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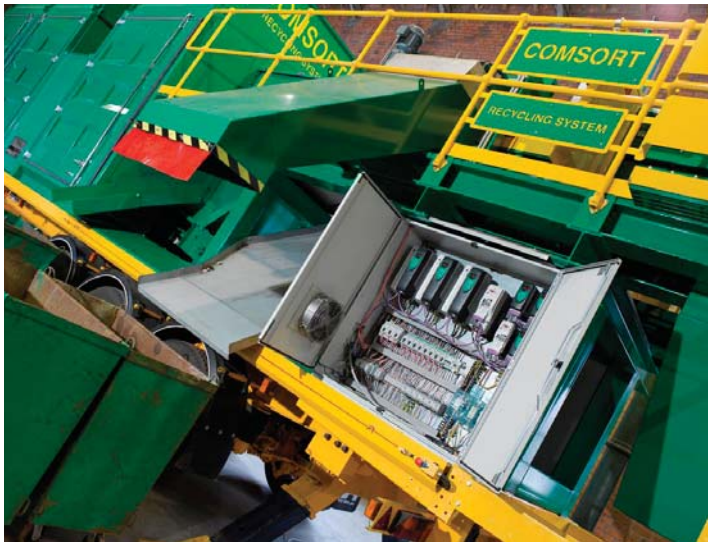
Lancashire Company Offers Solution To Glass Cullet Shortage



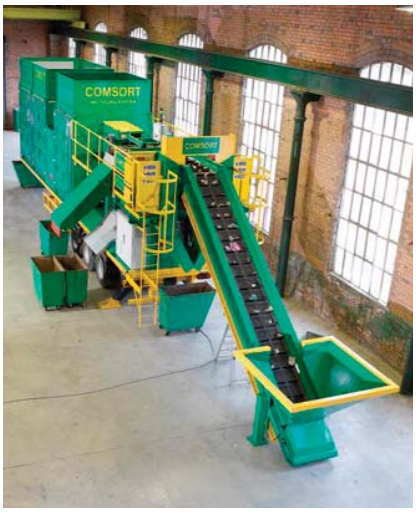
A new, commingled separation machine, designed and built by air technology specialists Tek-Dry of Bolton, offers a solution to a national shortage of good quality glass cullet, by eliminating glass pulverisation during the separation process. The 'Comsort' system uses new, patented, air technology to offer a revolutionary low impact separation system for commingled recyclables.

At the heart of the Comsort system, providing flexible, cost-effective control of the eight AC motors used throughout the machine, are Commander SK AC drives from Control Techniques, each communicating with each other and the PLC controller using Profibus.

As the total amount of recycling grows, and with the UK likely to hit next year's 60% EU target; it is worrying that the amount of glass being recycled by the glass container manufacturers is falling. In the first half of 2007, glass recycling fell by about 30% from the previous year – and it is thought that this is a direct result of declining quantities from bottle banks being replaced by local authority commingled collections.

For glass to be sent for remelt, particle sizes must be at least 10mm. Conventional separators pulverise the glass, rendering it fit only for aggregate or landfill, and in many cases contaminating the remaining recyclables which reduces their quality and possible reuse.

The Comsort system takes a different approach. A commingled stream, containing steel and aluminium cans, plastic bottles/containers and glass bottles/jars, is not only separated, but delivers glass in the same condition as presented – and at a quality equivalent to that from a bottle bank. What's more, the separated plastic stream is free from compressed or 'impressed' glass fragments, and is therefore in optimal condition for recycling.



KEY BENEFITS

- COST EFFECTIVE CONTROL OF 8 AC MOTORS
- FLEXIBILITY & PERFORMANCE
- COMPACT FOOTPRINT
- DRIVE TO DRIVE COMMUNICATION
- EASY PROGRAMMING

