

Accurate and stable actuator for an automatic screwdriving application

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INDUSTRY	PRODUCT	COUNTRY	PROCESS
Manufacturing	SBD Belt Driven Actuator	The Netherlands	

Accuracy, repeatability and stability were the key performance requirements specified for an actuator to be used in an automatic screwdriving application for AVK Plastics, a manufacturer of synthetic surface boxes and pallets based in the Netherlands. AVK Plastics turned to HepcoMotion after the previous actuator could not provide the high stability required, causing them to need a replacement.

A central part of the system, the actuator is responsible for moving an automatic screwdriver horizontally in order to fix 3 x screws (spaced 300mm apart) into a pallet. Precision and repeatability are key here as the screwdriver needs to be precisely aligned in order to fasten the screws into the screw holes. In addition, the unit also needs to offer high stability due to the precision and accuracy required.

Mr Hylke Vlieg, Technical Service Engineer from AVK Plastics explains: “With the previous actuator we used, there was play on the car in no time, which did not improve accuracy.” After 14 months it broke down and after research, AVK Plastics replaced it with HepcoMotion’s SBD belt driven actuator which was able to meet the technical requirements.

Based on ballrail technology, SBD carriages are pre-loaded to eliminate play and deliver high rigidity for precision applications such as this. As AVK Plastics experienced with the previous system, any movement in the carriage plate affects the accuracy of the screwdriver making the process obsolete; this resistance to movement provided by Hepco’s SBD was therefore of utmost importance for AVK Plastics.

SBD is a zero backlash system, ensuring excellent positional accuracy and repeatability; fundamental requirements for this application, which has a required accuracy of 0.1mm. Operating 24 hours a day, 7 days a week, this is a high duty application, with a required service life of 5 years which HepcoMotion was able to confidentially meet.

The automatic screwdriver and accompanying equipment is reasonably heavy, providing a payload of 18kg. SBD is well suited for this, providing a higher level of performance in terms of load capacity and life than other comparable sized actuators.

The frame is constructed using Hepco’s MCS aluminium profiles, and the SBD is powered by a servo motor and energy chain. The system has been in use trouble-free for over 10 months with the only maintenance required to periodically spray grease into the re-circulation block.

Says Mr Vlieg: “I am very satisfied with the stability and accuracy of this system. It also needs little maintenance.”

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