Precise Vacuum Control

Applications

Precise vacuum control is essential for consistent dewatering and formation. The V1000 automatically maintains vacuum at a specified set-point, despite continually changing stock freeness and vacuum supply levels, due to the force balance control principle.

Features

- Low and high vacuum designs with integral vacuum level transducer
- 316L stainless steel housing with isolation valve included
- Easy interface with machine DCS
- Easy access for simple maintenance

Benefits

- Immediate response to process changes
- Precisely maintains set-points
- Facilitates quicker grade changes
- Graduating vacuum reduces drive loads and saves energy

Air is regulated (B) between two diaphragms (A), creating a force imbalance causing piston assembly to float upward, uncovering slots in lower sleeve (C).

Slots let air flow from regulated vacuum chamber (D) to high vacuum header (E).

Regulated vacuum chamber reaches set-point vacuum and the piston assembly is in a force-balance equilibrium.
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As the demand for greater production and higher quality increases, so does the need for precise and reliable vacuum control. Wet end vacuum control is often neglected. But a correctly designed vacuum control system contributes significant to machine runnability—and final product quality. This is particularly true as high operating speeds require elevated vacuum levels and stock and freeness fluctuations increase due to greater recycled fiber use.

A vacuum control system must provide precise vacuum control and react quickly to changes in air flow and sheet consistency. If not, vacuum surges can cause exiting sheet moisture variations, pin-holing, two-sidedness, poor formation, loss of fines and fillers—or even web breaks, and in extreme cases, wire stalling.

The heart of a vacuum system is the vacuum valve and its control. Fast response and accuracy are essential in a vacuum valve, but operational reliability is also critical.

Valves and controls should be matched to a correctly-designed separator, dropleg, and header system. The blower and vacuum pump must supply sufficient vacuum to each low and high vacuum position.

Taking this total system approach to vacuum control will help ensure higher system performance, greater system reliability, and fewer problems during start-up and operation.