

Inside OUT

Austria's Bregenz Festival has a new sound system designed to replicate the acoustics of a concert hall in a stunning open-air setting

The Bregenz Festival is world-famous for its unique setting on the shore of Lake Constance, Austria, where 7,000 spectators can be seated facing a huge floating stage. This special venue has defined the festival since it was founded in 1946, and it has been extended and enhanced over the years, ultimately becoming one of Europe's premier cultural events. The Vienna Symphony Orchestra has served as resident orchestra for decades, and together with an extraordinary cast of singers, the festival is also at the top level artistically.

Striving for the perfect sound has always been one of the festival's central aims. Over the years and step by step, the festival's audio team has expended an amazing effort to develop the sound Bregenz is famous for. One of the keys to the festival's success is its placement of its singers on the 50m (164ft)-wide stage, embedded in a spectacular broad and transparent orchestral sound. There is a new opera production every two years, and performances typically sell out, attracting nearly 200,000 visitors annually.

Landmark production

The festival's wonderful production of *Rigoletto*, debuted in 2019, has also been acclaimed for its technical brilliance. The highly motorised stage set has a gigantic moving clown head and flexible hand. Backed by an extraordinary technical

effort, the director and stage designer Philipp Stölzl has created incredible images and impressions against the stunning backdrop of the nocturnal lake.

This production was also the first to use the newly developed Bregenz Open Acoustics sound system, BOA 2.0. The main goal of the new setup was to recreate the acoustics of a concert hall for all audience members in this open-air setting; providing a stirring and enthralling sound to match the venue's impressive visual appearance. The new immersive sound experience delivers both the sheer power and intimate delicacy of Verdi's dramatic score.

Technical challenges

The new system utilises 29 masts surrounding the audience area, each equipped with carefully aligned loudspeakers positioned on two or three levels. The large size of the seating area presented a big challenge for the setup concerning the delay between the direct sound from the stage and the enveloping sound energy.

"Comprehensive simulations and comparison tests on site showed that the Kling & Freitag (K&F) Spectra 212 convertible array speakers were the perfect tool in this demanding situation," says Steve Hamann, marketing manager at Kling & Freitag. "With their precise coverage and fitting size, it is possible to outwit



Ralph Larmann

The original Bregenz Open Acoustics system, which was 15 years old, was renewed at a cost of €2.5m (US\$2.75m)

physics and literally shape the walls of the virtual concert hall as needed.”

Custom speakers

Near-field coverage is supplied by a K&F CA 1001 CX, a coaxial speaker that was designed specifically for this installation. With the uniform and broad directivity of this speaker type, the

Above: *Rigoletto* was the first production to benefit from the audio upgrade

Below: A test setup with speakers positioned on 29 masts around the audience

edges of the audience area can be covered by a relatively small number of speakers.

Key to the installation is the Vivace electronic acoustics processor by Müller-BBM. Known from classical acoustic enhancement applications worldwide, the system offers the flexibility to recreate a concert hall sound precisely. The system processes inputs from the singer's wireless microphones and the orchestra playing live in the adjoining concert hall. Based on the impulse responses of exemplary concert halls and opera houses, the input is converted into reflections and reverberations that are transmitted via 82 individually controlled loudspeakers.

Acclaimed by critics, the new setup proved to be the next big step in the development of the festival, reliably delivering extraordinary and lasting impressions. Frequently, sound is not consciously perceived as a major contribution to a festival experience. Bregenz is different: its overwhelming acoustics are always a vital part of the wonderful memories created there. ■

www.kling-freitag.com; www.mbbm-aso.com



Christoph Wöhler