

Case Study

Rehau Mixer



integra™

intelligent fixed speed motor control

suresense.co.uk



Case Study

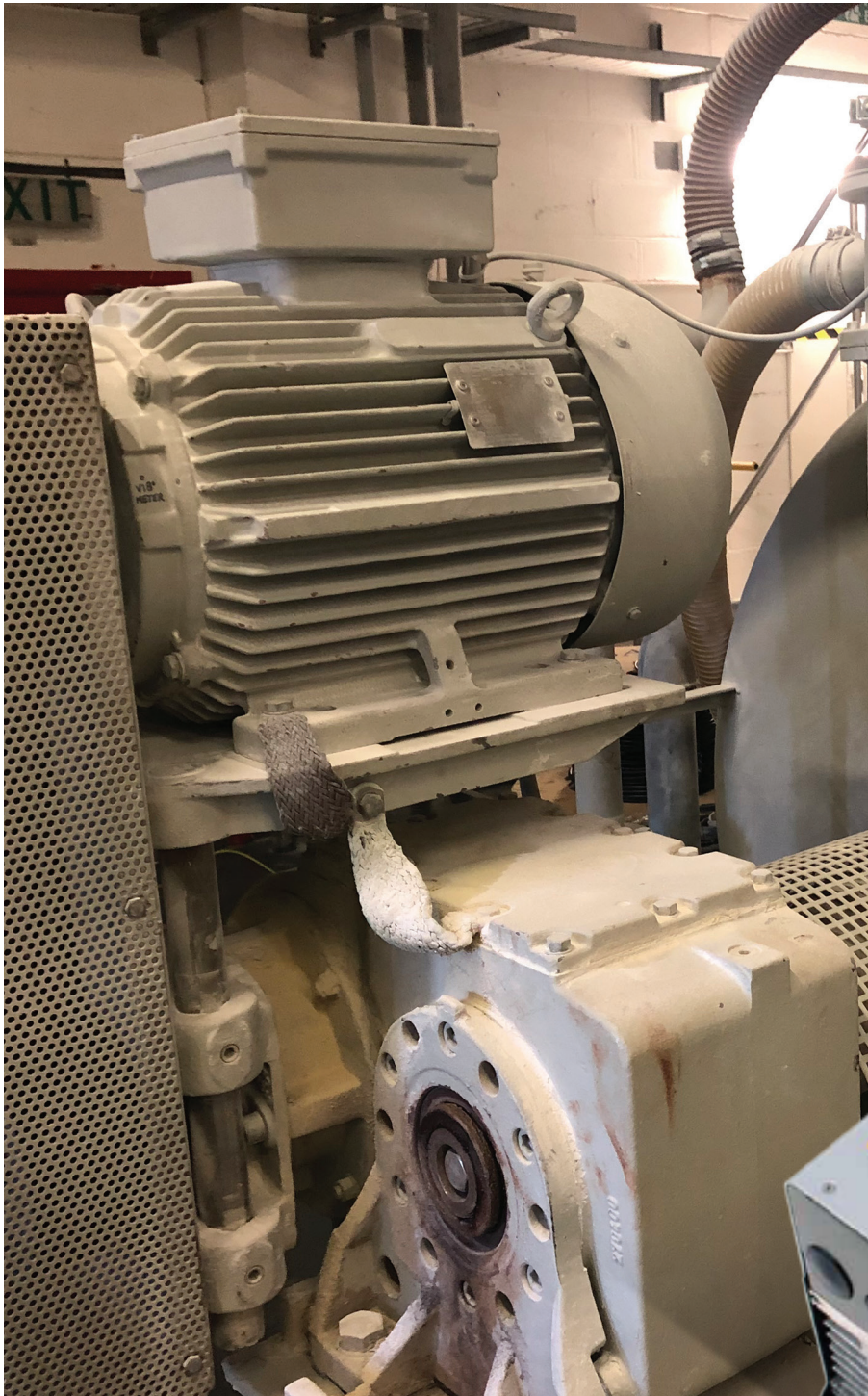


Introduction

The purpose of the installation of the Integra units on the mixer 3 at Rehau was to reduce the consumption of the Main mixer motor (hot) and the secondary mixer motor (cold) when the process was idle, the motors were previously allowed to turn off but a software change to improve the product, forced the motors to stay on through the whole process. During this idle time the energy reduction of the main motor is reduced by 34%.

