

NEW DISPERMAT DISSOLVER CV3EVO HAS IMPROVED ADAPTABILITY



BYK-Gardner USA announced the new CV3evo Dispermat® Dissolver, a redesign that is smaller and more compact with higher functionality. It features a closed worktop, unique lifting column, integrated control panel, large color display with light-up buttons, and optional modular components for better system adaptability. Manufactured by VMA Getzmann, the improved CV3evo dissolver has the same price point as the old model.

BYK develops innovative high-tech instruments, software, and services for testing color, appearance, and physical properties. BYK also specializes in supplying additives that improve product properties such as scratch resistance or surface gloss.

BYK-GARDNER USA
BYKGARDNERUSA.COM

HEBI ROBOTICS RELEASES NEW H-SERIES ACTUATORS



HEBI Robotics, a Pittsburgh-based robotics company and spin-off of Carnegie Mellon University's renowned Biorobotics Lab, has expanded its offerings with the new H-Series platform of smart robotic actuators. HEBI's H-Series introduces versatility, precision, and torque to create custom robots for

challenging environments. The H-Series is a fully featured robotic component with onboard IMU, current sensing, and over-temperature protection. This allows it to be used in everything from wheeled robots to collaborative robot arms.

The H-Series was built to provide more torque and versatility while still withstanding rugged conditions. HEBI's H-Series actuators run on anything from 24V-48V DC and communicate using standard 100 Mbps fiber-optic ethernet, allowing for easy, flexible integration with less downtime.

HEBI ROBOTICS
HEBIROBOTICS.COM

FAST FOCUS SCANNING SYSTEMS FOR MICROSCOPY AND METROLOGY APPLICATIONS



PI, a global leader in nanopositioning instrumentation, has extended its PIFOC series of microscopy products by two new economical nano-focus scanner packages for applications including surface metrology, super-resolution microscopy, light sheet microscopy, and digital slide scanning.

Two scanning ranges are currently available: the P-725.1CDE1S offers 100 µm, and the P-725.4CDE1S offers 400 µm. The fast scanners are based on a closed-loop piezo flexure design with capacitive position feedback for high linearity, stability, and repeatability. A compact digital controller with software is included.

PI AMERICAS
PI-USA.US

Show us your products! Newly released equipment, instruments, software, and other products designed for use in NDT work can be submitted to press@asnt.org. Submissions should include a writeup and high-res image.

SHOWCASE

LET OUR FRUSTRATION MAKE YOUR LIFE EASIER



Over 30 years, UTEX has designed and delivered many automated and semiautomated inspection systems. We have encountered system components and controls that were cumbersome, lacked precision, or were not designed with NDE in mind. So, we designed our own system components that are engineered for NDE professionals. They are robust,

precise, and intuitive to use. For example, our pendant offers two modes to control large, rapid movements or to make small, precise adjustments. Switching between modes is effortless, with tactile feedback, so that you can focus on the work, and not on the controller. To learn more, check out our videos.

UTEX
UTEX.COM/WEBAPPS/UTEXHOMEV2.NSF/~/.3.3

USING DIGITAL TWINS WITH IMMERSIVE 3D VISUALIZATION IN THE INSPECTION INDUSTRY

Background

The inspection industry plays a crucial role across various sectors, including manufacturing, construction, oil and gas, and infrastructure. Inspections ensure compliance with safety standards, quality control, and maintenance schedules, mitigating risks and enhancing operational efficiency. Traditionally, inspections rely on manual processes and physical presence, which can be time-consuming, costly, and often hazardous. Advancements in reality capture and digital twins are creating a solid foundation for true-to-scale (1:1) immersive 3D visualization in virtual reality (VR), augmented reality (AR), and mixed reality (MR). This combination offers innovative solutions for virtualizing inspector training, enabling real-time collaboration, and visualizing data analysis. These advancements have the potential to revolutionize traditional inspection methods.

