



Invacare takes back production to Sweden



Invacare Rea in Diö, Sweden, supplies wheelchairs, mainly for the European market but also outside Europe. Export represents 85% of the company's sales. Five years ago, a large part of the components was produced in Invacare's own workshop. The assembly was done in cells, where the builder mounted the whole wheelchair in a smart designed fixture which could be setup in different positions for best accessibility.

Awareness had arisen that improvements had to be made and Invacare's own time studies were no longer sufficient. Industrikonsult Solme Engineering AB was contracted to identify ways to make the production more efficient by utilizing the so-called NVA analysis (Non-Value-Adding activities) to identify the losses in the former production processes. In addition to the NVA analysis, assembly of two wheelchairs was filmed and analyzed using AviX. When the result of the analysis was presented, both management and staff realized that they had to make changes in the processes. The challenge became to keep the production in Diö.

Customer requirements;

It was understood that all changes must be based on customer requirements like short lead time, timely delivery, high quality and good function.

Delivery precision and high quality was considered most important since meeting these requirements gives a competitive advantage.

NVA analysis provides answers to the question: "Are we doing the right things?" It thus shows the activities that add or does not add value to the product. Considerable time was used to handle and transport materials. By changing the working methods and organization, Invacare managed to eliminate or reduce activities that were classified as "non-value-adding".

The AviX analyses of the assembly process revealed losses that emanated from the assembly in cells, where each product was assembled from start to finish by the same operator. Also much time was consumed in retrieving materials and handling materials and products.

Components are now supplied by sub-contractors, while design, procurement, assembly and delivery are still performed at Invacare in Diö. Technicians and workers have been trained in using AviX and they have filmed and analyzed the assembly work. New flows have been created where identified losses and poor ergonomics have been removed.

Assembly is performed in three lines in which six products are assembled. Each day's production is planned by two coordinators. Material including pre-assembled units are kitted for the planned production and each assembly station is provided with the right material. Pre-assembly is done using a two-box system and visual planning. The personnel changes between working on the line and the pre-assembly, which is beneficial for flexibility and reduces risk of injuries.

Results

Overall, the changes have led to a 20% productivity increase, required workshop area reduction of 25% and increased inventory turnover for components from 12 to 16 times per year. The lead time from order to delivery is reduced from 5 to 3 days and for certain markets to only 2 days. The new efficient method of production has led to increased volumes and a wheelchair, earlier lost to another factory in the group, has come back. Because of the increasing volume, the number of employees increased from 160 to 185, despite the outsourcing of components supply.



"The main advantage of AviX is the visual, i.e. the film that shows what happens and the colour codes that make it easy to identify losses and other things that do not add value," said Andreas Sjöstrand, Production engineering manager. Nowadays AviX is also the workers tool, they are filming and put, together with the technicians, the analyses together. Lately they have included the AviX 4 Balance with the new variant management which has led to further improvement of approximately 12-15%.