Analysis Details

| | |
|----------------------|-------|
| Type of Machine: | Mixer |
| Motor Size: | 132kW |
| Motor Energy Rating: | IE2 |
| Operating Hours: | 24/7 |



Key Benefits



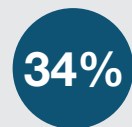
Soft Start

Integra Softstarts the granulator, reducing mechanical wear and tear + reduces peak demand.



Energy Saving

Through the Loading cycle, the Integra unit will reduce the energy consumed by the granulator.

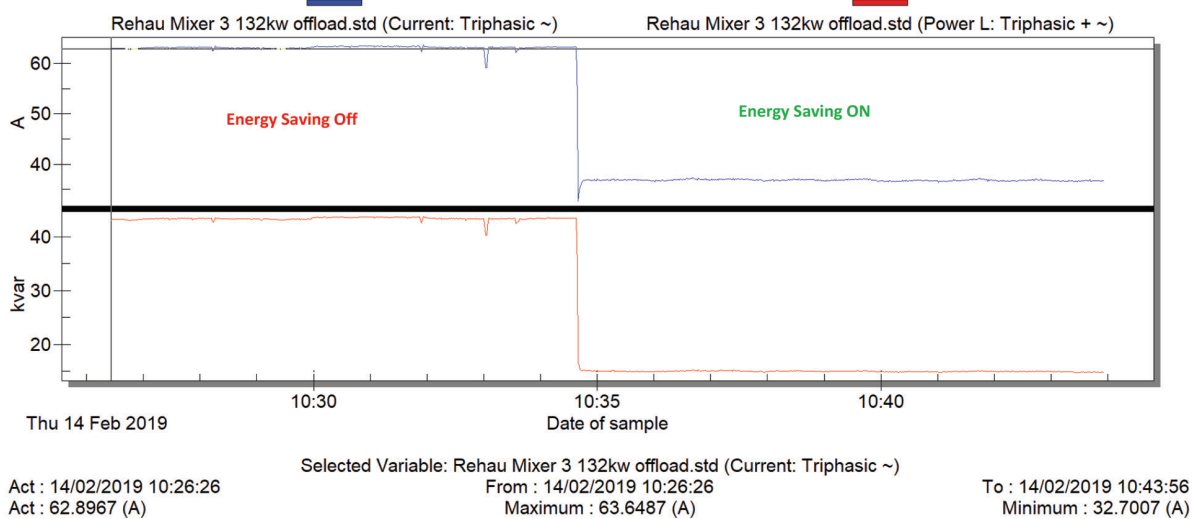


Savings

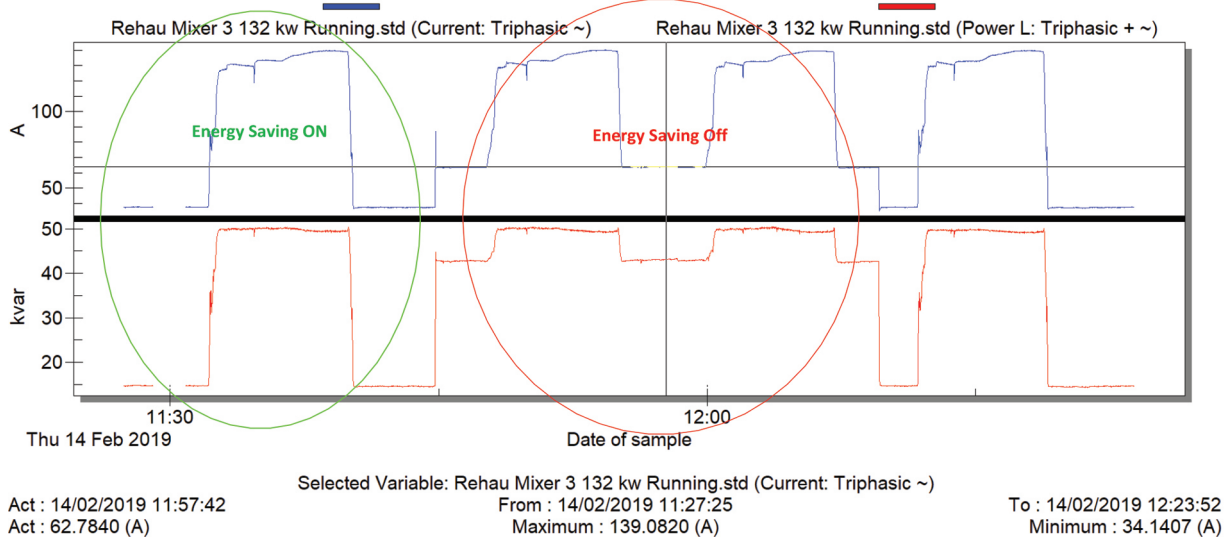
Savings Gained.



