



UL International Italia Srl Via delle Industrie, 6 20061 Carugate MI	Numero di accreditamento: <b>1363 L Sede A</b>
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Misure di emissione / Emission measurements (Emissione irradiata limitata a 1 GHz / Radiated Emission up to 1GHz) ICES-005 (Issue 5, December 2018)

**Apparecchi di illuminazione / Lighting Equipment**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
Misure di emissione / Emission measurements	CISPR 15:2013 +A1:2015 CISPR 15:2018 (Escluse le lampade singole/Excluded single capped lamps) EN 55015:2013+A1:2015		
Prove di immunità / Immunity tests	IEC 61547:2009 EN 61547:2009		

**Apparecchi e sistemi per la navigazione marittima e radiocomunicazione / Maritime navigation and radiocommunication equipment and system**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
Misure di emissione e prove di immunità / Emission measurements and immunity tests	IEC 60945:2002+COR1:2008 EN 60945:2002 (clauses 9 and 10)		

**Apparecchi elettrici di misura, controllo e per utilizzo in Laboratorio / Electrical equipment for measurement, control and laboratory use**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
Misure di emissione e prove di immunità / Emission measurements and immunity tests	IEC 61326-1:2012 EN 61326-1:2013		

**Apparecchi Elettromedicali / Medical Electrical Equipment**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
Misure di emissione e prove di immunità / Emission measurements and immunity tests	IEC 60601-1-2:2007 IEC 60601-1-2:2014 EN 60601-1-2:2007+AC:2010 EN 60601-1-2:2015		

**Apparecchi industriali, scientifici e medicali/Industrial, scientific and medical equipment**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
Emission measurements	ICES-001 (Issue 4, June 2006)		
Misure di emissione / Emission measurements	CISPR 11:2015 + A1:2016+A2:2019 CISPR 11:2009+A1:2010 EN 55011:2016 EN 55011 :2009+A1:2010		

**Apparecchi per la tecnologia dell'informazione / Information technology equipment**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
Misure di emissione / Emission measurements	CISPR 22:2008 EN 55022:2010+AC: 2011		

**Apparecchi per la tecnologia dell'informazione / Information technology equipment**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
Prove di immunità / Immunity tests	CISPR 24:2010 +A1:2015 EN 55024:2010+A1:2015		

**Apparecchiatura per la saldatura a resistenza / Resistance welding equipment**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
Misure di emissione e prove di immunità / Emission measurements and immunity tests	IEC 62135-2:2015 EN 62135-2:2015		

**Apparecchiatura per la saldatura ad arco / Arc welding equipment**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
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Prova di immunità alle variazioni della frequenza di alimentazione /  
variation of power frequency, immunity test

IEC  
61000-4-28:1999+A1:2001+A2:2009  
EN  
61000-4-28:2000+A1:2004+A2:2009

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+A1:2017  
EN 61000-4-5:2014+A1:2017

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+A2:2015  
EN  
61000-4-13:2002+A1:2009+A2:2016

Testing and measurement techniques –  
Voltage dips, short interruptions and  
voltage variations immunity tests

IEC 61000-4-11:2004+A1:2017  
EN 61000-4-11:2004+A1:2017

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

- Voltage changes, voltage fluctuations and flicker measurement

IEC 61000-3-3:2013+A1:2017  
EN 61000-3-3:2013

- Voltage changes, voltage fluctuations and flicker measurement

IEC 61000-3-11:2017  
EN 61000-3-11:2000

#### Apparecchiature elettriche ed elettroniche e materiali metallici / Electric and electronic equipment and metal materials

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Test Db: Damp heat, cyclic (12 h + 12 h cycle)	IEC 60068-2-30:2005 EN 60068-2-30:2005		
Test Ka: Salt Mist	IEC 60068-2-11:1981 EN 60068-2-11:1999		
Test Kb: Salt mist, cyclic (sodium chloride solution) (Limitata alla Neutral Salt Solution / Limited to Neutral Salt Solution)	IEC 60068-2-52:2017 EN 60068-2-52:2018		
Test Na, Nb: change of temperature	IEC 60068-2-14:2009 EN 60068-2-14:2009		
Test Nc not covered (Range di temperatura: -40°C a 150°C / Temperature Range: -40°C to 150°C)			
For test Nb max 1K/min)			
Test Z/AD: Composite temperature/humidity cyclic test (Range di temperatura: -10°C a 65°C / Temperature Range: -10°C a 65°C)	IEC 60068-2-38:2009 EN 60068-2-38:2009		
Gradiente / Gradient 1.2K/min)			

