

Flat cable, fast returns

Wieland Electric says the advantages of using flat cabling systems for conveyor lines are clearly demonstrated by a recent installation at NACCO Materials Handling Group's assembly plant in Northern Ireland



When NACCO Materials Handling Group's Craigavon facility decided to replace a gearbox production line with a new Assembly Line to assemble its latest electric fork lift truck model, the cabling system chosen was seen as critical to the efficient running of the line. Having evaluated a number of cabling solutions the company selected a podis flat cable system from Wieland Electric. The evaluation also identified the gesis MCU motor starter as the lowest cost and most compact motor starter solution available.

Designed by Lisburn-based conveyor



system specialist Texam, the system at Craigavon has an assembly line and a return line. The assembly line flows in one direction using a pallet frame on which trucks are assembled. Once complete, the trucks are driven off the end of the assembly line and the pallet is transferred to the return line and conveyed back to the start. The return line is hidden under metal plates that form gangways and the work surface of one side of the assembly line.

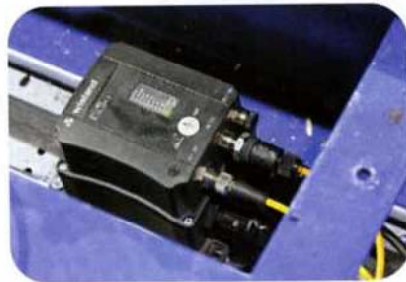
The assembly line uses variable speed drives to control the motors, as speed and position control are important for positioning the pallets at the various work stations down the assembly line. The return line, though, just needs to transport the pallets back at a single speed, with a motor reverse facility in case of blockage.

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A major factor in the choice of cabling was the severe space restriction due to the very low height of the whole line. Consequently, any solution had to be compact enough to fit in the single narrow channel available that runs the length of the line. Use of flat cable meant it could simply be rolled out into the channel.

The incomer box and motor tap off points were then quickly screwed onto the cable and terminated by insulation displacement connection (IDC). The gesis MCU motor starters and the motor feed cable were then plugged into the motor tap off boxes. These were both supplied as pre-manufactured cable assemblies offering 'plug and play' functionality.

The result was a very fast installation – considerably faster than other cable solutions would have allowed. For example, had a more traditional round cable solution been chosen, it would have been necessary to cut, strip and terminate the cabling at



each tap-off point. The flat cable approach, therefore, offered significant cost savings on the installation phase of the project, more than compensating for the slightly higher price of flat cable compared to round cable.

Similarly, commissioning was rapid and straightforward as the gesis MCUs are controlled via AS-I. It was also very easy to interface this into the Profibus system that is used to control the assembly line.

Reliability was another major consideration as the cabling was covered by steel footplates, so accessing them would have required the whole line to stop. The chosen solution offers a very low maintenance design and the entire system is IP65 rated to provide high resistance to potential damage for water or dust ingress. Another feature of the system is the ability to carry out diagnostics via an HMI panel, so that fault finding is quick and any problems are resolved in the minimum time.

Since its installation at NACCO Materials Handling Group, the line has proved to be a huge success in terms of low installation time and costs and reliability. In fact, the company is now planning to install the same design on another line which assembles the diesel and gas engine trucks.

Furthermore, the company will continue to benefit from lower cost of ownership through reduced maintenance costs throughout the life of the line. In fact, based on its experience of many projects in the UK and continental Europe, Wieland calculates that when using flat cable rather than round cable it's reasonable to expect a 30% reduction in project planning costs, 70% savings in installation costs and a further 70% saving on start-up costs. So although flat cable won't be the right solution for every project, when it's appropriate it certainly pays dividends.