Creating and Visualizing Persistent Digital Twins

Inspections generate vast amounts of data, including measurements, photos, and notes. Drones capture detailed lidar data, which can serve as a precise 3D foundation for creating digital twins. Additionally, many industries possess design or CAD drawings that, when combined with lidar or scan data, can enhance detail and accuracy. Data capture can also include

360° images and videos, which can further enrich the digital twin. Adding documentation and real-time sensor data to the digital twin provides live, actionable information. A digital twin, visualized at a 1:1 scale on immersive reality devices, creates opportunities to virtualize inspection processes that traditionally rely on in-person activities. These digital twins can be accessible 24/7 in a persistent manner for a variety of business applications. Open web-based rendering technologies, such as WebGL and the more advanced WebGPU, offer powerful and scalable solutions for diverse business needs. Additionally, the recent WebXR and OpenXR standards provide a unified, vendor-agnostic approach to supporting VR, AR, and MR devices, reducing key obstacles to business adoption. An example of using web technologies for extended reality (XR), which includes VR, AR, and MR, can be viewed live at <https://iq3connect.com/xr>.

Opportunities

Enhanced Safety, Efficiency, and Reduced Disruptions

A digital twin environment can significantly enhance safety by reducing the need for physical presence in hazardous areas. It also lowers the costs involved with travel and moving equipment, resulting in increased operational efficiencies and fewer business disruptions. Inspectors can perform virtual

walkthroughs to examine dangerous or hard-to-reach areas at their own pace, reducing the risk of accidents. Incorporating immersive VR and AR into inspection processes allows for accurate 1:1 scale visualization, which flat screen methods cannot achieve. This new approach reduces the necessity of being on-site, further decreasing business disruptions when travel is impractical.

Inspector Training

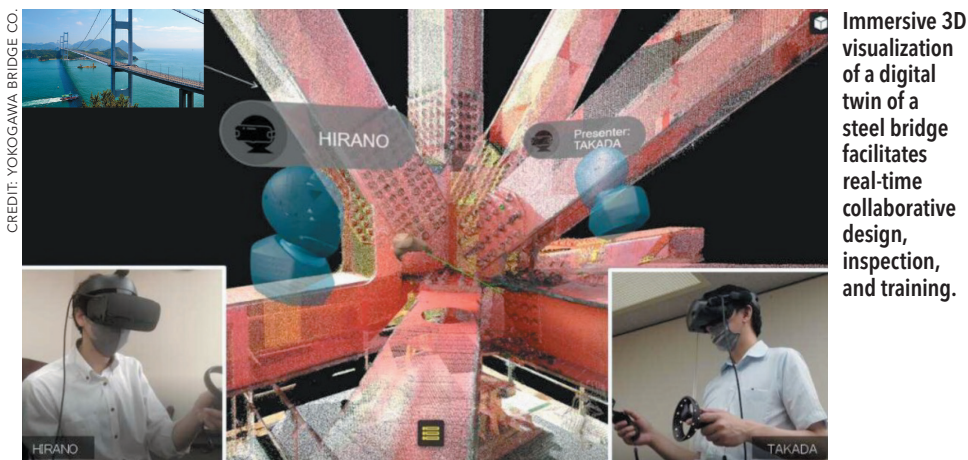
Digital twins with immersive training environments can simulate real-world inspection scenarios. VR can create realistic 3D environments where trainees can practice inspections without the limitations of physical locations. For instance, a trainee can virtually inspect an oil rig, practicing safety protocols and identifying defects in a controlled setting. AR and MR can enhance on-the-job training by overlaying digital information on physical objects. Inspectors can use AR glasses to receive step-by-step guidance, access technical documents, and visualize internal structures. This reduces the learning curve and improves accuracy.

Real-Time Collaboration with Experts

Similarly, a multiuser environment with digital twins can enable real-time collaboration between on-site inspectors, remote experts, and stakeholders in various locations. An inspector in the field can use AR glasses to share their viewpoint with an expert elsewhere, who can then provide immediate feedback and guidance. This capability is especially valuable in complex or hazardous environments where expert input is critical. Collaborative platforms can enhance this further by allowing remote experts to annotate the inspector's field of view, highlight areas of concern, and suggest corrective actions.

Considerations

While the adoption of immersive technologies in the inspection industry is highly promising, several considerations must



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