

SMALL MOTOR MANUFACTURING COMPANY SINGLE MINUTE EXCHANGE OF DIES (SMED) PROJECT

THE COMPANY

The company are a small motors manufacturer based in the North East of England. Turning over around £20m with just over 100 people they were faced with increasing competition from abroad. They had to find ways of increasing productivity and decreasing costs. This meant that key pieces of kit that were bottle necks would have to increase output so that the company would be more competitive.

THE ASSIGNMENT

The assignment was to take a die casting machine and working with a cross-functional team increase the volume of parts that the machine could produce. As the bottleneck machine the more product that could be put through the process the greater the sales and therefore there would be an increase in productivity for the company. The activity took place over a 4 ½ day project with a follow up after a few weeks for items that couldn't be completed in the time frame. The key area to look at was the change over from one motor frame size to another. A SMED workshop was run to improve the situation.

INITIAL ACTIVITIES

The initial review of the changeovers on the end shield die-casting machine showed that changeovers on average took one man 160 minutes. That all work was carried out internal that is to say nothing was done prior to the machine stopping and needing to be changed. The area had various health and safety issues and the operators and maintenance teams didn't realise the importance of the machine continuing to produce parts. Further more there were start up scrap issues every time the machine was set up. The equipment that was available was not very effective and the area was in need of organisation and 5S.

Following a brief education session on Single Minute Exchange of Dies the team then videoed the operation of a change over. This was done with the approval of the operator and the unions. This then enabled the team to identify areas for improvement to measure how long activities took and to think about alternatives. H&S issues as well as 5S issues were identified and then solved making the environment safer and more orderly. In true

SMED style each activity of the change over was then examined and all the internal were examined to see if they could become external (be worked on while the machine was running). Internal items that couldn't be mover to external were then investigated and simplified or quickened.

To develop the solutions the teams used: -

Videos, process maps, spaghetti charts, problems solving tools and techniques and simple data collection methods that they had been trained in.

FURTHER ACTIVITIES

The team then implemented the ideas to improve the situation, purchased some part an over the following weeks ensured that the situation was monitored to review the new changeovers. This included all the organisational activity, 5S of the area as well as using 2 operators when a change over was required. This didn't add any cost as the operators teamed up and helped each other. Other implemented improvements included pre heating the die, using standard die clamps, purchasing a digital thermometer to help reduce start up scrap as well as altering the sleeving and some other parts.

The team presented the project to the management team and the ideas were passed onto all the other machines in the company.

BENEFITS

Apart from educating and training the whole team in SMED and how to implement it the cross functional team delivered real bottom line savings. The intangible benefits included operators who were happier, less fire fighting and the ability when required to make smaller batches. Tangible benefits included: -

- Reduced change over time from 160 minutes to 27 minutes a 83% reduction which was then passed on to the other machines in the casting area.
- Reduced the distance travelled by operators by 91% saving time and increasing productivity.

It is difficult to show the savings in £ as the selling price was so variable and the company only wanted to review in terms of up time of the machine but as the machine was a bottle neck then capacity was increased substantially and therefore so was turnover.