

LIFE CYCLE ASSESSMENT AND CIRCULAR ECONOMY 🗘



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LIFE CYCLE ASSESSMENT

BORG Automotive started on a circular business model more than 40 years ago, long before sustainability and environmental footprint were on the agenda. There has always been a desire to responsibly reuse available resources and extend the lifespan of automotive parts, while ensuring a short delivery time. All production leaves a footprint, and we have always believed that remanufactured products leave a smaller footprint than newly produced spare parts.

• THERE HAS ALWAYS BEEN A DESIRE TO RESPONSIBLY REUSE AVAILABLE RESOURCES

With our LCA's, we now have concrete figures, that show the difference between the environmental footprint of a remanufactured product compared to the footprint of a similar newly manufactured product.





WHAT IS LIFE CYCLE ASSESSMENT?

Life cycle assessment (LCA) is a standardised and widely used method for evaluating the environmental impact of a product or service. It includes the whole life cycle, from extracting raw material, material production, product manufacturing, and product use to end-of-life treatment. With this approach, an LCA can expose what stage, process, or material causes the main environmental impact.

WHAT HAS BEEN ANALYSED?

All eight product groups have had their environmental impact assessed in individual LCAs focusing on three environmental impacts: Global warming (CO2eq emissions), energy consumption (MJ) and depletion of natural resources (Sb-eq), also known as depletion of abiotic resources. The environmental impact has been assessed throughout the entire life cycle of the product. This means from the extraction of raw materials, to the processing of components, to transport and distribution, the in-service phase*, as well as the disposal after the product has reached the end of its lifetime.

WHO DID OUR LIFE CYCLE ASSESMENT?

Linköping University has prepared the life cycle assessments based on ISO 14040 and 14044. Afterwards, the LCAs, including methodology, data and interpretations, have been critically reviewed by the independent third party SustainX. All LCAs have an approved LCA statement, with the exception of the panel review requirement in ISO 14044.

*Use phase is excluded in this LCA as it is assumed that the environmental impact of the use phase is the same for both remanufactured and newly produced products.



LIFE CYCLE ASSESSMENT FOR AC COMPRESSORS

A remanufactured **AC compressor** from BORG Automotive saves the environment 76% CO₂eq, 72% energy, and 84% of the new materials compared to a newly manufactured AC compressor.





LIFE CYCLE ASSESSMENT FOR BRAKE CALIPERS

A remanufactured **brake caliper** from BORG Automotive saves the environment 56% CO₂eq, 55% energy, and 70% of the new materials compared to a newly manufactured brake caliper.





LIFE CYCLE ASSESSMENT FOR ALTERNATORS

A remanufactured **alternator** from BORG Automotive saves the environment 82% CO₂eq, 79% energy, and 91% of the new materials compared to a newly manufactured alternator.





LIFE CYCLE ASSESSMENT FOR EGR VALVES

A remanufactured **EGR valve** from BORG Automotive saves the environment 57% CO₂eq, 46% energy, and more than 99% of the new materials compared to a newly manufactured EGR valve.





LIFE CYCLE ASSESSMENT FOR STEERING RACKS

A remanufactured **steering rack** from BORG Automotive saves the environment 78% CO2eq, 62% energy, and 96% of the new materials compared to a newly manufactured steering rack.





LIFE CYCLE ASSESSMENT FOR STEERING PUMPS

A remanufactured **steering pump** from BORG Automotive saves the environment 22% CO2eq and 94% of the new materials compared to a newly manufactured steering pump despite the 49% higher energy consumption*.



*The increased energy consumption is mainly due to the fact that the production process is only included for reman, as the data is not available for newly manufactured.



LIFE CYCLE ASSESSMENT FOR STARTERS

A remanufactured **starter** from BORG Automotive saves the environment 77% CO_2eq , 80% energy, and 95% of the new materials compared to a newly manufactured steering rack.





LIFE CYCLE ASSESSMENT FOR TURBOCHARGERS

A remanufactured **turbocharger** from BORG Automotive saves the environment 32% CO2eq and 55% of the new materials compared to a newly manufactured turbocharger despite the 7% higher energy consumption*.



*The increased energy consumption is mainly due to the fact that the production process is only included for reman, as the data is not available for newly manufactured.



> PART OF A CIRCULAR ECONOMY

Remanufacturing is a significant contributor to a circular economy, where as much material as possible is given new life and as little as possible goes to waste.

AS MUCH MATERIAL AS POSSIBLE IS GIVEN NEW LIFE, AND AS LITTLE AS POSSIBLE GOES TO WASTE

WHAT IS A CIRCULAR ECONOMY?

In a circular economy, resources are used and reused in a loop rather than being extracted, used, and then discarded. This approach gives a more efficient and effective use of available resources, retains a resource's value for as long as possible, and generates less waste than the "take-make-usedispose" models that are part of a linear economy.

HOW ARE WE CIRCULAR?

Our products are part of a loop, and our business model ensures an extended lifecycle of automotive parts. This maximises the lifetime of products, thus reducing waste and negative impact on the environment.

THE CIRCULAR PROCESS









THE MOST IMPORTANT PART IS YOU