

Report of Installation on Injection Moulding Machine at Tang Li Plastics in Huzhou China

July 2005. Average Savings of 16% Giving a Payback of < 1.5 Years

Tang Li Plastics and Electrical Goods specialise in the manufacture of injection moulded plastic garden furniture and high precision electrical items. The injection moulding machine on which our tests were conducted was producing plastic stand bases of approximately 25cm in diameter.



One of the Tang Li Manufacturing Buildings

Line condition on this site was excellent with good sub station power factor correction taking the Cos Phi to > 0.96 . Line voltage was however low at 376V.

This injection moulding machine had a noticeably long cycle with two peak demand periods per cycle on the hydraulic system, the first to close the tool and the second to drive the injection into the mould. As the system being cast in this case was of significant size the period of injection was a major part of the overall cycle. (This detail can clearly be seen on the graph shown overleaf).

Despite the long cycle time the rate of change of loading on the hydraulic motor was significant and it was important that the EnviroStart be able to react sufficiently quickly to ensure the quality of finish of the manufactured product.

The installation and integration of the EnviroStart into the circuit was quite straight forward as the existing motor start was DOL, (Direct on Line); this allowed the EnviroStart to be readily fitted after the Line Contactor.



The systems were running for twelve hours per day for around 350 days a year. Comparing the consumption of the motor with EnviroStart in energy saving mode against it being out of energy saving mode showed that the EnviroStart was readily able to take up the changes in power levels required without slowing the motor or impacting the quality of the finish on the goods whilst still yielding savings of 16% and providing a payback of <1.5 years for Tang Li management.



Ambient temperatures are generally high in this region of China; the fitting of EnviroStart reduced operation temperatures of the motor by around 10°C which will not only assist in the maintenance of a better working environment for the operators but will also increase the operational life time of the system as a whole.

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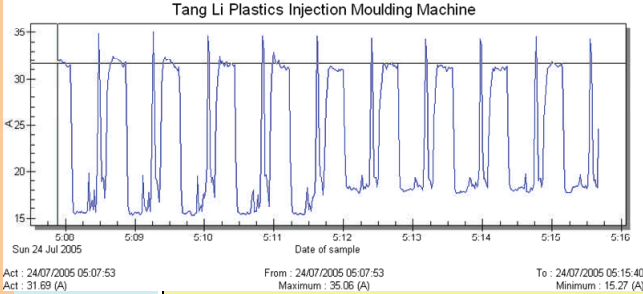
EnviroStart Three Phase G6 Soft Start & MEC Audit Analysis

Date: 23.7.2005

Customer: Tongli Plastic

Application	Motor Identity	MEC Or SS	Motor Plate kW	Motor Plate A	Motor Power in A Meas	Motor Power Factor Meas	Hours Motor Runs/Day On Load	Hours Motor Runs/Day Off Load	Days Motor Runs/Year	Motor Load %	E/Start Std Size	kW/Day Without E/Start	Motor Cost/Day Without E/Start	kW/Day With E/Start	Motor Cost/Day With E/Start	Savings as a %	Savings in £ per day	Savings in £ per year	P/Back in Years	EnviroStart Type Required	Cost of EnviroStart Unit (No Installation)
1 Injection Moulding	3	MEC	18.5kW	36.0A	18.5A	0.27PF	12	350	51	22.0kW	135.9kW	£8.83	116.9kW	£7.60	14.0	£1.24	£432.84	1.32	400-TPMECCG-22	£570	

Savings identified on this system > 16%. The other noticeable item is that the load take up is identical in Energy Svc Mode as when Out!



MEC Savings	£433	Cost of all Units	£570
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Summary Information

Electricity Cost/kWh	£0.065	Site Pf	0.94PF	Site Voltage	376V	Total kW of Motors Audited	18.50kW	kW/Year Savings Shown	6.659kW	kW/day Savings Shown on This Sheet	19.03kW	P/B Period in Years Based on SS & MEC's	1.32 Years
						Days/Yr Motors Run	Days 350	Hours/Day Motors Run	Hours 12.00	Average Savings/Motor	14.00	P/B Period in Years Based on MEC's Only	1.32 Years



Report compiled by
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 EMS (European) Ltd 28th August 2005**