



SJM Flex SA TPM EC Cluster Programme



"The most important facet for SJM is that TPM (Total Productive Maintenance) focuses on people and the operator in particular. It's an unselfish and empowers the people"

Craig Ehlers
Works Manager

Overview

Company: SJM Flex SA

Location: Cnr Newbolt & Haupt Street
Neave Township
Port Elizabeth 6001

Number of employees: 227

Core products & processes:
Flexible Exhaust Coupling

Programme period: January 2013 to December 2014

Company Background

SJM FLEX SA was established in South Africa in March 1997 by SJM CO Ltd, to supply flexible coupling to Ford on the C170. SJM FLEX SA is 100% owned by SJM Co Ltd of Korea, and the global company has over 36 years experience in the flexible coupling industry.

SJM FLEX SA started with 8 employees in 1997, and has grown over the years to a current staff complement of 227(2013) people, and of special note is that all initial 8 employees were trained in Korea. The company has 6 Assembly lines with capacity loading averaging 75%, with an annual volume of 4million components, the manufacturing facility occupies a space of 12 000 square meters. All equipment is manufactured by SJM Korea, giving SJM FLEX SA an advantage over the competitors, by reducing lead times in introducing new products to their customers.

Key Challenges Faced

- The contamination in the machine that is due to Swarf
- OEE(Overall Equipment Effectiveness) of less than 65%
- Lack of understanding of Total Productive Maintenance
- High number of Minor Stoppages and insufficient utilisation of Problem Solving techniques
- No proper programme to improve skill of Shop-floor personnel
- In-effective application of the Planned Maintenance Methodology

Goals

- Conduct Production study for model area to collect data on the inhibiting factors of production efficiency.
- Conduct a value stream map to gain in-depth understanding the production bottle necks.
- Train operators and management on 5s, Total Productive Maintenance, Jishu Hozen, 7 Quality Control Tools, Kubetsu Kaizen and WHY-WHY problem solving analysis. This will improve Production Associate involvement on TPM initiatives.
- Implementing Jishu Hozen(Autonomous Maintenance) and Kubetsu Kaizen(Focused Improvement) to restore equipment basic conditions.
- Implement TPM Master Timing Plan Board with Declaration Statement, TPM Policy and Annual KPI's.



SJM FLEX SA TPM Cluster Programme

Programme Journey

SJM FLEX SA expressed interest in the TPM Cluster Programme, due to the fact the TPM system involves and engages the production operators more and is driven by the people. The TPM Programme will assist in the improvement of SJM FLEX SA OEE, to achieve a state of Zero Defects, Zero Accidents and Zero Breakdowns. Training on TPM and application of the 8 Pillars of TPM is also imperial in aligning the shop floor worker's knowledge with the rest of the management structure on the basis of running a Breakdown and Defect Free enterprise. The TPM programme is focused on the following deliverables:

- OEE improvement from 60% to 95% in year three of the journey
- 100% Implementation Autonomous Maintenance Step 0-3 by end of 2013 on the Manager with 85% audit result from AIDCEC
- Zero Minor Stoppages on Manager Model Machine by end of 2013
- Zero Breakdowns on Manager Model Machine by end 2013
- Achieving Zero Swarf Contamination on Manager Model Machine
- Changeover analysis using the SMED concept, Quick Changeover System implementation by end 2013 on Model machine
- Training of 48 Production Personnel on Autonomous Maintenance Step0-3 in the Model Area
- Training all 4 Senior Managers and 5 production Supervisors' on the 6 Big Losses that impact OEE
- Horizontal Deployment to the whole factory 2014

In addition to the Autonomous Maintenance Pillar SJM is in the process of embarking on the Focussed Improvement Pillar in order to improve efficiency of model machines as well as reducing the defect rate at SJM. Activity boards have been developed in order to display and track the activities for Autonomous Maintenance and Focused improvement (See figure 1: TPM Master, AM & FI activity board).

