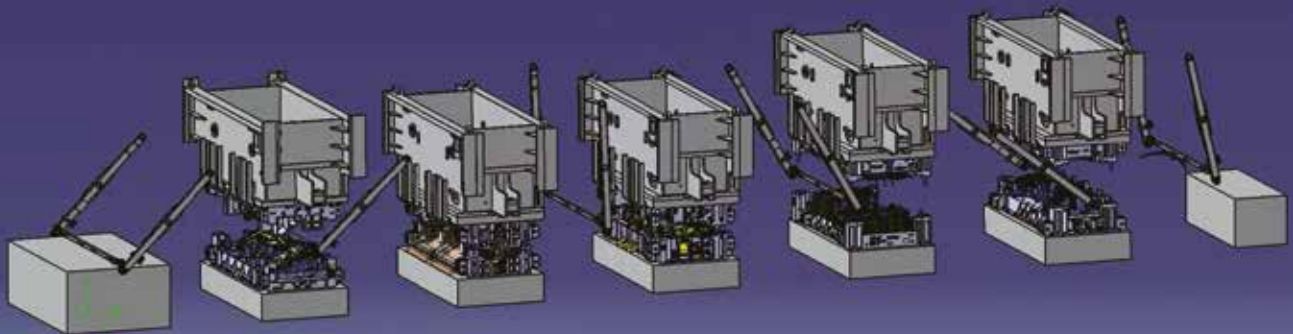


AIDA'S AICARE: DIGITALISATION OF PRODUCTION FACILITIES

AIDA is researching methods for forming non-steel materials such as aluminium, in efforts to create lighter-weight automobiles.



AIDA Digital Motion System Using Synchronization Control System to perform 3D simulations of high-speed transfers.

Manufacturers worldwide, are increasingly digitalising their forming systems to lower costs and address the problem of labour scarcity. In general, these demands seek the digitalisation of manufacturing environments, the usage of big data to help solve issues on the production floor in the specialised field of customisation. Manufacturers are also striving to evolve these systems from conventional computer-controlled automation systems to a more advanced level defined by production site digitalisation, in line with the fourth industrial revolution.

Digitalisation Of Industrial Production Lines

Implementing Industry 4.0 and Internet of Things (IoT) concepts to optimise manufacturing quality and efficiency are gaining momentum around the globe. Cloud-based control technology shapes the ideal basis for processing big data, considering the performance and compatibility. World's leading press system manufacturer- Aida

Engineering, established since 1917, recognised the digital transformation advantage at a very early stage. It has therefore, not only offer press machines, but solutions for automating and digitalising entire production lines.

A digital production line not only benefits an organisation's business and its operations, it brings the overall production efficiency to a whole new level. Analysing and processing tools are widely adopted by industrial companies for the digitalisation of industrial production lines. By installing sensors and detecting anomaly much earlier, it makes the production process more flexible and thus, generates new capabilities for both product designs and production capacity. The benefits gained from using a digital production line with IoT including Preventive Maintenance, prevents unplanned downtime and expensive costs incurred from press line failure. As a result, Preventive Maintenance bolsters cost savings and minimises press system operations disruption.

AiCARE Machine Information Management System

Developed by AIDA, AIDA Information Care System (AiCARE) centralises the gathering of data from sensors installed on presses and other equipment. It also goes beyond that. It can be customised to provide the information desired by the customer and it can perform various types of analyses.

AiCARE enables remote monitoring of production lines, and is instrumental for tasks such as management and analysis of operating conditions and the centralised management of production and preventive maintenance. Visualisation tools present operational status in dashboards and allow production floor to quickly detect anomalies and track those issues accurately. Operational management reports provide a timely overview of the manufacturing plant and therefore, achieve a further enhancement of production management through IoT systems.

AiCARE uses sensors installed on presses to monitor operating status, throughput, utilisation time, operating temperature of various press components, error codes, and other indicators, and makes it possible to visually communicate the status of a press and analyse its condition. It keeps track of where parts are in their lifespan and sends email notices to maintenance supervisors when a part has reached the end of its service life. These kinds of functions help to identify issues in advance, enable production shopfloor to react faster, and ultimately, improve the production efficiency and maintenance of product quality.

