

CERTIFICATIONS

V. 01/22.1

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CONSIDERATIONS ABOUT TRADITIONAL CABLES

The electrical conductor market is predominantly made up of conductors with round section, the so-called Cables.

The current legislation describes a context of use mainly focused on the use of cables, with laying that involves the insertion inside protective casings, such as conduits with surface laying or inside embedded pipes in burglaries made in the walls.

In particular:

the regulations provide for laying in ducts paying attention on concepts of inspectability of derivations / electrical connections and removable cables. This approach derives from a traditional construction path, which in past times provided for a type of system characterized by cables directly embedded in the concrete, which the standard has secured through the aforementioned regulatory protocols (CEI 64-8).

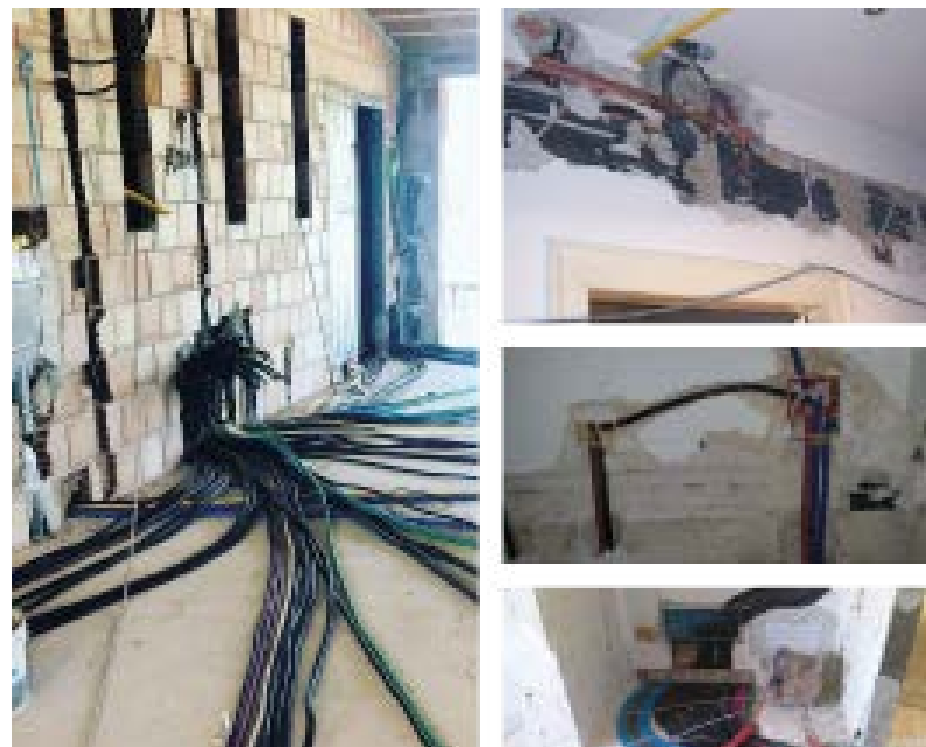
The same standard does not exclude other types of different systems from traditional, if they comply with recognized specifications and protocols and/or applicable.

The type of pipe laying also includes specific rules on the subject fire prevention, where the CPR standards define the emissivity levels of each single cable, and laying requirements that determine the associated fire risk class.

The traditional system, in the event of a fire (of electrical origin or not), reveals all its safety limits that the standard undertakes to contain.

Indeed:

- the pipes inside the walls provide a vehicle for the transmission of the fumes and material that contributes to fueling the fire;
- the cables contained within the electrical pipe, during combustion, lose part of the insulation giving rise to a series of contacts between various conductors, with the consequent risk of multiple short circuits.



NEXT-TAPE

Next Tape is a flat conductor (0,25/0,31 mm) whose shape resembles a double-sided adhesive tape inside which copper strips of sections equivalent to the most common cables for residential/industrial use are embedded. Next-Tape is tested for use at 400/750 V, and **detracting from potential use and applications, can be compared to a cable of type FS17 or higher**. Keeping in mind the above considerations, we are going to frame the regulatory context concerning Next-Tape, which provides for a superficial laying by gluing to the wall.