Decanting parts (See figure 2:) was one of the major losses that were eliminated, which was channelled through the Focused Improvement small group activity, whereby the Ishikawa Diagram and the 5 Why Analysis where the key tools utilised to find the real root cause, which in this case was the poor workflow and double handling of the product, this was countered by introducing a bigger container to prevent walking and decanting **All these efforts resulted in a Total Saving for the year to date of R 286,807.41**



Figure 1 Works Manager Training operators on the relevance of TPM Master Board with TPM Daily activities

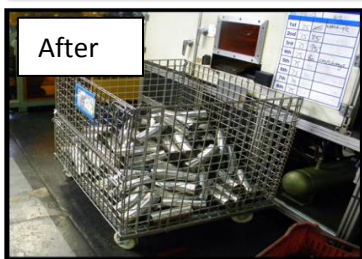


Figure 2 Decanting of parts which equated to wasteful walking by the operator in excess of 4450 hours

Case Study



SJM FLEX SA TPM Cluster Programme

Programme Master Plan



Figure 3: Operators received their certificates of training attendance.



Figure 4: The MD of SJM Flex SA leading the way during the TPM Clean Hour.

Item	Objective Description	Timeline												
		N	D	J	F	M	A	M	J	J	A	S	O	
1	TPM Cluster Kick-Off	█												
2	Initial Calibration – Setting up KPI's		█	█										
3	Subproject 1: Production Study on Forming Line 5, improve OEE to 70%	█	█	█	█									
4	Subproject 2: AM Step 1-2 implementation in the Model Area	█	█	█	█	█	█	█						
5	Subproject 3: AM Step 3 implementation in Model Area								█	█	█	█	█	█
6	Subproject 4: Focused Improvement Workshops				█	█	█			█				
7	Subproject 5: Training on AM Step 0-3, Activity Boards, 7 QC Tools, Why-Why Analysis Tool				█	█	█	█	█	█	█	█	█	█
8	Subproject 4: AM Step 3 Implementation and Horizontal deployment of AM Step 0-2												█	█

Benefits (KPI's)

KPI	Before	Target	After	% Improvement
OEE	57%	75%	86%	29%
Manpower Productivity	69ppo	90ppo	89ppo	20ppo
Breakdowns	17%	5%	3.5%	13.5%
Scrap	0.3%	0.25%	0.21%	0.09%



Figure 5: Works Manager training one of the operators on how to inspect flaws

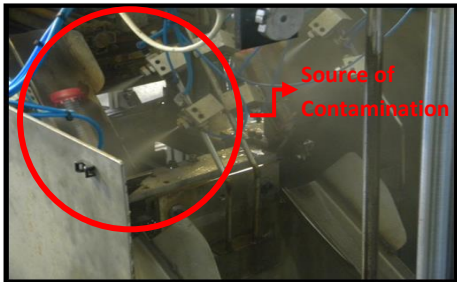
Case Study



SJM FLEX SA TPM Cluster Programme



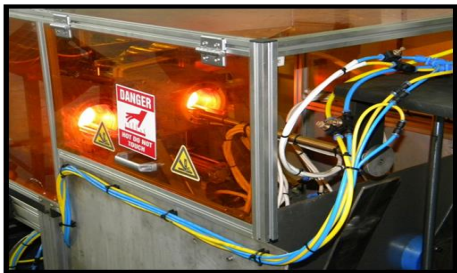
Before



Key Learning Points

The journey at SJM FLEX SA started out with the Works Manager doing a state of the nation address to all the employees in the plant with a brief background on TPM. This approach proved effective as it was evident by the number of employees who volunteered to take part in the TPM Model Area rollout. Full participation of all employees is important as it ensures that the gains made in the journey are preserved.

After



Sustainability

It is proposed that SJM FLEX SA should set up a TPM Promotion Office, by appointing on a full time basis a TPM facilitator that will spearhead the TPM projects. The TPM Facilitator will focus on deploying TPM horizontally across the whole organisation, with the support of Managers and Shift Leaders and conduct training and focused improvement workshops. This approach will ensure the company is consistent in applying TPM as its only means of survival in this globally competitive environment. SJM Flex is now in Step 4 of Autonomous Maintenance and is busy with the development of the Technical Training centre which will link with the Planned Maintenance Pillar of the TPM journey.

Before



Way Forward

SJM Flex will plan to horizontally deploy the TPM Programme to the rest of the factory focusing on Autonomous Maintenance Step 1 and 2. SJM is in the process of launching the Planned Maintenance pillar and is in the initial stages of capturing and analysing the raw data in order to determine downtime causes.

After



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