



Industrial Machine tools

Case study #2



POSALUX SA, is based in Biel-Bienne in Switzerland. They produce high precision manufacturing machines. Their technologies include Drilling and Routing, EDM, High Speed Milling, Grinding, Laser, and SACE (Spark Assisted Chemical Engraving). They are highly active in the Automotive, Watchmaking and Printed Circuit Board sectors. Their specialty is in precision micro machining with highly innovative solutions.

As an innovative, forward thinking, and socially responsible organization. Posalux were keen to work with the LCA-to-go consortium to explore the Life Cycle Assessment of one of their products. This was an opportunity to further develop their skills and knowledge in this area and also to get an understanding of the energy impact of their products.

The LCA work was carried out in collaboration with the ECODESIGN group at the Technical University of Vienna and CDAMC in Ireland. The Microfor EDM micro drilling machine was selected as the product to focus on. The outcome of the study highlighted that the Use phase was the most significant life cycle phase as shown in Figure 1.

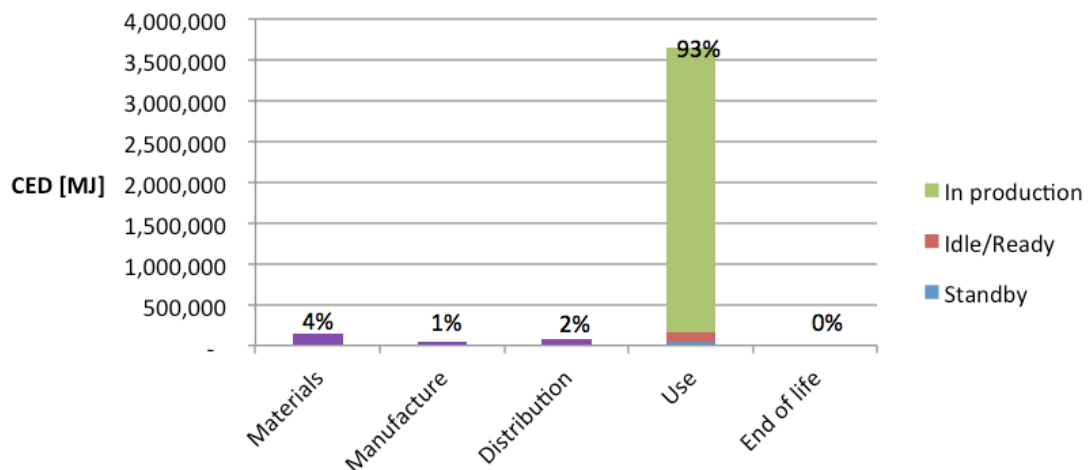


Figure 1 Cumulative Energy Demand over the entire life cycle of the machine tool.



Following a closer study of the use phase it became apparent that the electricity consumption and the compressed air usage of the machine tool had the most significant impact on the energy demand. Figure 2 highlights the energy impact of the electricity and compressed air consumption.

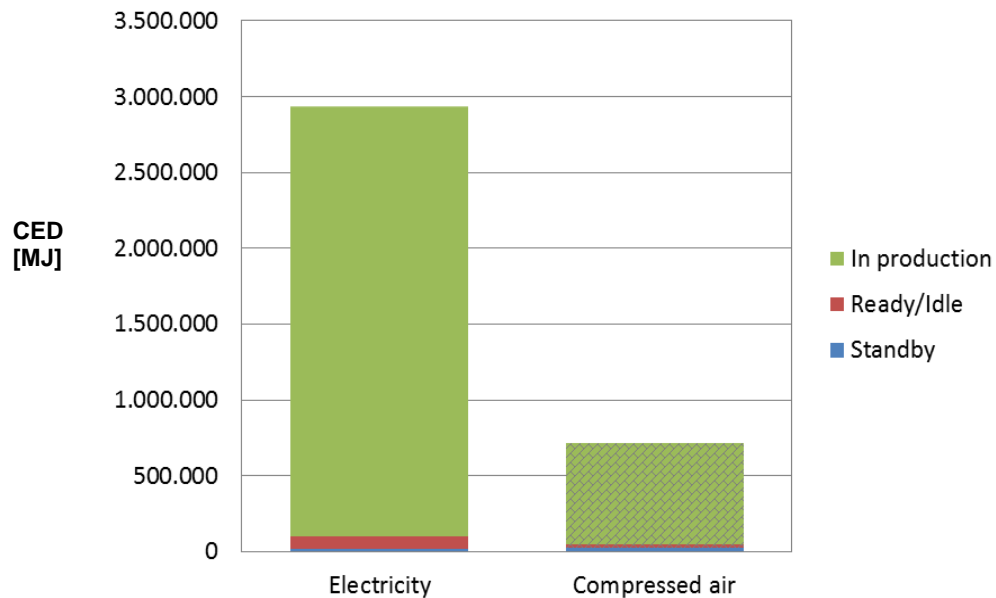


Figure 2 highlights the cumulative energy demand and the split between electricity and compressed air consumption of the machine tool.

Mr Philippe-Emanuel Grizeof Posalux said:

“Lca to go has been a very interesting approach to understand what will be a necessary development philosophy in machine design in the next years. Even if no official regulations are currently edicted about energy efficiency in the machine tool industry, every company is more and more careful regarding the environment and energy consumption, and this project was a real opportunity for Posalux to characterize one of its product.”

The recommended improvements output of the LCA to go tool, which is based on EN ISO14955, are a number of improvements focusing on the reduction of electricity and compressed air consumption, leading to a reduction of the cumulative energy demand (CED) of the machine tool.

Some suggested areas are: to investigate any energy losses in the power supply units used, to investigate the thermal management of the electrical control cabinet, to investigate the type of chiller used and how it is managed, to investigate alternatives to pneumatic control of components, etc.



Kontakt:

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