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## IEF-Werner expands intelligent servo press series aiPRESS: a new force dimension

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IEF-Werner expands intelligent servo press series aiPRESS

## A new force dimension

The aiPRESS series of IEF-Werner offers servo presses that press components with an accuracy of a few micrometres - and do so automatically. The automation specialist has now extended the series: users can now obtain the powerful servo press not only in three, but in four sizes. The largest version now presses components with a force of up to 100 kilonewtons.

Furtwangen, 15.02.2021 - "Servo presses are used when a certain level of precision needs to be achieved," Peter Pfaff, Head of Product Management Servo Presses at IEF-Werner GmbH, explains. "With servo presses, this precision can be checked at the same time after joining the components and thus the assemblies can be divided into good and bad parts or into different quality levels." Since 2013, the automation specialist from the Black Forest has offered the proven aiPRESS series for these tasks. Users can integrate the flexibly designed systems both in automated production lines and in manual workstations. For this purpose, the presses have several standardised software or simple I/O interfaces. Until now, IEF-Werner had three sizes in its programme: the smallest has a force of three kilonewtons with an opening of 180 millimetres, the second has a force of 15 kilonewtons with an opening of 230 millimetres and the largest version, until recently, has a force of up to 36 kilonewtons with an opening of 280 millimetres. "More frequently, customers approached us and reported about projects where significantly greater pressing forces were required," Pfaff reports. "Typical applications came from the automotive industry, for example." The aiPRESS 100 has now been on the market since the beginning of the year. With a weight of about 650 kilograms, the far more massive version can now press larger components with an opening of 350 millimetres and a force of up to 100 kilonewtons and a repeat accuracy of a few micrometres.

"In order to deliver precise results under such a high force, the basis of the servo press series consists of a fixed and torsional rigid C-frame", Peter Pfaff describes. IEF-Werner has developed a clever idea to counter the bending up of the frame at very high forces: "The bending up of the C-frame is measured and the difference is compensated", Peter Pfaff says.

The train drive, which consists of a high-precision spindle, a servo motor, and a quill guide, also ensures precise operation. This allows lateral forces to be absorbed safely. A precision guide keeps the drive train of the aiPRESS exactly on track over the entire working path. A configuration system ensures that it can be adapted to the required force range. "The servo drive thus always works under optimal operating conditions," Peter Pfaff promises. "The operator can adapt process factors such as feed force, travel speed, positioning time and accuracy to the application."

The IEF developers have attached a displacement measuring system with a resolution of one nanometre directly to the press spindle. "This allows the user, for example, to approach an already pressed assembly again with a defined force in order to precisely measure the press-fit depth of a component," Pfaff explains.

## Safe and user-friendly operation

When developing the aiPRESS, IEF-Werner placed a lot of emphasis on safe operations. "When it is in use as a stand-alone system, a transparent protective cover completely encloses the working area during the pressing process", Peter Pfaff describes. The operator thus has no possibility of reaching into the danger zone with his hand. The protective cover is NC-controlled and designed in such a way that there is no risk of injury when it is closed.

The user also benefits from an ergonomic and user-friendly set-up and operating concept. For this purpose, the IEF developers have equipped the graphical user interface of the aiPRESS with its own operating system for press processes. The centrepiece is the aiQ-CONTROL. This force-displacement monitor graphically displays the pressing process and monitors its progress. The monitor includes various functions such as envelope curves, windows, and force-path barriers. In this way, the operator always keeps an eye on measured variables that are related to each other in certain ways.

## Force or Path?

"If two components are to be pressed, either the force or the path can be the variable," Pfaff describes and points to the user interface. The other variable is fixed in each case. In order to obtain an optimal result, the ideal characteristic curve must run through a certain window in the force-displacement monitor. The user also has the option of integrating further fields to the right or left, below or above the ideal characteristic curve and thus defining different quality levels. Via the force barrier, for example, the operator can monitor whether a defined force has been reached or already exceeded. Peter Pfaff points to a curve that crosses the line.

The path covered by the press spindle sleeve can be monitored in the same way. "Here we have an envelope curve that must neither leave nor touch the measuring curve," Pfaff says. With the aiPRESS, the user can thus see exactly whether a composite is "good" or reject after pressing - and correct the respective values in advance for the processing of further parts.

With the servo press, the user can enter further information about the pressed assemblies, such as the production date or the part number, and then stamp the assembly. The aiPRESS records all this data and stores it in a file. "In this way, the user can prove exactly when which product was manufactured," Peter Pfaff says. "This is evidence that is required by certain industries, such as the automotive industry." All inspection results can be transmitted to a QM system via TCP/IP or simply stored on the internal hard drive, a server or other data carrier, such as a USB stick. If you would like to find out more about the aiPRESS servo press series, you can find all the important information at [www.aipress.de](http://www.aipress.de).

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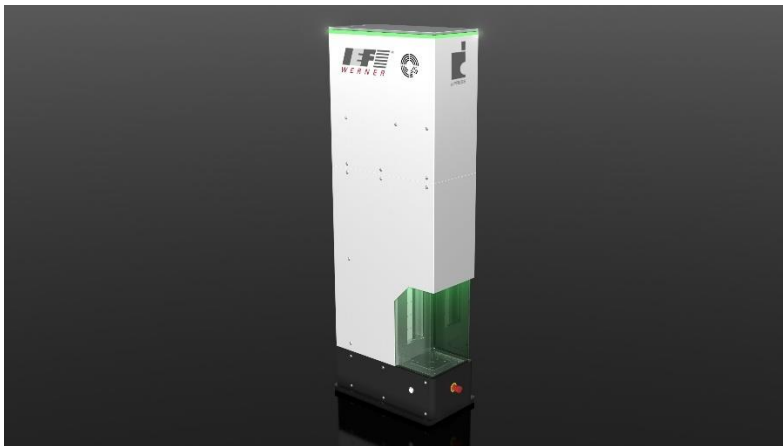
**Meta-Description:** With the new and stronger aiPRESS 100 servo press, users can press components with a force of up to 100 kilonewtons.

**Keywords:** IEF-Werner; Servo presses; aiPRESS 100; Presses;

## Captions:



Picture 1: The four sizes of the aiPRESS series. The developers at IEF-Werner have placed particular emphasis on a rigid design.



Picture 2: The aiLIGHT process visualisation shows different working states by means of energy-efficient four-colour LED technology.



Picture 3: aiPRESS with automatic protective cover and the operating software aiQ-CONTROL.

# Technical report

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Picture 4: Peter Pfaff, Head of Product Management Servo Presses at IEF-Werner GmbH.

Images: IEF-Werner GmbH