

Case Study

Granulator

Manufacturer: Millpac

integraTM
intelligent fixed speed motor control



Case Study



Millpac is a family owned company, specialising in injection and extrusion moulding. They process a variety of materials, which include but are not limited to, Polypropylene (HPPP, RCPP & CPPP), Polyethylene (LDPE & HDPE), Nylon (PA66), TPE, EVA, and PVC. Operating from a 50,000 sq ft site in Exeter, they have over 30 injection moulding machines, 2 extrusion lines for flexible profiles and 1 extrusion line for rigid profile.

Millpac production runs 24h a day and all the excess plastic that is accumulated during the part making process is re-granulated so the plastic can be recycled, these Granulators can be left idling for hours with no produce going through. This is where Suresense stepped in to help optimise the amount of energy used, 8 Integra units were fitted to the 8 granulators.

- **Provide a smooth mechanical start.**
- **Save energy when the Granulators were running.**
- **Intelligently Switch the Granulators On and Off.**
- **If the Granulators are sat idling for a period of time the Integra units simply switch them off.**
- **The Integra units will then keep the motors off until an operator is detected.**

Savings
81%

Factors
6-8 Months
ROI
(Return On Investment)

Benefits

An added benefit was noticed by the production operators within a week of the installation, the overall noise levels in the facility dropped dramatically.

Millpac will also gain from the massive reduction in the KVAR, currently there is no Power Factor Correction installed.