#### Apparecchiature elettriche ed elettroniche per gli ambienti industriali / Electric and electronic equipment for industrial environments

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Misure di emissione / Emission measurements	IEC 61000-6-4:2006+A1:2010 IEC 61000-6-4:2018 EN 61000-6-4:2007+A1:2011		

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Prove di immunità / Immunity tests                                  IEC 61000-6-2:2005  
 IEC 61000-6-2:2016  
 EN 61000-6-2:2005

**Apparecchiature elettriche ed elettroniche per gli ambienti residenziali, commerciali e dell'industria leggera / Electric and electronic equipment for residential, commercial and light-industrial environments**

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Misure di emissione / Emission measurements	IEC 61000-6-3:2006+A1:2010 EN 61000-6-3:2007+A1:2011+ AC:2012		
Prove di immunità / Immunity tests	IEC 61000-6-1:2005 IEC 61000-6-1:2016 EN 61000-6-1:2007		

**Apparecchiature elettriche, elettroniche e meccaniche, componenti e materiali / Electric, electronic and mechanical equipment, components and materials**

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Test A: Cold (Limite di temperatura -40°C / Temperature limit -40°C)	IEC 60068-2-1:2007 EN 60068-2-1:2007		
Test B: Dry heat (Limite di temperatura 150°C / Temperature limit 150°C)	IEC 60068-2-2:2007 EN 60068-2-2:2007		
Test Cab: Damp heat, steady state	IEC 60068-2-78:2012 EN 60068-2-78:2013		
Test Eh: Hammer tests	IEC 60068-2-75:2014 EN 60068-2-75:2014		

**Apparecchiature multimediali / Multimedia Equipment**

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Misure di emissione / Emission measurements	CISPR 32:2015+COR1:2016 EN 55032:2015+AC:2016 (Esclusi ricevitori broadcast e apparecchi audio/video / Excluded broadcast receiver and audio/video equipment)		
Prove di immunità / Immunity tests (Esclusi ricevitori broadcast, apparecchi audio/video e dispositivi con porta xDSL / Excluded broadcast receiver, audio/video equipment and equipment with xDSL PORT)	CISPR 35:2016 EN 55035:2017		

**Azionamenti elettrici a velocità variabile / Adjustable speed electrical power drive systems**

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Misure di emissione e prove di immunità / Emission measurements and immunity tests	IEC 61800-3:2004 + A1:2011 IEC 61800-3:2017 EN 61800-3:2004 + A1:2012		

**Convertitori connessi alla rete e protezione di interfaccia / Grid connected converters and interface protections**

Denominazione della prova / Campi di prova	Metodo di prova	Tecnica di prova	O&I
Annex B - Test on inverters for indirectly connected power systems	CEI 0-21:2019-04		
Appendix B (Power factor test), Appendix C (Harmonic current limit test), Appendix D (Transient voltage limit test), Appendix E (DC injection test), Appendix F (Active anti-islanding test), Appendix G (Voltage and frequency limits (Passive anti-islanding protection) test), Appendix H (Limits for sustained operation) , Appendix I (Demand and power quality response mode testing including disconnection on external signal, Appendix J (Multiple inverter testing)	AS/NZS 4777.2:2015		









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Misure di emissione / Emission measurements

CISPR  
 14-1:2005+A1:2008+A2:2011  
 CISPR 14-1:2016+COR1:2016  
 EN  
 55014-1:2006+A1:2009+A2:2011  
 EN 55014-1:2017

Prove di immunità / Immunity tests

CISPR 14-2:2015  
 EN 55014-2:2015

### Fire hazard testing

*Denominazione della prova / Campi di prova*

*Metodo di prova*

*Tecnica di prova*

*O&I*

Abnormal heat - Ball pressure test method

IEC 60695-10-2:2014  
 EN 60695-10-2:2014

Glowing/hot-wire based test methods – Glow-wire flammability index (GWFI) test method for materials