MULTIGRAPHIC



MULTIGRAPHIC



Energy Analysis

Off Load Sequence and Savings

Before

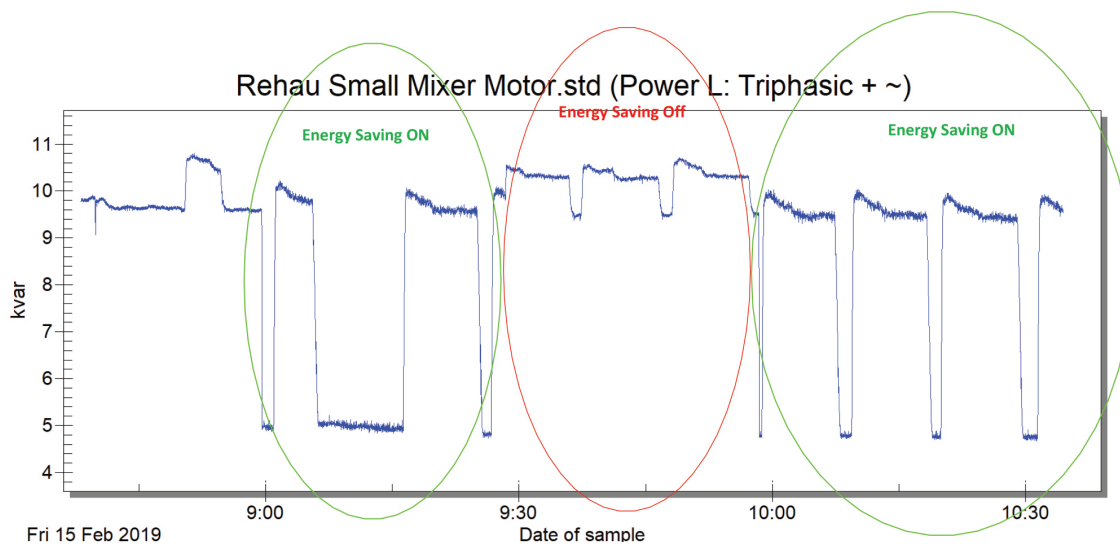
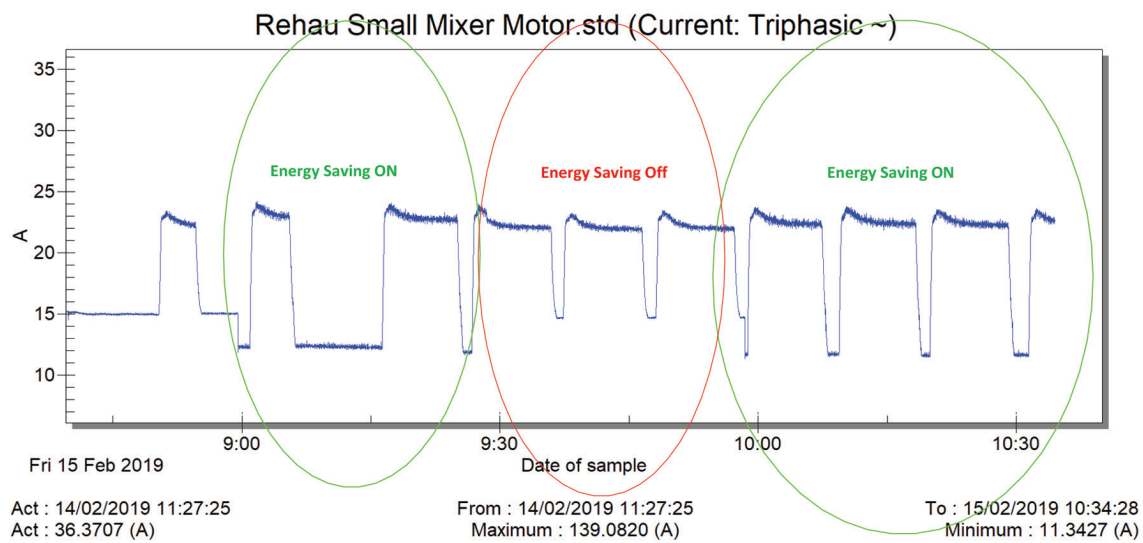
| 1 | Date | Time | Current: Triphasic ~ (A) | Power: Triphasic + ~ (kW) | Power L: Triphasic + ~ (kvar) |
|---|------------|----------|--------------------------|---------------------------|-------------------------------|
| 2 | 14/02/2019 | 10:26:26 | 62.8967 | 3.452 | 43.18 |
| 3 | 14/02/2019 | 10:26:27 | 62.9587 | 3.442 | 43.218 |
| 4 | 14/02/2019 | 10:26:28 | 62.946 | 3.498 | 43.21 |
| 5 | 14/02/2019 | 10:26:29 | 62.956 | 3.462 | 43.232 |
| 6 | 14/02/2019 | 10:26:30 | 62.9433 | 3.408 | 43.238 |