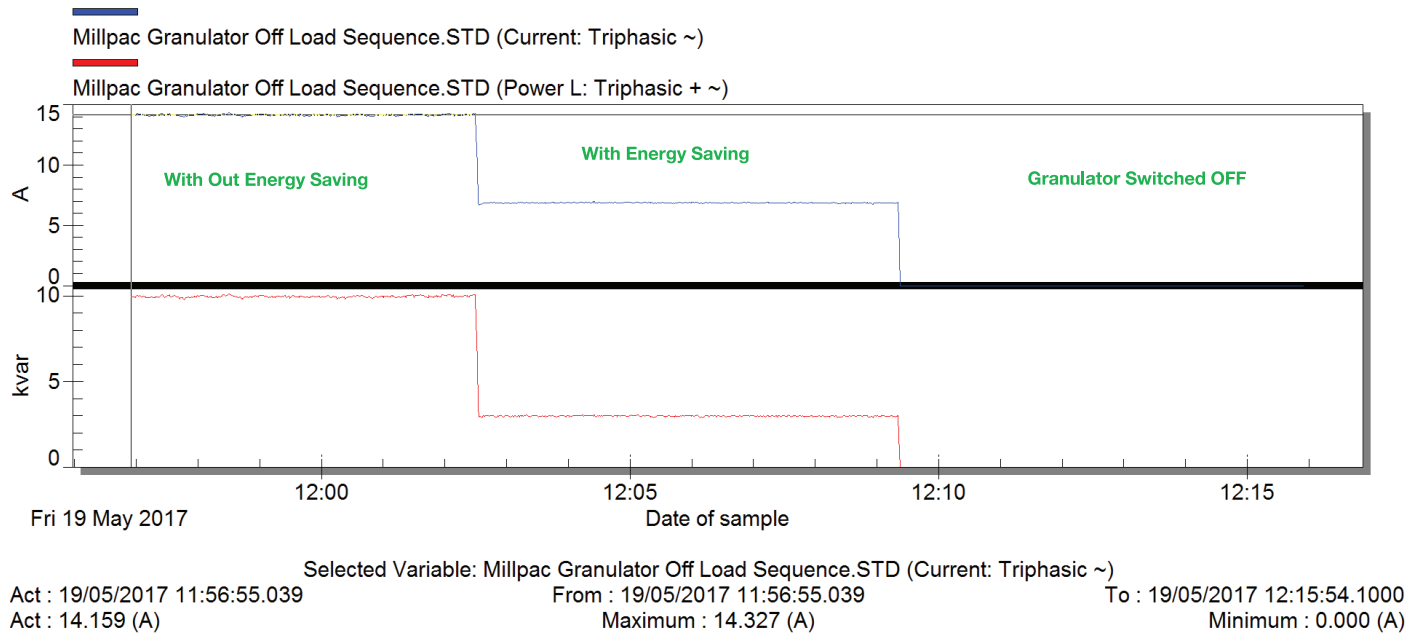


Test Conditions

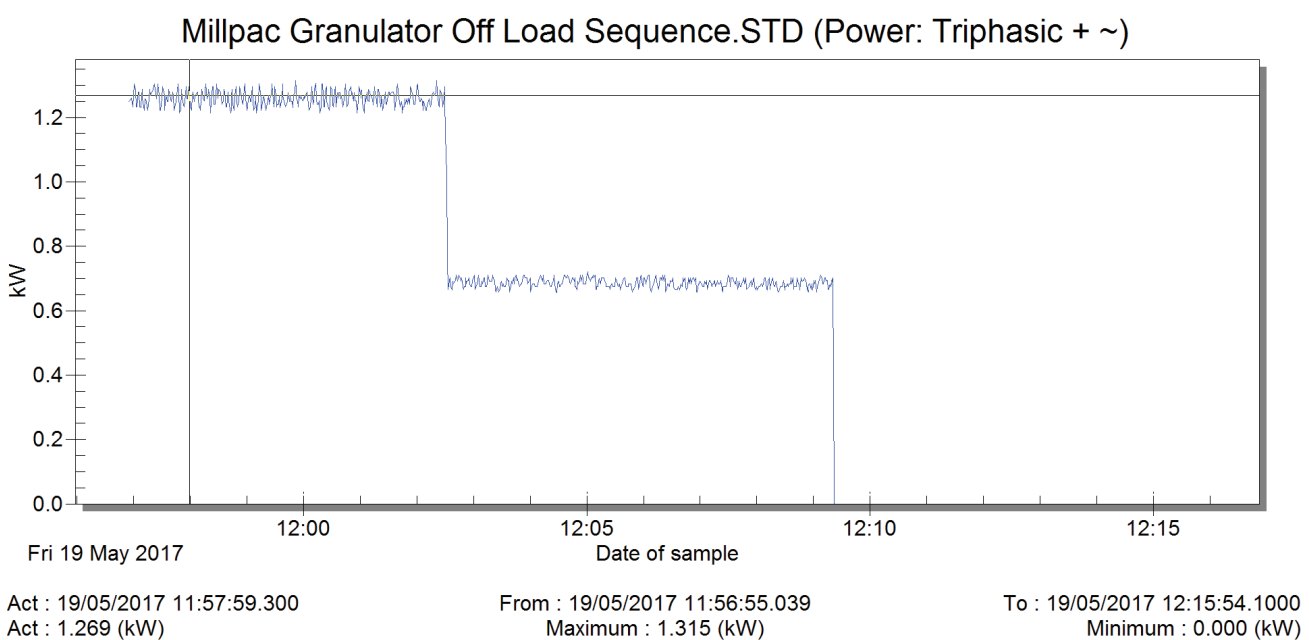
Off Load sequence and Savings

Multigraphic

MULTIGRAPHIC



Millpac Granulator Off Load Sequence. STD (Power: Triphasic + ~)



Test Conditions

Off Load sequence and Savings

Before

1	Date	Time	Current: Triphasic ~ (A)	Power: Triphasic + ~ (kW)	Power L: Triphasic + ~ (kvar)
2	19/05/2017	56:55.0	14.159	1.249	9.961
3	19/05/2017	56:58.0	14.147	1.26	9.943
4	19/05/2017	56:58.9	14.082	1.233	9.906
5	19/05/2017	56:59.9	14.224	1.268	10.006
6	19/05/2017	57:00.8	14.262	1.305	10.043
1	Date	Time	Current: Triphasic ~ (A)	Power: Triphasic + ~ (kW)	Power L: Triphasic + ~ (kvar)
344	19/05/2017	02:24.7	14.185	1.286	10.015
345	19/05/2017	02:25.6	14.185	1.277	10.024
346	19/05/2017	02:26.6	14.211	1.268	10.034
347	19/05/2017	02:27.5	14.288	1.232	10.08
348	19/05/2017	02:28.5	14.25	1.259	10.079
349	19/05/2017	02:29.5	14.262	1.296	10.061
350		Average	14.15	1.26	9.97

