

Case Study

Recliner production output increased 23% following reduction in torque scrap



Your Lean Six Sigma Partner
...providing practical solutions for you

Project background

A manufacturer made car seat structures and mechanisms for several major automotive manufacturers.

Seat recliner mechanisms were assembled for welding to the front seat backs. Customer engineering specifications prescribed the operating effort on a completed seat frame prior to adding seat trim. Any product with an operating effort above the maximum limit was rejected and returned.

Scrap and rework cost over €100,000 per year.



Paloma Consulting Limited
Thorney House
26 The Barton
Cobham
Surrey
KT11 2NJ
United Kingdom

☎: +44 1932 867032

✉: info@palomaconsulting.com

www.palomaconsulting.com

Problem

The recliner mechanism manufacturing process had a rolled throughput yield of 53%. Scrap & rework was costing in excess of €100,000 per annum.

A Lean Six Sigma project was set up. The team's measurement systems analysis showed that the current measurement system was unacceptable causing good product to be reworked.

Various hypothesis tests showed that there was variation in drum alignment on different jigs and differing failure rates on different pallets. Torque gun and weld heat settings varied between operators depending on their experience.

Solutions

A new measurement method was implemented to ensure the recliners were cycled a specified number of times before measurements were taken.

New setting blocks were manufactured to ensure correct alignment of the drums. Designs of experiments were carried out to determine the optimum settings of torque gun and weld parameters to achieve the required recliner torque.

Standard operating procedures and visual manufacturing instructions were generated.

The existing statistical process control system was modified to ensure the optimal settings were maintained.

An improved total productive maintenance system was implemented for jigs and pallets.

Business benefits

The recliner process capability increased from 3.1 to 5.4 Sigma. As a result of this increased process capability, production output increased by 24%. Rolled throughput yield increased from 53% to over 90% generating savings of over €90,000 per annum.