

Case Study

Swan Energy finds machine upgrade a 'real value for money' – with A.T.E. as the partner!

Background

Swan Energy Limited, a diversified company that has several business units including fabric manufacturing and energy, has a textile plant at Ahmedabad. The production capacity of this plant is 1 lakh metres of fabric per day. This plant is equipped with various imported textile processing machines to manufacture high quality cotton and polyester fabric.

Challenges

Swan Energy has a Monforts E-control with 2 chambers and a Kusters padder in synchronisation for dyeing. Due to ageing of the machine's electrical system, there were several problems, leading to frequent machine breakdowns, affecting production. The main problems faced were:

- Obsolete Vipa PLC (programmable logic controller) and program erasing issue
- Old Lenze 9300 series servo VFD over CANBUS communication
- Frequent failure of distributed I/O cards
- Machine ready signal issue as Kusters padder running through its own PLC
- Communication issue between Monforts E-control and Kusters padder due to which machines were not synchronised
- Unavailability of failsafe I/O modules in Kusters padder
- To overcome these problems, Swan Energy contacted

A.T.E.'s automation team. performance and to make it viable.

Solution

After a detailed study, A.T.E. carried out a major overhaul of the electrical system, which included:

- Vipa PLC replaced with Siemens S7-315 CPU
- Vipa I/O modules replaced with Siemens ET200S modules
- DOS-based IPC replaced with latest 12" HMI
- Obsolete OP7 HMI replaced with 7" HMI
- Lenze 9300 series VFD with analog communication installed, giving customer the freedom to replace the VFD with any other make in case of VFD failure
- Kusters padder system incorporated with E-control machine's PLC; effectively the machine will have one PLC for all operations. This also solved the issue of synchronization
- ProfiBus and CANBUS communication replaced by easy-to-maintain ProfiNet communication

Results

- The machine upgrade not only improved the machine performance, but provided many other benefits as well: a quality test revealed that the machine performed better in all production reports
- Improved machine productivity
- No crease formation in any type of fabric quality
- Accurate S-roll operation of padder which provides uniform dyeing
- Simplified troubleshooting of machine through advance alarm generation system and I/O monitoring
- Since all obsolete components replaced with new components, spares are easily available

Swan Energy is extremely pleased as considering the costs and benefits, the machine upgrade carried out by A.T.E. provides excellent value for money!

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