Energy Savings Report
Anton Group Limited
5th October 2011

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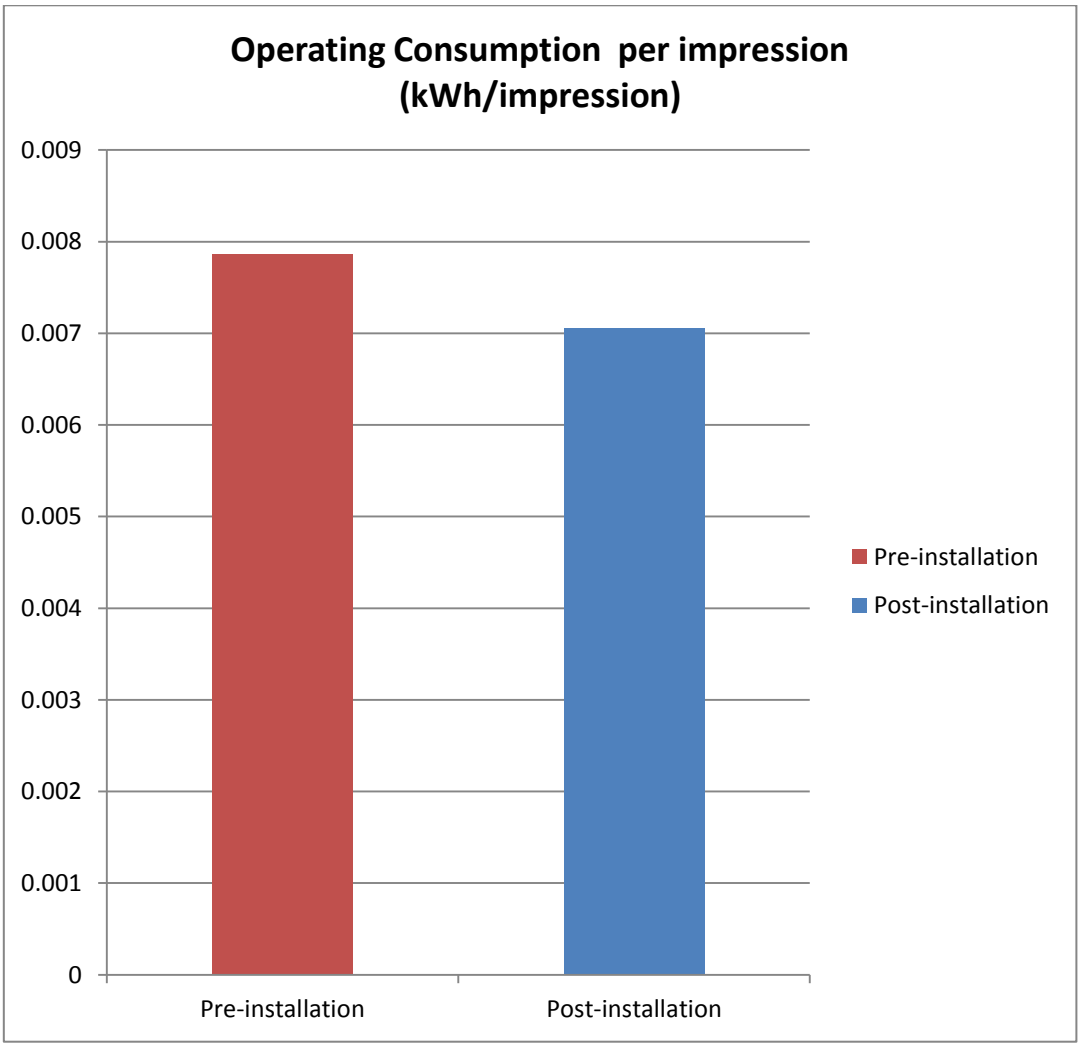
SUMMARY

This Energy Savings Report is being provided to Anton Group Limited following the installation of Ultra eco® at Anton House, Christy Way, Laindon, Essex, SS15 6TR. Ultra eco® was installed on 8th August 2011 and connected to a Heidelberg Speedmaster XL105 Offset Press.

The installation of Ultra eco®, Blue Carbon's Electrical Current Optimisation device, has demonstrated an average saving of 10.1% over a 9 week test period as a consequence of lowering the consumption of the trial load.

Blue Carbon considered the number of impressions produced on a daily basis and the operating consumption of electricity to produce the impressions.

The reduction in consumption is expressed as a reduction in the average operating kilowatt hour consumption per impression (kWh/Impression).



The average operating consumption pre-installation is 0.00786kWh/impression; the average operating consumption post-installation is 0.00706kWh/Board. The average reduction in operating consumption is calculated as 10.1%.

INTRODUCTION

Anton Group installed 1 x Ultra eco® UC100 unit at Anton House, Christy Way, Laindon, Essex, SS15 6TR on 8th August 2011.

The purpose of this Energy Saving Report is to describe the installation carried out, outline the data and methodology adopted to establish the results following the installation of Ultra eco®, present the results and provide an initial conclusion.

INSTALLATION, DATA CAPTURE AND VARIABLE FACTORS

Ultra eco™ was installed at the following locations:-

1. **Heidelberg Speedmaster XL105 Offset Press within the print warehouse**

The performance of Ultra eco® was measured using data provided from the smart meter installed on the press on 16th June 2011, and production data in the form of impressions produced per day, supplied by Anton Group.