IEC 60695-2-12:2010+A1:2014

Glowing/hot-wire based test methods – Glow-wire ignition temperature (GWIT) test method for materials

IEC 60695-2-13:2010+A1:2014

Glowing/hot-wire based test methods –Glow-wire flammability test method for end products

IEC 60695-2-11:2014

Glowinghot-wire based test methods – Glow-wire apparatus and common test procedure

IEC 60695-2-10:2013

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 60695-11-5:2016

### Gradi di protezione forniti dalle coperture / Degrees of protection provided by enclosures

*Denominazione della prova / Campi di prova*

*Metodo di prova*

*Tecnica di prova*

*O&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 (Escluso grado IPX9 / IPX9 excluded)

IEC  
 60529:1989+A1:1992+A2:2013  
 EN 60529:1991+  
 A1:2000+A2:2013+AC:2016-12

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

*Denominazione della prova / Campi di prova*

*Metodo di prova*

*Tecnica di prova*

*O&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

### Industrial, Scientific, and Medical Equipment (FCC Part 18)

*Denominazione della prova / Campi di prova*

*Metodo di prova*

*Tecnica di prova*

*O&I*

Electromagnetic compatibility - Radiated and conducted emissions (up to 18 GHz)

FCC MP-5 (February 1986)  
 FCC Part 18



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**Requisiti di sicurezza per i sistemi e le apparecchiature di conversione elettronica di potenza / Safety requirements for power electronic converter systems and equipment**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
Clearance and creepage distances test 5.2.2.1	IEC 62477-1:2012+A1:2016		
Non-accessibility test 5.2.2.2	EN		
Ingress protection test (IP rating) 5.2.2.3	62477-1:2012+A11:2014+A1:201		
Enclosure integrity test 5.2.2.4	7		
Deflection test 5.2.2.4.2			
Steady force test, 30N 5.2.2.4.2.2			
Steady force test, 250N 5.2.2.4.2.3			
Impact test 5.2.2.4.3			
Drop test 5.2.2.4.4			
Stress relief test 5.2.2.4.5			
Stability test 5.2.2.5			
Wall or ceiling mounted equipment test 5.2.2.6			
Handles and manual control securement test 5.2.2.7			
Impulse voltage test 5.2.3.2			
a.c. or d.c. voltage test 5.2.3.4			
Partial discharge test 5.2.3.5			
Protective impedance test 5.2.3.6			
Touch current measurement test 5.2.3.7			
Capacitor discharge test 5.2.3.8			
Limited power source test 5.2.3.9			
Temperature rise test 5.2.3.10			
Protective equipotential bonding test 5.2.3.11			
Output Short circuit test 5.2.4.4			
Output overload test 5.2.4.5			
Breakdown of components test 5.2.4.6			
PWB short circuit test 5.2.4.7			
Loss of phase test 5.2.4.8			
Cooling failure tests 5.2.4.9			
Inoperative blower test 5.2.4.9.2			
Clogged filter test 5.2.4.9.3			
Loss of coolant test 5.2.4.9.4			
Glow-wire test 5.2.5.3			
Flammability test 5.2.5.5			
Dry heat test 5.2.6.3.1			
Damp heat test 5.2.6.3.2			
Vibration test 5.2.6.4			
Salt mist test 5.2.6.5			
Dust and sand test 5.2.6.6			
Hydrostatic pressure test 5.2.7			

**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>	<i>Tecnica di prova</i>	<i>O&amp;I</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)	IEC 62109-1:2010 EN 62109-1:2010		

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

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
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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+A1:2005  
+A2:2008  
IEC 60335-2-3:2012+A1:2015  
EN 60335-2-3:2002 +A1:2005  
+A2:2008 +A11:2010  
+A11/AC:2012  
EN 60335-2-3:2016

#### **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**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</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 60335-2-42:2002+A1:2008+A2:2 017 EN 60335-2-42:2003+A1:2008+A11: 2012+corrigendum Sep.2007		

