



# New types of lubricant

## VDW searching for ways to protect plastics in machines

Since the EU Reach chemicals regulation (EC 1907/2006) came into force, a whole series of environmentally harmful biocides has disappeared from cooling lubricants. This is good news, but it is now gradually becoming apparent that, while containing fewer biocides, the new emulsions are seemingly less compatible with hard plastics and elastomers. Seals and other components made of these materials are less resistant to the new coolants than to previous formulations. 'Our companies are reporting increasing problems here. And so we have launched various initiatives,' reports Torsten Bell, a member of the Technology and Research Department at VDW (Verband Deutscher Werkzeugmaschinenfabriken e. V. – German Machine Tool Builders' Association).



### Buckling seals

Since the Reach Regulation came into force, biocides which had commonly been used in the past have now disappeared from the market. 'Only a dozen or so are now allowed,' says Bell. 'The industry is therefore looking for alternative ways to keep the microorganisms in check, especially in aqueous lubricants. Emulsions with alkaline pH values are frequently used, for example. However, this can have an effect on the polymer materials commonly used in machine tools.'

According to Bell, seals and O-rings, hoses, wipers, toothed or other drive belts and even polycarbonate protective screens (such as those used in cutting machines) are particularly affected.

Buckling is often observed, for example, in linear seals on roller blinds and other kinematic coverings. The seals in glass scales, which are used to measure the travel distances, can also fail. As a result, the scales become dirty and can no longer measure accurately. Another problem, according to Bell, is improper handling of the cooling lubricant. 'If, for example, a machine which is being used with an emulsion heats up during operation, some of the water will then evaporate. This and other ingredients in the emulsion must be regularly readjusted. In one case we heard of, this was presumably

not being done and the proportion of oil in the lubricant became more concentrated – rising from seven to 20 per cent. There were significant adhesions and deposits in the machine and the seals and toothed belts failed after very short periods of time.'

### Threat of long downtimes

Considerable damage can result. After all, it is not always a single seal which needs to be replaced: multiple seals and other machine components such as cables may also be affected. The machine itself, in the worst case, the entire production can be brought to a standstill until they have all been replaced. In addition, there is a risk of defective seals damaging other machine parts, such as the machine spindle.

The failures can usually be prevented by switching to other materials: to FKM instead of NBR, for example. 'With standard components such as O-rings, good results can also be achieved by using alternative materials,' says Bell. However, the mechanical and other technical properties also need to meet the requirements. Furthermore, FKM, for example, is much more expensive than polyurethane (PU) which is otherwise commonly used. This is why some components made of certain materials are not even sold on the mass market.



### A standard for cooling lubricant compatibility

But how can plastic resistance to cooling lubricants be ensured? 'Many lubricant suppliers are not prepared to guarantee the universal stability of their coolants. Using different materials in the machines for each individual project is, however, too costly for machine tool manufacturers. Guidelines would therefore be helpful. Cooling lubricant manufacturers, for example, could authorise the use of their media with certain plastics. 'It would be even better if manufacturers of components such as seals were to authorise their products for use with cooling lubricants in general or for certain CL classes,' suggests Bell.

For this reason, the VDW supports the use of immersion tests for certain coolant classes initiated by the Verband der Schmierstoffindustrie (VSI – German Lubricant Industry Association). The VSI has defined a series of sample coolants which can be used for testing the CL stability of plastics. These can be obtained from the VSI members. 'These sample coolant lubricants will serve as the basis of an eventual standard, which is now to be tackled as the next step,' explains Bell. Machine tool manufacturers as well as component and coolant manufacturers would then have a set of regulations at their disposal that confirms the stability of plastics in use with the more environmentally friendly lubricants.

### Focus on elastomers and hard plastics

However, this is only one of three steps being taken by the VDW. With regard to elastomers, more is needed than purely static exposure in the form of immersion tests. The Deutsche Wissenschaftliche Gesellschaft für Erdöl, Erdgas und Kohle e. V. (DGMK – German Society for Petroleum and Coal Science and Technology) and VDW-Forschungsinstitut e. V.

have initiated a research project that is being carried out by the Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University and the Institute of Machine Components (IMA) of the University of Stuttgart. The project is being supervised by VDW's Working Group 5 'Machine Tool Design'. The aims are to obtain a better understanding of the interactions between the elastomers used in machine tools and cooling lubricants, and to develop a rapid test for the elastomer compatibility of coolants. The researchers have selected three exemplary elastomer components for this purpose: radial shaft seals, O-rings and coolant hoses.

