002 +A1:2008 +A2:2014

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per apparecchi di refrigerazione, apparecchi per gelati e produttori di ghiaccio**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (Tutto tranne 21.101)

IEC 60335-2-24:2002 (ed.6) +A1:2005 +A2:2007; EN 60335-2-24:2003 +A1:2005 +A2:2007 +A11:2004 +A12:2009

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (Tutto tranne 21.101)

IEC 60335-2-24:2010 (ed.7) +A1:2012; EN 60335-2-24:2010

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per apparecchi di pulizia di superfici con l'uso di agenti pulenti liquidi o vapore per uso domestico**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (Tutto tranne 21.101, 21.102, 21.103, 21.104, 21.105)

IEC 60335-2-54:2002 (ed.3) +A1:2004 +A2:2007; EN 60335-2-54:2003 +A1:2004 +A2:2007 +A11:2006

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7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (eccetto 21.101, 21.102, 21.103,21.104, 21.105)

IEC 60335-2-54:2008 (ed.4); EN 60335-2-54:2008 +A11:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per apparecchi aventi bruciatori a gas, gasolio e combustibile solido provvisti di connessioni elettriche**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-102:2004 (ed.1) +A1:2009 +A2:2012; EN 60335-2-102:2006 +A1:2010

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per apparecchi per la pulizia a secco o umida, incluse le spazzole a motore, per uso industriale e commerciale**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (Tutto tranne 21.102, 21.103,21.104, 21.105, 21.106)

IEC 60335-2-69:2002 (ed.3) +A1:2005 +A2:2008; EN 60335-2-69:2009

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (eccetto 21.102, 21.103,21.104, 21.105, 21.106)

IEC 60335-2-69:2012 (ed.4); EN 60335-2-69:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per apparecchi per il trattamento dei pavimenti e per la pulitura dei pavimenti bagnati, per uso industriale e collettivo**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

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7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-67:2002 (ed.3) +A1:2005; EN 60335-2-67:2009

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-67:2012 (ed.4); EN 60335-2-67:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per apparecchi per la refrigerazione commerciale comprendenti un'unità di condensazione del fluido frigorifero o un compressore, incorporato o remoto**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-89:2002 (ed.1) +A1:2005 +A2:2007; EN 60335-2-89:2002 +A1:2005 +A2:2007 +A11:2004

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-89:2010 (ed.2) +A1:2012; EN 60335-2-89:2010

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per armadi caldi elettrici per uso collettivo**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

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7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-49:2002 (ed.4) +A1:2008; EN 60335-2-49:2003 +A1:2008 +A11:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per aspirapolvere ed apparecchi per pulizia ad aspirazione d'acqua**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (Tutto tranne 21.101, 21.102, 21.103,21.104, 21.105)

IEC 60335-2-2:2002 (ed.5) +A1: 2004 +A2:2006; EN 60335-2-2:2003 +A1:2004 +A2:2006 +A11:2010 +A11/EC:2012

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (Tutto tranne 21.101, 21.102, 21.103,21.104, 21.105)

IEC 60335-2-2:2009 (ed.6) +A1:2012; EN 60335-2-2:2010 +A11:2012 +A1:2013

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per attuatori di cancelli, porte e finestre motorizzati**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (Tutto tranne 32.101)

IEC 60335-2-103:2002 (ed.1); EN 60335-2-103:2003 +A11:2009

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (eccetto 32.101)

IEC 60335-2-103:2006 (ed.2) +A1:2011

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**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per cappe da cucina**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminals for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-31:2002 (ed.4) +A1:2006 +A2:2009; EN 60335-2-31:2003 +A1:2006 +A2:2009

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminals for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-31:2012 (ed.5)

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per cappe da cucina per uso commerciale**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminals for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-99:2003 (ed.1); EN 60335-2-99:2003

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per cucine, forneli, forni ed apparecchi similari per uso domestico**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminals for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-6:2002 (ed.5) +A1:2005 +A2:2008; EN 60335-2-6:2003 +A1:2005 +A2:2008 +A11:2010 +A12:2012 +A11/EC:2012 +A13:2013

