

Press release

Compact servo press as an alternative to pneumatic systems: simply plug in and join with integrated force-displacement monitoring

Kistler presents an easy-to-integrate electromechanical joining system for machine and plant engineering

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Electromechanical joining is becoming much more effortless. For the first time, the new Integrated Joining System (IJSys) with force-displacement measurement by Kistler combines all the components of a servo press in a single housing. Process monitoring and control remain the only components that must be connected separately via the maXYmos NC system. Thanks to its compact design, the new joining system is an energy-saving alternative to pneumatic systems.

Electromechanical joining systems are precise, flexible, and energy-saving. Yet external components such as the drive, safety or measurement technology need to be positioned in a separate control cabinet, which increases the integration effort. Kistler developed the IJSys in response to the need for a space-saving and easy-to-integrate solution. The new joining module combines all components in one unit. It integrates the servo drive, the sensor, data digitization and the safety technology directly into the module. As with other electromechanical joining systems from Kistler, a precise force sensor is integrated. The system digitizes the force-displacement data internally and transmits it via an EtherCAT interface. Users can evaluate the data with the proven maXYmos NC process monitoring system from Kistler. Alternatively, they can process the data directly in a higher-level system.

During the development of the new servo press, Kistler reduced space requirements and integration effort by minimizing the number of cables. The system supplies power, logic and data transmission via a single hybrid cable. Only the integrated safety technology requires an additional cable to connect the module to an emergency stop system, for example. The power supply is designed for 48 volts instead of the usual 230 or 400 volts. This protective low voltage eliminates the need for a licensed electrician to connect the system.

Compact joining system – also as an alternative to pneumatics

The Integrated Joining System has a joining force of up to 2.5 kN, a stroke of 200 millimeters, and a travel speed of 250 millimeters. The mechanical interface is designed in accordance with ISO standard 15552. This makes the servo press particularly suitable for applications in electronics and automotive manufacturing, where pneumatic systems have previously been used primarily due to space constraints or cost reasons. Electromechanical technology offers a number of advantages: on the one hand, it is more energy-efficient in operation, and on the other hand, electromechanical systems are more flexible. While pneumatic systems usually move only between start and end positions and require considerable effort to reach intermediate positions, electromechanical systems can be controlled continuously. Equally, the force ranges and speeds required for the process can also be achieved much more precisely and flexibly with an electromechanical system than with pneumatic solutions.

Expert in force-displacement monitoring Kistler cooperates with integration specialist Cyltronic

Kistler developed the compact all-in-one joining system in collaboration with Cyltronic AG. “Our colleagues at Cyltronic bring valuable experience in integrating components for electric cylinders. This expertise was essential for implementing our new system quickly and successfully,” explains Dr. Bastian Telgen, who was responsible for the development of the Integrated Joining System at Kistler. “We look forward to working with our customers on many projects and to developing further solutions and functions in line with market requirements and user feedback.”

Image material (please name the Kistler Group as picture source)



Kistler developed the all-in-one servo press, the Integrated Joining System, in collaboration with Cyltronic AG. Thanks to its compact design, it serves as an energy-efficient alternative to pneumatic systems and is well-suited for compact machine designs. Cyltronic contributed its expertise in integrating components into electric cylinders.



The Integrated Joining System is easily connected to industrial machinery and plants using two plug-in cables: a hybrid Y-cable for power and logic supply as well as data transmission, and another cable for safety technology.



The force-displacement monitoring of each joining cycle is performed in combination with the process monitoring system maXYmos NC. It visualizes, evaluates and documents the individual force-displacement curves, the joining quality, and ensures seamless traceability.



Precise force-displacement control for stable joining processes is based on the parameters of force, position, and speed, as well as clearly defined limit values and reproducible process windows. The process data force and displacement are recorded in real time so that deviations can be responded to.

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About the Kistler Group

Kistler is the global market leader for dynamic pressure, force, torque and acceleration measurement technology. Cutting-edge technologies provide the basis for Kistler's modular solutions. Customers in industry and scientific research benefit from Kistler's experience as a development partner, enabling them to optimize their products and processes so as to secure sustainable competitive edge. Unique sensor technology from this Swiss corporation helps to shape future innovations not only in automotive development and industrial automation but also in many newly emerging sectors. Drawing on our extensive application expertise, and always with an absolute commitment to quality, Kistler plays a key part in the ongoing development of the latest megatrends. The focus is on issues such as electrified drive technology, autonomous driving, emission reduction and Industry 4.0. Some 2,000 employees at more than 60 facilities across the globe are dedicated to the development of new solutions, and they offer application-specific services at the local level. Ever since it was founded in 1959, the Kistler Group has grown hand-in-hand with its customers and in 2025, it posted sales of 424 million Swiss francs. About 9 percent of this figure is reinvested in research and technology – with the aim of delivering innovative solutions for every customer.