



FAIRFORD SOFT STARTER OVERCOMES “SHEAR” AGITATION AT BAYER CROPSCIENCE.



Employing a Fairford QFE soft starter to overcome shock loads when starting an agitator in a 15 tonne hopper has enabled Bayer CropScience to solve a problem of mechanical Shear pin breakage, which often resulted in a lengthy (approx 4 hours) and costly digging out of the hopper material due to it solidifying.

Bayer CropScience is one of the world's leading crop science companies. At its facility in Norwich, the company produces herbicides, which provide protection for bulk agricultural cereals in countries all across the world.

Some of the materials used by Bayer CropScience in the production of its herbicides are aggressive powders. Before use, these powders are spun dry in a centrifuge and then stored in a large, 15 tonne capacity hopper. Integral to the hopper is an agitator, which stirs the powder four times each hour to prevent it from setting. Driving the agitator is a special, low speed 15kW motor; the overall mechanics of the system being protected by a mechanical shear pin arrangement.

The shear pin is manufactured from a deliberately weak material to ensure that it will break or “shear” in the event of the driven load becoming jammed. The breakage occurs as a result of a sudden rise in torque in the drive train, and effectively disconnects the motor, preventing damage due to overload.

This system works well and does exactly what it was designed to do. However, Bayer CropScience was encountering problems in the normal sequence of agitator operation. On a number of occasions the shear pin broke on motor start-up, allowing the material to harden and leaving company personnel with the costly, time consuming and unpleasant task of “digging out” the hopper.

Mindful of the high number of starts per hour, Richard Hollis-Graves, Reliability Engineer at Bayer CropScience, identified the problem to be continual shock loading that occurs at starting with certain levels of hopper loading.

Believing that a solution to the problem could be achieved using a soft starter, Mr Hollis-Graves contacted his local BSL Branch office for advice on suitable units. BSL personnel recommended a unit from Fairford Electronics, and, following a site visit, one of the company's QFE soft starters was installed. This has provided a simple and cost effective solution to the shear pin problem, overcoming shock loading on start-up and ensuring overall long-term reliability.

“The agitation process is a lot more reliable since we fitted the Fairford starter,” said Richard Hollis-Graves. “We have hardly had an incidence which resulted in the need to “dig out” in over two years. As a result, we are benefiting from greater continuity and certainty in our production process.”

Electronic Shear Pin

Although protecting a mechanical shear pin arrangement in the Bayer CropScience application, the QFE soft starter has the facility to completely replace such mechanical arrangements. Designed into the QFE architecture is an ‘Electronic Shear Pin’ facility, which enables the soft starter to cater for situations where loads are likely to jam suddenly. The ‘Electronic Shear Pin’ facility detects immediately the speed and extent in the rise of motor torque arising from a jam and then decides on a course of actions ranging from instantaneous shutdown to monitoring for recurrences if the blockage is released rapidly.

For more information of Fairford Soft Starters and Electronic Shear pin contact Fairford’s Sales team.