

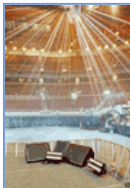


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Meyer Sound TM Array Gives Metallica Even Bass Coverage on In-the-Round Arena Tour

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IMAGES



"Big Mick" Hughes, FOH Engineer

"World Magnetic Tour" is taking Metallica across the US and Europe, playing arenas in the round with the new TM Array configuration deploying four center overhead arrays of Meyer Sound's ultrahigh-power 700-HP subwoofers. A fresh approach to providing even, powerful low-end coverage for in-the-round concerts with fewer subwoofers than traditional configurations, the TM Array delivered such exceptional results at Metallica's London and Berlin record release events that the band specifically requested production to use the system on the arena tour.

Playing in the round presents both opportunities and challenges. With successful implementation, it offers a dynamic and high-energy live experience for the audience with intimacy and immediacy unmatched by other layouts. Such setup, however, creates myriad problems for production, especially in the low-end dynamics. Metallica, the reigning godfathers of heavy metal, has been experimenting with different configurations for the past 17 years, but with varying success until the adoption of the TM Array.

"It's difficult," says "Big Mick" Hughes, the sound engineer who has been with Metallica since the band's beginnings. "Ask any engineer that's ever mixed in the round, and they will all say the same thing—it's very difficult to get even coverage, particularly in the low frequencies."

Meyer Sound Tech Support first supported Metallica in 2004 when the band played to 18,000 fans using a MILO line array loudspeaker system in Iceland. Meyer Sound continued working closely with Hughes and Thunder Audio Vice President Paul Owen on Metallica's appearances at music festivals, the 2006 "Escape from the Studio" tour, the "Sick of the Studio" tour in 2007, and played an integral role in providing a creative and effective solution for the in-the-round conundrum.

One of the first attempts was a groundstack configuration, and the crew also considered going underneath the stage. Both ideas were rejected—the former because it would blast the first rows with an eardrum-rupturing 145 dB of SPL, and the latter because it would cause earthquake-level tremors on stage. The intricate problem was solved when Thomas Mundorf, Meyer Sound's European Technical Support, used MAPP Online Pro acoustical prediction program to create the radical design of four arrays of ten 700-HP subwoofers above the stage. The configuration effectively achieves the desired coverage while using a smaller number of subwoofers than traditional configurations, a major logistical benefit for the large tour production.

"I must admit I was skeptical at first, I didn't think it would work," notes Owen, "but it did, and it was spectacular."

Mundorf had utilized a similar—though smaller—type of sub array in previous designs, so he knew the theory was solid, even with the unique demands Metallica brought to the table.

"By creating a line array of 700-HPs," says Mundorf, "and bringing them closer together, you take advantage of the fundamental law of good sound design, the basic line array principle that one sound source is the best possible option. This design uses that and the subwoofers' omnidirectional throw pattern."

The sound reinforcement for the tour also includes eight arrays of 12 MILO and four MICA line array loudspeakers each. Rounding out this system are 24 MJF-212A stage monitors. System drive is provided by a Galileo loudspeaker management system with five Galileo 616 processors. The RMS remote monitoring system feeds extensive real-time loudspeaker status and



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- "Big Mick" Hughes
FOH Engineer, Metallica

VIDEO

The TM Array: Interview with Thomas Mundorf

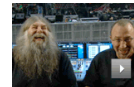


Concept to Reality



Technical Overview

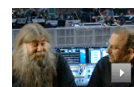
Interview with Big Mick Hughes and Paul Owen



MILO Array



TM Array



MJF-212A Monitor



A Long History



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performance data directly to the operator. A SIM 3 audio analyzer is used to optimize, calibrate and monitor the performance of the system.

"We'd never had even sub coverage in the round, ever," adds Hughes. "It's just the nature of the beast. But the fact that the TM Array puts bass absolutely everywhere is a first for in the round. It's just fantastic."

Pressure was high leading up to the TM Array's first deployment, but Metallica's enthusiasm about the resulting sound quality and the artists' insistence to use the configuration on tour proved that Mundorf's design was solid, and made the efforts worthwhile. "We've done this show for years with all configurations of PA," concludes Owen, "and this is the most even SPL we've ever been able to achieve. We're sold on Mundorf's design and the 700-HP subwoofers."

February, 2009

[700-HP](#)

[MJF-212A](#)

[Galileo 616](#)

[RMS](#)

[MAPP Online Pro](#)

[SIM 3](#)