

## Industrial Machines

LMF - Leobersdorfer Maschinenfabrik GmbH



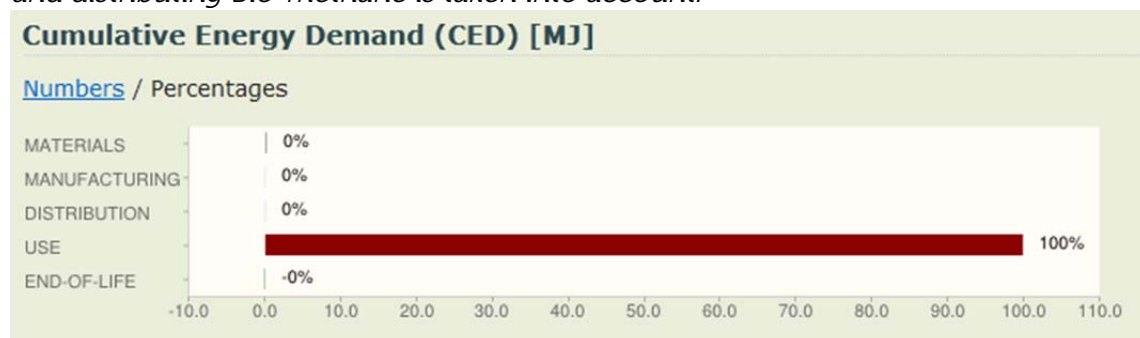
*LMF - Leobersdorfer Maschinenfabrik GmbH has been in the compressor business for over 60 years, producing high-pressure piston compressor systems for air, natural gas as well as technical and industrial gases (process gases) with a power range of up to 6200 kW and final pressures of up to 700 bar.*

*The company in Leobersdorf is currently engaged in the fulfilment of ISO 14000 and ISO 50001 and is therefore monitoring the energy consumption of their internal processes and setting up a continuous improvement process. Building on these ongoing efforts, Mr. Heumesser found the "LCA to go" product-oriented environmental focus very interesting.*

*A system designed for the compression of Bio-methane was analysed. The gas produced within a biogas plant has to be compressed from 4 bar to 25 bar before it can be inserted into the conventional gas grid. With an installed power of around 130kW the non-lubricated compressor system has a capacity of up to 400 m<sup>3</sup>/h..*

*The result of the environmental analyses showed that the energy consumption needed for the motor in the use phase is dominant (Figure 1.). Surprisingly the use phase was responsible for nearly 100% of the total environmental impact over the full product life cycle. The materials, manufacture and distribution of the 7 tonne product account for less than 1% of the total environmental impact of the compressor over its lifetime.*

*From an environmental perspective, the energy consumption of the compression system is of principal importance, especially if the whole process of producing and distributing Bio-methane is taken into account.*



*Figure 1. Cumulative Energy Demand of the Bio-methane compression systems.*

*This result clearly identifies the environmental hot spot and defines where to concentrate R&D projects. Mr. Heumesser and his team intend to build on this first experience with the tool and will continue to use the LCA to go tool to analyse different products.*

*Improving the energy efficiency in the conditioning for distribution of Biogas will improve the environmental performance of Biogas at the consumer and helps to foster the profitability of Biogas plants as a whole. There is also a high probability that new findings / developments from such an R&D project can be integrated in the whole product portfolio of LMF used in plastics, nutrition and chemical industry.*

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