# Press release March 26, 2025

Digital Twins

**Digital Engineering in the Industrial Metaverse**

**The Industrial Metaverse streamlines and accelerates industrial processes. By utilizing digital twins and the use of artificial intelligence, automation tasks can be digitally planned, simulated, and optimized before their physical implementation. SCHUNK is enhancing its portfolio with digital engineering to unlock new potentials and boost customer productivity.**

Industry faces the challenge of producing responsibly, flexibly, and efficiently. The development of new products and the necessary manufacturing concepts must now be implemented much faster and be adaptable to variants and variables. The industrial metaverse creates a virtual, interoperable digital space for this purpose. Here, automation concepts can already be planned, extensively tested, and optimized—much faster and more comprehensively than would ever be possible in the real world. Virtual simulation not only accelerates the development of new products and systems but also reduces commissioning times, production interruptions, and costly post-corrections. SCHUNK also utilizes this to develop new digital components, and to drive technological progress in all areas of automation.

**Digital twins for flexible production**

At the core of every simulation is the digital twin—a virtual representation of a physical object or process. This model enables real-time simulation of new workflows and the interactions among various process components. SCHUNK employs a five-stage approach in developing accurate digital twins. Each stage progressively refines components and assemblies from clamping, gripping, and automation technology to closely mirror their physical counterparts. These digital twins encompass not only electrical properties and interfaces but also physical behaviors such as force, friction, and wear. The company has successfully digitally modeled the complete physical behaviors of several products, including new mechatronic parallel and centric grippers. A significant advancement is SCHUNK's AI-supported 2D Grasping Kit, which automates repetitive sorting and handling tasks. This kit comprises a camera with lens, an industrial PC, AI software, and an application-specific gripper, facilitating reliable handling of randomly arranged parts even under varying conditions. The 2D Grasping Kit's innovative design earned it the prestigious HERMES AWARD at Hannover Messe, setting new benchmarks in flexible and intelligent automation.

**Reimaging virtual realities**

As a technology pioneer, SCHUNK pursues a clear vision: to simplify its customers' entry into the world of automation. "By simulating automation tasks, we offer them a highly refined and highly productive solution, quickly optimized for their manufacturing requirements," says Timo Gessmann, CTO of SCHUNK. "Thanks to AI, we can greatly simplify engineering. With digital tools and simulations, all variants can be validated digitally in no time." In developing digital services, SCHUNK relies on technology partnerships. For example, the company uses tools like ISG Virtous or NVIDIA Omniverse for simulating and planning complex automation projects. Partnerships like the one with NVIDIA serve as a catalyst for developing AI-based solutions in simulation and production optimization. Through simulations in the Industrial Metaverse, SCHUNK creates synthetic data to support the training of AI models. At the NVIDIA GTC in March 2025, the leading developer conference for artificial intelligence, SCHUNK and Schaeffler presented a jointly developed simulated assembly application in robotics, where the 5-finger hand SVH, developed by SCHUNK, screws components into a housing. The application demonstrates how the boundaries of intelligent automation can be expanded and leveraged for industry. SCHUNK offers suitable end-of-arm components for all types of robotics, from industrial robots to cobots and humanoid robots, as well as the open digital building blocks for these applications.

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**Captions:**

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|  | “With software and simulation, we facilitate our customers‘ entry into  the world of automation, “ says Timo Gessmann, CTO SCHUNK.  Image: SCHUNK SE & Co. KG |
| *Portrait\_TimoGessmann\_2025.jpg* | |
|  | Simulate, validate, deploy: At NVIDIA GTC SCHUNK and Schaeffler demonstrated simulation possibilities within NVIDIA Omniverse.  Image: SCHUNK SE & Co. KG |
| *SVH\_GTC\_Applikation\_03\_2025.jpg* | |
|  | Developed in partnership: Automation exemplified by screw assembly application – digital and physical hand in hand.  Image: SCHUNK SE & Co. KG |
| *GTC\_Applikation\_Schaeffler\_SCHUNK\_03\_2025.jpg* | |

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