After

1	Date	Time	Current: Triphasic ~ (A)	Power: Triphasic + ~ (kW)	Power L: Triphasic + ~ (kvar)
352	19/05/2017	02:34.2	6.758	0.693	2.948
353	19/05/2017	02:35.2	6.796	0.701	2.938
354	19/05/2017	02:36.1	6.757	0.675	2.892
355	19/05/2017	02:37.1	6.886	0.665	3.002
356	19/05/2017	02:38.0	6.86	0.692	2.992
357	19/05/2017	02:38.0	6.873	0.683	2.967
1	Date	Time	Current: Triphasic ~ (A)	Power: Triphasic + ~ (kW)	Power L: Triphasic + ~ (kvar)
770	19/05/2017	09:16.6	6.861	0.666	2.956
771	19/05/2017	09:17.5	6.822	0.683	2.974
772	19/05/2017	09:18.5	6.835	0.674	2.938
773	19/05/2017	09:19.5	6.848	0.693	2.993
774	19/05/2017	09:19.4	6.873	0.692	2.966
775	19/05/2017	09:20.4	6.912	0.702	3.003
776		Average	6.87	0.69	2.98
777		Saving Rate	51%	46%	70%

Note: These savings have not taken the switching off into account

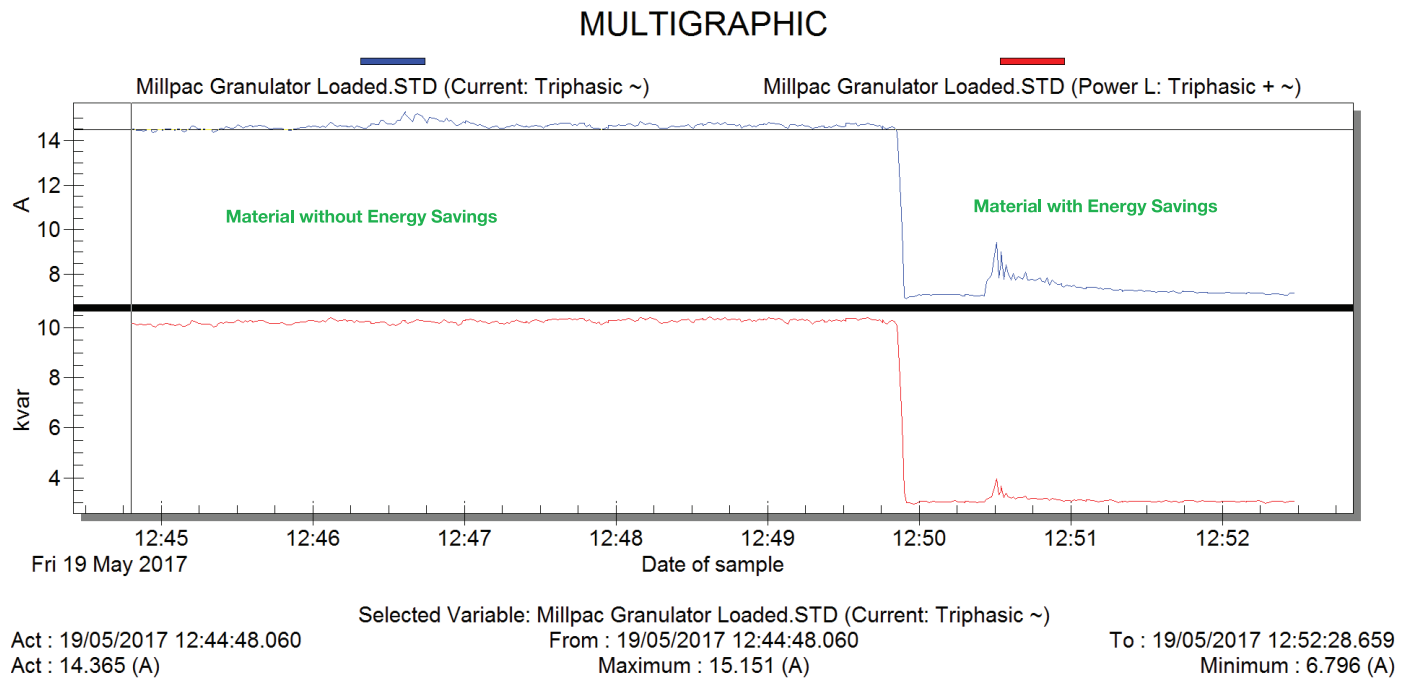
Savings with Integra

Current: Triphasic (A)	51%
Power: Triphasic + (kW)	46%
Power L: Triphasic (kvar)	70%

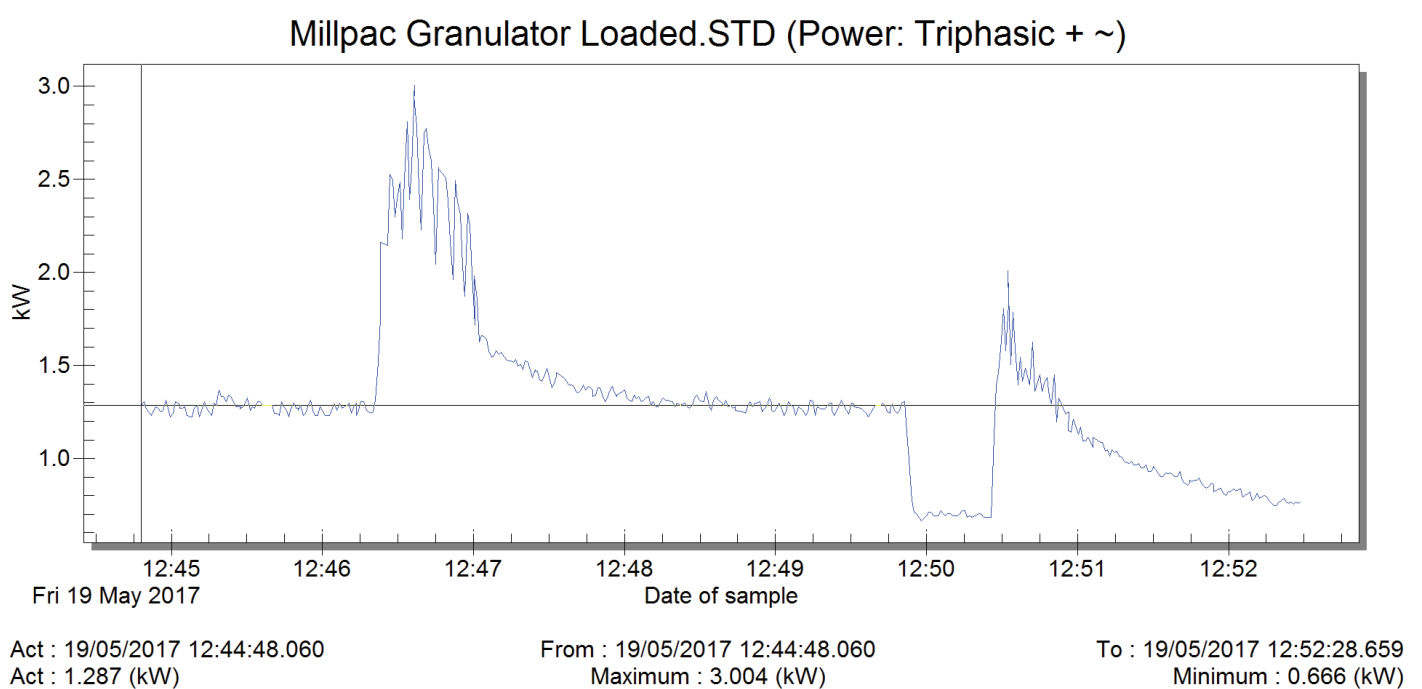
Test Conditions

Loading Analysis

Multigraphic



Millpac Granulator Loaded. STD (Power: Triphasic + ~)