AiCARE will result in improvements not only in quality and capacity utilisation, but also in areas such as preventive maintenance. It corresponds with the average or expected downtime for the equipment lifecycle based on the actual equipment condition and information from the whole production process. This enables users to monitor a machine's

operational status remotely and when problems occur, they can use a tablet or smartphone to pinpoint the problematic areas and swiftly respond with minimal production line disruptions. AiCARE received various global recognitions for its digitalisation contribution - including CWIEME Global Awards 2019, in Evolution 4.0 category.

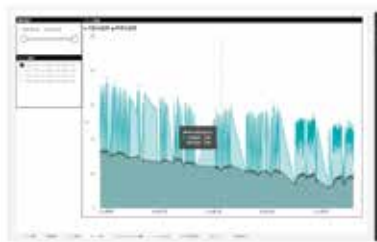
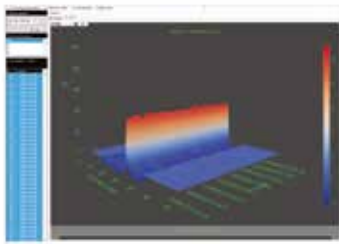
Value-Added Creation Through Forming Systems And IoT

Since introducing the world's first direct-drive servo press in 2002, AIDA has continued to rapidly evolve in digitalising control technology. Servo presses are capable of highly precise motion control and can increase productivity and formability when synchronised with transfer feeders and other peripheral equipment. Optimising entire forming systems built around servo presses will maximise benefits for customers. In order to achieve not only motion control for individual presses but also control and synchronisation

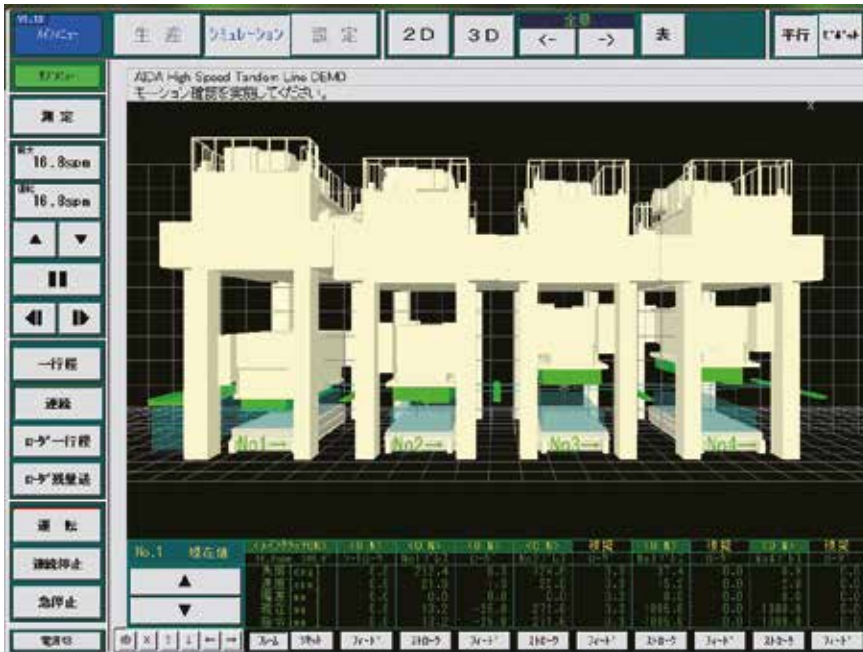
of multiple presses—as in tandem lines—and for entire lines that include material feeders, automated transfer equipment, and other types of peripheral equipment, AIDA enhanced and expanded computer-based automation. Such press line data-sharing has enabled simulations for the achievement of optimal production and the sharing of production programs among manufacturing sites.