Finally, a project financed from VDW funds has been running for a year at the Institute for Machine Tools and Factory Operation (IWF) at TU Berlin. The focus of this project is on the stability of polycarbonate guards in contact with the new lubricants. Tests are currently underway to determine the extent to which polycarbonate panels can withstand contact with coolant lubricants. Of practical interest here are flat viewing panels, but also cold or hot-formed curved panels. 'Due to their curvature, these cannot be protected from CL contact by a safety glass panel in the working area,' explains Bell. 'Protection is therefore more complex, for example in the form of a durable coating. The trials determine the retention capacity of artificially aged polycarbonate in impact tests, for example.' The VDW expects the results of these trials to be available by 2021.

The German machine tool industry ranks among the five largest specialist groupings in the mechanical engineering sector. It provides production technology for metalworking applications in all branches of industry, and makes a crucial contribution towards innovation and enhanced productivity in the industrial sector as a whole. Due to its absolute key role for industrial production, its development is an important indicator for the economic dynamism of the industrial sector as such. In 2018, with around 73,500 employees (annual average in 2018, companies with more than 50 employees), the sector produced machines and services worth 17.1 billion euros.

# Acquisition of commsoft oases

## Valsoft enters the aviation vertical



**Valsoft Corporation Inc. ('Valsoft'), a Montreal-based company specializing in the acquisition and development of vertical market software businesses, is pleased to announce the acquisition of Communications Software (Airline Systems) Limited (Commsoft OASES), a leader in the aviation engineering and maintenance software market, based in Tiptree, UK.**

Founded as a software house in 1971, Communications Software (Airline Systems) Limited won its first airline contract in 1975 with industry innovator Laker Airways in the UK, leading to the launch of the predecessor to OASES (Open Aviation Strategic Engineering System) the following year. Since its first association with the airline industry over 40 years ago, Commsoft has been continually developing its MRO IT system, now called OASES – a process that has been shaped in large part by feedback from its clients.

Gary Pollak, James Stock, David Pusey and Nick Godwin are extremely proud of the company they, along with their employees, have built and are optimistic about the company's future. 'In Valsoft, we have found a cultural fit and an entrepreneurial team that we confidently believe will be able to help Commsoft continue to grow and

evolve. We are confident our customers are in good hands, benefiting from a team of dedicated, passionate aviation professionals, and the backing of a larger software organization', said Gary Pollak.

The directors will remain involved to ensure a smooth transition, while Nick Godwin, will continue to lead the company as Managing Director. The company will continue to develop and support OASES, as well as all other products and services, providing a robust software solution to customers.

'This acquisition is a milestone in Valsoft's growth. We are entering a new and exciting vertical, with a business that has a long history of providing high-quality mission-critical solutions. We plan to invest tens of millions in the aviation software space through additional acquisitions and the development of complementary technologies. As such,

this will further build on Commsoft's reputation of customer success. We welcome the Commsoft team, clients and partners to our family and look forward to years of prosperous growth', said Stephane Manos, Head of M&A and Co-Founder of Valsoft. 'We will do our utmost to ensure that the directors' legacy thrives and that customers continue to benefit from world class products and support'.

Communications Software's OASES (Open Aviation Strategic Engineering System) is amongst the most successful aviation engineering and maintenance systems in the world. With over 130 aviation customers supported in over 55 countries and 6 continents, including national carriers, 3rd party maintainers, regional carriers, leasing companies, cargo specialists, charter operators and specialist rotatable stockists, based in the USA, Europe, The Middle East, Asia, Africa and Australasia, we have a very broad experience of all areas of aviation maintenance support.

Valsoft Corporation acquires and develops vertical market software companies, enabling each business to deliver the best mission-

critical solutions for customers in their respective industry or niche. A key tenet of Valsoft's philosophy is to invest in well-established businesses and foster an entrepreneurial environment that molds a company into a leader in its respective industry. On average, companies acquired by Valsoft have experienced growth north of 25% in the 18 months post-acquisition, all the while benefitting from a steady improvement of customer satisfaction (as measured by the Net Promoter Score). Unlike Private Equity and VC firms, Valsoft does not have a pre-defined investment horizon and looks to buy, hold and create value through long-term partnerships with existing management.

Valsoft Corporation was represented internally by David Felcissimo, General Counsel & Aude Florin, Legal Counsel, and by Russell Shear and Christophe Robert of Edwin Coe LLP. HSKS Greenhalgh acted as the exclusive corporate finance advisor to the selling shareholders of Commsoft OASES on this transaction. The selling shareholders of Commsoft OASES were represented by Martyn Brierly and William Bowler of Flint Bishop LLP.

