SGMW Motor Corporation Ltd. Saves Money While Improving Finish Quality with Agitator Speed Controller

CASE STUDY

Challenge

Headquartered in Liuzhou, China, The SGMW plant manufactures a range of automobiles for the Chinese market. In 2010, their sales volume was over 1.3 million, giving them a market share of nearly 43%.

A key component to SGMW's quality products is their paint finish. The paint finish not only appeals to the customer aesthetically, but also serves as a protective coating for the harshest environments. This requires their painting process to be precisely monitored and controlled to ensure a quality finish every time. Even before the material can be applied, accurate mixing is required to ensure proper material composition and integrity.

Conventional pneumatic agitators are operated by an air motor that drives the agitator mixing blade. However, as the material level in the container decreases, the resistance of the material on the mixing blade also decreases. This causes an increase in the rotational speed of the agitator. The increase occurs because most conventional pneumatic agitators do not have a closed-loop air control. If the agitator is left unattended, the increased speed can lead to material degradation due to excessive shearing, or foamy aeration of the paint that is common with many materials. This can result in quality issues that include surface pitting due to air bubbles, or poor material adhesion due to material degradation. These issues eventually cause scrap and rework.

Solution

To control this process, SGMW ordered ten Agitator Speed Controllers to control their pneumatic agitators and mixers. The Agitator Speed Controller uses closed-loop air control to solve these problems. It can detect changes in speed and adjust the air flow to maintain a constant initial set speed.

"Before using the Agitator Speed Controller, when the material level in the container decreased, the rotational speed of agitator increased.

When the material level was down to 30%, the mixing speed became very high. A large number of bubbles poured into the pipeline. This led to color variance of the paint finish. With the Agitator Speed Controller, the rotational speed of agitator remains at the initial set level. The quality of color film is improved.

Mixer speed stability reduces the blade abrasion, which extends the lifetime of the agitator and reduces maintenance costs and downtime risk."

Mr. Liu Chenyu
Chief Engineer of Production
SGMW Motor Corporation Ltd.

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Result

Because of the Agitator Speed Controller, SGMW decreased labor costs associated with monitoring the speed of their agitators, which required a number of adjustments per day. In addition, SGMW saved energy by reducing air consumption and agitator over speeding. Another benefit is the extended lifetime of the air motor. The controller also reduces wobbling and major deflections in the agitator shaft, which increases the life of the agitator.

According to Mr. Liu Chenyu, Chief Engineer of Production Department of SGMW, "With the Agitator Speed Controller, the rotational speed of agitator remains at the initial set level, improving the quality of the color film. Mixer speed stability reduces the blade abrasion, which extends the lifetime of the agitator and reduces maintenance costs and downtime risk."

Graco's Agitator Speed Controller provides SGMW with a solution that not only saves them money, but also allows them to be more competitive in the global marketplace.

Highlights

Graco Distributor:
HINSONG SPRAY MACHINERY & ELECTRIC EQUIPMENT (BEIJING) CO., Ltd.

End User:
SGMW, Liuzhou, China

Specifications:
Agitator: Graco Pneumatic Agitator

Material name:
ED6060C PASTE (LIGHT GREY)

Viscosity:
375 PAS

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