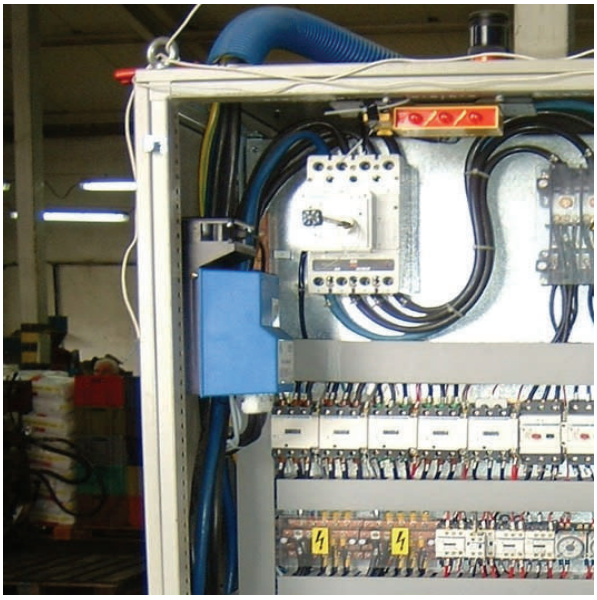
Report on a 37kW Injection Moulding Machine Application Installed September 2000 (>15% Savings with Payback <1.5Years)

This report has been generated towards the end of the fourth year of the EnviroStart unit having been fitted on site at Tec Electronics. During the course of this time the unit has had no maintenance and has required no adjustments or repair.

Tec Electronics is based Dongguan City, Guangdon Province. It is a company who manufactures consumer electronics for the Western European marketplace, particularly computer peripherals, (loudspeakers, web cams etcetera). The company maintains a small focussed injection moulding manufacturing facility to support the electronics assembly. Within this facility there are five injection moulding machines all of identical build and standard. These units are running for around twelve hours of every day.

The interest in EnviroStart in this application was to limit inrush current at start up as much as to provide overall energy savings; the manufacturing plant being on the periphery of the town of Dongguan and near the end of the supply line for the local distribution point.



EnviroStart mounted within the Control Panel

37kW Hydraulic Motor

At the time of installation all settings on the EnviroStart were left in default per current Installation and Commissioning Guide v10

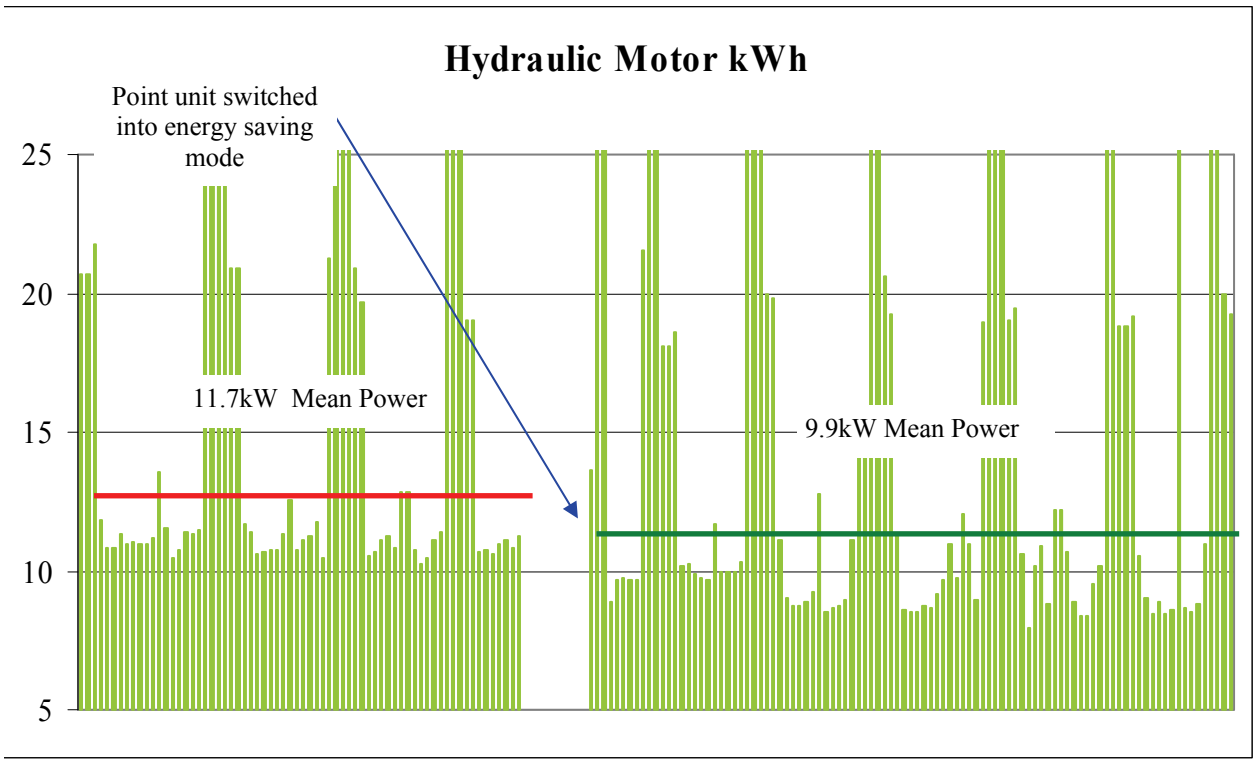
The EnviroStart replaced a Star-Delta start configuration leaving just the Line and Delta in circuit as the Delta had a number of unspecified auxiliaries.

Following installation the start current was monitored and ramp time and torque were adjusted to limit the start current to <110A, (approximately 2x FLC)

Site voltage and power consumption levels were monitored for approximately six hours whilst we were on site. During that time it was noticed that the supply voltage varied considerably, falling to <360V on a number of occasions.

The installation of the EnviroStart in this application enabled Tec Electronics to avoid the cost and complications of upgrading their supply lines, limited their surge current on start up and also increased the reliability of the overall systems as phase loss detection, intrinsic within EnviroStart, provided them with the protection against motor burn out. In addition to these benefits EnviroStart also generated a net reduction of >15% in consumed kWh for this motor.

The Results



The graph shows that the motor had three distinct load levels during normal operational duty. The peak, always extending to the motor full load, a ramp-up/ramp-down feature as the peak load was achieved and an off load function. (The ramp loads were created within the programme profile to ensure that the finish on the products was as required when using the high viscosity polymers needed).

At the intermediate load levels the savings shown were in the region of 5-8%; savings levels in the off load condition were demonstrated to be 14-17%.

It was noted that because of the long cycle time that the temperature of the motor was reduced significantly as a result of EnviroStart being fitted.

Report compiled by Dr. Jonathan Hughes and Martin Hollis of EMS (European) Ltd 22nd June 2004