Generalizing:

- The Next-Tape type of installation does not require threading inside a casing and therefore the removable criterion loses its effectiveness.
In this case the rule is simply not applicable.
- The replacement of the Next-Tape is always possible, however, by removing the part of the plaster above and below.
In this case, no critical moves can be made to the construction system, except for accidental damage caused by third parties, because the product performs its task with much higher performance than the round counterpart.
- The flat shape and the wall bonding generate superior performance in terms of heat dissipation and current density.
In this case the manufacturer declares a current density equal to 9 A/mm² (data underestimated by 50% as demonstrated by the tests carried out by the Polytechnic of Bari).
- The physical phenomenon called the skin effect, in addition to the superior heat dissipation capacity, also offers a greater data and energy transmission surface.
This phenomenon combined with the greater heat dissipation capacity allows a higher resistivity.



The materials that make up Next-Tape are the result of years of research, especially for the choice of insulation, the technique of which is a company secret. The destructive tests initially carried out had stopped at an already excellent result of 5kV. **The Polytechnic of Bari confirmed these results, discovering the insulation withstand limit in the value above 16 kV**, opening perspectives on medium and high voltage.

From a fire protection point of view, Next-Tape has a different behavior from that of a traditional cable. Being developed in width and not in section, the physical distance between the conductors ensures that during a fire situation no short circuits occur even when curved on itself. The tape, correctly laid it does not transmit fumes and develops lower emissivity levels than the best CPR cables (see tests).

With a view to continuity of operation during the fire, **Next-Tape is superior to the best traditional fire cables**. During tests on a non-REI plasterboard wall, Next-Tape remained operational for 77 minutes at 983 ° and for 120 minutes at 850 °. The tests carried out revealed that Next-Tape is not a fire propagant and the adaptation to the CPR Regulation (EU 305/2011) Cca - s1b - d1 - a1 is in progress.

In conclusion

The company has carried out numerous tests (insulation tests, operating voltage tests, tests resistance to fire and flame retardancy test), which declare its compliance with safety standards, but there is a lack of a specific framework for Next-Tape at the regulatory level.

The product is CE marked and has followed an Accredia procedure based on TÜV certification, and is currently on sale on the European market.

Further joint tests are currently underway between the Polytechnic of Bari and the TÜV certifying body aimed at obtaining a specific product standard through the Experimenta Italia tender.



