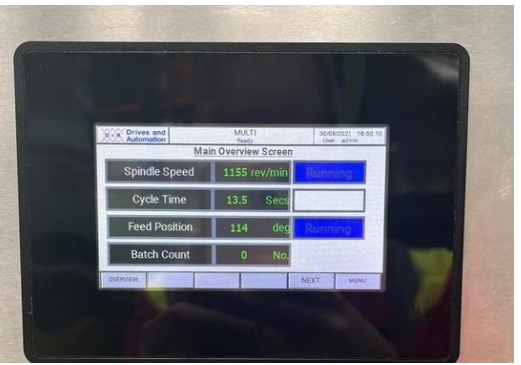


fact

file

CASE STUDY NOTES

AC Drive and I/O upgrade reduces downtime on Wickman / C&M Machine Auto Multi



A £30K Variable Speed AC Drive upgrade project replaces an existing troublesome obsolete control system, resulting in reduced downtime and supporting increased production and reduced downtime on the Pneumatic Components Ltd Wickman C&M Machine Auto Multi in Sheffield.

With over 80 years of experience in developing sophisticated pneumatic equipment, PCL is recognised as the global leader in the design and manufacture of the most advanced and comprehensive portfolio of tyre inflation and compressed air products on the market.

Its products are a familiar sight on garage forecourts, tyre shops, factories and workshops around the world. The trusted "Made in Sheffield" PCL brand has become synonymous with superior products backed by first class service and local technical support, wherever its customers are based.

Founded in 1938 when the very first pressure gauges were designed and manufactured in Sheffield, PCL has experienced phenomenal growth, joining the HORNGROUP of companies, along with the TECALEMIT brand in 2011.

Today PCL exports to over 100 countries through a worldwide network of agents and distributors, with manufacturing facilities in England, Germany, USA, India and China; whilst remaining firmly committed to its roots, manufacturing from its state-of-the-art production facility in Sheffield.

Drives and Automation were asked to replace the existing control system due to their expertise in process line control and retrofit experience. The existing obsolete AC drive system was becoming problematic due to documentation, and reliability problems. These issues were causing significant loss of production due to downtime.

Drives and Automation Ltd provided a complete drive control solution including the drive and I/O. The original AC Motors were retained and are now controlled by a set of new Control Techniques M700 Series inverters retrofitted into the existing control panel.

The operation and supervision of these AC inverter modules is undertaken by a Control Techniques MCi 210 integrated machine controller and Control techniques Digital Input and Output module. Feedback is managed by an SI-Universal Encoder module.

Operator control is via an EXOR eSMART04 HMI which offers an outstanding price/performance ratio for challenging applications such as industrial and building automation. With features including a bright 4 inch resistive touchscreen display with a fully dimmable LED backlight, it was the ideal choice for this type of machine.

The Control Techniques M700 delivers maximum machine throughput through precision motor control, onboard real-time Ethernet (IEEE 1588 V2 Precision Time Protocol), advanced motion control and high speed I/O for position capture, enabling machine builders to easily create



Drives and Automation



fact file

more sophisticated and flexible machines.

The MCI integrated machine controller provides a second processor for PLC programs and multi-axis control

- MCI modules add a powerful second processor, extending the drive's system and machine control capabilities to run application programs up to four times faster than a standard PLC.
- MCI programs can access and manage the drive's embedded Advanced Motion Controller across a wide range of networks, providing perfectly synchronised multi-axis machine performance.
- The modules are powered from the drive's internal power supply, which means less wiring and less physical space is required. They work seamlessly with external components such as I/O, HMIs and other networked drives through the drive's native communication ports and System Integration modules.
- The MCI210 also provides two additional Ethernet ports with an internal network switch

The new system is far more reliable than the previous AC control system and scrap production has been significantly reduced due to the improved machine control. The upgrade project was completed within budget and with only minor disruption to production. The machine is performing much better, fault finding much improved

and improvements to the operator controls have helped to reduce set up time.

Drives and Automation (DnA), based in Chesterfield, provide a comprehensive system design, control system manufacture and project management service for new and retrofit control systems. Working alongside machine builders or end users, we provide systems encompassing AC and DC drives, PLC systems and turnkey project solutions.

Problem Solved

- Existing drive control system difficult to maintain
- Control system obsolete and unreliable with poor availability of spares
- Extended downtime and loss of production
- Expensive to maintain

Solution

- Modern AC drive solution
- Machine safety improved
- Existing motors retained
- Control system now reliable and supportable
- New HMI Machine Control
- Improved machine diagnostics
- Comprehensive documentation provided

Benefits

- Downtime Reduced
- Production Increased
- Easy to Maintain and Fault Find
- Easy to Support



Drives and Automation

Drives and Automation Ltd
Unit 11, The Stables.
Staveley Hall Drive,
Staveley S43 3TN

T. 0845 3704660

www.drivesandautomation.co.uk

E. sales@drivesandautomation.co.uk