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7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-6:2014 (ED.6)

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per cucine, forni, fornelli e piani di cottura elettrici per uso collettivo**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-36:2002 (ed.5) +A1:2004 +A2:2008; EN 60335-2-36:2002 +A1:2004 +A2:2008 +A11:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per distributori commerciali e apparecchi automatici per la vendita**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (Tutto tranne Annex A)

IEC 60335-2-75:2002 (ed.2) +A1:2005 +A2:2009; EN 60335-2-75:2004 +A1:2005 +A2:2008 +A11:2006 +A12:2010

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (eccetto Annex AA)

IEC 60335-2-75:2012 (ed.3)

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per ferri da stiro**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

<b>UL International Italia Srl</b>  Via delle Industrie, 6 20061 Carugate MI	Numero di accreditamento: <b>1363</b> Sede <b>A</b>
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7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-3:2002 (ed.5) +A1:2005 +A2:2008; EN 60335-2-3:2002 +A1:2005 +A2:2008 +A11:2010 +A11/EC:2012

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-3:2012 (ed.6)

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per forni elettrici a ventilazione forzata, forni per cottura a vapore e forni combinati convezione-vapore per uso collettivo**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-42:2002 (ed.5) +A1:2009; EN 60335-2-42:2003 +A1:2008 +A11:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per friggitrice elettriche per uso collettivo**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-37:2002 (ed.5) +A1:2008 +A2:2011; EN 60335-2-37:2002 +A1:2008 +A11:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per gli apparecchi per la purificazione dell'aria**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

<b>UL International Italia Srl</b>  Via delle Industrie, 6 20061 Carugate MI	Numero di accreditamento: <b>1363</b> Sede <b>A</b>
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7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-65:2002 (ed.2) +A1:2008; EN 60335-2-65:2003 +A1:2008 +A11:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per gli apparecchi per la cura della pelle e dei capelli**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-23:2003 (ed.5) +A1:2008 +A2:2012; EN 60335-2-23:2003 +A1:2008 +A11:2010 +A11/EC:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per gli apparecchi per l'asciugatura dei tessuti e per gli asciugasalviette**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-43:2002 (ed.3) +A1:2005 +A2:2008; EN 60335-2-43:2003 +A1:2006 +A2:2008

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per grill e tostapane elettrici per uso collettivo**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-48:2002 (ed.4) +A1:2008; EN 60335-2-48:2003 +A1:2008 +A11:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per griglie, tostapane e apparecchi per cottura mobili similari**

*Denominazione della prova / Campi di prova*

*Metodo di prova*



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7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-9(ed.5)+am1+am2; EN 60335-2-9:2003 + A1:2004 + A2:2006 + A12:2007 + A13:2010 + A13/EC:2011 + A13/EC:2012

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-9:2008 (ed.6) +A1:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per i motori di movimentazione di porte di garage a movimento verticale per uso residenziale**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-95:2002 (ed.2); EN 60335-2-95:2004

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-95:2011 (ed.3)

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per idropulitrici ed apparecchi per la pulizia a vapore**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-79:2002 (ed.2) +A1:2005 +A2:2007; EN 60335-2-79:2009

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7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-79:2012 (ed.3); EN 60335-2-79:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per lavastoviglie elettriche per uso collettivo**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (Tutto tranne Annex BB)

IEC 60335-2-58:2002 (ed.3) +A1:2008; EN 60335-2-58:2005 +A1:2008 +A11:2010

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per le cabine con doccia multifunzione**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-105:2004 (ed.1) +A1:2008 +A2:2013; EN 60335-2-105:2005 +A1:2008 +A11:2010

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per le pompe di calore elettriche, per i condizionatori d'aria e per i deumidificatori**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (Tutto tranne 22.108)

IEC 60335-2-40:2002 (ed.4) +A1:2005 +A2:2005; EN 60335-2-40:2003 +A1:2006 +A2:2009 +A11:2004 +A12:2005 +A13:2012

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7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminals for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-40:2002 (ed.5)

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per macchine per cucire elettriche**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminals for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-28:2002 (ed.4) +A1:2008; EN 60335-2-28: 2003 + A1:2008

