

Industry: Automotive /// Plastics

Products Used: Drives

'Bumper' energy saving on plastic extrusion machines

Following the UK introduction of the Climate Change Levy, energy reduction is now a critical issue for large energy users. A major motor manufacturer, with Mitsubishi's help, is showing the way by dramatically reducing energy consumption at its main manufacturing site.



As a major car manufacturer producing over 340,000 cars per annum, its energy bill is extremely high. In particular, the Press and Plastics department, where they use large plastic extrusion machines to produce car bumpers, is piloting new ways to save energy. Their latest energy saving project is a Load Optimisation System (LOS) for the hydraulic systems of their huge 2,500 and 3,500 tonne extrusion presses.

The new systems incorporate Mitsubishi Electric F540L Variable Speed Drives (VSDs) and FX2N PLCs. These combine to create an intelligent solution that pushes energy saving potentials to the maximum and have brought about a 22% reduction in energy expenditure on the hydraulic control systems.

The VSDs (between 75kW to 280kW, depending on pump rating) control the hydraulic pumps on the huge plastic presses, which have between 1 and 4 pumps per extruder. The presses run 24 hours a day, 7 days a week and must produce bumpers in a highly reliable "just in time schedule" to meet the needs of the car assembly lines..

The Drives are connected to the PLC via a 0-10V analogue output, which represents the load power. The motor demand is converted into an analogue signal to give a digital speed reference to the current demand.

“

We chose to use Mitsubishi Variable Speed Drives as they are extremely reliable, very energy conscious and cost effective.

The company's Facilities Engineer

”

We will easily see a return on our capital expenditure costs on the new system within 2 years and have produced energy savings of over 32% on the overall installed systems, equating to a saving of £34k per annum which certainly justifies the system costs. During the trials, Mitsubishi's F540L VSDs were far more energy efficient than any of the other competitor products because of their faster reaction time to changing load demands”

Application story first released 2003 by Mitsubishi Electric UK