

Case Study

Primer paint castings rejects slashed using Lean / Six Sigma techniques



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Project background

An electric motor manufacturer's foundry was producing castings, the majority of which required primer painting prior to subsequent machining and assembly operations. Departmental inspection procedures failed to stop primer paint rejects being passed on, resulting in major dissatisfaction with the foundry's performance.

A new water based primer painting process was being installed in the foundry but existing process controls were unlikely to prevent reject levels similar to those experienced on the current process.



Problem

Casting defects at the primer painting stage were running at a recorded average of 4.95% recorded as costing €42,000 per annum. Poor reject tracking meant that in reality reject levels exceeded 10%, costing €80,000 per year.

Paint was settling in containers, conveyor stoppages were causing 'tide marks' and air was appearing in the paint due to dirty filters. Paint viscosities were incorrect due to poor methods of mixing, paint was blistering from water contamination due to incorrect hanging methods and some castings had paint blobs due to poor hook conditions. Most significantly, there was poor process capability resulting from lack of well defined paint specifications.

Solutions

A lean six sigma project was set up. After developing a proper measurement system and completing rigorous failure modes and effects analyses, precise paint specifications were determined and issued to suppliers.

Paint containers were inverted every 0.5 hours. A new castings hanging method was determined to include standard operating procedures & visual controls.

An improved TPM system was implemented for filter and hook cleaning. A new procedure was introduced to control paint viscosities. New shift handover methods were introduced linked to control of breaks to reduce conveyor stoppages.

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

☎: +44 1932 867032
✉: info@palomaconsulting.com

www.palomaconsulting.com

Business benefits

Defects reduced to 1.5% saving €68,000 per year. Key findings and methods were transferred to the new paint line which was under construction at the time.