EXISTING CERTIFICATIONS FOR NEXT-TAPE

CEI EN 50565-1 (CEI 20-40/1)	2015	Cavi elettrici - Guida all'uso dei cavi con tensione nominale non superiore a 450/750 V /Uo/U). Parte 1: Criteri generali. La norma fornisce le linee guida per aiutare installatori, progettisti dei cablaggi ed utilizzatori finali a comprendere le caratteristiche dei cavi elettrici con tensione nominale non superiore a 450/750 V (Uo/U) o tensioni continue equivalenti	<i>Electric cables - Guide to the use of cables with rated voltage not exceeding 450/750 V/Uo/U). Part 1: General criteria. The standard provides guidelines to help installers, wiring designers and end users to understand the characteristics of electrical cables with rated voltage not exceeding 450/750 V (Uo/U) or equivalent direct voltages</i>
CEI EN 50525-1 (CEI 20-107/1)	2011	Cavi elettrici - Guida all'uso dei cavi con tensione nominale non superiore a 450/750 V /Uo/U). Parte 1: Criteri generali Parte 1: "Prescrizioni generali" - la norma fornisce prescrizioni generali per i cavi rigidi e flessibili con tensione Uo/U fino a 450/750 V in c.a. utilizzati in impianti di energia e con apparecchiature domestiche ed industriali	<i>Electric cables - Guide to the use of cables with rated voltage not exceeding 450/750 V/Uo/U). Part 1: General criteria Part 1: "General requirements" - the standard provides general requirements for rigid and flexible cables with Uo/U voltage up to 450/750 V in a.c. used in power plants and with domestic and industrial equipment</i>
CEI EN 50396 CEI 20-84	2007	Metodi di prova non elettrici per cavi di energie di bassa tensione	<i>Non-electrical test methods for low energy cables voltage</i>
CEI EN 60332-2	2006	Prove su cavi elettrici e ottici in condizioni d'incendio	<i>Tests on electrical and optical cables in fire conditions</i>
CEI EN 60332-2 (CEI 20-35/2)	2006	Prove su cavi elettrici e a fibre ottiche in condizioni d'incendio	<i>Tests on electrical and fiber optic cables in fire conditions</i>
CEI EN 60228 (CEI 20-29)	2006	"Conduttori per cavi isolati" la norma specifica le sezioni nominali comprese tra 0,5 mm ² e 2500 mm ² destinate ad essere utilizzate per i conduttori dei cavi elettrici ed include prescrizioni relative al diametro e al numero dei fili ed ai relativi valori di resistenza elettrica	<i>"Conductors for insulated cables" the standard specifies the nominal cross sections between 0.5 mm² and 2500 mm² intended to be used for the conductors of electrical cables and includes requirements relating to diameter and al number of wires and related electrical resistance values</i>
CEI EN 50395 CEI 20-80	2006	Metodi di prova elettrici per cavi di energia di bassa tensione.	<i>Electrical test methods for low voltage power cables</i>
CEI 20-22	2006	Procedure e requisiti di prova della non propagazione dell'incendio	<i>Non-propagation test procedures and requirements of the fire</i>
CEI EN 60332-2	2006	Prove su cavi elettrici e ottici in condizioni d'incendio	<i>Tests on electrical and optical cables in fire conditions</i>
CEI EN 60332-2 (CEI 20-35/2)	2006	Prove su cavi elettrici e a fibre ottiche in condizioni d'incendio	<i>Tests on electrical and fiber optic cables in fire conditions</i>
CEI EN 60332-1-2 2006 CEI EN60332-1-1:2006 EN60332-1-2:2004 EN60332-1-1:2004	2004 2006	Prova di non propagazione della fiamma su un singolo conduttore o cavo isolato.	<i>Flame non-propagation test on a single insulated conductor or cable</i>
EI EN 60332-2-2 2006 CEI EN60332-2-1:2006 EN60332-2-2:2004 EN60332-2-1:2004	2004 2006	Prova di non propagazione della fiamma su un singolo conduttore o cavo isolato. Procedura per fiamma diffusa	<i>Flame non-propagation test on a single insulated conductor or cable. Procedure for diffused flame</i>

