PathStone Group

OPTIMIZING CHANGEOVER TIMES

- Implementation of Quick Changeover methods (SMED).
- Reclaim Production Capacity.
- More consistent Production Schedule attainments.
- Improve teamwork among Supervision and Operators.

BACKGOUND

Wind Water Ltd* is a manufacturer of bottled spring water with a capacity of 420 bottles a minute and performs an average of 8 changeovers a week.

Companies regard setup times as one of the most expensive costs they have to face and look for the reduction of the number setups but is seldom possible in a flexible manufacturing model.

Single-Minute Exchange of Die (SMED) refers to the theory and techniques used for the reduction of equipment setup times.

THE SITUATION

The challenge was to introduce and get the production team involved in the definition and the goals to be achieved with the SMED project.

Several conversations took place with the operators involved in the as-is process. These discussions targeted the knowledge of the entire setup process, the sequence of the operations, the type of training, the development of skills and the quality assessment.

An assessment of the time spent in each of the setup phases made it possible to conclude that idle time resulted from the following situations:

- Lack of coordination among workers involved in the setup.
- Lack of fulfillment of the pre-established procedures for carrying out the setup.
- Water hoses, oil, electric material and die tools in poor conditions.
- Too much time in preparing dies and parts because of delays and blown motor clean up.

THE SOLUTION

The company wanted to deploy the SMED project following a learning-based approach and then to disseminate the SMED method to the other production lines.

The work performed at the company had the objective of improving the production system and we divided it into external and internal stages.

External Setup Operations	Time
Place the mold next to the machine	0:11:24
Separate molds	0:01:00
Prepare the eyes for the incoming mold and outgoing mold	0:01:00
Prepare the mix-injector jet and the ring in the tools car	0:00:40
Check up the final tuning	0:12:00
Prepare hoses	0:08:30
Forecasted time withdrawn from external setup	0:34:34

Internal Setup Operations	Time
Place bridge on the machine	0:09:30
Place the tools car near by the machine	0:01:00
Turn off the heating box of outgoing mold	0:01:00
Place the washers in the incoming mold	0:13:30
Forecasted time withdrawn from external setup	0:25:00

After implementing the SMED method, it is possible to defend that simple process-based innovations, as the separation of internal from external operations and the conversion of internal to external operations, are among the key drivers of productivity improvement.

THE SUCCESS

We reduced the changeover to 18 min, a 70% changeover reduction time.

The quick changeover method brought flexibility to production planning and improved teamwork.

We increased the capacity for this line to an additional 503,200 bottles a month, the equivalent of $403,000 of projected revenue.

* The company's identity has been disguised for the sake of privacy; however, the case study is genuine.