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per macchine da cucina elettriche per uso collettivo**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminals for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-64:1991 (ed.2) +A1:1997; EN 60335-2-64:2000 +A1:2002

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminals for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-64:2002 (ed.3) +A1:2008

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per macchine automatiche per il trattamento dei pavimenti per uso industriale e collettivo**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

<b>UL International Italia Srl</b>  Via delle Industrie, 6 20061 Carugate MI	Numero di accreditamento: <b>1363</b> Sede <b>A</b>
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7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-72:2002 (ed.2); EN 60335-2-72:2009

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-72:2012 (ed.3); EN 60335-2-72:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per macchine per la pulizia a polverizzazione e ad aspirazione d'acqua per uso industriale e collettivo**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-68:2002 (ed.3) +A1:2005 +A2:2007; EN 60335-2-68:2009

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-68:2012 (ed.4); EN 60335-2-68:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per motori di movimentazione per tapparelle, tende per esterno, tende e apparecchiature avvolgibili similari**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-97:2002 (ed.2) +A1:2005 +A2:2009; EN 60335-2-97:2006 +A2:2010 +A11:2008

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**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per padelle per friggere, friggitrice e apparecchi similari**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-13:2002 (ed.5) +A1:2004 +A2:2008; EN 60335-2-13:2003 +A1:2004 +A2:2008

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-13:2009 (ed.6); EN 60335-2-13:2010 +A11:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per piastre a grigliare elettriche per uso collettivo**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-38:2002 (ed.5) +A1:2008; EN 60335-2-38:2003 + A1:2008

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per pompe**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-41:2002 (ed.3) +A1:2004 +A2:2010; EN 60335-2-41:2003 +A1:2004 +A2:2010

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7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-41:2012 (ed.4)

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per rasoi, tosatrici e apparecchi elettrici analoghi**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-8:2002 (ed.5) +A1:2005 +A2:2008; EN 60335-2-8:2003 +A1:2005 +A2:2008

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-8:2012 (ed.6)

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per riscaldatori fissi ad immersione**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-73:2002 (ed.2) +A1:2006 +A2:2009; EN 60335-2-73:2003 +A1:2006 +A2:2009

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per riscaldatori mobili ad immersione**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

<b>UL International Italia Srl</b>  Via delle Industrie, 6 20061 Carugate MI	Numero di accreditamento: <b>1363</b> Sede <b>A</b>
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7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-74:2002 (ed.2) +A1:2006 +A2:2009; EN 60335-2-74:2003 +A1:2006 +A2:2009

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per risciacquatrici elettriche per uso collettivo**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-62:2002 (ed.3) +A1:2008; EN 60335-2-62:2003 + A1:2008

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per scaldavivande elettrici ed apparecchi similari**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-12:2002 (ed.5) +A1:2008; EN 60335-2-12:2003 + A1:2008

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per umidificatori da utilizzarsi in sistemi di riscaldamento, ventilazione o di condizionamento dell'aria**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards (Tutto tranne 22.7, 22.106)

IEC 60335-2-88:2002 (ed.2); EN 60335-2-88:2002

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per utensili elettrici mobili riscaldanti e apparecchi similari**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

<b>UL International Italia Srl</b>  Via delle Industrie, 6 20061 Carugate MI	Numero di accreditamento: <b>1363</b> Sede <b>A</b>
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7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-45:2002 (ed.3) +A1:2008 +A2:2012; EN 60335-2-45:2002 +A1:2008 +A2:2012

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per vasche per idromassaggio e per piscine di tipo "spa"**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-60:2002 (ed.3) +A1:2005 +A2:2008; EN 60335-2-60:2003 +A1:2005 +A2:2008 +A11:2010 +A12:2010

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Norme particolari per ventilatori**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-80:2002 (ed.2) +A1:2004 +A2:2008; EN 60335-2-80:2003 +A1:2004 +A2:2009

**Sicurezza degli apparecchi elettrici d'uso domestico e similare - Parte 2: Prescrizioni particolari per umidificatori**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-98:2002 (ed.2) +A1:2005 +A2:2008; EN 60335-2-98:2003 +A1:2005 +A2:2008