CEI EN 60332-1-3	2004	Prove su cavi elettrici e a fibre ottiche in condizioni d'incendio. Parte 1-1: Prova per la propagazione verticale della fiamma su un singolo conduttore o cavo isolato. Procedura per la determinazione delle gocce o dei pezzi accesi	<i>Tests on electrical and fiber optic cables in fire conditions. Part 1-1: Test for vertical flame spread on a single insulated conductor or cable. Procedure for the determination of the drops or lit pieces</i>
CEI EN 60811-4: (20-34/1-4)	2005	Metodi di prova per materiali isolanti e di guaina dei cavi elettrici Parte 1: Metodi di prova per applicazioni generali Sezione 4: Prove a bassa temperatura	<i>Test methods for insulating and sheathing materials for electrical cables Part 1: Test methods for general applications Section 4: Low temperature tests</i>
CEI EN 60811-4-1 (CEI 20-34/4-1)	2005	Metodi di prova per materiali isolanti e di guaina dei cavi elettrici Metodi di prova comuni Parte 4-1: Metodi specifici per mescole di polietilene e di polipropilene	<i>Test methods for insulating and sheathing materials for electrical cables Common test methods Part 4-1: Specific methods for polyethylene and polypropylene</i>
CEI EN 60811-4-2 (CEI 20-34/4-2)	2005	Metodi di prova per materiali isolanti e di guaina di cavi elettrici e ottici. Metodi di prova comuni Parte 4-2: Metodi specifici per mescole di polietilene e di polipropilene	<i>Test methods for insulating and sheathing materials of electrical and optical cables. Common test methods Part 4-2: Specific methods for polyethylene and polypropylene</i>
IEC 60331-31	2002	Prove per i cavi elettrici in condizioni di incendio - Integrità del circuito. Parte 3-1: Procedure e requisiti per il comportamento in presenza di shock meccanici - Cavi con tensione nominale non superiore a 0,6/1 kv	<i>Tests for electrical cables in fire conditions - Integrity of the circuit. Part 3-1: Procedures and requirements for behavior in the presence of mechanical shocks - Cables with rated voltage not exceeding 0.6/1 kv</i>
CEI EN 61034-2:2006 CEI EN 61034-1:2006 EN 61034-2:2005 EN61034-1:2005	2002	Misura della densità di fumo dei cavi che bruciano in condizioni definite.	<i>Measurement of the smoke density of cables that burn under defined conditions.</i>
CEI EN 60811-1-1 (CEI 20-34/1-1)	2001	Metodi di prova per materiali isolanti e di guaina dei cavi elettrici. Parte 1: Metodi di prova per applicazioni generali	<i>Test methods for insulating and sheathing materials for electrical cables. Part 1: Test methods for general applications</i>
CEI EN 60811-1-2 (CEI 20-34/1-2)	2001	Metodi di prova per materiali isolanti e di guaina dei cavi elettrici. Parte 1: Metodi di prova per applicazioni generali Sezione 2: Trattamenti di invecchiamento accelerato.	<i>Test methods for insulating and sheathing materials for electrical cables. Part 1: Test methods for general applications Section 2: Accelerated Aging Treatments.</i>
CEI EN 60811-1-3 (CEI 20-34/1-3)	2001	Metodi di prova per materiali isolanti e di guaina dei cavi elettrici. Parte 1: Metodi di prova per applicazioni generali	<i>Test methods for insulating and sheathing materials for electrical cables. Part 1: Test methods for general applications</i>
EN 50268 - 2 (EN 61034-2) CEI 20-37/3-1	2000	"Metodi comuni di provapercavi in condizioni di incendio. Misura della densità di fumo di cavi che bruciano in condizioni definite" Parte 2: Procedure di prova	<i>"Common test methods for cables under fire conditions. Measurement of the smoke density of cables that burn under defined conditions " Part 2: Test Procedures</i>
EN 50200 (CEI 20-36)	2000	Metodo di prova per la resistenza al fuoco di piccoli cavi non protetti per il loro uso in circuiti di emergenza	<i>Test method for the fire resistance of small unprotected cables for their use in emergency circuits</i>
EN 60754 (CEI 20-37/7)	2000	Misura della quantità di gas tossici emessi durante la combustione del cavo	<i>Measurement of the amount of toxic gases emitted during the burning of the cable</i>

CEI EN 50305:2003 EN 50305:2002 BS EN 50305:2002	2000	Cavi aventi speciali requisiti in condizioni di incendio Metodi di prova	<i>Cables having special requirements in fire conditions Test methods</i>
CEI EN 50267-2-1:1999 CEI EN 50267-1:1999 EN50267-2-1:1998 EN50267-1:1998	1998 1999	Quantità di acido alogenidrico gassoso Parte 1-1: Prova per la propagazione verticale della fiamma su un singolo conduttore o cavo isolato	<i>Amount of gaseous halogenhydric acid Part 1-1: Test for vertical flame spread on a single insulated conductor or cable</i>
EN1364-1 ed.1999 UNI EN 1363-1 ed.1999	1999	Determinazione della resistenza al fuoco di una parete non sottoposta a carico. Parete divisoria simmetria realizzata con lastre in cartongesso standard con all'interno applicati conduttori elettrici "Energy Tape". Il nastro ha passato il test con una resistenza al fuoco di 77 min. alla temperatura di 983 °C con una parete standard (non REI)	<i>Determination of the fire resistance of an unloaded wall. Symmetry dividing wall made with standard plasterboard sheets with applied inside "Energy Tape" electrical conductors. The tape passed the test with a fire resistance of 77 min. at a temperature of 983 °C with a standard wall (not REI)</i>

ATTACHED DOCUMENTS

- TÜV Certificate
- Next-Tape Declaration of Conformity



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