

Computerised discharge DSH hopper in US grain plant

New Zealand company DSH Systems has supplied a Positional Feed Control (PFC) version of its Dust Suppression Hopper to Cargill in the USA.

The system has been supplied to Cargill's grain processing plant in Wahpeton, North Dakota.

It follows previous Cargill orders for DSH Systems' standard design hopper which reduce dust while transferring dry, granular, free flowing products.

The new PFC system has a computerised discharge rate control system for products with different specific gravities. It allows for a single hopper unit to be used with either a variety of different products, the same product with a large variation in bulk density, or a combination of both.

"For this project the system allows for the selection of two different products and four different density settings for each product," explained Ian Walton, chief executive, DSH Systems. "However, a system can be supplied to suit each customer's specific project needs."

The PFC system consists of a steel DSH hopper resting on a loadcell within a specialised frame design. The loadcell is then connected to a DSH supplied PLC control system. Also connected to the PLC is a motor and screw-jack unit. The DSH hopper plug is attached to the screw-jack.

"In operation, the PLC continuously monitors the weight signal coming from the loadcell," said Walton. "From this it controls the position of the hopper plug by instructing the screw-jack to action up or down accordingly. During calibration, the PLC is trained to look for a known optimum operating weight based on product and bulk density."

The PLC system in this instance is controlled by a variety of push-button switches. The operator can simply select which product is being loaded and the applicable bulk density, whether normal, high or low.

"Many of our customers find that the bulk density of a particular product varies based on humidity, temperature and what stage of the loading process they are in – top or bottom of silo, beginning or end of ship unloading," said Walton.

The PLC also comes with a variety of self-test, safety overrides and reset controls.

The PFC system can be supplied with any size from the DSH range of hoppers.

"While the standard DSH system meets the needs of the large majority of our global customers, the addition of the latest PFC system allows for even greater flexibility while loading. It further



Overall system configuration.

adds to our company vision of eliminating all dust during bulk loadout, thus saving workers' health, companies' money and the world environment," concluded Walton.

The DSH hopper was invented in New Zealand by Trevor Schwass in response to the needs of a local fertiliser company which wanted to reduce dust when bulk loading. The DSH system's loading spout concentrates a stream of product into a solid column, minimising dust outfall.

Contact: www.dshsystems.com



low res image

Two products that Cargill is loading. Above corn gluten meal and right corn germ.



Loadcell and mounting frame.



Final soya bean loading by customer.