

SERVO SOLUTION FROM INOVANCE HELPS FABRIC PRINTING MACHINE ACHIEVE HIGH ACCURACY AT SPEEDS OF UP TO 180 METRES PER MINUTE

Customer Profile

The customer is a leading Indian manufacturer of textile, printing, and materials handling machinery; and has a particular expertise at building and maintaining rotary screen printing machines.

The Challenge

They were attempting to use a conventional rotary screen fabric printing machine to print onto large fabric blankets. The machine was controlled by an AC motor and variable speed drive. This caused a problem because, whenever the AC motor changed speed, the synchronization between printing head and fabric was being lost. In each instance of mismatch about 10-20 meters of fabric was wasted. The AC motor and drive combination just didn't have the accuracy that was needed for this application.

The Solution

Industrial automation group Inovance designed an EtherCAT-based servo solution comprised of SV660N high dynamic performance servo drives coupled with high performance MS1 servo motors, and IS650N high power servo drives controlling energy saving ISMG servo motors. The system is managed by an EtherCAT-enabled AM600 motion controller with PLC functionality, and Inovance's IT7000 high-performance HMI.





Key benefits:

High printing accuracy ($\pm 0.02\text{mm}$) for a line speed of up to 180 metres per minute

Top printing speed achieved within 15 seconds

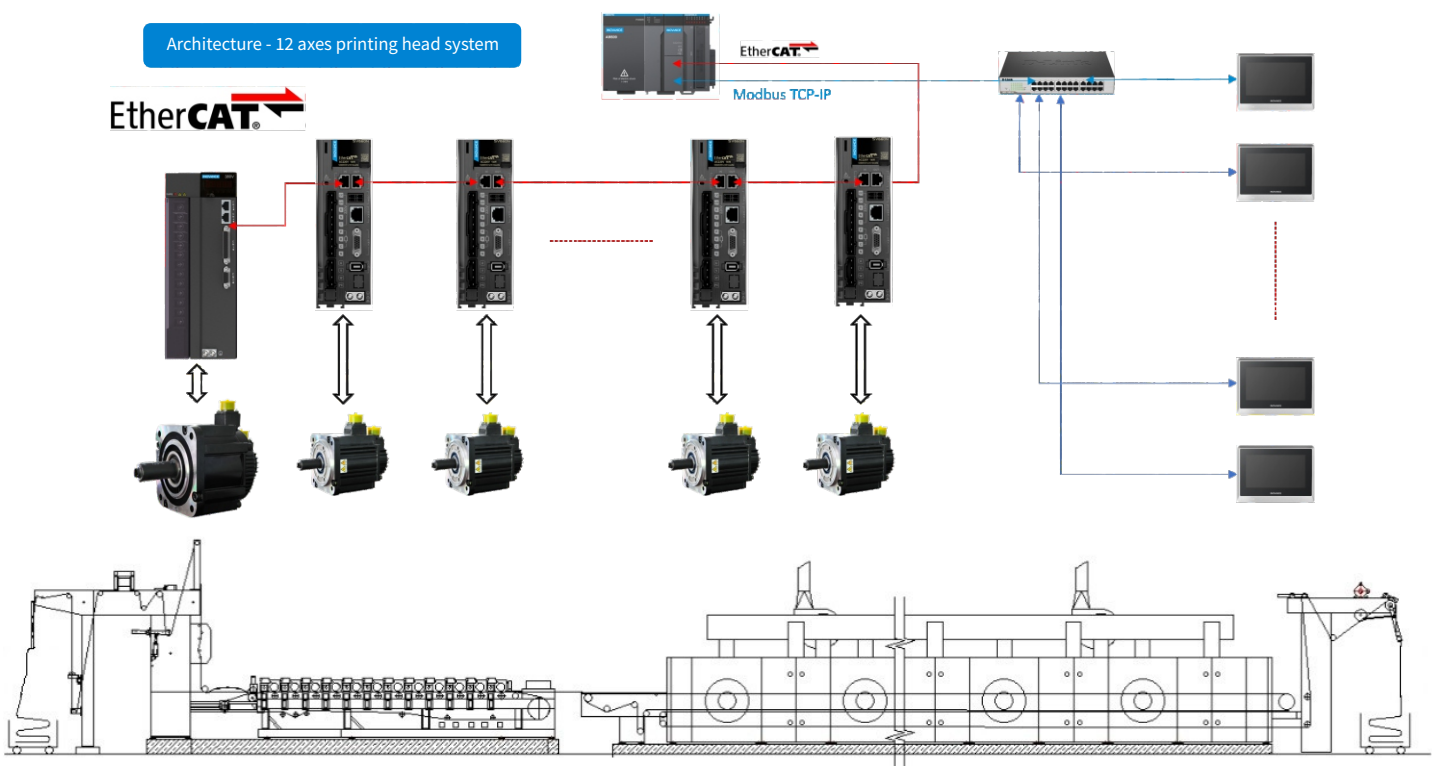
STO SIL 3 functional safety

High reliability due to motion controller & servo combination

Simple commissioning & maintenance

Advanced, flexible programming logic

Architecture - 12 axes printing head system



The Benefits

Inovance's servo-based automation solution delivered significantly improved performance. Complete printing accuracy ($\pm 0.02\text{mm}$) could now be achieved at line speeds of up to 180 metres per minute without disturbing the synchronization between the fabric and the printing head. This is compared to a maximum speed of 100 meters per minute previously. Additionally, this top speed could be reached in 15 seconds, and the STO SIL3 functional safety on the SV660N servo drives also delivered significantly safer machine operating conditions.

The introduction of the AM600 motion controller delivered the highest possible reliability, and EtherCAT capability provided a significant efficiency boost. Other benefits included reduced wiring, less need for maintenance and simple commissioning. Additionally, the system delivered advanced flexible programming logic suitable for 8 to 16 printing head axes systems.