**Sicurezza degli apparecchi elettrici d'uso domestico e similare Parte 2: Norme particolari per apparecchi sterminainsetti**

*Denominazione della prova / Campi di prova*

*Metodo di prova*



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7 Marking and instructions, 8 Protection against access to live parts, 9 Starting of motor-operated appliances, 10 Power input and current, 11 - Heating, 13 - Leakage current and electric strength at operating temperature, 14 - Transient overvoltage, 15 - Moisture resistance, 16 Leakage current and electric strength, 17 - Overload protection of transformers and associated circuits, 18 - Endurance, 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - Components, 25 - Supply connection and external flexible cords, 26 - Terminal s for external conductors, 27 - Provision for earthing, 28 - Screws and connections, 29 - Clearances, creepage distances and solid insulation, 30 - Resistance to heat and fire, 31 - Resistance to rusting, 32 - Radiation, toxicity and similar hazards

IEC 60335-2-59:2002 (ed.3) +A1:2006+ A2:2009; EN 60335-2-59:2003 +A1:2006 +A2:2009

**Sicurezza dei convertitori di potenza utilizzati negli impianti Fotovoltaici.**

**Parte 2: Prescrizioni particolari per gli inverter**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

4 General testing requirements, 5 -Marking and documentation, 6 - Environmental requirements and conditions, 7 -Protection against electric shock and energy hazards, 8 - Protection against mechanical hazards, 9 Protection against fire hazards, 10 - Protection against sonic pressure hazards, 11 - Protection against liquid hazards, 12 - Chemical hazards, 13 Phisical requirements, 14 - Components - (eccetto 8.4, 8.5)

EN 62109-2: 2011      IEC 62109-2: 2011 (ed.1.0)

**Sistemas fotovoltaicos (FV) – Características da interface de conexão com a rede elétrica de distribuição / Photovoltaic (PV) systems – Characteristics of the utility interface**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Compatibility with the electrical grid (par.4);  
 - Personal safety and PV system protection (par. 5);  
 - External control (par. 6);  
 - Requirements for supportability to voltages caused by electrical faults (fault ride through - FRT) (par. 7)

ABNT NBR 16149:2013

**Sistemas fotovoltaicos (FV) – Características da interface de conexão com a rede elétrica de distribuição – Procedimento de ensaio de conformidade / Photovoltaic (PV) systems – Characteristics of the utility interface – Conformity test procedure**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Flicker (par. 6.1);  
 - c.c. component injection (par. 6.2);  
 - Harmonics and wave-form distortion (par. 6.3);  
 - Power factor (par. 6.4);  
 - Reactive power injection / demand (par. 6.5);  
 - Voltage variation (par. 6.6);  
 - Frequency variation (par. 6.7);  
 - Active power control in overfrequency (par. 6.8);  
 - Reconnection (par. 6.9);  
 - Automatic out-of-phase reconnection (par. 6.10);  
 - Active power limitation (par. 6.11);  
 - Reactive power command (par. 6.12);  
 - Disconnection and reconnection of the photovoltaic system in the electrical grid (par. 6.13);  
 - Supportability requirements to undervoltages due to faults in the electrical grid (fault ride through - FRT)

ABNT NBR 16150:2013

**Solid insulating materials**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

Method for the determination of the proof and the comparative tracking indices of solid insulating materials

IEC 60112:2009

**Technical Guideline - Generating plants connected to the Medium-Voltage Network**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Verification of feed-in power (par. 6.2);  
 - Verification of network interactions (par. 6.3);  
 - Verification of the generating plant's behaviour connected to the network (par. 6.4);  
 - Verification of connection conditions (par. 6.5);  
 - Verification of the properties of disconnection equipment (par. 6.6)

BDEW:2008

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**Technical Guidelines for power generating units and farms - Part 3: Determination of electrical characteristics of power generating units and systems connected to MV, HV and EHV grids**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Active power provision (par. 4.2);
- Reactive power provision (par. 4.3);
- Voltage quality (par. 4.4);
- Disconnecting the PGU from the grid (par. 4.5);
- Verification of cut-in conditions (par. 4.6);
- Performance in the case of voltage dips (par. 4.7) (<120kVA)

