

We have the fire under control!

Prysmian Kistelek is now a TÜV Rheinland Partner Testing Laboratory for CPR cables.



Prysmian
Group

Linking
the Future

Linking the future

As the worldwide leader in the cable industry, Prysmian Group believes in the effective, efficient and sustainable supply of energy and information as a primary driver in the development of communities.

With this in mind, we provide major global organisations in many industries with best-in-class cable solutions, based on state-of-the-art technology. Through three renowned commercial brands – Prysmian, Draka and General Cable – based in almost 50 countries, we're constantly close to our customers, enabling them to further develop the world's energy and telecoms infrastructures, and achieve sustainable, profitable growth.

In our energy business, we design, produce, distribute and install cables and systems for the transmission and distribution of power at low, medium and high voltage.

In telecoms, the Group is a leading manufacturer of all types of copper and fibre cables, systems and accessories – covering voice, video and data transmission.

Drawing on over 130 years' experience and continuously investing in R&D, we apply excellence, understanding and integrity to everything we do, meeting and exceeding the precise needs of our customers across all continents, at the same time shaping the evolution of our industry.

Prysmian Kistelek is now a TÜV Rheinland Partner Testing Laboratory.

We are proud to successfully have fulfilled the rigorous stipulations set by the international certification body TÜV Rheinland to become its accepted Partner Testing Laboratory in Kistelek. We are authorised to make thorough and internationally approved performance CPR tests for cables exposed to heat and fire under supervision of TÜV Rheinland's experts. We will continue our close collaboration with TÜV Rheinland to make sure only safe cables are installed in European homes and other constructions.

What we offer

New technologies, urbanization and increase in population intensify the demand for electricity. We build higher and higher buildings, new schools, hospitals, sport arenas, electric vehicles... Every construction – whether it is a building or a bridge, a machine or an underground railway – need electricity. And cables. Lots of it. However, cables poor in quality can become a lethal threat, causing fires and toxic smoke to spread. Whatever we put in our walls, it better be safe.

At Prysmian Hungary we are determined only to deliver cables that comply with, or exceed all relevant standards on all markets in which we make business. But that is not enough. We want all cables to be as safe as they

can possibly be. That is why we have established our new test laboratory in Kistelek in close co-operation with the TÜV Rheinland certification body. Here we are able to perform CPR tests on cables to make sure they comply with applicable standards. The tests are all in accordance with several international certifications and closely related to the CPR categories stipulating the cable requirements for fixed installations.

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TÜV Rheinland

– a world leading testing service provider



TÜV, stands for Technischer Überwachungsverein (Technical Inspection Association). It is an independent organisation known worldwide for tests, inspections and certification of products. Their certifications ensure that the tested products and solutions comply with set safety standards and quality benchmarks based on international regulations.

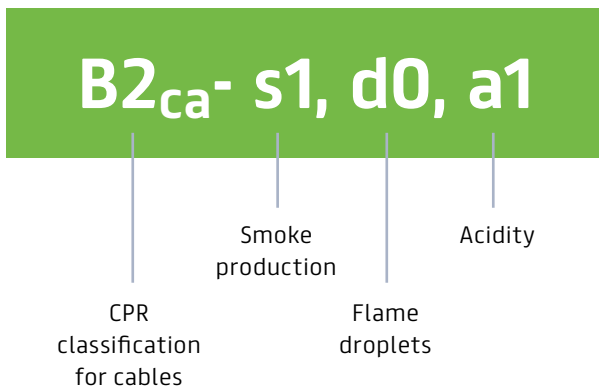
You can rest assured that any product or service with a TÜV Rheinland certification has been thoroughly tested in inspected and is fit to be used in accordance with recommended practises.

CPR – a summary

The Construction Products Regulation (CPR) is covered by the standard EN 50575 and categorises cables in terms of performance during a fire. It includes cables designed for fixed installations in domestic, residential and commercial buildings. There are seven different classes of fire performance where heat release and flame spread are the main classification criteria:



The A_{ca} class defines non-flammable cables (no reaction), whereas the F_{ca} class contains cables with undetermined performance. In addition to how much heat the cable releases and how much flames it spreads, three supplementary classification criteria exist: smoke emissions, flame droplets and acidity. Here is an example:



SMOKE EMISSIONS (EN 61034-2)

- s1** Low smoke emission
- s1a** s1 with > 80% emission
- s1b** s1 with > 60% < 80% emission
- s2** Medium smoke emission
- s3** None of the above

FLAME DROPLETS (EN 50399)

- d0** No flammable drops/particles
- d1** 10 sec. flammable drops/particles
- d2** None of the above

ACIDITY (EN 60754-2)

- a1** Low acidity < 2.5 µS/mm, pH > 4.3
- a2** Acidity < 10 µS/mm, pH > 4.3
- a3** None of the above

All cables sold on the European market must be CE-marked and comprise a Declaration of Performance (DoP) including the above type of CPR classification.





Safe cables save lives.

Our lab facilities in Kistelek



Cable performance tests

In case of a fire, it is crucial that cables do not become too hot or rapidly spread the fire. Cables used in for example fire alarms, emergency exit lightings and ventilation fans must continue to function. Equally important is low toxic gas emission and smoke density in order to facilitate the evacuation process. During tests it rapidly becomes apparent which cables are up for the task and which are not.

1 Vertical flame spread of bunched wires (EN50399 or IEC 60332-3)

Cables that aren't fire resistant will quickly spread the fire inside the walls. Several times fire patrols have been convinced they have put the fire out but all of a sudden it starts burning higher up in a building.

In this test we use a unique high-level technology that can fulfil any requests requirements. A certain number of cables are installed on a standard metal ladder, which is positioned in a vertical position inside a special chamber. By using a 20.5 kW burner we control how much heat and smoke the cable commits during a specific timespan. In addition, we check if there are any hot pieces falling off the cable and if they, in that case, continue to burn. At the end of the test the flame spread is measured, from the ignition place to the uppermost point of burned cable.

2 Vertical flame spread of a single wire (IEC 60332-1)

The purpose of this test is the same as the above. In this case we mount a 60 cm long cable sample vertically in an extraction chamber. The cable is exposed to fire with a 1 kW burner for 1–8 minutes, depending on the cable diameter. The fire is then put out and the burned section of the cable is measured.

3 Smoke density (IEC 61034)

According to researches, the main cause of deaths in fires (70%), is the inhalation of toxic smoke and gas emission.

In this test we use a 3x3 meter hermetically sealed off metal chamber. Inside a cable sample is placed above a metal bowl into which an alcoholic solution is filled. After closing the chamber, the solution is ignited. Through a window of the chamber, an optical monitoring system observe the density of the smoke for 40 minutes to check the visibility level.

4 PH and conductivity measurement (IEC 60754)

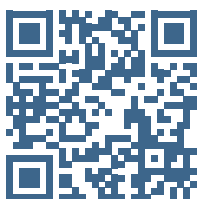
Cables that emit acid gases are, of course, a threat to people's lives. The gases typically come with the dark smoke and in addition to its lethality the acid gases make all electronic equipment malfunction.

All non-metallic parts of the cable (sheath, core insulation etc.) are tested individually. One gram of the element is placed in a ceramic container, which is put in an oven with a closed tube system. Synthetic air is blown into the system and slowly heated to 800 °C. The gases created from the sample are passed through a glass bottle of distilled water in which the gas is dissolved. After 45 minutes of heating, the solution is tested for conductivity and pH level.

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