

Night and rain no longer a game stopper

Franzsika Buch, Globalcom PR GmbH

With a surface area equivalent to 7,500 umbrellas, the new weather-proof harmonica roof over Centre Court at Wimbledon ensures that traditionally unpredictable rain breaks are now a thing of the past. The fans in the spectator stands can now experience the matches during the world-renowned tennis tournament without any interruptions, as if they were watching it on television at home. The lack of space around Centre Court meant that the roof construction was particularly challenging in terms of the technology required. The cables used in the drive for the sliding mechanism are provided by the Lapp Group, based in Stuttgart.

There must always be strawberries and cream at the oldest and most prestigious tennis tournament in the world. Sudden breaks in play have also been an age-old tradition, a result of every passing rain shower – and England is hardly known for a shortage of rain. In extreme cases, entire days were washed away. The television coverage was designed accordingly and turned to the archives to cover these breaks – documenting the careers of Steffi Graf or Martina Navratilova, or replaying the legendary 1980 final between Borg and McEnroe or Boris Becker’s Wimbledon victories.

Despite this, the All England Lawn Tennis and Croquet Club and plenty of Wimbledon fans have been keen for more certainty when it comes to

Lapp Group NA
www.lappgroupna.com

Media Contact
Maureen Broe
Communication Manager
29 Hanover Road
Florham Park, NJ 07932
800-774-3539
mbroe@lappusa.com



planning for a while now. So in 2004 the club decided to commission the company SCX Special Projects to equip the famous Centre Court with a weather-proof sliding roof. The moveable roof was finally completed in time for the 2009 Wimbledon tournament. Since then conditions at the site have fundamentally changed – matches can be played at any time day or night, come rain or shine. And so the first match that was played from start to finish under the roof finished later than any match before it. It wasn't until 10:38 p.m. that Andy Murray beat the Swiss player Stanislas Wawrinka in Wimbledon's first flood-lit match.

Traditionally evolving

The name “Centre Court” harks right back to the origins of the tennis ground in Wimbledon, when in 1881 the main court was located in the centre of all the other tennis courts. In the beginning, temporary stands only were constructed on three sides of the court; in 1884 these were developed into a permanent stand. The capacity of the spectator stands has continually increased; for example, in 1914 it grew from 2,300 to 3,500 seats. This number remained constant until the relocation to the new premises on Church Road in 1922. Here, there were then 13,500 seats for the audience. At the same time as the sliding roof was installed, the capacity was once again increased – 15,000 spectators were present when the canopy was inaugurated with a friendly doubles match between Steffi Graf and her husband André Agassi against Kim Clijsters and Tim Henman. So the harmonica roof is just the most recent of numerous innovations that

Lapp Group NA
www.lappgroupna.com

Media Contact
Maureen Broe
Communication Manager
29 Hanover Road
Florham Park, NJ 07932
800-774-3539
mbroe@lappusa.com



have completely changed the face of the Wimbledon venue repeatedly over the decades. “We wanted to respect the history and tradition, but at the

same time introduce extraordinary improvements for the players, fans and television viewers of the 21st century”, says Club Chairman, Tim Phillips, explaining the newest measures.

As the space around Centre Court is insufficient for the installation of a conventional sliding roof, the architects developed a special roof with harmonica folds. The construction weighs 1,000 tonnes and opens or closes at the touch of a button within just ten minutes. Moving and controlling such a large structure presents a particular challenge. 36 specially designed electric linear drives unfold the 5,200 square metres of special Tenara fabric, an extremely transparent and waterproof material that ensures Centre Court is flooded with daylight even when the roof is closed. 214 motor-driven components are responsible for controlling the roof and these are fully automated and work in coordination with each other.