FGW Part 3 Revision 23:2013

**Technische und organisatorische Regeln für Betreiber und Benutzer von Netzen. Teil D: Besondere technische Regeln. Hauptabschnitt D4: Parallelbetrieb von Erzeugungsanlagen mit Verteilernetzen / Technical and organizational rules for users and operators of networks. Part D: Special technical rules. Section D4: Parallel operation of generating plants with distribution networks**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Voltage and reactive power (par.7);
- Behavior of the generating plant at the medium voltage grid (par.8);
- Protective device for uncoupling point (par.9);
- Generators with neutral point of connection to the low voltage grid (par.10);
- Switching control equipment and switching conditions (par.11);
- Grid perturbations (par.12)

TOR D4 V2.0:2008

**Utility-interconnected photovoltaic inverters - Test procedure of islanding prevention measures**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Test for single or multi-phase inverter (par.6) (<120kVA)

IEC 62116:2014;  
EN 62116:2014

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## ELENCO PROVE ACCREDITATE - CATEGORIA: III

### Automatic disconnection device between a generator and the public low-voltage grid

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Functional safety (par.6.1); - Switch-on condition (par.6.2) - Voltage monitoring (par.6.3); - Frequency monitoring (par.6.4); - Direct current monitoring (par.6.5); - Detection of island operation (par.6.6)	DIN VDE V 0126-1-1 (VDE V 0126-1-1):2013-08

### Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Unintentional islanding test (par.5.7.1)	IEEE 1547.1:2005

### Ensayos de detección de funcionamiento en isla de múltiples inversores fotovoltaicos conectados a red en paralelo / Performance tests for islanding detection of multiple grid-connected photovoltaic inverters in parallel

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Procedure of evaluation (par.4)	UNE 206006 IN:2011

### Erection of electrical installations with rated voltages up to AC 1000 V and DC 1500 V - Part 4-712: Photovoltaic power-systems - Erection and safety requirements systems

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Functional safety (Annex A.3.1); - Voltage monitoring (Annex A.3.2); - Frequency monitoring (Annex A.3.3); - Direct current monitoring (Annex A.3.4); - Detection of island operation (Annex A.3.5); - Residual current monitoring (Annex A.3.6)	OVE/ONORM E 8001-4-712:2009

### Grid Connection Code for RPPs in South Africa

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Tolerance of Frequency and Voltage Deviations (par.5); - Frequency Response (par.6); - Reactive Power Capabilities (par.7); - Reactive Power and Voltage Control Functions (par.8); - Power Quality (par.9); - Protection and Fault levels (par.10); - Active Power Constraint Functions (par.11)	Grid Connection Code for Renewable Power Plants (RPPs) connected to the Electricity Transmission System (TS) or the Distribution System (DS) in South Africa:2012 (Version 2.6)

### Grid connection of energy systems via inverters - Part 2: Inverter requirements

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Power flow direction (par.4.3); - Power factor (par.4.4); - Harmonic currents (par.4.5); - Voltage fluctuations and flicker (par.4.6); - Impulse protection (par.4.7); - Transient voltage limits (par.4.8); - Direct current injection (par.4.9) (AS/NZS 3100 and AS/NZS 60950.1 excluded)	AS 4777.2:2005

### Grid connection of energy systems via inverters - Part 3: Grid protection requirements

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Voltage flicker (par.4.4); - Impulse protection (par.4.5); - Disconnection device (par.5.2); - Voltage and frequency limits (passive anti-islanding protection) (par.5.3); - Active anti-islanding protection (par.5.5); - Reconnection procedure (par.5.6); - Security of protection settings (par.5.7); - Grid protection device tests (appendix B) (AS/NZS 3100 and AS/NZS 60950.1 excluded)	AS 4777.3:2005

