Image Quality Accelerated by Norxe and AMST

4K/240 Hz Projection at 15 G

Ranshofen, Austria, July 2022 – A high-G version of the P50 projector with 4K resolution at 240 Hz has been released by Norxe in July 2022. The Norwegian company partnered with AMST, an expert in dynamic high-G flight simulation from Austria, to make the projector withstand enormous accelerations of up to 15 G. AMST was responsible for finite element analysis and tests in their Material Testing Centrifuge while Norxe was responsible for the engineering. Due to their expertise in manufacturing high-G training equipment, Norxe worked together with AMST to increase the projector's structural stiffness.

The partners already collaborated in 2019 to make Norxe's high-G version of its P1 projector the go-to solution for visual systems stressed by extreme acceleration. The P1 high-G has proven that it completely fulfills the specification of withstanding G-forces of up to 15 G in any direction. With the release of the P50 high-G even higher quality becomes available for moving systems with steep accelerations. Paired with reliability and low maintenance Norxe projectors are renowned for, the P50 becomes the ideal solution for high-G simulation.

Patrick Pletz, head of AMST's mechatronics department, gives insights into the optimizations developed under his supervision: "Since 1986, AMST selects, tests, and optimizes electronic equipment to be used under extreme G-loads. Our customers have high demands in image quality and reliability. They also are keen on low maintenance effort. We know that Norxe projectors offer excellent image quality and low maintenance, because we are using them in many of our simulators. But the challenge here was to make the projector so robust that the image stays excellent at 15 G and that G-loads do not shorten the projector's lifetime. Together with Norxe we have solved the problem and our customers are very happy with the solution."

An extensive test series has been performed with the high-G projector trimmed to structural stiffness on AMST's material testing centrifuge. The overall result at 15 G shows minimal deformation of the projection point. The image shift is negligible and within the tolerances for any training application.

Ronny Bjørnsen, Director of Mechanics at Norxe, about the partnership with AMST: "We design all our projectors to handle the forces experienced on 'normal' motion-based simulators but 15 G in any direction does present a compelling challenge. Although the majority of the P50 4K High-G remains as standard, we did need to adapt several structural elements within the projector to withstand these extreme loads. As a team of designers and innovators these types of challenges are extremely interesting, and we are very appreciative of our partnership with AMST and the unique product that we have developed together."

Innovation through cooperation of two expert partners made excellent products even better.

About AMST

For four decades, AMST has been offering its customers outstanding solutions in the fields of simulation and aerospace medicine. It is a technological leader in relevant key areas. The product portfolio ranges from human centrifuges, pressure chambers and spatial disorientation trainers to highly immersive full flight simulators with a best-in-class image generator as well as complex training environments for realistic night vision and search and rescue training. Many of the solutions developed by AMST are unique. All products come with a comprehensive service package. In addition to reliable technical support over the entire product lifecycle, this also includes services such as the design of and construction support for turnkey training centres.

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