| 1 | Date | Time | Current: Triphasic ~ (A) | Power: Triphasic + ~ (kW) | Power L: Triphasic + ~ (kvar) |
|-----|------------|----------|--------------------------|---------------------------|-------------------------------|
| 487 | 14/02/2019 | 10:34:31 | 63.1987 | 3.582 | 43.416 |
| 488 | 14/02/2019 | 10:34:32 | 63.2407 | 3.436 | 43.462 |
| 489 | 14/02/2019 | 10:34:33 | 63.2413 | 3.46 | 43.458 |
| 490 | 14/02/2019 | 10:34:34 | 63.2493 | 3.56 | 43.434 |
| 491 | 14/02/2019 | 10:34:35 | 63.23 | 3.474 | 43.458 |
| 492 | 14/02/2019 | 10:34:36 | 63.3013 | 3.446 | 43.504 |
| 493 | 14/02/2019 | 10:34:37 | 63.272 | 3.564 | 43.492 |
| 494 | | Average | 63.13 | 3.47 | 43.38 |

After

| 1 | Date | Time | Current: Triphasic ~ (A) | Power: Triphasic + ~ (kW) | Power L: Triphasic + ~ (kvar) |
|-----|------------|----------|--------------------------|---------------------------|-------------------------------|
| 499 | 14/02/2019 | 10:34:46 | 36.8513 | 2.308 | 15.222 |
| 500 | 14/02/2019 | 10:34:47 | 36.7487 | 2.266 | 15.096 |
| 501 | 14/02/2019 | 10:34:48 | 36.7953 | 2.282 | 15.096 |
| 502 | 14/02/2019 | 10:34:49 | 36.8827 | 2.288 | 15.128 |
| 503 | 14/02/2019 | 10:34:50 | 36.9727 | 2.276 | 15.182 |
| 504 | 14/02/2019 | 10:34:51 | 36.8587 | 2.266 | 15.146 |

