

Statement:

Industrial Hydraulics has

significant potential for

reducing CO₂ emissions



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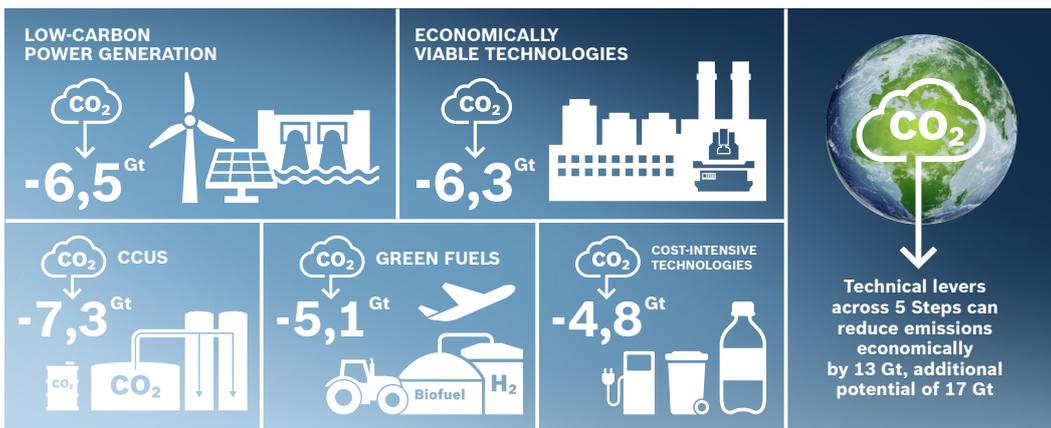
Climate change is one of the greatest challenges of our time. More than ever before, industrial companies need to develop solutions for reducing CO₂ emissions on a permanent basis. According to a study carried out by the Boston Consulting Group and the VDMA, industrial CO₂ emissions must be reduced by 30 gigatons by 2050 in order to meet the demands of the Paris climate agreement.

” Machine manufacturers and system operators play a central role here. Through their ability to make production systems more efficient, they hold the keys to reducing industrial CO₂ emissions in their hands. “



Guido Hettwer
Senior Vice President
Industrial Hydraulics

With the economical technologies that are already available, emissions could be reduced by 13 gigatons until 2030 and thus by 25 percent compared to the previous record level reached in 2020.



If hydraulic systems can be made more sustainable and, at the same time, economical, industrial hydraulics offers significant potential for achieving these targets. It uses three levers here: greater energy efficiency, reduced fluid consumption and the optimized use of resources.

Energy and economic efficiency can be increased considerably by optimizing systems during the engineering phase with the help of simulation and software tools. However, significant potential also lies in the way that hydraulically driven movements are controlled. Displacement drives are becoming increasingly popular – not only in new machines but also as a way of optimizing the energy consumption of existing machines. In certain applications, it is also possible to save electricity from the grid by using stored braking energy.

The second lever aims to save fluid. With the help of simulation systems, Bosch Rexroth designs units with optimized flow and degassing for new and existing systems. These produce the same power output but with much smaller tanks and with much less hydraulic oil.

The third lever focuses on minimizing the use of materials. With the help of additive manufacturing procedures, Bosch Rexroth produces innovative geometries for flow-optimized manifolds and valves which allow not only downsizing but also higher levels of efficiency.

If hydraulic systems are to become more sustainable and at the same time more economical, the manufacturers can achieve this with the following three levers: less energy, less fluid and less material.

LESS ENERGY	LESS FLUID	LESS MATERIAL
<p>Less energy through optimization of systems in the development phase, variable-speed pump drives and kinetic buffering</p>  <p>Less power consumption Less operating costs Less CO₂ emissions</p>	<p>Reduction of the tank volume for power units at the same performance</p>  <p>Lower insurance costs Less costs for fluid Less consumption of fluid</p>	<p>Additive manufacturing methods</p>  <p>High efficiency factor Less installation space Less cost</p>

All these solutions are now part of our offering. For example, variable-speed drives provide the necessary power exactly where it is needed and switch to stand-by mode in idle phases. Depending on the cycle characteristics, users can achieve energy savings of up to 80 percent. We also use the variable-speed drives for our highly compact servo-hydraulic axes and for our intelligent hydraulic power units.

We support the competitiveness of our customers with future-proof solutions. Our decades of experience within the sector helps us to calculate energy savings for specific cycles and thus show users exactly how much money they could save. We also provide information about suitable subsidies which speed up the return on investment.