# DIMDEX 2020

## High demand for exhibition space

**Set to be bigger and more diverse than ever before, the seventh edition of the Doha International Maritime Defence Exhibition & Conference (DIMDEX 2020) will take place from 16 to 18 March 2020. With less than one year to go until key decision makers from the maritime defence and security industry meet in Qatar once again, DIMDEX organisers say that demand for exhibition space is high and have already received requests for bookings for the upcoming edition.**



Held under the patronage of His Highness the Emir of the State of Qatar, Sheikh Tamim bin Hamad Al-Thani, and proudly hosted and organised by Qatar Armed Forces, DIMDEX has grown each year since its launch in 2008 and is now internationally recognised as a platform for businesses from the global defence industry to showcase their latest technologies to government entities and industry peers to form new partnerships.

Focused on 'Connecting the World's Maritime Defence and Security Community', DIMDEX 2020 will bring together the latest innovations and solutions under one roof. Participants will have access to an established delegation management system that offers a business matching service between the official VIP delegations and DIMDEX exhibitors. Thought leaders from around the globe will be sharing their expertise at the Middle East Naval Commanders Conference (MENC) and several international navies will display their warships at Hamad Port.

Strongly supported by His Excellency, Deputy Prime Minister

and Minister of State for Defence Affairs, Dr Khalid bin Mohamed Al-Attiyah, and the attendance of other Qatari military officials and government representatives, DIMDEX 2020 will continue to offer unprecedented opportunities to its participants. DIMDEX has a proven track record of delivering commercial opportunities for members of the maritime defence and security community. In 2018, it attracted 13,000 visitors from 69 countries and witnessed the signing of more than 35 agreements, partnerships, and memorandums of understanding.

With less than one year to go until DIMDEX 2020, a new report by the Stockholm International Peace Research Institute (SIPRI) shows that Qatar is ranked one of the top importers of major arms in the region. In addition, global defence spending – which reached a record of USD 1.78 trillion in 2018 – is expected to grow by 2% per year from 2019 to 2023 according to Jane's Defence Budget.

In this context, DIMDEX 2020 is expected to attract record numbers of exhibitors than in previous years. Organisers say that a diverse range of prime suppliers and manufacturers are requesting to book space, among

which are new exhibitors in growing areas of the defence industry like cybersecurity and artificial intelligence, adding to the range of products and technologies that will be showcased.

Staff Brigadier (Sea) Abdulbaqi S. Al-Ansari, Chairman of DIMDEX, said: 'The seventh edition of DIMDEX is set to be one of the most exciting to date and we are seeing high levels of interest from a wider range of industry players. It will provide an opportunity for key decision makers to learn about the latest industry trends and technologies, as nations continue to invest in their militaries to maintain stability and security. At DIMDEX 2020, I expect to see many new developments in the cybersecurity field, which is an emerging technology in the defence industry and an essential part of the defence ecosystem.'

'Growing each year since its inception, DIMDEX has become a firm fixture in the maritime defence and security industry calendar and I look forward to welcoming delegates to Doha next year. Besides meeting with previous edition's exhibitors, I hope to see many new participants from a larger number of countries as DIMDEX

widens its offering and expands into new areas.'

DIMDEX 2020 will serve as a platform for businesses to network with high-level defence industry stakeholders not only from Qatar but across the globe. Qatar's increase in military spending to record levels is likely to act as a draw for deal-makers looking for new opportunities in the region.

Staff Brigadier (Sea) Abdulbaqi S. Al-Ansari concluded: 'I very much look forward to this landmark event, which promises to deliver an outstanding experience for all.'

The Doha International Maritime Defence Exhibition and Conference (DIMDEX) will be held from 16 to 18 March 2020, under the patronage of HH Sheikh Tamim Bin Hamad Al Thani, Emir of the State of Qatar, and proudly hosted and organised by Qatar Armed Forces.

Now in its seventh edition, DIMDEX will 'Connect the World's Maritime Defence and Security Community' by providing limitless opportunities for exhibitors and visitors.

In addition to the main exhibition that will showcase the latest products and technologies, DIMDEX hosts the Middle East Naval Commanders Conference (MENC), a highlight of each edition that attracts thought leaders from around the world to discuss the latest geopolitical trends related to maritime defence and security. It will also feature the popular visiting warship display at the state-of-the-art, Hamad Port, and the participation of key decision makers represented by VIP delegations.

DIMDEX 2020 will follow a series of successful editions, after it became one of the must-attend events on the international calendar of defence and security industry.

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- ▶ The 1st China Civil Aviation Technology Equipment and Service Expo

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