

The Application of Lean Management to Improve Productivity – A Case Study of Kinik Company

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Abstract

This study applies lean management approaches in grinding wheel production, such as value-stream mapping, quick changeover, and line balancing to decrease lead time, work-in-process, changeover time, and increase quality and productivity. Customer orders of grinding wheel products have the characteristics of low volume and wide variety while the production process is labor-intensive as well. Among all processes of grinding wheel production, the mixed process and burned process are the most time-consuming steps, any unexpected breakdown will significantly decrease available capacity and lead to bottleneck in production, which causes additional cost. By illustrating the As-Is model of value-stream mapping after collecting production system information and analyzing the current state of manufacturing production, we set the goal for improvement. After implementing capacity balance improvements and importing the quick changeover method, the To-Be model was developed to evaluate the improvement by reducing non-value-adding waste, including waiting, transportation and inventory. This research combines theory and practical applications, hoping to effectively improve grinding wheel production to increase production effectiveness and efficiency, therefore enhancing the competitiveness of the traditional manufacturing industry.

Keywords

Grinding Wheel, Lean Management, Value Stream Mapping, Quick Changeover, Line Balancing

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Biographies

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Thomas Hsieh is CEO of Kinik, an excellent and intelligent smart manufacturing and service center for grinding solutions located in Taiwan. He entered the Industrial Technology Research Institute after he received an M.S. in Department of Mechanical Engineering from Keio University, Japan in 1974. Prior to his current position, he was a team leader at Industrial Technology Research Institute and served as the General Manager of the two business divisions of Semiconductor material and Grinding wheel as the CEO since 2010 at KINIK Company. Thomas Hsieh was awarded the Outstanding Young Engineer in 1982 by the Chinese Society of Engineers and Outstanding General Manager Award by the Hsinchu City Enterprise Managers Association in 2011. He has been the chairman of Hsinchu City Enterprise Managers Association in 2018-2021.

Tony Pai is VP of Kinik Company, an excellent and intelligent smart manufacturing and service center for grinding solutions located in Taiwan. He is deputy spokesperson and has been the leader of company-wide lean production project since 2019. Prior to his current position, he worked for Taiwan Semiconductor Manufacturing Company (TSMC) as R&D integration engineer and technical manager during 2004-2013 and 2013-2017 respectively. He received a B.S. in Mechanical Engineering from National Central University (NCU), Taiwan in 1997, and M.S. in Material Science from The University of Southern California (USC), United States in 2004.

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