



Application Success Note

Application:

Heavy-- Duty Truck U-Joint Assembly Press

Products:

S-Series SMART Hydraulic Actuators

Industries:

Automotive Appliance
Aerospace

Heavy-Duty Truck U-Joint Horizontal Assembly Press

Challenge:

A Heavy-Duty Truck Axle manufacturer launched a project to procure a horizontal assembly press for a new Axle line from a Special Machine Builder. The new line needed to achieve improved process quality for the assembly press station as part of a company-wide initiative to improve throughput and reduce rework.

In addition, the Axle manufacturer had a requirement to minimize the use of hydraulics in the plant due to the advantages of being environmentally cleaner, providing significant energy savings, reducing floor space and quieter operation.

The customers' "minimal hydraulics" mandate created unique challenges for the Machine Builder due to the high forces required in the assembly press stations.



Kyntronics All-in-One SHAs rated at 45,000 lbf (200kN) in a Parallel Configuration

Solution:

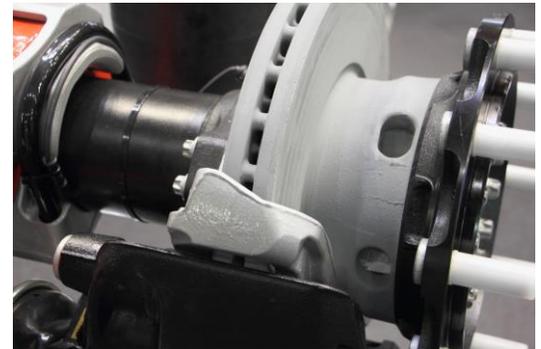
The Machine Builder considered using electro-mechanical actuators (EMA) but found that the large size and high cost of EMA technology was prohibitively expensive and would not meet their project requirements. In addition, there were concerns about EMA screw life due to the uneven "spike loads" the actuators would be subject to during production.

After careful consideration, the Machine Builder selected Kyntronics All-in-One SMART Hydraulic Actuators (SHA) for the horizontal assembly stations on the new Axle line. The SHAs were rated for 45,000 lbf (200kN) of force and were provided in a parallel

configuration providing the force required in a compact package that fit the available space envelope.

The SHA provides precise and repeatable control of applied force and position which was critical for the quality standards required from the new horizontal press.

Finally, Rockwell Automation (Allen Bradley) Servo Motors and Drives were used on the SHAs which met the customers' control specifications.



Results:

The Kyntronics SHAs implemented on the new horizontal press stations exceeded the requirements of the machine builder and end customer including the following highlights:

- The SHAs All-in-One feature eliminated the need for an HPU and hydraulic infrastructure on the new machine resulting in less space required for the machine, a clean working environment, quieter operation, and substantial energy savings.
- The SHA's use of precision force and position control exceeded the Axle manufacturer's stringent quality requirements and helped improve output of defect-free assemblies.
- The SHA provided very reliable, maintenance-free operation despite the uneven loads experienced during the assembly process.

The Kyntronics SHA combines the power of hydraulics with the precision of servo control resulting in an ideal solution for the U-Joint Assembly process on this Horizontal Press.

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