

Press Information



Hydraulic high-frequency vibration test system for six-axis motions implemented in the climate chamber

Johnson Controls expands test capabilities for automotive seating in Burscheid with new “shaker”

Burscheid, Germany – November 9, 2015. *Johnson Controls, a leading manufacturer of automotive seating systems and components, has expanded its test capabilities in Burscheid with a new hydraulic high-frequency vibration test system known as a “shaker.” The automotive supplier is investing around two million euros in the test system. Equipped with six axes, this state-of-the-art system enables comprehensive comfort and durability tests – over a driving distance of 100,000 km (approx. 62,140 miles) for instance. Installation in a special climate chamber allows the simulation of different climatic conditions.*

“With its range of high-performance functions, the new shaker is unique in the automotive supplier industry,” says Dr. Detlef Juerss, group vice president and general manager Product Group Seating Components at Johnson Controls. “The 200 hertz system is a milestone in our development and quality assurance, and underlines our goal of manufacturing the best automotive seats in the world.”

High-frequency durability tests

With a maximum frequency of 200 hertz – the maximum output in this area of application – the test system shakes test specimens for several days and pushes complete automotive seats or individual components and modules to their limits. Axel Blankart, executive director engineering at Johnson Controls Automotive Seating, describes the process: “We recreate route profiles in our shaker that real test vehicles would travel. We simulate the entire life cycle of automotive seats over a driving distance of around 100,000 km.”

Blankart continues: “Conventional test stands rapidly reach their limits. While they are able to reproduce comfort tests, there are limitations when it comes to the long-term usage. With the new test system, we are able to offer our customers state-of-the-art test procedures that are unique among automotive suppliers.”

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Personal comfort checks

The shaker also enables comfort checks with lower motion frequencies. Live test subjects literally “take a seat” in the system for this and provide their subjective impressions of the test seat while sensors collect further objective data. This enables an exact determination of whether cushioning is comfortable or uncomfortable, and how the overall “feel” is experienced.

Climate chamber from -40°C to +100°C (-40°F to +212°F)

To complete climate tests, Johnson Controls’ new six-axis shaker has been installed in a chamber that can simulate temperatures between -40°C and +100°C (-40°F and +212°F). “This is based on highly sophisticated technology that no other automotive supplier offers to date,” Blankart emphasizes. “Every climate presents its own challenges to the materials. We are able to recreate exactly the conditions that our customers request.”

Furthering innovations

“The unique research and development expertise in Burscheid was decisive to Johnson Controls’ investment planning,” Juerss explains. The acoustics and comfort lab in Burscheid primarily focuses on key areas: acoustic, comfort and noise studies, durability tests, and experimental model analyses. At Johnson Controls, a prototype undergoes several hundred tests before it is market ready. The engineers strive to take a holistic approach by taking the weight savings trend that currently prevails in the automotive industry into account in seating systems with the ultimate goal of reducing CO₂ emissions. Absolutely no compromises are made when it comes to safety, though. Future innovations will now also be pushed to the limits on the new shaker to further enhance product quality. “The Burscheid site will thus assume a key role in the development of Johnson Controls Automotive Seating,” says Dr. Juerss.

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Johnson Controls Automotive Experience

Johnson Controls Automotive Experience is a global leader in automotive seating components and systems. The company supports all major automakers in the differentiation of their vehicles through its products, technologies and advanced manufacturing capabilities. With more than 200 locations worldwide, Johnson Controls is where its customers need it to be. Consumers have enjoyed the comfort and style of Johnson Controls products, from single components to complete seat systems. With its global capability the company supplies more than 50 million cars per year. Johnson Controls pursues a spin-off of its Automotive Experience business. Following the separation, which is expected to close in the third quarter of 2016, the Automotive Experience business will operate as an independent, publicly traded company. Bruce McDonald will serve as the chairman and CEO of the new company. Beda Bolzenius will serve as president and COO.