



Callaway Golf Ball Operations Chicopee, MA

ACHIEVEMENTS

Callaway Golf Ball Operations is located in Chicopee, MA. The Chicopee golf ball manufacturing plant employs approximately 600 employees in a multi-shift operation, and is the primary golf ball plant for Callaway, with a capability of producing in excess of 12 million dozen finished golf balls per year. Embracing and institutionalizing lean philosophies has resulted in Callaway Golf Ball Operations, Chicopee, becoming a profitable manufacturing center for Callaway Golf Corporation. Chicopee's continued emphasis on the identification and the elimination of waste has streamlined operations. Listed are just some of the positive results:

- Customer returns decreased by 84%
- 14% improvement in orders shipped on time and complete
- Scheduling points reduced from 13 to 2 through the use of a visual pull system
- Lean time for end to end production went from a typical 21 days to 5 days
- WIP inventory turns improved 65% from 2005
- Total inventory turns improved 26% from 2005
- Finished goods inventory was reduced by \$10,000,000
- Packaging inventory was reduced approximately 40%
- Potential loss from obsolescence of packaging is down by 50%
- Order lead times for Custom Ball improved 44%
- 33% of production space opened up as a direct result of lower WIP allowing other growth opportunities. One of those was the transfer of custom club to Chicopee from Carlsbad, CA (Callaway Golf Corporation's HQ)
- Custom ball customer service level went from 57% in 2006 to 92% in 2007, an increase of 38%
- Premium freight charges were reduced by 28%
- Employee grievances are down 42%
- All employees have received at least 12 hours of training in lean concepts and methods
- Accidents are down 23.5% resulting in a \$400,000 savings in workers compensation costs
- Incident Rate was reduced by 2.9%
- Achieved a 10.0 ton reduction in hazardous solid waste and a 141 ton reduction of non-hazardous solid waste
- Greenhouse gas emissions were reduced by 1,547 metric tons
- Average Product Cost was reduced by 8%
- Cost savings from waste identification and elimination was \$3,000,000 in 2006 and increased to \$9,300,000 in 2007
- Inventory accuracy went from 68% in 2006 to 99.7% in 2007, directly attributable to the visual pull system and inventory reduction
- Quality Levels are at 98.7%

None of this would have been possible if Golf Ball Operations had not adopted Lean philosophies and made the floor operators the focus of all activities.

VISION & STRATEGY

Keep golf ball manufacturing in Chicopee! The ultimate goal is to produce golf balls at a cost low enough to avoid any economic decision to relocate Chicopee products to other parts of the world. Lower production costs results in higher profitability for Callaway and therefore elimination of waste across the entire plant is paramount to keeping golf ball manufacturing in Chicopee. The traditional equation:

$$\text{Selling Price} = \text{Cost} + \text{Profit}$$



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is not focused on waste elimination and disregards the notion of what customers are willing to pay. Rearranging the equation to:

$$\text{Profit} = \text{Selling price} - \text{Costs}$$

forces us to rearrange our thinking so that we may be and remain competitive. In order to this, Callaway Golf Ball Operations embarked on a totally revolutionary method for scheduling and manufacturing its millions of golf balls: produce only those golf balls that were depleting from the finished goods warehouse. This was accomplished through the implementation of the following lean methods:

- 5S Workplace Organization
- Elimination of the 7 common operational wastes that traditionally plague manufacturing productivity
- Standardizing all forms of work
- Pull method planning and manufacturing of product
- Visual Control Systems
- Kanban Systems
- Value Stream Mapping to identify time consuming and non-value added activities that compromise the quality and productivity of our products and staff

EMPOWERMENT

With the help of GBMP, Inc., Callaway employees were introduced to the concept, principles, and techniques associated with Continuous Improvement as the means to change golf ball production. Today, the following qualities and behaviors govern the way we operate our business and empower our employees:

- Involvement in decision making

- Training and development in all of the lean methods mentioned above
- Idea generation and recognition
- Opinion surveys
- Kaizen events as well as support for spontaneous, on-the-spot improvements
- Union support and participation
- Performance reviews and feedback
- Communications meetings
- A multi-phased Safety Program

CONTINUOUS IMPROVEMENT DEPARTMENT & METHODS

Senior management recognized that full time resources were necessary to coordinate efforts throughout the plant and in 2007 a formal Continuous Improvement Department was established with a CI Manager and support staff. The 5S Audit System is the backbone for spreading the philosophy of reducing waste so managers conduct monthly 5S audits. Operations Scorecard and Management by Objectives meetings are also held monthly and a Communication Meeting takes place quarterly.

ABOUT CALLAWAY GOLF

Through an unwavering commitment to innovation, Callaway Golf Company (NYSE:ELY) creates products and services designed to make every golfer a better golfer. Callaway Golf Company manufactures and sells golf clubs and golf balls, and sells golf accessories, under the Callaway Golf(R), Odyssey(R), Top-Flite(R), and Ben Hogan(R) brands in more than 110 countries worldwide.

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