By analysing the half-hourly data it was possible to identify the consumption of the press when not operating. Through analysis of the production data in relation to non-operating consumption it was possible to calculate and consider the actual operating consumption as affected by the variable number of impressions. During the final three weeks of the trial, impressions data was only received for the period Monday to Friday; in these weeks the operating consumption for the 5 day periods was compared with the impressions produced for the same 5 day period for each week. The averages were compared against the 7 day periods analysed during the first 6 weeks and the average consumption per impression correlated precisely.

TEST PERIOD & METHODOLOGY

Consumption and variable data was analysed for a period of 7 weeks prior to the installation of Ultra eco® for the period 20/06/11 – 07/08/11. Anton Group subsequently installed and Ultra eco® UC100 with a kVA capacity of 100 kVA. Post installation, Blue Carbon collected and analysed consumption and variable data for a period of two weeks for the period 08/08/11 – 21/08/11.

In the analysis of the data, Blue Carbon took account of the following factors and determined that the following variable factors were present and influenced the results:

1. Production Figures – Number of Impressions
2. Operating Consumption - kWh

The calculation used was as follows:

$$\text{Average Operating Consumption Per Impression} = \frac{\text{(Operating Consumption)}}{\text{Number of Impressions}}$$

RESULTS

The tables below set out the analysis used to calculate the reduction in the average operating kWh consumption per impression.

Test Period	Operating Consumption (kWh)	Impressions	Operating Consumption/Impression (kWh/impression)	Average Operating Consumption/Impression (kWh/impression)	Average % Reduction
Week 1	7,507	1,175,519	0.00639	0.00786	10.1%
Week 2	7,956	829,453	0.00959		
Week 3	6,088	770,360	0.00790		
Week 4	8,293	1,154,974	0.00718		
Week 5	7,646	968,358	0.00790		
Week 6	8,248	1,078,388	0.00765		
Week 7	6,243	743,097	0.00840		
Week 8	6,090	839,179	0.00726	0.00706	
Week 9	6,590	959,959	0.00686		

The Average Operating Consumption pre-installation is 0.00786kWh/Impression; the Average Operating Consumption post-installation is 0.00706kWh/Impression. The Average Reduction in Operating Consumption is calculated as 10.1%.

SITE SAVINGS POTENTIAL

To calculate the potential achievable site savings, Blue Carbon have analysed the inductive and resistive load profiles of the site as follows:

Load Profile	Load Capacity	Capacity Ratio	Savings Potential	Weighted Saving	Total Expected Saving
Inductive Loads	1000kVA	71%	10.1%	7.1%	8%
Resistive Loads	400kVA	29%	3%	0.9%	

Based upon this analysis Blue Carbon believes the savings across the Anton Group production facility will be an average of 8% per annum.

PILOT DATA

	Start Date	Inc Total Value	Mon Op. Adj.	Impressions	Total Impressions	Weekly Consumption	Weekly Impressions	Ave kWh/Impression
WEEK 1								
Mon	20/06/2011	1049	707					
Tue	21/06/2011	1412						
Wed	22/06/2011	1312						
Thu	23/06/2011	1361		1,175,519				
Fri	24/06/2011	1487						
Sat	25/06/2011	1134				7507	1,175,519	0.00639
Sun	26/06/2011	138	94					
WEEK 2								
Mon	27/06/2011	1400	1103					
Tue	28/06/2011	1465						
Wed	29/06/2011	1129						
Thu	30/06/2011	1226		829,453				
Fri	01/07/2011	1266						
Sat	02/07/2011	1689				7956	829,453	0.00959
Sun	03/07/2011	140	79					
WEEK 3								
Mon	04/07/2011	686	142					
Tue	05/07/2011	486						
Wed	06/07/2011	952						
Thu	07/07/2011	1372		770,360				
Fri	08/07/2011	1583						
Sat	09/07/2011	1465				6088	770,360	0.00790
Sun	10/07/2011	134	88.2					
WEEK 4								
Mon	11/07/2011	1438	1145					
Tue	12/07/2011	1363						
Wed	13/07/2011	1631						
Thu	14/07/2011	1590		1,154,974				
Fri	15/07/2011	1171						
Sat	16/07/2011	1313				8293	1,154,974	0.00718
Sun	17/07/2011	212	80					
WEEK 5								
Mon	18/07/2011	1133	972	146,733				
Tue	19/07/2011	1107		148,807				
Wed	20/07/2011	1334		182,524				
Thu	21/07/2011	1418		166,515				
Fri	22/07/2011	1422		161,032				
Sat	23/07/2011	1312		162,747		7646	968,358	0.00790
Sun	24/07/2011	209	82					
WEEK 6								
Mon	25/07/2011	1328	1169	216,233				
Tue	26/07/2011	1567		188,889				
Wed	27/07/2011	1531		191,010				
Thu	28/07/2011	1280		175,282				
Fri	29/07/2011	1312		306,974				
Sat	30/07/2011	1301				8248	1,078,388	0.00765
Sun	31/07/2011	154	88					
WEEK 7								
Mon	01/08/2011	1277		148,955				
Tue	02/08/2011	1250		197,676				
Wed	03/08/2011	1646		154,966				
Thu	04/08/2011	832		175,810				
Fri	05/08/2011	1238		65,690		6243	743,097	0.00840
WEEK 8								
Mon	08/08/2011	1004		165,165				
Tue	09/08/2011	1332		176,105				
Wed	10/08/2011	1340		150,390				
Thu	11/08/2011	1442		196,056				
Fri	12/08/2011	972		151,463		6090	839,179	0.00726
WEEK 9								
Mon	15/08/2011	856		249,151				
Tue	16/08/2011	1253		122,958				
Wed	17/08/2011	1479		165,732				
Thu	18/08/2011	1377		174,852				
Fri	19/08/2011	1625		247,266		6590	959,959	0.00686