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CONTROL TECHNIQUES

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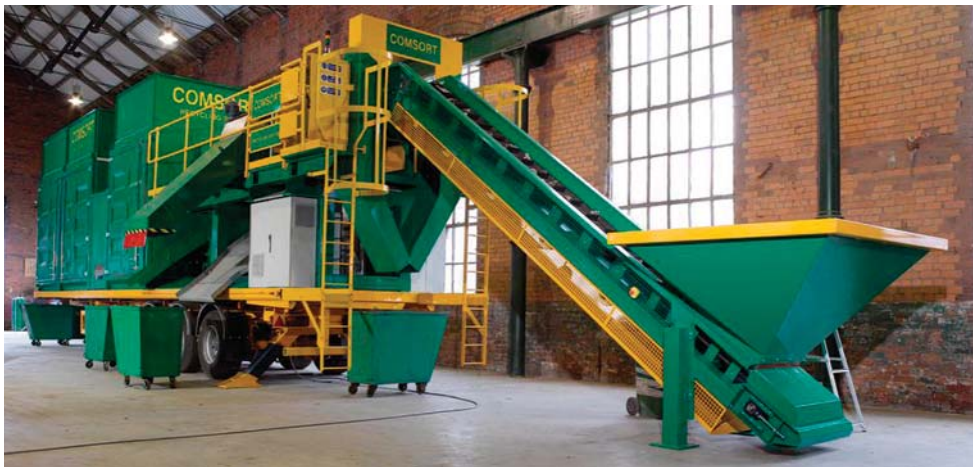

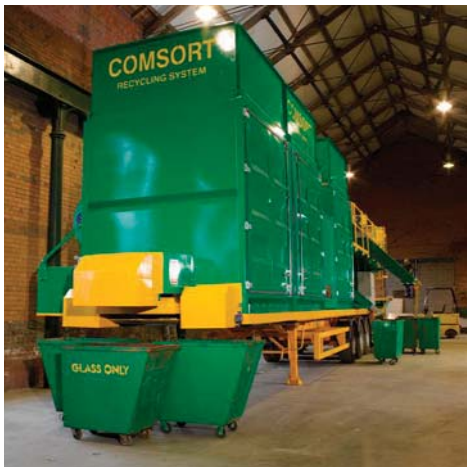

Mixed recyclables, entering the process via a feed hopper, travel up an elevated feed conveyor onto the apron conveyor, where operators manually remove large pieces of unrecyclable waste (masonry, toys, prams etc). Thereafter, initial separation of steel is facilitated using an overband magnet, and aluminium, using a high-performance eddy-current separator. All this is well-proven technology.

However, the next section is unique. Tek-Dry uses its own patented air system to separate out all of the remaining plastic from the plastic/glass stream, leaving the glass untouched and in the best possible condition for recycling.

Control Techniques' Commander SK drives control the speed of the five conveyors and the three 15 kW process air supply fans. Each Commander SK AC drive is fitted with a Profibus-DP communications module to provide drive-to-drive communication and communications with the PLC controller and HMI.

The Commander SK is very compact, simple to fit and can be programmed for most tasks in a matter of minutes, inputting just 10 basic parameters on the front-mounted keypad. Parameters may be copied from one unit to another very simply with the SK's SmartStick plug-in option. It has a full range of fieldbus options using SM plug-in modules (interchangeable with Unidrive SP) and the Commander SK also includes an internal EMC filter as standard – meeting EN61800-3 regulations.

"We chose the Commander SK because of the complete package offered," says Tek-Dry Systems' electrical engineer, Ben Hallam. "The drives gave us the flexibility and performance we needed in a compact footprint and at the right price!"

The first of the Comsort machines, a mobile version with a capacity of 10 t/hr, has been designed for maximum flexibility to allow full evaluation of its capabilities. The controlling PLC controller has several 'recipes' which comprise varying conveyor and fan speeds to suit different compositions of material – e.g. airport recycling would typically contain very low levels of glass. Normal, domestic recycling contains some 63% (by weight) of glass, 16.5% plastic, 14% steel, 1.5% aluminium with 5% going for landfill, some of which would be removed in the manual picking area.

"We are confident Comsort brings a new dimension to the industry," says Scott Thompson, Tek-Dry Systems' Project Engineer. "No process that we are aware of can produce such high quality glass cullet – and at a fraction of the cost of many other technologies. We feel Comsort has a role to play in changing the face of recycling – and is a machine capable of meeting today's more demanding recycling requirements. Glass that should be recycled as cullet is simply being wasted, and we aim to reverse that trend!"