



With energy as the basis of its development, Nexans, the worldwide leader in the cable industry, offers an extensive range of cables and cabling systems. The Group is a global player in the infrastructure, industry, building and Local Area Networks markets. Nexans addresses a series of market segments from energy, transport and telecom networks to shipbuilding, oil and gas, nuclear power, automotive, electronics, aeronautics, handling and automation.

With an industrial presence in more than 30 countries and commercial activities worldwide, Nexans employs 22,000 people and had sales in 2007 of 7.4 billion euros.

In the field of LAN Cabling Systems, Nexans Cabling Solutions offer a complete range of products and value added services providing improved reliability and reduced cost of ownership for Network Managers, together with faster installation times for installers.

In addition to LANmark physical infrastructure cabling systems, Nexans also specialises in the development Intelligent Infrastructure Management (IIM) products under the LANsense brand, including environmental monitoring and control (EMAC) devices and solutions for fully converged IP environments.

Nexans offers an unrivalled choice of LAN infrastructure solutions to a global customer base through an extensive network of regional offices and Key Account Management team.



**SA Nexans Cabling Solutions NV**

Alsembergsesteenweg 2, b3 - B-1501 Buizingen

Tel: +32 (0)2 363 38 00 - Fax: +32 (0)2 365 09 99

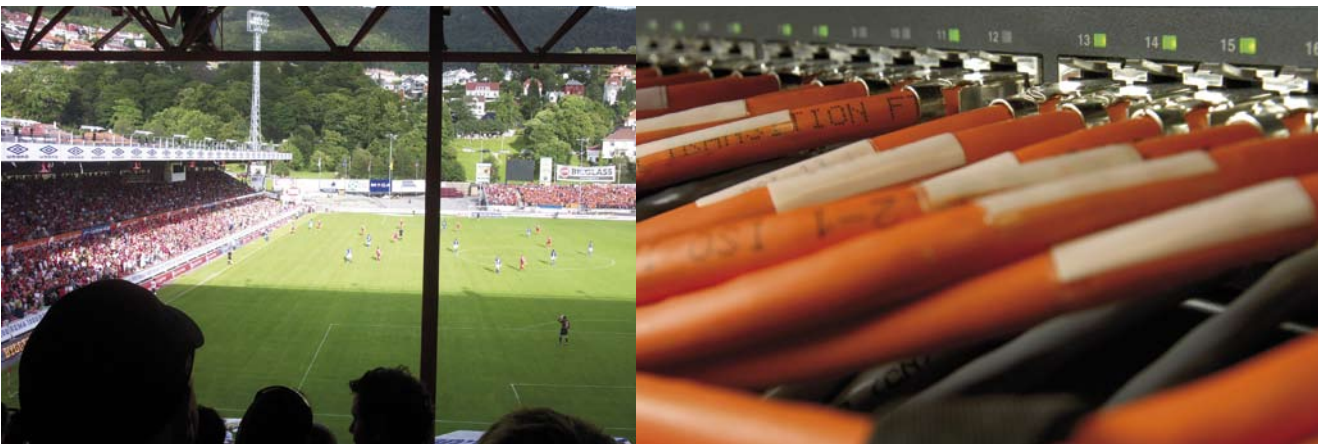
**Nexans Cabling Solutions UK and Intelligent Enterprise Solutions Competence Centre**

2 Faraday Office Park - Faraday Road - Basingstoke - Hampshire RG24 8QQ

Tel: +44 (0)1256 486640 - Fax: +44 (0)1256 486650

**[www.nexans.com/LANsystems](http://www.nexans.com/LANsystems) - [info.ncs@nexans.com](mailto:info.ncs@nexans.com)**

## Future-proof cabling solution gives Brann Stadium the perfect infrastructure for all multimedia demands



IP-network based on Nexans' LANmark-7 technology satisfies the demanding telecommunication needs of Norwegian football stadium

To answer to the high demands of television broadcasting and other multimedia systems, sports stadiums require an excellent network cabling infrastructure. SK Brann, a Bergen (Norway) based football team, decided that Nexans' LANmark-7 cabling solution was their best choice when upgrading their stadium network.

[www.nexans.com/LANsystems](http://www.nexans.com/LANsystems)

**SOhome as**

**N**exans

## Executive Summary

**CUSTOMER** • Brann Stadium

**LOCATION** • Bergen, Norway

**REQUIREMENT** • A future-proof IP-solution installed into a football stadium

**EQUIPMENT** • LANmark-7, GG45 connectors, double outlets (offices), IP67 outlets (outside)



Brann Stadium was built in 1919 and has been the home of SK Brann ever since. With a maximum capacity of about 18,000 spectators, Brann Stadium has the third largest attendance space in Norway. The latest renovation dates from 2006-07, when a new wing of the stadium was built. Together with this construction project, the club decided to completely rebuild its cabling network to cope with the high demands of the stadium's telecommunication system in general, and the needs for television broadcasting in particular. The football club had high ambitions for this project. "We were aiming for the best," Bjørn Dahl, Managing Director of SK Brann says. "We wanted a modern system that answers to the requirements of the future, not just to today's needs. It doesn't make sense to invest in a cabling infrastructure that only lasts for 3 or 4 years." At the recommendation of some of their IT-equipment suppliers, they chose Nexans' LANmark-7 (Category 7) solution as the cabling system.

