

KEATS - HYDRAULIC PRESS OEE SYSTEM

ABOUT KEATS SOUTHWEST. Keats Manufacturing Company has three full-service, state-of-the-art facilities to better serve their customers' needs. Since 1958, Keats Manufacturing Company has been providing customers with the highest quality custom small metal stampings, wire forms and assemblies. While headquartered in Wheeling, Illinois, they also have facilities in El Paso, Texas, and Querétaro, Mexico. All three locations utilize advanced technology and innovative machinery to successfully serve customers' custom small metal stamping, wire form and assembly requirements.

THE CHALLENGE. A machine halt occurred each time an operator left the station for any reason or tool running in the press. The hydraulic punch presses used at that time did not have a system to quantify machine availability, process performance and product quality. This made it difficult to measure the overall efficiency of their equipment (OEE). The manufacturer was unable to accurately calculate the hydraulic punch press's bracket production. Additionally, the organization was unable to quantify or measure the availability of the hydraulic press. Keats' goal was to understand and improve the OEE by identifying losses and improving the productivity of the equipment.

MEP CENTER'S ROLE. TMAC, part of the MEP National Network™, proposed and designed an embedded system to automatically measure machine availability, process performance and product quality which at the same time allowed to calculate the OEE. With the help of the embedded system of Arduino microcontrollers (a programmable circuit board that has software for writing and running codes for specific purposes), optical and electrical current sensors. All of these components were utilized in this project to establish connectivity between the hydraulic punch press, computers, and sensors.

The system was able to collect the number of cycles, current available for production, and number of defective parts to be used to calculate the overall equipment efficiency. This calculation helped to identify inefficiency in their processes to improve in future.

Keats has placed extra emphasis on OEE during reviews of the machinery. Since the shift Keats has seen a major change in the overall Maintenance of the machines. If the OEE is reviewed low Keats will identify the potential issues and take action. Keats has done a much better job of taking action when lack of efficiency is seen. A figure amount has not been developed, but cost savings since project has been launched is inevitable.

"This is not the first time Keats has used TMAC to improve overall capabilities on our shop floor. With the help of TMAC, Keats now has the ability to track the overall efficiency of one of the most important stamping presses in our facility. TMAC was able to install the system on the spot with little downtime to production. This system will help Keats stride for continued improvement and extend capabilities of our machinery for world class performance. We always look forward to working with the team at TMAC!"

-Brian Keats, Quality Engineer

RESULTS



Increased accuracy of machine OEE (Overall Efficiency of Equipment) measurement



System provides timely information on machine to determine overall maintenance plan



System design includes easier operator input to factor quality in the OEE calculation

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