

Report of Installation on Refrigeration Compressor at Hua Cheng Supermarket in Nanjing China July 2005.

Average Savings At Time of Test 3%

Hua Cheng Supermarkets are one of the multitude of high street convenience grocery stores within China. Typical to all such facilities, they have cold storage display units within the body of the store which are maintained by external chiller packs.



The Chiller on Which the Test was Conducted

Conditions at this site were not favourable at the time of our test installation. The ambient temperature in the region of the refrigeration compressor was $>55^{\circ}\text{C}$ with an RH of $>97\%$. Line condition was however good though the supply voltage was only 360V, additionally it was noted that the lines were not overloaded as voltage and supply stability was maintained when the second and third units were cutting on and off.

The unit tested was however running at close to 70% of its full plated rating with a Pf of over 0.65 which, with such a low supply voltage, did indicate that savings were not going to be significant at the time we were on site.

The unit was installed and the system run up, the ambient temperature increased during the time that the test was conducted eliminating any off-load operation.

During the period of the test, despite the low supply voltage and the very high ambient temperatures, causing near full - load operation of the motor, savings of 3% were identified.



The Hua Cheng Supermarket Frontage at the Test Site

This refrigeration unit provides the $+3^{\circ}\text{C}$ chill cabinet cooling and will be running twenty four hours a day throughout the year and it is expected that during periods such as, when the supermarket is closed at night and throughout the Autumn, Winter and early Spring periods, (when the average ambient temperature is much lower), that there will be substantial periods when off-load operation will be "the norm". At these times the savings levels will increase dramatically and should average out, through the year, to near 10%.

Operation of the unit was noticeably quieter through the time that the EnviroStart was fitted and it would be expected that operational temperatures would be reduced through the use of EnviroStart.

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EnviroStart Three Phase G6 Soft Start & MEC Audit Analysis

Date: 21.7.2005

Customer: Hua Cheng Supermarket, Nanjing

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	Hours Motor Runs/Day in	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)	
A	B	C	D	E	F	G	H	I	J													
1 Refrigeration Chiller	2	MEC	7.5kW	15.0A	7.5A	0.64Pf	8	16	365	50	7.5kW	105.5kW	£6.86	103.4kW	£6.72	3.0	£0.14	£50.06	5.79	400-TPMEICG6-7	£290	
Chart shows savings of around 3%. The system is on load at this time as a result of the local ambient. The savings would increase significantly at night. Nanjing Supermarket Real Power Sat 23 Jul 2005 Act: 23/07/2005 09:11:01 Act: 4317.00 (VA) From: 23/07/2005 09:11:01 Maximum: 4541.00 (VA) To: 23/07/2005 09:14:40 Minimum: 4221.00 (VA)																						
Miscellaneous Costs																						
																			MEC Savings £50		Cost of all Units £290	

Summary Information

Summary Information			Total kW of Motors Audited		kW/Year Savings Shown		kW/day Savings Shown on This Sheet		P/B Period in Years	
			7.50kW		770kW		2.11kW		Based on SS & MEC's	
									5.79 Years	
Electricity Cost/kWh	Site Pf	Site Voltage	Days/Yr Motors Run		Hours/Day Motors Run		Average Savings/Motor		P/B Period in Years	
£0.065	0.94PF	360V	Days 365		Hours 24.00		3.00		Based on MEC's Only	
									5.79 Years	



The Refrigeration Compressor Pack on Which the Testing was Conducted.

Report compiled by
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EMS (European) Ltd 23rd August 2005**