### Implementation during football season

Norway's football season starts in April and runs to November. During the winter of 2006-07, the new wing of Brann Stadium was built. A group consisting of Intecom (an integrator for systems and equipment), Opticonsult (the project consultant) and SOhome (the cabling designer/installer) was selected to deploy the new LANmark-7 cables and GG45 connectors in this wing. Construction was finished just before the season opening. But SOhome then faced the challenge of replacing some other parts of the stadium's cabling – mainly concerning the wireless network – while the football season was underway. During home matches, a lot of people enter the stadium so all construction equipment had

to leave the premises. "It was quite challenging to always finish the work before the weekends," Terje Olsen, project manager of SOhome says. "It took significant planning to get the job done, but we learned a lot from it." SOhome completed the infrastructure in June.

LANmark-7 solution guarantees high bandwidth and reliability for numerous multimedia systems in the football stadium

### Revolutionary stadium-wide IP network

Brann Stadium now has an Internet Protocol (IP) network of two fibre rings with a capability of up to 10 gigabit Ethernet. The infrastructure includes a 28 km long network of LANmark-7 LSZH cables, 1,000 GG45 connectors, double outlets for the offices and IP67 outlets for outside use. This makes Brann Stadium amongst the most hi-tech sports venues in Norway. For Terje Pettersen, project leader from Opticonsult, it was a big challenge to coordinate such a state-of-the-art project. "The unique thing about this design is that all systems use the IP network. Not only voice and data, but the Nexans cabling network supports the video broadcasting system, tower control, ticketing system and all security cameras which are connected to the same infrastructure. Most of the vendors delivering the equipment were not used to working in such a modern environment, so our first task was to get all minds – including that of the stadium's management

## Challenges

- Future-proof IP-network solution
- Reliable backbone for all multimedia systems
- Guaranteed bandwidth for television broadcasting

## Solutions

- LANmark-7 LSZH cabling
- GG45 connectivity
- Double outlets for the offices
- IP67 outlets for outside use

## Benefits

- Possibility to easily hook up the television cameras
- Future-proof solutions, with ability to support high, 10 Gb bandwidths
- Wireless Internet throughout the stadium
- Possibility to broadcast HD television

– thinking in the same direction. We succeeded, and everybody cooperated perfectly. In the end, this project turned out to be a very positive experience.”

Intelecom, the company that delivered the Private Branch Exchange (PBX), IP switches, phones and wireless products, was just as positive about the experiences in this project. “It’s very nice to work in such a hi-tech environment,” says Fredrik Lande Andersen, key account manager of Intelecom. “This one project brings together the most innovative companies, and we are proud to have participated. I’m convinced the infrastructure is future-proof, partly due to the fast and reliable Nexans cabling solution.”



**“We wanted a modern system that answers to the requirements of the future, not just to today’s needs.”**

Bjørn Dahl, Managing Director SK Brann

### **Only stadium in Norway to broadcast HD video**

Because football is by far the most popular sport in Norway, every game is televised. For the clubs, these television rights are financially very important. “We are the only football stadium in Norway with a network capable of transmitting HD video,” Bjørn Dahl proudly says. “We also get a lot of compliments from journalists about our network. Even foreign reporters are highly impressed.” With the old infrastructure, the television technicians needed a lot of cables to hook up all the cameras for every game. Now, the infrastructure is much better

designed and connecting up to 12 cameras to the network only takes a short time.

### **Wireless LAN in the whole stadium**

Many systems in Brann Stadium rely on IP infrastructure. Not only the office computer systems, but also the telephone network, electronic scoreboards, 200 flat screen televisions inside, and the stadium’s payment system. Even the security system is based on IP-cameras.

Particularly striking however, is accessibility to a wireless Internet network from anywhere in the stadium. This is obviously of great value to journalists, people in the business lounges and the conference centre within the stadium. But it’s also attractive to football spectators. “New technology on mobile phones enables users to access wireless Internet,” Bjørn Dahl says. “This will become more and more useful in the future, when we’ll have the ability to sell additional services and products to mobile phone users.”

### **“Perfect infrastructure”**

After one football season of using the new cabling infrastructure, SK Brann is very pleased with the solution. “It has been working perfectly and we get no complaints anymore,” Bjørn Dahl says. “Brann Stadium is now ready for the future. It has been a very good investment.”

Perhaps the LANmark-7 cabling system’s superior performance set an example for SK Brann’s players, because in October 2007, the team won their first Norwegian League Championship since 1963. It remains somewhat unclear, however, if the new cabling gave the players some extra motivation...