| 1 | Date | Time | Current: Triphasic ~ (A) | Power: Triphasic + ~ (kW) | Power L: Triphasic + ~ (kvar) |
|------|------------|-------------|--------------------------|---------------------------|-------------------------------|
| 1045 | 14/02/2019 | 10:43:52 | 36.6493 | 2.272 | 14.798 |
| 1046 | 14/02/2019 | 10:43:53 | 36.608 | 2.284 | 14.792 |
| 1047 | 14/02/2019 | 10:43:54 | 36.722 | 2.282 | 14.856 |
| 1048 | 14/02/2019 | 10:43:55 | 36.6687 | 2.278 | 14.85 |
| 1049 | 14/02/2019 | 10:43:56 | 36.678 | 2.27 | 14.846 |
| 1050 | | Average | 36.83 | 2.28 | 14.98 |
| 1051 | | Saving Rate | 42% | 34% | 65% |



Off Load Sequence and Savings

Before

| 1 | Date | Time | Current: Triphasic ~ (A) | Power: Triphasic + ~ (kW) | Power L: Triphasic + ~ (kvar) |
|-----|------------|----------|--------------------------|---------------------------|-------------------------------|
| 612 | 15/02/2019 | 09:36:33 | 14.8813 | 3.43 | 9.44 |
| 613 | 15/02/2019 | 09:36:34 | 14.8067 | 3.332 | 9.434 |
| 614 | 15/02/2019 | 09:36:35 | 14.6167 | 3.13 | 9.372 |
| 615 | 15/02/2019 | 09:36:36 | 14.618 | 3.144 | 9.368 |
| 616 | 15/02/2019 | 09:36:37 | 14.6267 | 3.102 | 9.392 |
| 1 | Date | Time | Current: Triphasic ~ (A) | Power: Triphasic + ~ (kW) | Power L: Triphasic + ~ (kvar) |
| 654 | 15/02/2019 | 09:37:15 | 14.5613 | 3.118 | 9.32 |
| 655 | 15/02/2019 | 09:37:16 | 14.656 | 3.172 | 9.366 |
| 656 | 15/02/2019 | 09:37:17 | 14.678 | 3.064 | 9.452 |
| 657 | 15/02/2019 | 09:37:18 | 14.7153 | 3.14 | 9.458 |
| 658 | 15/02/2019 | 09:37:19 | 14.6647 | 3.136 | 9.422 |
| 659 | 15/02/2019 | 09:37:20 | 14.6407 | 3.096 | 9.416 |
| 660 | | Average | 14.67013 | 3.13436 | 9.41692 |

After

| 1 | Date | Time | Current: Triphasic ~ (A) | Power: Triphasic + ~ (kW) | Power L: Triphasic + ~ (kvar) |
|-----|------------|-------------|--------------------------|---------------------------|-------------------------------|
| 669 | 15/02/2019 | 10:19:01 | 11.5233 | 2.844 | 4.686 |
| 670 | 15/02/2019 | 10:19:02 | 11.6073 | 2.882 | 4.732 |
| 671 | 15/02/2019 | 10:19:03 | 11.6147 | 2.878 | 4.69 |
| 672 | 15/02/2019 | 10:19:04 | 11.7173 | 2.956 | 4.738 |
| 673 | 15/02/2019 | 10:19:05 | 11.6353 | 2.874 | 4.756 |
| 674 | 15/02/2019 | 10:19:06 | 11.588 | 2.88 | 4.72 |
| 1 | Date | Time | Current: Triphasic ~ (A) | Power: Triphasic + ~ (kW) | Power L: Triphasic + ~ (kvar) |
| 717 | 15/02/2019 | 10:19:49 | 11.5493 | 2.878 | 4.68 |
| 718 | 15/02/2019 | 10:19:50 | 11.484 | 2.83 | 4.676 |
| 719 | 15/02/2019 | 10:19:51 | 11.9013 | 2.962 | 4.824 |
| 720 | 15/02/2019 | 10:19:52 | 11.572 | 2.874 | 4.702 |
| 721 | 15/02/2019 | 10:19:53 | 11.5753 | 2.864 | 4.692 |
| 722 | 15/02/2019 | 10:19:54 | 11.5207 | 2.768 | 4.716 |
| 723 | | Average | 11.58 | 2.87 | 4.71 |
| 724 | | Saving Rate | 21% | 8% | 50% |