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Press release

Monitoring directly in the stamping tool

Stamping: reliable double sheet prevention with new monitoring system – also as a retrofit

Winterthur, July 2025

Kistler has developed the KCA 400T analog controller to make even more efficient use of analog sensors in stamping: Thanks to its large touch display, the modernized subsystem for monitoring systems on stamping machines enables simple implementation of double sheet control using sensors integrated into the tool – even as a retrofit on older machines.

Stamped and hybrid parts are standard equipment in demanding sectors such as the automotive, electronics and household appliance industries. Over the last few decades, not only has production evolved – progressive dies enable the manufacture of complex parts – but also quality assurance: integrated sensor technology (optical, piezoelectric, inductive) in conjunction with tool and process monitoring systems guarantees tight tolerances and high process reliability during stamping.

Double sheet detection plays a special role here: if stamping waste is not completely discharged downwards, the tool may tilt; this is why it is referred to not only as double sheet detection but also as tilt detection. Kistler's analog inductive sensors have proven to be particularly advantageous for detecting double sheets: In combination with the KCA 400T analog controller, these distance sensors detect even the smallest stamping waste in the tool and thus prevent component damage and possible tool breakage.

Intelligent stamping: no double sheet in the stamping tool

With the new KCA 400T from Kistler, analogue sensors installed in the stamping tool can be conveniently parameterized and connected to the stamping machine or its monitoring system respectively. The analog controller has four inputs for analog sensors (0 to 10 V) and a digital output (PNP). All sensors can be set with different tolerances (in the range 10 to 200 µm) via the large touch display. Error messages are now displayed in plain text and with additional explanations – in addition to German, English, French and Italian, now also in Chinese and Spanish.

In AUTOSET mode, the KCA 400T automatically reads the signals from the connected sensors. After starting the press, a comparison is made between the stored set values and the actual values determined during the run. If all actual values are within the set tolerance, a PNP output signal is

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sent to the downstream **tool** monitoring system. If one or more sensors exceed the set tolerance, no output signal is generated and the tool monitoring system stops the press. Thus, the analog controller's function is monitored with every stroke. The corresponding error message is shown on the display.

The double sheet control implemented with analog inductive sensors is more accurate than with digital (switching) sensors, for example, and offers the possibility of achieving very high monitoring accuracy and therefore the highest quality in stamping, even for older stamping machines.

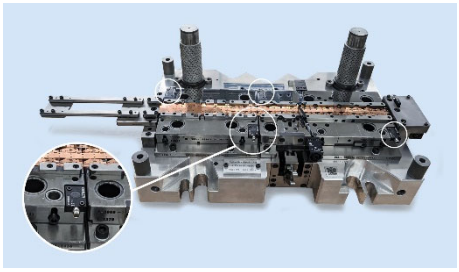
Best tool protection when stamping – also as a retrofit

The new KCA 400T can be combined with all tool and process monitoring systems available on the market – existing monitoring systems can be easily retrofitted. If more than four analog sensors are integrated into a stamping tool, several Kistler KCA 400Ts can be used in parallel and connected to the monitoring system. Each analog controller only occupies one input, so that one digital input of the monitoring system becomes four analog measurement inputs.

Bildmaterial (Abdruck honorarfrei unter Angabe der Bildquelle Kistler Gruppe) Link

Stamping: The new monitoring system KCA 400T from Kistler allows the convenient use of analog sensors directly in the stamping tool.

Double sheet control: Analog inductive sensors from Kistler monitor directly in the stamping tool.



View of stamping tool: The analog inductive sensors are directly integrated to achieve high-precision double sheet control in conjunction with the KCA 400T monitoring system.

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For quality assurance in stamping, Kistler offers sensor systems for process monitoring, optical inspection systems including state-of-the-art image processing software plus automatic laser marking (marking-on-the-fly (MOF)).

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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 2024, it posted sales of mCHF 448. About 9 percent of this figure is reinvested in research and technology – with the aim of delivering innovative solutions for every customer.