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**Grid integration of generator plants - Low-Voltage- Test requirements for generator units to be connected to and operated in parallel with low-Voltage distribution networks**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Rapid Voltage changes (par.5.1.2) - Flicker (par.5.1.3) -Harmonics and inter-harmonics (par 5.1.4) - Proof of the symmetrical behavior of rotary current converter units (par.5.2) -Proof of the behavior of the generation unit on the grid (par. 5.3) - Proof of NS protection (par. 5.4) - Connection conditions and sincronization (par. 5.5)	DIN V VDE V 0124-100:2012

**Grid interconnection of embedded generation - Part 2: Small-scale embedded generation - Section 1: Utility interface**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Flicker (par.4.1.3); - Harmonics and waveform distortion (par.4.1.6); - Power factor (par.4.1.7); - Sincronization (par.4.1.8); - Overvoltage and undervoltage (par.4.2.2.3.2); - Overfrequency and underfrequency (par.4.2.2.3.3); - Prevention of islanding (par.4.2.2.4); - DC current injection (par.4.2.2.5)	NRS 097-2-1:2010

**Metodi di misura dei campi elettromagnetici degli apparecchi elettrodomestici e similari in relazione all'esposizione umana**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
5.5.2 - Time domain evaluation of magnetic fields, 5.5.3 - Line spectrum evaluation, 5.5.4 - Simplified test methods	IEC 62233:2005 (ed.1); EN 62233:2008

**Photovoltaic (PV) systems - Characteristics of the utility interface**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Voltage, current and frequency (par.4.1); - Normal voltage operating range (par.4.2); - Flicker (par.4.3); - DC injection (par.4.4); - Normal frequency operating range (par.4.5); - Harmonics and waveform distortion (par.4.6); - Power factor (par.4.7); - Loss of utility voltage (par.5.1); - Over/under voltage and frequency (par.5.2); - Islanding protection (par.5.3); Response to utility recovery (par.5.4) (Tutto tranne 5.5, 5.6, 5.7)	IEC 61727:2004; EN 61727:1995

**Photovoltaic systems - Power conditioners - Procedure for measuring efficiency**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Efficiency measurement (par.4.5,6); - Loss measurements (par.7)	IEC 61683:1999; EN 61683:2000

**Power generation systems connected to the low-voltage distribution network - Technical minimum requirements for the connection to and parallel operation with low-voltage distribution networks.**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Verification of the electrical properties (par.9); - Islanding detection (Annex D)	VDE-AR-N 4105:2011

**Prescriptions techniques spécifiques pour les installations de production décentralisées fonctionnant en parallèle sur le réseau de distribution / Specific technical requirements for decentralized production facilities operating in parallel on the distribution network**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Connection issue (par.2); - Disconnection and protection devices (par.3)	C10/11:2012

**Procedimento de ensaio de anti-ilhamento para inversores de sistemas fotovoltaicos conectados à rede elétrica / Test procedure of islanding prevention measures for utility-interconnected photovoltaic inverters**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
-Test for single or multi-phase inverter (par.6)	ABNT NBR IEC 62116:2012

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**Recommendations for the Connection of Type Tested Small-scale Embedded Generators (Up to 16A per Phase) in Parallel with Low-Voltage Distribution Systems**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Disconnection times (par.A1.3.1);
- Over / Under Voltage (par.A1.3.2);
- Over / Under Frequency (par.A1.3.3);
- Loss of Mains (LoM) Protection (par.A1.3.4);
- Re-connection (par.A1.3.5);
- Frequency Drift and Step Change Stability test (par.A1.3.6);
- Harmonics (par.A1.4.1);
- Power Factor (par.A1.4.2);
- Voltage Flicker (par.A1.4.3);
- DC Injection (par.A1.4.4);
- Short circuit Current Contribution (par.A1.4.6);
- Self Monitoring - Solid State Disconnection (par.A1.4.7) (Type Verification Functional Testing of the Interface Protection (Appendix A1.3))