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

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</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 60335-2-37:2002+A1:2008+A2:2 017 IEC 60335-2-37:2017 EN 60335-2-37:2002+A1:2008+A11: 2012+corrigendum Aug.2007+A12:2016		

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

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>



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7 Marking and instructions, 8 Protection against access to live parts, IEC 60335-2-10:2002+A1:2008  
10 Power input and current, 11 - Heating, 13 - Leakage current and EN 60335-2-10:2003+A1:2008  
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, 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

**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	Tecnica di prova	O&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 60335-2-48:2002+A1:2008+A2:2 017 EN 60335-2-48:2003+A1:2008+A11: 2012+corrigendum Sep.2007		

**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	Tecnica di prova	O&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 60335-2-9:2002+A1:2004+A2:20 06 IEC 60335-2-9:2008+A1:2012+A2:20 16 EN 60335-2-9:2003+A1:2004+A2:20 06+A12:2007+A13:2010+A13/AC :2011+A13/AC: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	Tecnica di prova	O&I
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7 Marking and instructions, 8 Protection against access to live parts, IEC  
9 Starting of motor-operated appliances, 10 Power input and 60335-2-95:2002+A1:2004+A2:2  
current, 11 - Heating, 13 - Leakage current and electric strength at 008  
operating temperature, 14 - Transient overvoltage, 15 - Moisture IEC 60335-2-95:2011+A1:2015  
resistance, 16 Leakage current and electric strength, 17 - Overload EN 60335-2-95:2004  
protection of transformers and associated circuits, 18 - Endurance, EN 60335-2-95:2015+A1:2015  
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

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

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
7 Marking and instructions, 8 Protection against access to live parts, IEC 9 Starting of motor-operated appliances, 10 Power input and 60335-2-79:2002+A1:2004+A2:2 current, 11 - Heating, 13 - Leakage current and electric strength at 007 operating temperature, 14 - Transient overvoltage, 15 - Moisture IEC 60335-2-79:2012 resistance, 16 Leakage current and electric strength, 17 - Overload IEC 60335-2-79:2016 protection of transformers and associated circuits, 18 - Endurance, EN 60335-2-79:2009 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 EN 60335-2-79:2012 - 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			

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

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
7 - Marking 8 - Protection against access to live parts 10 - Power input 11 - Heating 13 - Leakage current and el. strength at op. temp 14 - Transient overvoltages 15 - Moisture resistance 16 - Leakage current and el. Strength 17- Overload protection of transformers and associated circuits 18 - Endurance 19 - Abnormal Operations 20 - Stability and mechanical hazards 21 - Mechanical strength 22 - Construction 22.103 - Construction 23 - Internal wiring 24 - Components 25 - Supply connection and ext. flexible cords 26 - Terminals for external conductors 27 - Provision for earthing 28 - Screws and connections 29 - Cl./Cr. distances and solid insulation 30 - Resistance to heat and fire 31 Resistance to rusting 32 Radiation, toxicity and similar hazards Annex AA	IEC 60335-2-5:2012+A1:2018 EN 60335-2-5:2015		





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**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**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</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 (Tutto tranne 22.108)	IEC 60335-2-40:2002+A1:2005+A2:2005 IEC 60335-2-40:2013+A1:2016 EN 60335-2-40:2003+A1:2006+A2:2009+A11:2004+A12:2005+A13:2012+corrigendum Apr.2006+corrigendum Aug.2010+A13:2012/AC:2013		

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

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</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 60335-2-28:2002+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**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</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 60335-2-64:1991+A1:1997 IEC 60335-2-64:2002+A1:2007 EN 60335-2-64:2000+A1:2002+corrigendum Jun.2002		

**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**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>



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7 Marking and instructions, 8 Protection against access to live parts, IEC  
9 Starting of motor-operated appliances, 10 Power input and 60335-2-13:2002+A1:2004+A2:2  
current, 11 - Heating, 13 - Leakage current and electric strength at 008  
operating temperature, 14 - Transient overvoltage, 15 - Moisture IEC 60335-2-13:2009+A1:2016  
resistance, 16 Leakage current and electric strength, 17 - Overload EN  
protection of transformers and associated circuits, 18 - Endurance, 60335-2-13:2003+A1:2004+A2:2  
19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 008  
- Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - EN 60335-2-13:2010+A11:2012  
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