IoT Makes The Most Of The Power Of A Servo Press

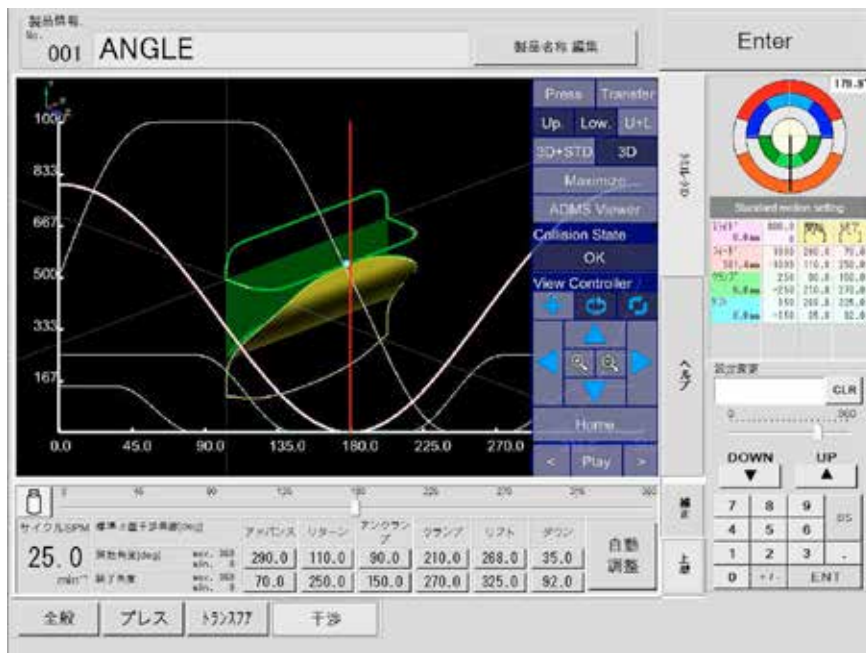
DSF-T4-35000 Servo Transfer Press incorporates a conveyor-to-move workpieces to the next manufacturing process. In the past, the servo transfer press motion had to be visually checked and manually adjusted to ensure that the slide would not interfere with transfer equipment. To eliminate this, AIDA developed another IoT-- AIDA Digital Motion System (ADMS), which uses optimised buffer-free motion settings are made possible by computer-based automatic



AiCARE Machine Information Management System



ADMS (AIDA Digital Motion System)



The AIDA Digital Motion System (ADMS) for automatically setting optimal motions.

calculations, thereby reducing production losses and significantly improving forming precision and productivity when forming high-strength steel sheets.

Automatic optimal motion-setting device automatically sets the optimal motion of the transfer so it can

smoothly track and synchronise with the motion of a servo press. Using ADMS to check for Interference between the slide and transfer, enables high productivity even when forming high-strength steels and using forming motions for complex shapes that are susceptible to cracking.

Bringing Innovation To Customers' Factories By Developing High Value-Added Products.

The AIDA's R&D initiatives is to respond to the evolving needs of the times. The fundamental goals of these initiatives are to make core products more robust, to establish basic technologies, and to develop next-generation products.

Along these lines, AIDA is researching methods for forming non-steel materials. Aluminium, for example, plays a critical role in efforts to create lighter-weight automobiles. AIDA is investigating new ways to use a servo press to form semi-solid aluminium material with a fine metallographic structure. It is envisioned that this work will result in the ability to use thinner materials to form high-strength aluminium components with a very low defect rate, and believe greater design freedom and higher precision of formed shapes will result as well.

It is important to focus on simulation technologies that will further enhance productivity by optimising synchronised controls for servo presses and transfer equipment, and moving forward with the development of products such as a new UL Series of large precision forming presses, high-speed articulated transfers, and large-capacity destack feeders for non-ferrous materials. Work is also progressing on new technologies in relation to motor systems for press machines, systems for forming lightweight materials, and IoT systems—all of which will lead to the further evolution of entire production lines. Through these efforts, AIDA aims to offer forming systems that precisely respond to customers' true needs. ✪

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