Expert insight

INDUSTRY / ELECTRONICS

At the heart of data centres, industrial performance begins with a cable

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Industry / Electronics / IT / Construction / Security

Summary

Global player in the field of cables and connectivity solutions, LAPP has two production sites in France, in Moselle and Var, which design and manufacture cables suitable for all uses and are sold throughout Europe.
LAPP France has experts in France who work closely with local contractors and their construction sites. In particular, they monitor the arrival of existing and future data centres, a market with strong potential for LAPP.

The data centre market is a textbook example of LAPP's expertise.
This is particularly true in terms of fire resistance standards, which are essential for these high-energy-density installations, subject to high thermal stresses.
But more broadly, it highlights the expertise of a manufacturer of ubiquitous equipment, whose complexity remains invisible.

Expert opinion by

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A rapidly growing market that is strategic for French and European industry
Globally, cloud and internet giants are building between 120 and 140 new data centres each year to meet the explosion in capacity requirements, particularly with the rise of artificial intelligence and cloud services.
These data centres, where our data is stored, processed and secured, are also an essential pillar of digital sovereignty in Europe: more than 3,300 data centres are already spread across some 40 countries.
France ranks among the top three European markets with more than 300 operational sites. This capacity is expected to increase sixfold by 2035.
So construction continues apace.

In a data centre, cables are never a trivial component
What can be found inside a data centre? Servers, cooling systems and software architectures. And tens, even **hundreds, of kilometres of cables.**
Among other things, there are cables connecting the power supply, control systems, security devices, cooling systems, batteries, and backup solutions that ensure continuity of service.

Each cable meets very specific business requirements. In data centres, where a signal interruption or cable failure can compromise an entire system, this expertise translates into high-performance, reliable, traceable products that comply with the most demanding regulatory classifications.

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They are the result of precise engineering, with suitable materials, resistant structures, controlled behaviour in the event of fire and performance validated for specific industrial uses.

A site subject to high thermal stresses

In many ways, a data centre functions **like any other building** – with its electricity, ventilation and security systems – where each component must be designed for reliability, redundancy and safety.

However, as we all know, these infrastructures consume a lot of energy and are subject to high thermal stresses. They heat up and require large cooling systems, which have a significant environmental impact.

This raises another concern: **the risk of fire**.
It is easy to imagine that this industrial site, which is constantly under power, with continuous electrical currents flowing through it, batteries, sensitive equipment and kilometres of cables in a densely equipped space, is not a conventional commercial building.

The fire at the OVHcloud data centre in Strasbourg in 2021, which caused massive service interruptions for thousands of businesses and institutions, left a lasting impression. More recently, several incidents involving fires in battery rooms or electrical installations have been reported in Europe, the United States and Asia, highlighting the potential vulnerability of these critical infrastructures to thermal and electrical risks.

Beyond the operational and reputational impacts, a fire in a data centre represents a considerable economic cost. According to industry analyses, the cost of an operational shutdown can reach between £200,000 and £400,000 per hour, including operating losses, equipment damage, contractual penalties and critical service interruptions. In the most serious cases, the damage can run into tens or even hundreds of millions of pounds.

CPR classification: much more than a standard, a design tool

This fire risk affects **the safety of people, the protection of equipment and the continuity of digital services.**

A CPR classification specifically assesses how these cables, which include conductors, insulation, shielding and sheathing, will react to fire. This classification is not specific to the industry; it more generally regulates the performance of all construction products placed on the market that are permanently installed in buildings and infrastructure.

While no cable is completely fireproof, some are designed to slow down the spread of flames by controlling the reaction of each layer that makes up the cable. This result is the fruit of complex choices of materials and structures, which require real engineering expertise.

The CPR thus establishes a scale of performance classes, from the most basic to the most demanding, allowing designers, installers and project owners to choose cables suited to their uses, environments and risk levels.

In data centres, technical specifications increasingly require high classes such as B2ca. This classification combines a very limited contribution to fire (B2) with enhanced requirements for secondary effects: low smoke emission (s2), absence of flaming droplets (d1) and very low acidity of emitted gases (a1). These performance levels are now considered a minimum standard in many data

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centre projects, particularly for hyperscale infrastructures, where energy density and service continuity issues require maximum fire risk control.

In sensitive infrastructures such as data centres, this classification becomes a key design and safety tool, far beyond a simple regulatory requirement.

Ultimately, the CPR classification does not judge a simple "pipe with wires inside".
It evaluates the behaviour of a complex assembly, designed as a system in its own right. It reflects a very high level of industrial expertise, where every layer counts and where safety depends on an in-depth understanding of this technical mille-feuille.

Box: Fire, smoke, droplets, acidity: anticipating incident scenarios
The CPR classification does not focus on the electrical performance of the cable, but on its reaction to fire: contribution to flame spread, smoke release, production of flaming droplets and emission of acid gases.
The objective is twofold. On the one hand, to protect people by facilitating evacuation and limiting the risks associated with toxic smoke. On the other hand, to preserve infrastructure and equipment by reducing the impact of fire on critical installations.

The CPR classification analyses the smoke produced. In a confined space such as a data centre, smoke is often the main hazard. Its density, composition and toxicity depend directly on how the different layers of the cable degrade under the effect of heat. Designing a cable that produces limited and less harmful smoke requires a detailed understanding of these interactions. The acidity of the gases released is a determining factor. Corrosive emissions can not only endanger people, but also cause lasting damage to sensitive electronic equipment. Limiting this acidity involves working on the very composition of the internal layers of the cable, right down to the choice of additives and polymers.

Another critical issue is droplets. A cable that melts and drips can act like a candle, spreading the fire to other areas. Here again, everything depends on the internal architecture of the cable: the way the materials hold together, stiffen or deform under the effect of heat.

In a data centre, **limiting smoke and its acidity is crucial**: it is smoke, more than the flames themselves, that causes prolonged shutdowns, corrosion of electronic equipment and the inability to quickly restart systems after an incident.

Partner to players in the construction, energy and design sectors
This approach to fire risk illustrates a reality that is often overlooked: in industry, and even more so in critical infrastructure, **cables are never generic components.**

They are the result of a careful balance between standards, uses, risks and expected performance. And it is precisely this ability to move from catalogue to customisation, from standard to practical use, that distinguishes mature industrial expertise from a simple product offering.

Beyond product performance, it is the manufacturer's holistic industrial approach that makes the difference: integration of standards, collaboration with integrators and design offices, adaptation to the specific needs of critical infrastructure, and the ability to support large-scale projects from start to finish.

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About LAPP

A family-owned company founded in Germany in 1959, LAPP now employs around 5,700 people worldwide, manufactures at 35 production sites and sells in more than 80 countries. In 2025, LAPP achieved a consolidated turnover of €1.82 billion.

About LAPP in UKI

LAPP Limited, with locations in Greenford, UK, and Wexford, Ireland, has been the UKI sales organization for the leading multinational LAPP since 1980 in the UK and since 2021 in Ireland.
For more information: Lapp

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