EMERSON
Industrial Automation

applied
To manufacturing

Commander SK cuts imbalance and noise in washing machines

Everyone who has ever used a washing machine will be familiar with the situation when clothes and bedding becomes tangled into one big water-sodden lump. The resulting imbalance not only causes noise and heavy vibration, but seriously stresses bearings and other mechanical parts in the machine.

Imagine, therefore, how much more serious this problem is in commercial-sized machines that carry much bigger loads.

At one of Europe's leading manufacturers of commercial laundry equipment, Fagor Industrial in the Basque region of Spain, this problem has been addressed with the introduction of variable speed AC drives from Control Techniques in their new range of 'Evolution Technology' washing machines.

"We needed a simpler method for detecting an imbalance and initiating a tumbling sequence to untangle the load," explains engineer Christophe Tytgat, "and found that a Control Techniques' Commander SK could not only achieve this, but fitted easily even into our smaller machines."

Now, using the Commander SK, the amount of imbalance can be adjusted and it has been found that a good permissible maximum is 3 kG of imbalance. This is achieved with the use of an imbalance detection program on a LogicStick that is inserted into each drive. Fagor call this their 'auto breakdown diagnosis module'.

KEY BENEFITS

- REDUCED NOISE
- EXTENDED MACHINE LIFE
- SIMPLIFIED CONSTRUCTION
- REDUCED COST
- EASY PROGRAMMING

0115-0105

CONTROL TECHNIQUES

CONSIDER IT SOLVED™

Network Power • Process Management • Climate Technologies • Storage Solutions • Industrial Automation • Motor Technologies • Appliance Solutions • Professional Tools

Now, in a typical spin sequence, the drive will accelerate from the washing speed of 8.5 Hz up to a speed of 13 Hz for 20 seconds, whilst the drive's internal software assesses the level of imbalance.

If the imbalance level is acceptable, the drive is accelerated up to its spin speed of 1600 rpm; if not, it returns to the lower speed for 10 seconds, on a forward / reverse sequence, for 10 seconds and tries again.

"By changing to the Commander SK, we have significantly reduced noise and extended the effective life of the 'Evolution Technology' washing machines," says Christophe Tytgat, "as well as simplifying their construction – we now use standard squirrel cage AC motors instead of the more expensive two or three speed motors," he says. "And programming the drive couldn't be easier – the LogicStick is inserted into each drive. When the PLC asks if it is OK to proceed, the program simply says 'Yes' or 'No'!"

The new Commander SK size 'D' is used for 220V washing machines whilst the SK 'C' is the choice for 400V versions. In each case, the footprint and volume of each drive is among the smallest on the market, comfortably fitting in even the smaller washing machine models.

Despite its compact size, the drive has market-leading performance and has an exceptional dynamic response, energy-saving efficiency and outstanding reliability. For more complex applications it offers connectivity to all major fieldbus networks as well as Ethernet/internet communications to give global drive access.

Its list of options is extensive; multi-language LCD keypad or touch-screen HMI, SmartStick for cloning drive parameters, LogicStick for memory storage for PLC programmes, serial cable for PC connection and a suite of PC software tools, for advanced drive programming.

The new washing machines featuring Commander SK drives have undergone extensive tests by laundry experts for over a year and have now completed the final stage of field testing, with no problems reported.

The new Evolution Technology range, from Fagor Industrial, incorporates over 100 improvements to their machines, already regarded as being at the leading edge of technology.

The range of washer extractors incorporates high-speed machines with capacities for 8, 10, 13, 18, 25 and 55 kg and low-speed machines with capacities for 8, 10, 13, 18 and 25 kg, all constructed in stainless steel.

Fagor Industrial manufactures a wide range of products for commercial kitchens and laundries and is one of the leading European suppliers in this competitive market.