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

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
7 Marking and instructions, 8 Protection against access to live parts, IEC 9 Starting of motor-operated appliances, 10 Power input and 60335-2-38:2002+A1:2008+A2:2 current, 11 - Heating, 13 - Leakage current and electric strength at 017 operating temperature, 14 - Transient overvoltage, 15 - Moisture EN resistance, 16 Leakage current and electric strength, 17 - Overload 60335-2-38:2003+A1:2008+corr protection of transformers and associated circuits, 18 - Endurance, endum Aug.2007 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			

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

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
7 Marking and instructions, 8 Protection against access to live parts, IEC 9 Starting of motor-operated appliances, 10 Power input and 60335-2-41:2002+A1:2004+A2:2 current, 11 - Heating, 13 - Leakage current and electric strength at 009 operating temperature, 14 - Transient overvoltage, 15 - Moisture IEC 60335-2-41:2012 resistance, 16 Leakage current and electric strength, 17 - Overload EN protection of transformers and associated circuits, 18 - Endurance, 60335-2-41:2003+A1:2004+A2:2 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 010 - 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			

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

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</i>
7 Marking and instructions, 8 Protection against access to live parts, IEC 9 Starting of motor-operated appliances, 10 Power input and 60335-2-8:2002+A1:2005+A2:20 current, 11 - Heating, 13 - Leakage current and electric strength at 08 operating temperature, 14 - Transient overvoltage, 15 - Moisture IEC 60335-2-8:2012+A1:2015 resistance, 16 Leakage current and electric strength, 17 - Overload EN protection of transformers and associated circuits, 18 - Endurance, 60335-2-8:2003+A1:2005+A2:20 19 - Abnormal operation, 20 - Stability and mechanical hazards, 21 08 - Mechanical strength, 22 - Construction, 23 - Internal wiring, 24 - EN 60335-2-8:2015+A1:2016 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			

















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- 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 (Version 2.8 - 2014)

- Unintentional islanding test (par.5.7.1)

IEEE 1547.1:2005+IS1:2010

- Unintentional islanding test (par.5.7.1) (<120kVA)

IEEE 1547:2003

- Verification of the electrical properties (par.9);  
- Islanding detection (Annex D)

VDE-AR-N 4105:2011

- 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

**Elettrodomestici, utensili elettrici e apparecchi similari / Household appliances, Electric tools and similiar apparatus**

<i>Denominazione della prova / Campi di prova</i>	<i>Metodo di prova</i>	<i>Tecnica di prova</i>	<i>O&amp;I</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 EN 62233:2008		

**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>	<i>Tecnica di prova</i>	<i>O&amp;I</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 Phisical requirements, 14 - Components (eccetto 8.4, 8.5)	IEC 62109-1:2010 EN 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>	<i>Tecnica di prova</i>	<i>O&amp;I</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 Phisical requirements, 14 - Components - Tutto tranne 8.4, 8.5	IEC 62109-2:2011 EN 62109-2:2011		

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*Legenda*

ETSI = European Telecommunications Standards Institute  
CISPR = Comité international spécial des perturbations radioélectriques  
ABNT NBR = Associação Brasileira De Normas Técnicas  
ANSI = American National Standards Institute  
AS = Australian Standards  
BDEW = Bundesverband der Energie- und Wasserwirtschaft (German Association of Energy and Water Industries)  
DIN = Deutsches Institut für Normung  
ENA = Energy Network Association  
FCC = Federal Communications Commission  
FGW = Fördergesellschaft Windenergie (Society for the Promotion of wind energy and other renewable energy)  
IEEE = Institute of Electrical and Electronics Engineers  
NRS = Specifications for the Electricity Supply Industry in collaboration with the South African Bureau of Standards (SABS)  
ÖVE = Österreichischer Verband für Elektrotechnik (Austrian Standards Institute)  
UNE = AENOR - Asociación Española de Normalización y Certificación  
VDE = Verband der Elektrotechnik Elektronik Informationstechnik

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