

CS 123E

**Belden® Prepares Spartak's New Stadium to Broadcast 2018 World Cup**

When the "Red-Whites" finally got the chance to construct their own 47,000-seat home stadium, Belden cables were chosen to withstand the environment, speed installation and ultimately support broadcasting capabilities for the 2018 FIFA World Cup.



**After more than two decades of looking to build a new stadium, Moscow's Spartak Football Club finally began construction on the Otkritie Arena in 2010 and increased its planned seating capacity from 35,000 to 43,000 seats with an eye on the upcoming 2018 World Cup. With the seats installed in February 2014 and the finals details rapidly nearing completion, the opening exhibition match took place on July 24, 2014 between Spartak and Dynamo, the historic and renowned rivals.**

The new Spartak stadium will also be home to a 12,000-capacity indoor arena and multi-sports complex that will hold football matches, concerts and various sports competitions. It will also serve as the press center for the 2018 World Cup.

**The Challenge**

Governed by strict international stadium regulations and faced with Moscow's frigid winter temperatures, the venue operator demanded a professional broadcast cabling infrastructure that complied with the latest standards, ensured outstanding reliability for ongoing broadcast, offered the ability to withstand temperatures to -40°C and significantly reduced future service and maintenance needs. They also demanded solutions designed to support increasing data rates and speed installation time.

**The Solution**

In a pre-wired cabling installation that began in early December 2013 and was completed in a record time of just five months by German-based Broadcast Solutions, Belden cabling was selected to support everything from indoor and outdoor camera, video, audio and control applications, to high-speed copper and fiber data networking.

Long runs of outdoor cabling were needed to support HD, 2K and 3D applications while meeting professional Society of Motion Picture and Television Engineers (SMPTE) broadcast standards. In addition to the need for fast installation and the ability to provide future-proof capabilities, all cables for the Otkritie Arena needed to maintain reliability in the harsh Moscow environment and comply with extended international and European fire test standards. This was critical to adhere to the entertainment industry's growing demand for halogen free, acid free, non-toxic and low-smoke density flame and fire-retardant cables.

Belden's Pro Broadcast Solutions were chosen due to a complete product offering to support the latest outdoor broadcast applications backed by a proven track record of innovation, quality and consistency. As the only manufacturer developing a cutting-edge range of coaxial cable and HD BNC connectors, Belden was also selected for its popular BNC connectors that offer faster installation and an outstanding pull tension. Belden provided Spartak's Otkritie Arena with the reliability of a durable, rugged and survivable cabling solution able to withstand temperatures to -40°C and ensure abrasion, water, crushing and cut-through resistance while supporting easy-to-install and maintenance-free long signal runs.

**Be certain.  
Belden.**

## Product Information

To interconnect cameras to related equipment, Spartak's Otkritie Arena used 25 km of Belden's Triax 14 flame-retardant non-corrosive (FRNC) copper and 40 km of SMPTE311M halogen-free fiber composite camera cables.

Designed in compliance with SMPTE standards, Belden Triax 14 cables enable longer distance multiplexing audio and video signals and DC power to the camera. The SMPTE311M hybrid optical fibre cables can also multiplex audio, video and power for HD cameras. They feature bend-insensitive singlemode fiber and Belden's innovative UV-resistance Brilliance® outer jacket.

The stadium's live video broadcasting infrastructure was made up of a combination of 35 km of Belden's long-run precision Brilliance FRNC coax cable and 5 km of Belden short-run HDTV/SDI Brilliance FRNC coax. A critical selling point for the project, Belden's new 1-piece HD Brilliance BNC Compression Connectors and bend relief boots with non-blind entry were used to speed installation by eliminating loose pins and sleeves and allowing for repeatable, consistent installation with the same low loss performance as time consuming 3-piece designs.

Deployed for the audio infrastructure at Spartak's Otkritie Arena, Belden's 2- and 4-pair 26 and 24 AWG cables meet Audio Engineering Society (AES) & European Broadcast Union (EBU) specifications for digital audio. For data and control applications, the stadium deployed a combination of Belden's category 6 F/FTP cable, 4-pair central loose tube singlemode optical fiber cable and 8-pair central loose tube multimode optical cable.

## The Result

As the use of HD, 2K and even 4K in sports stadiums continues to drive a rapid increase in data rates, Belden's Pro Broadcast Cabling infrastructure solutions will be ready.

When the whole world watches the 2018 FIFA World Cup, it will be the performance-matched cable and connectors from Belden ensuring ongoing and outstanding reliable broadcasting of the events.

“For the fixed infrastructure at the stadium, we needed cabling solutions that must withstand a rugged environment and be water and temperature resistant. Belden was for us the right decision. We also needed the on-field termination process of Belden's one-piece HD BNC connectors to speed up the installation time.”

**– Wladislaw Grabowski**  
COO for Broadcast Solutions