



February 3, 2010

VIA Email

Brent English
Cleantech Partners, Inc
8309 Greenway Boulevard
Middleton, WI 53562

RE: METERING RESULTS FOR CSS DRIVES - XTEN INDUSTRIES

Dear Brent:

As requested, the metering of the injection molding presses was completed on January 24, 2010 for presses 20, 31 and 39. The fourth press was not in service at the time. The results of the analysis of the meter data is summarized in Table 1 with relevant press information. The plots that show the power profiles are attached on the following pages for your review.

Table 1

Press #	Manuf.	Size (tons)	Motor (HP)	# Motors	Power W/O CSS (kW)	Power W/ CSS (kW)	Savings (kW)	Reduction (%)
20	Toshiba	500	75	2	22.1	15.5	6.6	29.8%
31	Milacron	880	150	1	51.1	39.7	11.4	22.4%
39	Milacron	600	100	1	36.5	24.4	12.2	33.3%

To establish a reasonable baseline, the each press was operated in manual mode with the VFD at 60 Hz (full speed). At 60 Hz the normal press control methodology was used by default.

Because a VFD will impart its own efficiency, data on the Altivar drives was reviewed to allow reasonable estimates of full load VFD efficiency. Based on this review, the manufacturer data placed the efficiency in the range of 97 to 98 percent depending on the model. This range is relatively small so a nominal full load efficiency of 97.5 percent was used to adjust the base load power to a value that would be expected had the drives been removed for base load metering.

It is worth noting that all measurements are based on metered three phase *motor* power and are not estimates from current (amp) data. As such, there is a high confidence that the findings represent a realistic overview of performance at the time. Of course, operating conditions and savings will likely change based on the part cycle time and shot size, which would normally need to be considered as one press typically runs many different parts.

The opportunity to support your efforts is very much appreciated. If you have any questions regarding the results please contact me at 608.442.5695 ext 1.

Regards,
Tom Tucker, P.E.