ENA G83/2:2012

**Regola tecnica di riferimento per la connessione di Utenti attivi e passivi alle reti AT ed MT delle imprese distributrici di energia elettrica**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Misura di correnti armoniche (par.N.3.1);
- Misura di fluttuazioni di tensione dovute a manovre di sezionamento/separazione (par.N.3.2);
- Misura di fluttuazioni di tensione (flicker) in condizioni di funzionamento continuo (par.N.3.3);
- Verifica del campo di funzionamento in tensione e frequenza (par.N.4);
- Verifica delle condizioni di sincronizzazione e presa di carico (par.N.5);
- Verifica dei requisiti costruttivi circa lo scambio di potenza reattiva (par.N.6);
- Verifica dei requisiti costruttivi circa la regolazione di potenza attiva (par.N.7);
- Verifica della insensibilità agli abbassamenti di tensione (VFRT capability) (par.N.8);
- Verifica della insensibilità alle richiuse automatiche in discordanza di fase (par.N.9)
- Misura di correnti armoniche (par.Nbis.3.1);
- Misura di fluttuazioni di tensione dovute a manovre di sezionamento/separazione (par.Nbis.3.2);
- Misura di fluttuazioni di tensione (flicker) in condizioni di funzionamento continuo (par.Nbis.3.3);
- Verifica del campo di funzionamento in tensione e frequenza (par.Nbis.4);
- Verifica delle condizioni di sincronizzazione e presa di carico (par.Nbis.5);
- Verifica dei requisiti costruttivi circa lo scambio di potenza reattiva (par.Nbis.6);
- Verifica dei requisiti costruttivi circa la regolazione di potenza attiva (par.Nbis.7);
- Verifica della insensibilità agli abbassamenti di tensione (VFRT capability) (par.Nbis.8);
- Verifica della insensibilità alle richiuse automatiche in discordanza di fase (par.Nbis.9)

CEI 0-16:2014-09 + V1:2014-12

**Requisitos de conexión a la red eléctrica – Parte 1: Inversores para conexión a la red de distribución / Requirements for connecting to the power system. Part 1: Grid-connected inverters**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Injection of direct current to main supply (par. 5.1);
- Behavior under isolation failure (par. 5.2);
- Detection of fault currents in the PV generator (par. 5.3);
- Disconnection due voltage and frequency (par 5.4);
- Automatic reconnection (par. 5.5);
- Detection of island operation (par. 5.6);
- Generation surges (par. 5.7);
- Network quality (par. 5.8);
- Reconnection out of sync (par. 5.9)

UNE 206007-1 IN:2013

**Resolución de 4 de octubre de 2006, de la Secretaria General de Energia, por la que se aprueba el procedimiento de operación 12.3 Requisitos de respuesta frente a huecos de tensión de las instalaciones eólicas**

*Denominazione della prova / Campi di prova*

*Metodo di prova*

- Respuesta frente a cortocircuitos (par.4)

P.O. 12.3:2006

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**Sicurezza degli apparati di conversione di potenza utilizzati in impianti fotovoltaici di Potenza. Parte 1: Prescrizioni generali**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
4 General testing requirements, 5 -Marking and documentation, 6 - Environmental requirements and conditions, 7 -Protection against electric shock and energy hazards, 8 - Protection against mechanical hazards, 9 Protection against fire hazards, 10 - Protection against sonic pressure hazards, 11 - Protection against liquid hazards, 12 - Chemical hazards, 13 Physical requirements, 14 - Components (eccetto 8.4, 8.5)	EN 62109-1: 2010 (ed.1.0)      IEC 62109-1: 2010

**Sicurezza dei convertitori di potenza utilizzati negli impianti Fotovoltaici. Parte 2: Prescrizioni particolari per gli inverter**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
4 General testing requirements, 5 -Marking and documentation, 6 - Environmental requirements and conditions, 7 -Protection against electric shock and energy hazards, 8 - Protection against mechanical hazards, 9 Protection against fire hazards, 10 - Protection against sonic pressure hazards, 11 - Protection against liquid hazards, 12 - Chemical hazards, 13 Physical requirements, 14 - Components - Tutto tranne 8.4, 8.5	EN 62109-2: 2011 IEC 62109-2: 2011

**Sistemas fotovoltaicos (FV) – Características da interface de conexão com a rede elétrica de distribuição / Photovoltaic (PV) systems – Characteristics of the utility interface**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Compatibility with the electrical grid (par.4); - Personal safety and PV system protection (par. 5); - External control (par. 6); - Requirements for supportability to voltages caused by electrical faults (fault ride through - FRT) (par. 7)	ABNT NBR 16149:2013