Test Conditions

Loading Analysis

Before

1	Date	Time	Current: Triphasic ~ (A)	Power: Triphasic + ~ (kW)	Power L: Triphasic + ~ (kvar)
2	19/05/2017	45:43.8	14.378	1.305	10.161
3	19/05/2017	45:44.7	14.404	1.277	10.17
4	19/05/2017	45:45.7	14.417	1.26	10.179
5	19/05/2017	45:46.6	14.404	1.224	10.18
6	19/05/2017	45:47.6	14.417	1.269	10.198
7	19/05/2017	45:48.6	14.365	1.296	10.161
1	Date	Time	Current: Triphasic ~ (A)	Power: Triphasic + ~ (kW)	Power L: Triphasic + ~ (kvar)
194	19/05/2017	48:47.9	14.533	1.242	10.317
195	19/05/2017	48:48.9	14.571	1.278	10.353
196	19/05/2017	48:49.8	14.43	1.305	10.225
197	19/05/2017	48:50.8	14.507	1.277	10.271
198	19/05/2017	48:51.8	14.52	1.297	10.289
199	19/05/2017	48:52.7	14.597	1.296	10.344
200		Average	14.57	1.56	10.26

After

1	Date	Time	Current: Triphasic ~ (A)	Power: Triphasic + ~ (kW)	Power L: Triphasic + ~ (kvar)
203	19/05/2017	49:58.9	6.912	0.675	2.976
204	19/05/2017	49:59.8	6.964	0.693	3.031
205	19/05/2017	50:00.8	6.951	0.711	3.076
206	19/05/2017	50:01.8	6.976	0.711	3.085
207	19/05/2017	50:02.7	6.964	0.692	3.058
208	19/05/2017	50:03.7	6.964	0.691	3.021
1	Date	Time	Current: Triphasic ~ (A)	Power: Triphasic + ~ (kW)	Power L: Triphasic + ~ (kvar)
354	19/05/2017	52:23.9	6.976	0.757	3.058
355	19/05/2017	52:24.8	6.938	0.766	3.012
356	19/05/2017	52:25.8	6.938	0.756	3.03
357	19/05/2017	52:26.7	7.028	0.765	3.075
358	19/05/2017	52:27.7	7.028	0.757	3.067
359	19/05/2017	52:28.7	7.041	0.765	3.076
360		Average	7.23	0.98	3.10
361		Savings	50%	37%	70%

Cost Analysis

Over a 30 day period

Costs of running with No Integra = £109.00

Cost of running with Integra = £60.00

Cost of running with Integra switching motor off 2/3 of the time = £20.00

Saving Percentage 81%

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intelligent fixed speed motor control

Energy Efficient

This excess consumption is not only an unnecessary cost in your energy bill, but it also serves to damage your equipment as the excess energy is released through the windings of the motor in the form of heat, vibration and noise. Integra will give your motors intelligence through monitoring the load on the shaft of the motor for every cycle of the supply. The Integra will then feed your motors the electricity that they require to run efficiently at any point in the duty cycle.

Customers

There are a growing number of forward thinking executives and energy consultants who are taking their corporate responsibilities (CSR) very seriously. In an effort to target carbon reduction and increase their company profits, they have chosen Suresense Technologies energy saving solutions. These implementations were viewed as part of their own energy saving strategy and were driven by two other key factors, low risk and high return on investment (ROI).

Benefits

Integra integrates fully with its surroundings and can even switch your motors off automatically when they are not being used, or use stored energy in certain applications (such as flywheel mechanisms) to reduce your electricity consumption even further.

