Role of Instruments in Deoiled Toaster Operation – An Energy Saver

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Monitoring the de-oiled toasters (DT) in solvent extraction processes of oilseeds is a challenge. De-oiled toasters may not be monitored properly by traditional sensors particularly for a hard and unpredictable material like soybeans due to the incessant movement of the material. In this context, this presentation describes an innovative level transmitter instrument by amalgamating the mechanical float type level gauge with a capacitance continuous level indicator. This blend of two instruments provides a solution such a way that the outside level indication is proportional to the float movement inside which would in turn detect the level of material in de-oiled chamber. Apart from level indication, the built-in three-point electronic level limit switch offers the switching functions for alarm annunciation and/or control application at the set point levels. This innovative approach addressed unique material challenge of soybean oil extraction process as it is a heavy extract allowed reliable float movement. The level transmitter described is a perfect solution for this application which has a rugged design to withstand in any tough environment and this may be extended to both palm oil and rice bran oil extraction also. The main outputs of these interventions are as follows: i. Reduces hexane loss; ii. Conversion of the angular movement of the shaft to a 4 to 20 ma output signal; iii. Reliable DT probe that utilizes a non-contact capacitive method of sensing the angular movement of the shaft; iv. Torque absorbing spring and a flexible coupling and heavy-duty limit stoppers are provided in this system v. Sturdy probe to absorb shaft jerks and continuous movement

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