**Sistemas fotovoltaicos (FV) – Características da interface de conexão com a rede elétrica de distribuição – Procedimento de ensaio de conformidade / Photovoltaic (PV) systems – Characteristics of the utility interface – Conformity test procedure**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Flicker (par. 6.1); - c.c. component injection (par. 6.2); - Harmonics and wave-form distortion (par. 6.3); - Power factor (par. 6.4); - Reactive power injection / demand (par. 6.5); - Voltage variation (par. 6.6); - Frequency variation (par. 6.7); - Active power control in overfrequency (par. 6.8); - Reconnection (par. 6.9); - Automatic out-of-phase reconnection (par. 6.10); - Active power limitation (par. 6.11); - Reactive power command (par. 6.12); - Disconnection and reconnection of the photovoltaic system in the electrical grid (par. 6.13); - Supportability requirements to undervoltages due to faults in the electrical grid (fault ride through - FRT)	ABNT NBR 16150:2013

**Technical Guideline - Generating plants connected to the Medium-Voltage Network**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Verification of feed-in power (par. 6.2); - Verification of network interactions (par. 6.3); - Verification of the generating plant's behaviour connected to the network (par. 6.4); - Verification of connection conditions (par. 6.5); - Verification of the properties of disconnection equipment (par. 6.6)	BDEW:2008

**Technical Guidelines for power generating units and farms - Part 3: Determination of electrical characteristics of power generating units and systems connected to MV, HV and EHV grids**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Active power provision (par. 4.2); - Reactive power provision (par. 4.3); - Voltage quality (par. 4.4); - Disconnecting the PGU from the grid (par. 4.5); - Verification of cut-in conditions (par. 4.6); - Performance in the case of voltage dips (par. 4.7)	FGW Part 3 Revision 23:2013

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**Technische und organisatorische Regeln für Betreiber und Benutzer von Netzen. Teil D: Besondere technische Regeln. Hauptabschnitt D4: Parallelbetrieb von Erzeugungsanlagen mit Verteilernetzen / Technical and organizational rules for users and operators of networks. Part D: Special technical rules. Section D4: Parallel operation of generating plants with distribution networks**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
- Voltage and reactive power (par.7); - Behavior of the generating plant at the medium voltage grid (par.8); - Protective device for uncoupling point (par.9); - Generators with neutral point of connection to the low voltage grid (par.10); - Switching control equipment and switching conditions (par.11); - Grid perturbations (par.12)	TOR D4 V2.0:2008

**Utility-interconnected photovoltaic inverters - Test procedure of islanding prevention measures**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>
-Test for single or multi-phase inverter (par.6)	IEC 62116:2014; EN 62116:2014

*Legenda*

ABNT NBR: Associação Brasileira De Normas Técnicas  
 UNE: AENOR - Asociación Española de Normalización y Certificación  
 BDEW: Bundesverband der Energie- und Wasserwirtschaft (German Association of Energy and Water Industries)  
 FGW: Fördergesellschaft Windenergie (Society for the Promotion of wind energy and other renewable energy)  
 TOR: E-Control (Government regulator for electricity and natural gas markets in Austria)  
 C: Synergrid (Federation of the Electricity and gas networks in Belgium)  
 IEC: International Electrotechnical Commission  
 CEI: Comitato Elettrotecnico Italiano  
 VDE: Verband der Elektrotechnik  
 EN: European Committee for Standardization  
 G: Operations Directorate of Energy Networks Association UK  
 AS: Australian Standards  
 P.O.: Procedimiento de operación (Ministry of Industry, Tourism and Trade of Spain)  
 ÖVE: Österreichischer Verband für Elektrotechnik (Austrian Standards Institute)  
 NRS: Specifications for the Electricity Supply Industry in collaboration with the South African Bureau of Standards (SABS)  
 ENA: Energy Network Association  
 IEEE: Institute of Electrical and Electronics Engineers

ACCREDIA  
 Il Direttore del Dipartimento  
 (Dr.ssa Silvia Tramontin)