

Potato processor installs screw heat exchanger

Celsius, Drunen, the Netherlands, recently won an order via Dutch environmental technology consultancy Colsen International for a screw heat exchanger to be installed at the Bologna plant of Pizolli SpA, one of Italy's largest potato processors. The system is used for a sustainable co-fermentation process by which wastewater together with potato skins and starch are converted into biogas. As a result Pizolli has become almost self-sufficient in its energy requirements (heat and electricity).

Celsius, working in association with Colsen, has developed a screw heat exchanger concept specially for bio-fermentation plants. It dries the digestate using energy derived from the exhaust gases. Via a heat exchanger, thermal oil is heated by flue gases to around 280°C. The trough and twin screws of the exchanger are heated with this oil, allowing the digestate to be dried by indirect heat transfer. A moisture evaporation rate of 500-600 litres/h is feasible (reduced moisture in the digestate results in lower disposal costs). The twin screw has a capacity of 850kg/h, reducing the moisture content of the digestate from 80% to 58%. The thermal oil (280°C) is circulated at 15m³/h at a maximum operating pressure of 5 bar. Thermal capacity is 350kW and the complete custom-built unit weighs about 20t.

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Celsius twin-screw heat exchanger supplied to Pizolli