



The Flexible Screw Conveyor is driven from the bottom to meet UKAEA requirements.



The Flexible Screw Conveyor is made from stainless steel.

Customer Requirements

At UKAEA, Harwell, Oxfordshire, UK they have over 3,500ft³ / 100m³ of intermediate and low-level waste safely stored in liquid and sludge forms. This waste is being immobilized by encapsulation in a cementitious matrix capped off with a cement grout, all within 132 gallon/ 600l stainless steel drums.

1. Liquid waste is pumped from storage tanks to a stock vessel.
2. Each drum is equipped with an internal paddle driven by an external drive to ensure a homogeneous, monolithic matrix of waste and cement.
3. The paddle is sacrificed and becomes encapsulated within the matrix, which takes about 24 hours to cure.
4. Once the matrix has cured, 13 gallons/ 60l of cement grout, a mix of Pulverized Fuel Ash and Ordinary Portland Cement (PFA/OPC), is charged to the drum to cap the matrix and to reduce the residual space at the top of the drum to less than 4 gallons/ 18l.
5. The drum is then fitted with a stainless steel lid.
6. A 36 gallon/ 160l capacity bowl mixer, located on a weighing platform, is used to prepare the required batch of capping grout.
7. UKAEA required a reliable and accurate means of conveying the PFA/OPC powder mix from its storage silo to the bowl mixer.

Spiroflow Solution

A Spiroflow Flexible Screw Conveyor is used to transfer a precise weight of PFA/OPC premix from the storage silo to the mixer bowl, which is pre-charged with water. The precise weight is achieved by a control signal from the weighing platform.

- The majority of Spiroflow conveyors are top driven but the layout and modus operandi made it impossible at UKAEA so it is driven from the bottom.
- The stainless steel tube was used because no support could be provided at the top otherwise the weight of the conveyor would have affected the mixer weight platform.
- As it was impossible to anticipate the final radial position of the conveyor, the "round to square" transition piece, which connects the conveyor to the silo, incorporates a slip ring trapped between flanges to accommodate this.
- The conveyor feed hopper incorporates an agitator to ensure no bridging of cement over the inlet to the screw.

How Can Spiroflow Help Your Business?

Contact us today to discuss your specific applications and needs.