Flexible and weather-resistant

The roof measures 80 metres in length, split into two sections with a total of nine fabric membrane sections. Each of the roofing membrane sections is supported by prism-shaped steel trusses on both sides, and there are a total of ten of these spanning the 77-metre wide Centre Court. The

Lapp Group NA
www.lappgroupna.com

Media Contact
Maureen Broe
Communication Manager
29 Hanover Road
Florham Park, NJ 07932
800-774-3539
mbroe@lappusa.com



complete lighting and ventilation system is attached to these trusses. If the roof is being closed, the steel trusses move on a powered chassis from the north or south end of the stadium towards the middle. The rails are

attached to the fixed roof on Centre Court that covers the spectators. Foldaway V-shaped end arms link the trusses together and four vertically fitted drives extend these end arms so that the steel trusses are spread apart and the roof closes. If all the end arms are extended, the “wings” of the roof membrane are unfolded. The roof can withstand wind speeds of up to 70 kilometres per hour during the opening or closing operation.

To ensure that the entire process runs smoothly, the electric cables must be highly flexible to accommodate the movement of the roof, but must also demonstrate a high degree of weather-resistance. To coordinate the control and movement of the individual motors, SCX Special Projects Ltd chose products from the ÖLFLEX® Servo FD series, as the class 6 stranding is highly flexible and the weather-proof polyurethane outer sheath is low-adhesive. The ÖLFLEX® Servo FD cables are combined connection and control cables, which reduces both the number of cables required and the time taken for assembly. The constructor deemed the FD cables provided by Lapp to be suitable as they have achieved over five million cycles under test conditions.

Lapp Group NA
www.lappgroupna.com

Media Contact

Maureen Broe
Communication Manager
29 Hanover Road
Florham Park, NJ 07932
800-774-3539
mbroe@lappusa.com



Quality of the “hallowed turf” guaranteed

The roof can be closed completely or just partly closed and thus offers different shade and wind protection options. Once the roof has been closed, it is necessary to wait for around 20 minutes for the optimum interior climate to be established before continuing play. The ventilations systems also contribute to the adjustment of the room temperature to between 22 and 26 degrees and the humidity to between 45 and 55 percent. It takes at most half an hour before play can resume on the “hallowed turf”.

When you consider that the moment a rain shower crosses Centre Court more than 15,000 pairs of eyes in the stadium and the attention of millions of television viewers around the world turn to the harmonica roof, it is clear that only components of the very highest quality could be used in its construction. And this includes C-materials, such as the Lapp cables, which nonetheless play a key role when it comes to controlling the complex mechanism. It is thus vitally important that these can withstand the constant bending and weather-related stresses with no functional limitations.

About the Lapp Group:

Headquartered in Stuttgart, Germany, Germany, the Lapp Group is a leading supplier of integrated solutions and branded products in the field of cable and connection technology. The Lapp Group has remained in continuous family ownership since it was founded in 1959. In the 2012/13 business

Lapp Group NA
www.lappgroupna.com

Media Contact
Maureen Broe
Communication Manager
29 Hanover Road
Florham Park, NJ 07932
800-774-3539
mbroe@lappusa.com



PRESS RELEASE



year, it generated a consolidated turnover of 830 million euros. Lapp currently employs approximately 3,200 people across the world, has 18 production sites and over 40 sales companies. It also works in cooperation with around 100 foreign representatives.

Lapp Group North America:

As part of the worldwide Lapp Group, Lapp Group NA offers a complete one-stop automation solution for cable and connector needs. Lapp has the broadest range of products, including OLFLEX®, UNITRONIC®, and SILFLEX® flexible and continuous-flex cables, SILVYN® cable track and accessories, EPIC® rectangular, circular, and Pin & Sleeve Connectors, SKINTOP® strain relief cable glands, FLEXIMARK® Cable Marking Systems, remote access ports, and custom harness assemblies. From its state-of-the-art manufacturing facilities in Florham Park, NJ, Lapp Cable Works manufactures custom cables for unique applications.

Lapp Group NA
www.lappgroupna.com

Media Contact
Maureen Broe
Communication Manager
29 Hanover Road
Florham Park, NJ 07932
800-774-3539
mbroe@lappusa.com

