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ABB drives help metal component maker to cut out stoppages

Variable speed drives bring greater control and efficiency to production line for Samuel Taylor.

A specialist manufacturer of bimetallic strips has improved the reliability of its production line by retrofitting two applications with ABB variable speed drives (VSDs).

Samuel Taylor produces precision metallic components for the aerospace and automotive industries at its plant in Redditch near Birmingham. One of its product lines is bimetallic strips, which it makes by forming a groove in a coiled length of copper. This groove is then inlaid with silver.

The production line consists of a leveler, grooving and inlay machines, a bonder to permanently join the two strips, and a recoiler. The recoiler is under torque control and recoils the strip on leaving the bonder.

The recoiler originally used a DC motor but the need to replace the commutator brush gear meant that this motor was often in for repair. The motor had been rewound and both motor and drive were over 20 years old.

Samuel Taylor asked Adford CNC, a specialist in CNC machine tool servicing and repair, to retrofit the recoiler with an AC motor. The original motor was changed for a 5.5 kW AC force fan-vented motor, controlled by a 7.5 kW ABB general purpose drive, ACS580.

Alan Bolton, proprietor of Adford CNC, says: “As a modern, digital AC drive, the ACS580 offers many parameters to enable the commissioning engineer to precisely set or adjust the drive to suit the motor and application. This is far more than was available in the old style analogue DC drive unit that had variable or fixed resistors to set drive limits or match the drive to the motor characteristics.

“With the old DC drives, this meant that only certain parameters could be altered. The new ABB drives offer digitalisation of parameters and a digital display, which helps make programming much easier. We also chose ABB because of the excellent support and service provided through its authorised value provider, Sentridge Controls.”

A second ABB general purpose drive was installed on the bonder, which has an arrangement of compression rollers in which the gap between them can be adjusted using a motor-driven screw thread. The existing 11 kW motor was replaced by a 15 kW version.

“The direct-on-line (DOL) motor was prone to blowing fuses because of the high initial mechanical resistance. We fitted a 15 kW ABB general purpose drive to control the maximum current drawn when starting the motor and overcoming the inertia of the drive train,” says Bolton.

“Using the ABB drive allowed us to control the maximum current, overload capability on starting and the acceleration and deceleration ramps.”

Adford also made some mechanical modifications, mainly to the drive pulley to account for the new motor’s different shaft size.

“The client is very satisfied as this has completely cured the problem,” says Bolton.

Both projects were completed with the support of Glen Hickman of Sentridge Controls. “This is the first time we have worked with Sentridge and we cannot praise them enough,” says Bolton. “Their technical staff are excellent and they gave us faultless support, both in person and over the telephone, throughout the project.

“We had not had backup that complete before and although this is the first time we had retrofitted an ABB VSD, we were certainly won over to using ABB for all future jobs.”

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Caption: ABB drives are helping Samuel Taylor to cut out stoppages on its production line.

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