



(v.l.) Dr Steffen Haack, Bosch Rexroth, Chairman of the Board of VDMA Fluid Power; Jörn Dürer, Consultant Fluid Power, Technology and Standardisation, Hydraulics, European Directives (VDMA); Christian Kienzle, Argo-Hytos, CETOP Vice President Marketing and Communication

## INDUSTRIAL TRANSFORMATION IN FLUID POWER

# „AFTER ALL, PRODUCTIVITY AND RESOURCE CONSERVATION ARE WHAT REALLY MATTER“

On the fringes of the Hannover Messe, Dr. Steffen Haack, Bosch Rexroth, as Chairman of the Board of the Fluid Power Association in the VDMA, and Christian Kienzle, Argo-Hytos, as Vice President Marketing and Communication of the European umbrella organisation CETOP, spoke about the challenges facing the fluid power industry. Sustainability, digitalisation and also the shortage of skilled workers were the topics discussed. In all these areas, VDMA and CETOP want to support the companies in the industry to the best of their ability.

**„Industrial Transformation starts here“ was the motto of the Hannover Messe. Are we in the pole position of industrial transformation processes?**

**Dr. Steffen Haack:** Industrial transformation refers above all to digitalisation and the topic of sustainability. Fluid power is very active in both fields. In the case of digitalisation, we are concerned with both the products and the processes. Keywords are, for example, the digital twins and the asset administration shell according to the RAMI model, but also the standardised exchange of data throughout the entire product life cycle. The necessary standards are being developed by VDMA working groups and then submitted to international standardisation. A practical example of this is shown by a demonstrator on the VDMA stand here at the Hannover Messe.

**Herr Kienzle, what aspects of sustainability are particularly in focus in fluid power?**

**Christian Kienzle:** Energy efficiency is a significant aspect; fluid power, like other technologies, consumes energy, especially in the use phase. This is where several of the examples listed in the CETOP publication „European Fluid Power - Efficient, Sustainable and Digitised“ come in. Energy efficiency is achieved when energy is provided according to demand: Energy on demand.

Electrohydraulic and digitised hydraulic drives offer great potential for energy savings. Leak-free hose couplings prevent contamination of soil and water. We expect politicians to be open to technology and not dogmatic. A current example are the efforts to restrict or ban the 10,000 substances in the PFAS group, which includes sealing materials such as PTFE and FKM used in fluid power.

This group of substances includes substances of concern as well as less hazardous substances. PFASs, which are referred to as eternal chemicals, have in common that they do not degrade. For PFASs, we do not see any currently available alternatives for many applications that offer the media resistance and the tribological and high-temperature properties (above 140 °C). In contrast to the use of PFAS substances in ski wax or fire-fighting foam, which are released directly into the environment, in fluid power they are used in closed systems - which makes contamination of the environment less likely. The VDMA calls for an exception for „industrial use for polymers of low concern“. Fluid power has always been able to score points with service life. With the increased use of electronic components in fluid power that contain higher-value materials such as rare earths, the aspect of circular economy is becoming more important. Cooperation with the customer industries that have direct contact with the end user is essential here. On the other hand, there is the production of fluid power products. Of course, energy consumption and the CO<sub>2</sub> footprint of fluid power are also part of the sustainability issue.

**The CO<sub>2</sub>-footprint or Product Carbon Footprint (PCF)... Where does fluid power stand as an industry in the determination of PCF values and what is the concrete status in the companies in this regard?**

**Dr. Steffen Haack:** The PCF value refers to the product itself. In the companies, PCF values have been determined manually and very laboriously according to the currently valid calculation bases. Now it is a question of making the values available for all hydraulic products. Due to the large number of products, our companies will certainly reach their limits if the calculation is carried out manually. We are now going the way of a mass-suited, automated PCF determination via the parts list of each product. We are checking whether the errors that arise in the process are justifiable due to various assumptions. Nevertheless, we know that more than 90 per cent of CO<sub>2</sub> emissions occur in the use phase of our products. Here we still lack uniform calculation bases, which the industry would like to develop together with RWTH Aachen.



## CETOP – EUROPEAN FLUID POWER

CETOP is the European umbrella organisation for fluid power. Its members include associations from Spain, Italy, Switzerland and Turkey. Through its 19 member associations in total, all the well-known companies, leading manufacturers and many small and medium-sized enterprises in Europe are represented in CETOP. CETOP thus represents a market value of around 15 billion euros.



**What levers do hydraulics manufacturers, for example, have in their hands to improve the footprint of machine builders? And does the digital transformation play into our hands?**

**Dr. Steffen Haack:** The main lever for hydraulic manufacturers is efficiency. We must first distinguish between the efficiency of the component and the efficiency at system level. In the case of the component, improvements are certainly still possible even after decades of development work, but I myself no longer expect any great leaps with today's overall efficiencies of up to 96 % for axial piston pumps. The decisive factor is the use of electronics, software and data. In this way, great improvements are still possible, as various manufacturers are showing.

**The new CETOP publication shows solutions that are energy-efficient and sustainable. Do the potentials reach the customers?**

**Christian Kienzle:** Yes, the examples shown are marketable products and are offered to our customers.

**How do you intend to establish such sustainable fluid power solutions on the market and what properties will these sustainable fluid power products bring with them in the future?**

**Dr. Steffen Haack:** It is not only important to work with the machine builders, but also with the operators of the machines. For them, two things count in the end: productivity and resource conservation. It will be crucial to bring the different players together. These include the machine builders, the end customers, the universities and the companies in the hydraulics sector. To this end, there are already some concrete overarching projects, led by the universities in Aachen, Karlsruhe and soon also in Dresden. Very briefly, let's talk about the desired characteristics: good operability, high robustness, small installation space, low noise emissions and improved efficiency.

**Good usability is at the top of this list – why?**

**Christian Kienzle:** One challenge for industry and society as a whole is demographic change and the associated shortage of skilled workers. The problem of young talent particularly affects fluid power due to the difficult training situation. Easy commissioning and good operability of machines and components can therefore be very valuable for companies.

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