



Focus on energy efficiency

Serious savings with SyncroSpeed

Inverter drive control systems from NRG help companies save energy and money

NRG Controls has demonstrated the energy-saving capabilities of its SyncroSpeed inverter drive motor speed control systems on multi-motor 1,000-tonne and 2,200-tonne Sandretto machines at two Plastic Omnium sites in Belgium and the UK.

PO's plant in Belgium was the first within the auto exteriors division to equip SyncroSpeed to a 1,000-tonne Sandretto, following detailed testing and evaluation.

The ability to dynamically and independently change the speed of the two 90kW motors, driving a total of four fixed displacement hydraulic pumps, has enabled SyncroSpeed to deliver significant energy savings.

This led to a combined motor kW saving of 52% on the two 90kW motors, which NRG engineers had accurately predicted from detailed machine studies and analysis prior to



installation.

For moulders with Negri Bossi machines, the benefit of retrofit motor speed control can be just as significant (*PRW* 1 October 2004); savings achieved on a NB-720 equipped with a single 90kW motor, driving three fixed displacement pumps amounted to 15.6kW. This was half the cost of running the motor conventionally (31.2kW) when moulding a two-implosion Toyota armrest in ABS on a 72-second cycle.

"Addressing the issue of energy cost reduction is high on the boardroom

NRG Controls' SyncroSpeed system on a multi-motor Sandretto machine

agenda for everyone in the plastics industry, but few in the injection moulding business seem to realise the 'big hit' potential for reducing electricity bills with the use of variable speed drives (inverter drives) on their injection moulding machines," says Rob Parkes, NRG's business development manager.

The power consumption of these motors will account for some 60% of a moulder's total electricity

bill, and with UK industrial electricity prices now at an all-time high of around 7p per kWh and recent hikes in the cost of energy seeing no international boundaries, global players are keen to address energy efficiency cost-down initiatives, he believes.

Parkes suggests some do's and don'ts in approaching the issue. He says: "The correct level of interfacing to the host machine control is probably the most critical element because a one-size-fits-all approach to an interfacing technique is unlikely to capture all the valuable savings.

"Each make and model of moulding machines will be different, requiring a bespoke speed control strategy that, once developed and installed correctly, will ensure a 'transparent' operational system, maintaining cycle time and part quality.

"Setters will also continue to work in the same way as before - mould after mould - without having to continuously adapt the settings of the machine or the speed control system to stay on top of energy reduction targets."

It is true to say not all IMM's will financially benefit from the adaptation of retrofit variable speed drives, Parkes says.

"Generally machines above 200 tonnes will have

big enough motors (30kW or larger) to provide sufficient kW savings to make it financially worthwhile. Light moulding cycles can be a limitation too and so look for cycle times >25 seconds, together with annual operating hours of 5,000 or more.

"Don't forget IMMs with 'fixed' displacement pumps will provide the best in energy reduction opportunities, savings that will be significant and go straight to the bottom line of your business.

"If you have IMMs that you think fall within this profile, irrespective of the make and model, then you should really be looking at speed control more seriously."

The table (left) indicates NRG's view of the range of savings to be achieved and highlights the need for expert evaluation of the savings potential prior to commitment to investment

Parkes concludes: "Finally, before committing to any energy-saving technology, ask if the system qualifies for Enhanced Capital Allowances (ECAs).

"Next, always get the predicted savings backed up with a supplier performance guarantee in writing and remember, it's kW that you're paying for and so kW saved is what you're after."

Manufacturer	Tonnage	Total motor power	Motor kW saving
Metalmeccanica	270	30kW	39.3%
Engel	1,000	110kW	41.1%
Demag	500	55kW	36.5%
Husky	600	110kW	37.2%
Van Dorn	3,000	280kW	38.2%
Krauss Maffei	1,000	110kW	44.7%
Oima	400	45kW	51.7%
Negri Bossi	330	30kW	66.4%
Mitsubishi	650	90kW	34.0%
MIR	200	30kW	60.1%
Stork	440	90kW	52.4%